

National Park Service
U.S. Department of the Interior



Katmai National Park and Preserve, Alaska

Brooks River Visitor Access Environmental Impact Statement April 2013

Record of Decision

Recommended: *Diane Chung* *4/18/13*
Superintendent, Katmai National Park and Preserve Date

Approved: *Ann E. Massee* *4/22/13*
Regional Director, Alaska Date

**UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE**

RECORD OF DECISION

BROOKS RIVER VISITOR ACCESS ENVIRONMENTAL IMPACT STATEMENT

**Katmai National Park and Preserve
Alaska**

INTRODUCTION

This Record of Decision (ROD) documents the approval of projects to improve visitor access and resource protection at the Brooks River area of Katmai National Park and Preserve. Construction of a new barge landing area and elevated bridge and boardwalks will improve visitor and employee safety by reducing the risk of human-bear conflicts; provide safe and dependable access for the phased relocation of facilities and park concession operations; protect and enhance key park resources in the Brooks River area, including brown (grizzly) bears, salmon and trout, and cultural resources; improve visitor experience in the area; and connect infrastructure utilities between the Valley Road Administrative Area and the north side of Brooks River. This proposal amends portions of the 1996 *Brooks River Area—Final Development Concept Plan and Environmental Impact Statement* (1996 DCP) relating to visitor and employee access at the Brooks River area.

This ROD has been prepared by the National Park Service (NPS) pursuant to the National Environmental Policy Act of 1969 and 40 CFR 1505.2. This document details the background of the project, the decision made (selected alternative), other alternatives considered, the basis for the decision, the environmentally preferable alternative, measures adopted to minimize environmental harm, and public involvement in the decision-making process.

BACKGROUND OF THE PROJECT

The Brooks River Visitor Access proposal implements and amends the general direction established in the 1996 DCP regarding access to the Brooks River area. The 1996 DCP proposed to remove all facilities north of the river and relocate them on a larger scale to the terrace above Beaver Pond, south of the Brooks River.

The 1996 DCP approved a floatplane and boat dock and breakwater on Naknek Lake south of the Brooks River mouth. The 1996 DCP also approved a new road and shuttle bus system to move visitors from the dock to Beaver Pond Terrace (on the south side where the lodge would move). With access to the area moved to the new dock south of the Brooks River, the 1996 DCP envisioned eliminating the bridge and making the north side a “people free zone.” The 1996 plan also envisioned relocating the barge landing operations from the river mouth.

Pursuant to the 1996 DCP, a replacement maintenance facility, utilities and infrastructure for replacement housing have been constructed in the Valley Road Administrative Area to the south of the Brooks River. The park is seeking funding to construct housing in the new Administrative Area.

Currently, visitor facilities, NPS facilities, and floatplane access occur on both sides of the 1-mile long Brooks River, which drains from Lake Brooks to Naknek Lake. Depending on the wind direction, floatplanes taxi to the beach either to the north of Brooks River on Naknek Lake or to the south of the river on Lake Brooks. The concession-run visitor lodging facilities (Brooks Camp) and the NPS campground, visitor center, and some other visitor NPS facilities are located on the north side of the river, including the ranger contact station and most employee housing. Two key visitor activities, bear viewing at the Brooks River platforms and the Valley of 10,000 Smokes bus tour, occur on the south side of the river. NPS maintenance facilities and some NPS employee housing are located to the south side of the river, where utilities systems and replacement concessioner and NPS employee housing are to be constructed.

Yearly installation of the floating bridge and removal of solid waste requires multiple vehicle trips across the river. The park moves sewage sludge from a holding tank on the north side of the river to the sludge disposal site on the south side of the river by pumping into a sludge trailer that is hauled by truck across the mouth of the Brooks River at low water each spring. The pump-out process requires approximately twenty trips across the river each year.

The park currently operates and maintains fuel storage and power generation facilities on both sides of the river, at Brooks Camp on the north side and at the Valley Road Administrative Area on the south side. A power distribution line runs from the Valley Road Administrative Area to the bus parking area near the south terminus of the bridge.

While brown bear viewing and fishing are the primary reasons visitors come to Brooks Camp, human-bear interactions are the most significant visitor safety concern in the Brooks River area during salmon run and spawning seasons. Visitors regularly come into close proximity to bears when fishing in the river, walking around the Corner area (a primary route for people traveling from Brooks Camp to the bridge and an important area for brown bears to rest) on the at-grade trail to the north of the floating bridge, and travelling along the trail from the lower river platform to the falls platform. The ground-level floating bridge also contributes to the frequency of human-bear interactions. The park currently addresses bear safety through an intensive visitor use and bear management program, which includes NPS staff directing human traffic in the Brooks River area and a mandatory 20-minute bear orientation program.

DECISION (SELECTED ACTION)

The NPS has selected Alternative 4 with some modifications, a boardwalk and bridge system with access points on the north and south sides of Brooks River and relocated barge landing site and access road (Figure 1). The bridge and boardwalk system will have a total estimated length of 1,550 ft. The bridge design in Alternative 3 with fewer pilings will replace that in Alternative 4. Electrical intertie and septic tank pump-out lines will be attached to the bridge structure. The barge landing will be relocated to an area approximately 2,000 ft south of the existing site and

will require the construction of a new access road. This bridge and elevated boardwalk project amends the 1996 DCP by maintaining the existing float plane access to the Brooks River area at Naknek Lake north of Brooks River and at Lake Brooks, south of Brooks River. No dock, breakwater, or road would be built, and no shuttle system instituted.

The preengineered medium-span bridge design in Alternative 3 will replace but follow the general alignment of the bridge in Alternative 4. The bridge will be approximately 415 ft in length and 8 ft in width, with a walking surface a minimum of 10 ft above the water. The bridge will accommodate both pedestrian and light utility vehicle traffic. The bridge requires six sets of support piles (each set with two piles) in the river bed to support spans measuring approximately 50 ft.

The north and south boardwalks will be at least 10 feet above grade, except at the terminus ramps. Gates will be installed at each end of the boardwalk to prevent bears from gaining access to the boardwalks and bridge. Emergency ladders will be included at the north end of the bridge.

The north boardwalk will start adjacent to the lodge and continue south over the wetlands for approximately 560 ft. The north boardwalk will be 8 ft wide and designed to accommodate both pedestrian and vehicle traffic simultaneously. The north boardwalk will have up to four viewing/pullout areas.

The south boardwalk will connect to the southern end of the bridge with an 8-foot-wide and 20-foot-long transition area to allow pedestrians and vehicles to separate onto their own boardwalks. A pedestrian-only boardwalk would follow the western edge of a wetland before ending about 100 ft from the bus parking area. This pedestrian section of the boardwalk will be about 715 ft long. An 8-foot-wide vehicle ramp will separate from the boardwalk at the transition area. This vehicle spur ramp will be approximately 215 ft in length and will ramp down to the existing road. The south boardwalk will have up to three primary viewing/pullout areas.

Electrical intertie and septic tank pump-out lines will use the bridge structure to cross Brooks River. These utilities will be routed with the vehicle ramp of the south boardwalk where a sewage hauling trailer can access the sewage pump-out line.

The barge landing will be relocated to the shore of Naknek Lake approximately 2,000 ft south of the existing barge landing. The new barge landing area will measure approximately 6,800 ft² and will include a permanent extended hardened boat launch ramp measuring 24 ft to 30 ft wide and 170 ft to 240 ft long. A fenced storage/staging area will provide for storage of the NPS barge on a 90-foot-long trailer and miscellaneous smaller boats and trailers. The storage area would be accessible from the access road via a gated entrance. The existing barge landing area (5,800 ft²) and boat storage/staging area (16,000 ft²) will be removed and the landscape will be restored to natural conditions.

The new barge landing access road will be approximately 1,500 ft long and 14 ft wide. The road will intersect the Valley road and run on the north side of the Beaver Pond to the new barge

landing site on Naknek Lake. A culvert will be installed to facilitate a hydrological connection of adjacent wetlands. The existing barge landing access road along the south bank of the Brooks River (1,200 ft by 14 ft) will be removed and the landscape will be restored to natural conditions.

The estimated construction cost (2013 dollars) for the decision alternative is approximately \$10.3 million. Funding availability and timing is subject to servicewide prioritization. The barge landing and access road will cost an estimated \$2.4 million in FY 2013. The boardwalks and bridge will cost an estimated \$7.9 million in subsequent years.

Key Impacts of Decision

The key impacts of the selected alternative will be associated with brown bears, salmon and other fish, hydrology, cultural landscape, visitor experience, and visual/scenic resources. Construction of the bridge, boardwalks and barge landing facilities, and removal of the floating bridge will have both beneficial and adverse, short- and long-term, minor to moderate impacts on certain natural resources. Brown bears will benefit from the removal of the floating bridge, which is an obstruction to bears moving up and down Brooks River. Because the bridge and boardwalk are elevated 10 ft, bears will interact less with humans at ground-level which will allow them greater access to habitat, less stress, and easier movement. However, humans on the elevated structures will be more visible and audible to bears. The permanent bridge will replace the floating bridge, removing the need to drive through salmon and trout habitat to install the floating bridge. However, fish may be negatively impacted by the set of six bridge piles in the river. Hydrology of Brooks River will be restored at the banks where the floating bridge currently attaches to the shore. However, the six sets of bridge pilings may cause scouring, debris buildup, and sandbar development that would impact downstream flow hydraulics. Construction of the bridge will have short-term negative impacts on brown bears, salmon and other fish, and hydrology.

The bridge and boardwalks will have a long-term, moderate, adverse impact on the Brooks Camp cultural landscape. These new constructed elements, elevated at 10 ft above the ground, in the core area of Brooks Camp Historic District will adversely impact the defining features of the cultural landscape, such as views and vistas, historic setting and feeling, historic patterns of circulation and spatial organization.

The elevated bridge, boardwalks, and viewing areas will greatly improve visitor safety and provide new bear viewing opportunities by vertically separating humans and bears, resulting in a localized, major, long-term, beneficial impact on visitor experience. However, construction of the facilities will cause minor, localized, adverse impacts on visitor experience. From a visual/scenic resources perspective, construction of the bridge in the selected alternative will have a localized, moderate, long-term adverse impact.

SELECTED ALTERNATIVE, BROOKS RIVER ACCESS

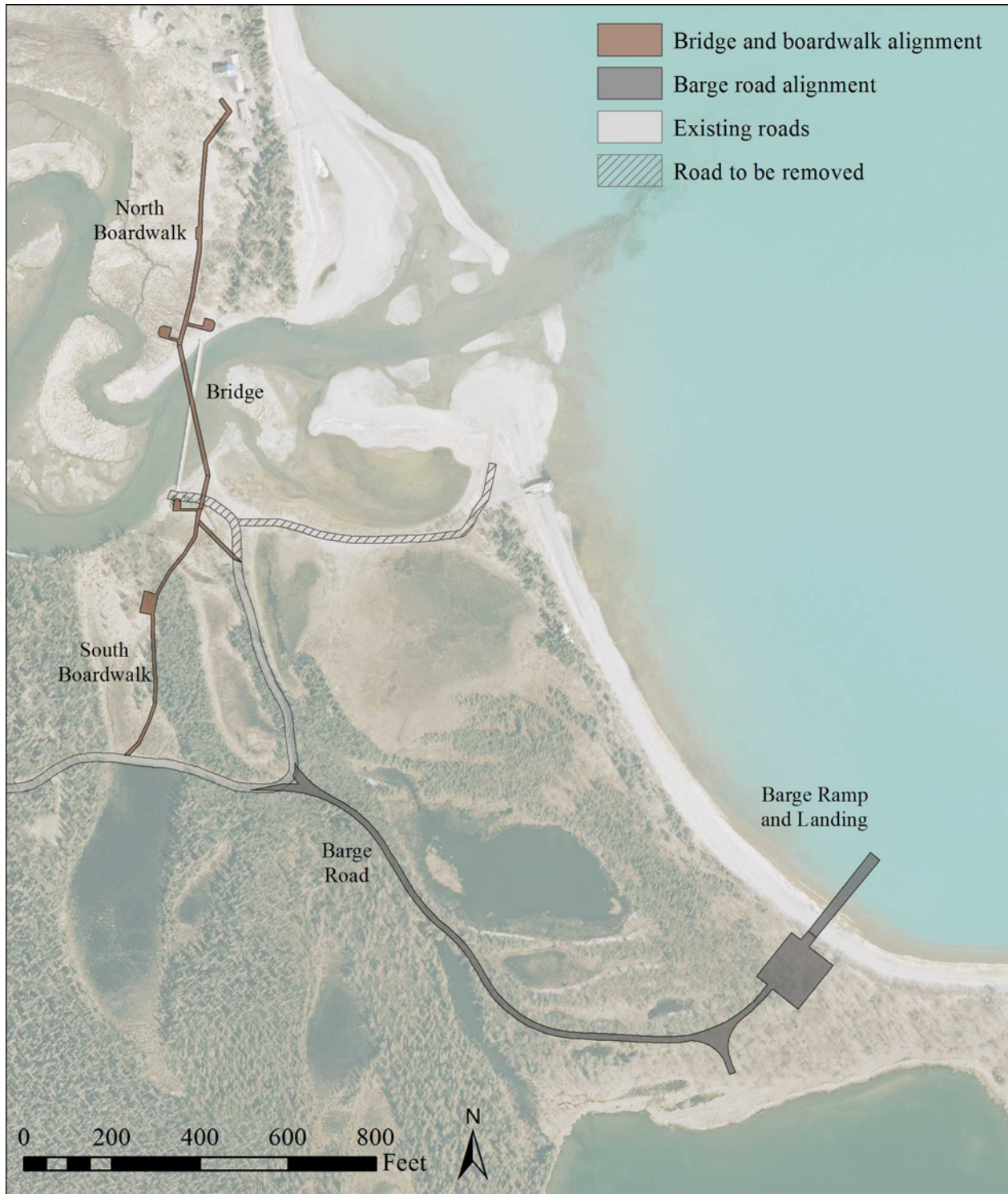


Figure 1

MITIGATING MEASURES

BROWN BEARS

To reduce possible negative impacts on brown bears and other wildlife within the Brooks River area, mobilization, construction, and demobilization activities will be coordinated between the project contractor, and NPS managers responsible for protecting wildlife and visitors and managing commercial services. Bear response techniques identified in the park's *Bear- Human Conflict Management Plan* (NPS 2006b) will be used to manage human/bear interactions associated with this plan.

Construction-specific mitigations will include the following:

- the NPS project manager or bear manager will be on site to monitor operations when materials are being loaded or unloaded.
- use of the Naknek Lake barge landing and access road will be limited to the loading and unloading of equipment, materials, and supplies for immediate transport to the park-approved staging area(s) and/or construction camp.
- equipment, materials, and supplies in the staging area(s) and contractor camp will be secured by hard-sided storage containers and/or an electric perimeter fence.
- food and garbage will be stored in bear-resistant containers and garbage will be regularly transported to an approved solid waste facility outside the park.
- work will be temporarily halted when bears approach within 50 yards of an unfenced work area. Workers will allow the bear(s) to pass through the work area, unless the area (elevated bridge or boardwalk) is vertically separated, before starting or resuming mobilization, construction, or demobilization activities.

MIGRATORY BIRDS

No trees and shrubs will be cut or removed between approximately April 10 and July 15 in order to protect migratory nesting birds, particularly those birds that are considered species of special concern that may nest within the area, including the olive-sided flycatcher (*Contopus borealis*), blackpoll warbler (*Dendroica straita*), and graycheeked thrush (*Catharus minimus*).

SALMON AND OTHER FISH

To protect fish populations and habitat, the following mitigations will be followed in the projects areas:

- fuel, lubricants, or other hazardous substances will not be stored below the ordinary high water (OHW) of Brooks River, Naknek Lake, or Lake Brooks.
- equipment servicing and refueling will not be conducted below the OHW level of Brooks River or Naknek Lake.
- equipment leaking fuel, oil, hydraulic fluid, or other pollutants will not be operated or moved below the OHW level of Brooks River or Naknek Lake.
- work below the ordinary high water within Brooks River and the shoreline of Naknek Lake will occur during winter and spring when water levels are low and spawning fish are less likely to be impacted.

- areas below the OHW level will be graded to closely match preconstruction slopes and contours after cessation of construction activities.
- riprap and nonvegetation bank stabilization methods will be avoided or greatly minimized. Riverbanks will be rehabilitated using native vegetation and natural materials, such as coir logs, willow stakes, and downed trees for stabilization.

WETLANDS AND VEGETATION

As outlined in the Statement of Findings for Floodplains and Wetlands (Attachment B), construction activities within wetlands will be limited to the minimum area needed to install the boardwalk and bridge supports. Equipment servicing and refueling will not be conducted within wetlands. Equipment leaking fuel, oil, hydraulic fluid, or other pollutants will not be operated within or immediately adjacent to wetlands. The NPS will obtain and comply with Army Corps of Engineers permits needed to construct facilities in wetlands and navigable waters.

Local native plants will be used to rehabilitate construction sites, former trails, and roads. As explained in the errata (Attachment D), restoration of the current barge landing is expected to restore wetland function to .34 acres of wetlands on the south side of the Brooks River. Restored wetlands will be more than double the acreage of negatively impacted wetlands (.16 acres).

NONNATIVE PLANT SPECIES

The following guidelines will be followed to prevent the introduction and spread of invasive plant species within the park:

- all heavy equipment and vehicles (including, but not limited to, tankers, trucks, ATVs, trailers, and excavation equipment) will be thoroughly cleaned (preferably by pressure washing) and free of soil, dirt, mud, or gravel before being transported into the park.
- NPS staff will inspect all heavy equipment and other vehicles at or near the park boundary to ensure they are free of invasive seed sources. Improperly cleaned vehicles and equipment will not be allowed into the park.

CULTURAL RESOURCES

The following cultural resource mitigation measures will be implemented:

- the National Park Service will continue to consult with the Alaska State Historic Preservation Officer (SHPO), the Bristol Bay Native Association; the Bristol Bay Native Corporation; the Alaska Peninsula Corporation; Paug-Vik Incorporated, Limited; South Naknek Village Council; Naknek Village Council; King Salmon Tribal Council; Heirs of Palakia Melgenak; and the Council of Katmai Descendants and others with cultural ties to the Brooks River area.
- Archeological monitoring and surveys will precede and/or accompany construction-related ground disturbance to avoid and protect significant archeological resources.

- all known significant historic properties in the project area (e.g., archeological and ethnographic resources, historic buildings, cultural landscape features) will be clearly identified for avoidance during construction.
- the NPS will implement stipulations contained in the April 9, 2013, Programmatic Agreement between the park and the Alaska State Historic Preservation Officer (SHPO) (Attachment C), including the preparation of a “Brooks River Cultural Resources Analysis, Evaluation, and Recommendations Report.”

PUBLIC AND AGENCY INVOLVEMENT

Scoping

A Notice of Intent to prepare an EIS on a proposed Brooks River Bridge and Boardwalk was published in the *Federal Register* on March 30, 2009 (77 FR 14155). Public scoping meetings were held on September 28, 2009, in Anchorage, and on September 29, 2009, in King Salmon. The meetings were announced via newsletters, advertisements in the September 24 issue of *The Bristol Times* and the September 25 issue of *The Anchorage Daily News*, public service radio announcements (sent to KSKA, KBFX, KMXS, KBRJ, and KDLG), and through online advertisements submitted to the “What’s Up” list serve and the “Anchorage Community Datebook.” The purpose of these public meetings was to disseminate information about the proposed project and to identify issues and concerns that should be addressed in the document. The meetings combined an open house with a brief, formal presentation, followed by a public comment opportunity.

Four individuals attended the Anchorage meeting, and seven attended the King Salmon meeting. Much of the discussion focused on the design and alignment of the various proposals and the relationship to other projects in the park. Oral comments were received at both meetings. In addition, 14 comments were received by e-mail or through the Planning, Environment, and Public Comment (PEPC) system.

Public comments fell into 11 categories. The primary issues and concerns that were raised included the following:

- purpose and need for the project
- relationship of the proposed project to the 1996 development concept plan
- access to the Brooks River area
- impacts on cultural, visual, water, and wildlife resources and park operations
- design of the proposed action alternatives (including bridge span distances, viewing platforms, costs, clearance for bears, protection from bears, and provision for floatplane landings)
- notification of the public about the project

Two newsletters with project information, public scoping meeting announcements, and information on how to submit comments were mailed June 18, 2009 and September 18, 2009, to agencies, organizations, and individuals identified on the project mailing list. The September

newsletters included preliminary alternative design concepts for the north and south boardwalks and the bridge.

A third informational newsletter was distributed and posted on the PEPC website in summer 2010. This newsletter described five alternatives (including the no-action alternative) that the National Park Service was considering. The descriptions of the alternatives covered the boardwalks, bridge, and a barge landing site. Similar elements shared by all of the action alternatives were identified.

Agency Consultation

National Historic Preservation Act Section 106 Consultations

Between 2006 and 2013, the National Park Service consulted with concerned Alaska Native groups and families, including the Council of Katmai Descendants (Council) and Heirs of Pelegia Melgenak, and the Alaska SHPO regarding the projects included in this decision.

In 2006, the Council expressed support for relocating the operations at Brooks Camp to south of the Brooks River as planned in the DCP, and did not support additional development in the Brooks Camp Area. At a meeting at the NPS Alaska Regional Office in February 2009, Council representatives and NPS discussed the proposal to construct a permanent bridge across Brooks River. Following this meeting, the NPS archeologist met with council representatives to discuss traditional uses of the Brooks River area to determine potential impacts of the proposal. In December 2009, the Council again expressed that the bridge project went against their understanding that development would be removed from the north side of Brooks River.

In May 2010, NPS met with council members to discuss project designs, alternatives, and potential impacts of the project to cultural resources. In June of the same year, the NPS and representatives of Alaska SHPO conducted an on-site visit to discuss potential project effects on cultural resources.

On April 9, 2013, the park and Alaska SHPO signed a Programmatic Agreement in which the park agreed to implement stipulations, including the preparation of a “Brooks River Cultural Resources Analysis, Evaluation, and Recommendations Report.” The Programmatic Agreement is included as Attachment C to this Record of Decision.

U.S. Fish and Wildlife Service

NPS checked the U.S. Fish and Wildlife Service’s Alaska Region endangered species consultation website (<http://alaska.fws.gov/fisheries/endangered/consultation.htm>) on September 22, 2010. Based on the website map, no federally listed species are present in the project area. Therefore, section 7 consultation with the U.S. Fish and Wildlife Service is not necessary.

NPS contacted the U.S. Fish and Wildlife Service’s Alaska Region Permitting Branch on August 19, 2010, requesting coordination assistance for a possible incidental take of a bald eagle nest near Beaver Pond, as required under the Bald and Golden Eagle Protection Act. The agency responded by providing an eagle permit fact sheet and information on how to avoid and

minimize eagle disturbances. Based on the information provided, the NPS developed a project-specific decision tree and determined a permit is needed. NPS will apply for a permit prior to project implementation.

National Oceanic and Atmospheric Agency Fisheries Service

No endangered or threatened species under the management of the National Oceanic and Atmospheric Administration (NOAA)—National Marine Fisheries Service are in the Brooks River area. Therefore, no consultation is required.

The Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1855(b)) requires federal agencies to consult with the National Marine Fisheries Service if essential fish habitat may be adversely affected. Essential fish habitat (salmon spawning areas) is present in Brooks River and Naknek Lake in the project area. The effects of the alternatives on essential fish habitat are addressed in appendix C of the FEIS. The National Marine Fisheries Service concurred with the NPS finding that the adverse effects on essential fish habitat will be minor.

Environmental Protection Agency

The Environmental Protection Agency (EPA) reviewed the DEIS in accordance with their responsibilities under the National Environmental Policy Act (NEPA) and section 309 of the Clean Water Act. The EPA assigned a rating of Lack of Objections (LO) to the draft EIS. The EPA review did not identify any potential environmental impacts requiring substantial changes to the proposal.

Draft Environmental Impact Statement/Public Comment

The *Brooks River Visitor Access Draft Environmental Impact Statement* was released to the public on June 22, 2012. The Notice of Availability for the draft environmental impact statement was published in the *Federal Register* on that date (77 FR 37707). The public comment period ran from June 22 through August 20, 2012. Three public meetings were held in Alaska to review the draft EIS and receive public comment: July 31, 2012 in Homer; August 1 in Anchorage; and August 2 in King Salmon Alaska. Sixteen individuals attended the public meetings.

During the 60-day comment period, comments were received via mail, e-mail, and through the NPS Planning, Environment, and Public Comment (PEPC) site. In total, 22 comment letters were received via these means. The 22 comment letters included two environmental organizations (National Parks Conservation Association, and Sierra Club), federal Agencies (Environmental Protection Agency and National Marine Fisheries Service), the State of Alaska Office of Project Management & Permitting, Bristol Bay Native Corporation, Katmailand Inc., and 14 individuals.

The *Brooks River Visitor Access Final Environmental Impact Statement* was released to the public on February 8, 2013. The Environmental Protection Agency Notice of Availability for the final environmental impact statement was released on that date (78 FR 9388). A thirty day no action period ran from February 8, 2013 until March 11, 2013. During this period, two additional comments were received; one from an individual and one from the State of Alaska Office of Project Management & Permitting.

OTHER ALTERNATIVES CONSIDERED

Alternative 1 (No Action)

This alternative represents a continuation of the existing situation. Under the no action alternative, visitors and park and concessions staff would continue to access Brooks River via a trail through the vegetated area known as the Corner. Seasonal use of the existing floating bridge across Brooks River would continue. Park staff would continue to install and remove the bridge each spring and fall and stabilize the riverbanks to ensure that the floating bridge remains in place while in use. The barge landing and associated road would remain at its current location on the south side of the river. The NPS landing craft, barges, and other boats would continue to land at the site at the mouth of Brooks River. Utility connections between the north side of the Brooks River and the Valley Road Administrative Area would be considered at a later date as part of a separate action.

Actions Common to All Action Alternatives

The following actions would be implemented under all of the action alternatives considered in this environmental impact statement:

- All construction activities would be scheduled to ensure that the least possible disturbance to resources and visitor experience would occur.
- Existing gravel sources about 5 miles southeast of Brooks River on Valley of Ten Thousand Smokes Road would be used.
- NPS staff would monitor the impacts on park resources from the construction and continuing use of the bridge and boardwalks and from construction of the new barge landing site.
- Up to seven viewing areas (depending on the alternative) would be established on the north and south sides of Brooks River.
- Gates would be installed at each end of the boardwalk where they meet existing grade to prevent bears from gaining access to the boardwalks and bridge.
- Emergency ladders would be included at the north end of the bridge for safety egress reasons.
- Under all of the alternatives, including the no-action alternative, the new barge landing ramp would be hardened with materials such as interlocking pavers or geoweb filled with gravel.
- Both electrical intertie and septic tank pump-out lines would use the bridge to cross Brooks River.

Alternative 2

Under Alternative 2, pedestrians and vehicles would use an extensive boardwalk and bridge system (about 1,600 ft) between Brooks Lodge and the bus parking area. The 3-span bridge would require two sets of supports (piles) in the river. On the north side of Brooks River, a boardwalk would separate visitors from bears and would eliminate human use of the Corner.

The south boardwalk would run from the river to the bus parking area. The boardwalks would have separate access points for pedestrians and vehicles on the north and south sides of Brooks River. Up to four viewing/pullout areas would be located along the north boardwalk, and up to three primary viewing/pullout areas would be on the south boardwalk.

The barge landing site would be relocated about 2,000 ft south and require the construction of a new access road. The existing access road would be removed and the landscape, including wetlands, restored. A boat parking area would be used for parking up to eight skiffs on trailers in the summer and for overwintering the park's landing craft.

Alternative 3

Under Alternative 3, pedestrians and vehicles would use a single boardwalk and bridge system (about 850 ft) with single access points on the north and south sides of Brooks River. The preengineered medium-span bridge would require six sets of support piles in the river. The north boardwalk would start near the fish freezing station and ramp up to 10 ft above grade and extend to the north end of the bridge through the Corner following the existing trail alignment. A relatively short south boardwalk would ramp down from the bridge until it reaches grade and connects to the existing road. The north boardwalk would include up to two viewing/pullout areas, while the south boardwalk would have one viewing area on each side of the south side of the bridge.

The barge landing site would be relocated about 200 ft south and generally use the existing barge access road.

Alternative 5

Under Alternative 5 pedestrians and vehicles would use a single boardwalk and bridge system (about 1,100 ft) with single access points on the north and south sides of Brooks River. The bridge would be as described in Alternative 4. The north boardwalk would be the same as described in Alternative 4; however, the south boardwalk would connect to the south end of the bridge and ramp down to meet the access road about 215 ft south of Brooks River. The north boardwalk would have up to four viewing/pullout areas, while the south boardwalk would have at least one viewing/pullout area on each side of the south side of the bridge.

The barge landing site and boat parking area would be the same as in Alternative 2. The existing site would be relocated about 2,000 ft south and would require the construction of a new access road.

BASIS FOR THE DECISION

The NPS selected Alternative 4, with modifications, because the actions reduce the likelihood of human-bear interactions and retain dependable access to and within the Brooks River area during and after the phased implementation of the 1996 DCP. The NPS considered the

beneficial impacts of this alternative to natural resources, visitor experience, and construction, operation, and maintenance costs in selecting this alternative.

The selected alternative improves visitor and employee safety by reducing the risk of human-bear interactions through elevating human traffic. Bear-human interactions are common, especially in the Brooks River area during the salmon run and spawning seasons in July and September. However, intensive visitor use and bear management programs have minimized conflicts and close-proximity interactions. Visitor and employee safety in the Brooks River area is a primary concern of the NPS, especially given the seasonally high concentration of humans and bears in this area. The selected alternative includes the longest elevated bridge/boardwalk configuration of any of the alternatives. The bridge/boardwalk extends from Brooks Camp (north side of river) to the bus parking area on the south side of river, separating people from bears for the longest distance. The boardwalk will route pedestrians away from key bear use areas such as the Corner, where frequent interactions occur.

The elevated boardwalk and bridge system will provide dependable access for the phased relocation of facilities and park concessions operations by substantially reducing delays caused by bears in close proximity to people. Providing reliable pedestrian and light vehicle access across Brooks River and above ground-level trails during the phased relocation effort will make the transition feasible without interrupting park or concessions operations.

The NPS selected the bridge design from Alternative 3 for safety reasons based on the findings of an engineering risk assessment. The risk assessment concluded that the medium span bridge proposed in Alternative 3 was less likely to sustain significant damage from a seismic event than the short span bridge proposed in Alternative 4. Geotechnical investigation in the area of the bridge and boardwalk revealed “soft” soils which, in general, have poor structural properties, particularly when subject to seismic activity.

In selecting Alternative 4, the NPS has decided for safety reasons to amend the 1996 DCP by retaining floatplane access to the north of Brooks River on Naknek Lake in addition to the existing floatplane access at Lake Brooks. No dock or breakwater would be built on Naknek Lake south of the Brooks River. This decision requires permanent, reliable access across Brooks River to provide a connection for visitors arriving by floatplane to Naknek Lake on the north side of Brooks River or at Lake Brooks, on the south side of Brooks River. Docking and taxiing floatplanes to the south of the Brooks River can be very challenging and potentially hazardous due to frequent high winds and wave action on the almost 145,000 acre Naknek Lake. Due to wind shadow, one lake usually remains calmer and is preferred by pilots during high wind and wave events. Aviation safety is a very high priority for the NPS. Maintaining the choice of floatplane landings at either lake shore improves aviation safety at the Brooks River area.

The proposed facilities also protect important natural resources in the Brooks Camp area, including brown bears, salmon and trout habitat, and wetlands. The NPS seeks to decrease human impacts to bear movement in the Brooks River area and to decrease habituation of bears to humans. The selected alternative will benefit brown bears by eliminating the floating bridge, restoring an open travel route from the lower Brooks River to Naknek River via the river’s north bank and the Corner, and vertically separating bears and humans throughout the project area.

Over seventy brown bears are thought to depend on summer and fall sockeye salmon runs along the Brooks River each year. Over time, some bears become habituated to human presence. Habituated bears may have a greater tendency to approach people, which could lead to dangerous interactions in the area, or cause bears to approach humans in other situations and locations, resulting in the death of the bear. The elevated boardwalk will decrease the number of human-bear interactions, thereby decreasing the degree of bear habituation.

The NPS also intends to protect salmon and trout habitat and restore wetlands at the Brooks River. Annual installation and removal of the floating bridge requires vehicle trips across the mouth of the Brooks River. In the selected alternative, a permanent bridge replaces the floating bridge, removing the need to drive through salmon and trout habitat and avoiding damage to the river's riparian areas. The removal of the existing barge road will restore .34 acre of wetlands and reconnect Brooks River riparian areas to wetlands to the south of the current road.

The NPS considered the overall impacts of the new and relocated facilities on visitor experience. At present, operational activities at the barge landing and access road are highly visible from the north bank of the river, the bridge, and the viewing platform to the south of the bridge. Barge operations also displace bears from this open area, which decreases bear viewing opportunities. In the selected alternative, the relocated barge landing and 1,500 ft access road will not be visible from the bridge and viewing platform. The existing barge landing area and access road will be rehabilitated, providing more opportunities for bear viewing in this area.

The bridge structure and maintaining existing floatplane access also beneficially impact visitor experience. The electric intertie on the bridge structure will allow the NPS to move the loud generators out of the Brooks Camp area, further improving visitor experience. The dock and breakwater system proposed in the 1996 DCP was contingent on a 1.7-mile road to the Beaver Pond Terrace and operation of a shuttle system. These systems will no longer be required.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

In accordance with Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* (NPS 2001), the National Park Service is required to identify the environmentally preferable alternative in all environmental documents, including environmental impact statements. The environmentally preferable alternative is "the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources."

The NPS identified Alternative 4 as the environmentally preferable alternative. Alternatives 4 and 5 would improve resources and values at the mouth of Brooks River with removal of the existing floating bridge and construction of an elevated boardwalk and bridge system to separate people and bears. The elevated bridge and boardwalk system would direct all human traffic away from the Corner. Alternatives 4 and 5 would also remove the existing barge landing site and access road from the south bank of Brooks River, eliminating facilities impacts on sensitive resources and park visitors. However, Alternative 4 will remove an additional segment of access road that would be retained under Alternative 5. While Alternatives 2 and 3 incorporate elevated

boardwalk and bridge systems, they would not remove as much infrastructure from the sensitive resources area at the mouth of Brooks River.

The selected alternative replaces the bridge design in Alternative 4 with that from Alternative 3. This configuration has less impact on the environment than the unmodified Alternative 4 because the bridge design from Alternative 3 places only six sets of piles in the Brooks River, where the bridge design from Alternative 4 required up to 14 sets of piles. This will result in less impact to hydrology of the river and to fish habitat.

NON-IMPAIRMENT DETERMINATION

Adverse impacts anticipated as a result of implementing the actions described in this Record of Decision would not rise to levels that would constitute impairment. The non-impairment determination is appended to this Record of Decision as Attachment A.

CONCLUSION

The Brooks River Visitor Access projects are necessary to improve safety, provide dependable access for the phased relocation of facilities, to protect park resources, improve visitor experience and connect infrastructure utilities. The selected alternative will achieve these objectives by vertically separating human and bear activities with an elevated boardwalk and bridge system and by relocating the current barge landing site away from Brooks River. All practical means to avoid or minimize environmental harm have been adopted in this alternative. The actions described in this Record of Decision will not impair park resources or values.

ATTACHMENT A: DETERMINATION OF NON-IMPAIRMENT

Brooks River Visitor Access Final Environmental Impact Statement

A determination of impairment is made for each of the resource impact topics carried forward and analyzed in the environmental impact statement for the selected alternative (modified alternative 4). The description of park purpose and significance in Chapter 1 was used as a basis for determining if a resource is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- Identified in the park's general management plan or other relevant NPS planning documents as being of significance.

Impairment determinations are not provided for visitor experience and socioeconomics impact areas. These impact areas are not considered to be park resources or values.

NATURAL RESOURCES

Brown Bears

The Alaska National Interest Lands Conservation Act (ANILCA) identified as a purpose of Katmai National Park and Preserve to protect habitats for, and populations of, fish and wildlife including high concentrations of brown/grizzly bears and their denning areas. The *Katmai National Park and Preserve Foundation Statement* (NPS2009) also identified as a park purpose to protect, study, and interpret habitats supporting a high concentration of brown bears.

The selected alternative proposes to construct a boardwalk and bridge system and relocate the current barge landing and access road to an area about 2,000 ft to the south of the existing sight. The effects of the selected alternative on brown bear habitat could cause changes to brown bear feeding, resting, mating, or caring for young. These adverse effects relate to habitat disturbances from human activity on the proposed 1,540 ft of elevated boardwalks, human habituation of bears, and continued human-bear interactions at ground level (in areas where people do not use the elevated boardwalks). It is believed that less than half of the brown bears using the Brooks River area would be affected by the actions and developments in the selected alternative, and changes to the regional brown bear population would be minimal. Compared to alternative 1, the selected alternative would result in a decrease in adverse effects on brown bears due to the elimination of the floating bridge, the restoration of an open travel route from the lower Brooks River to Naknek Lake via the river's north bank and the Corner, and the vertical separation of humans and bears throughout the project area, which would result in less ground level interactions and possibly reduced habituation. Bears along the Brooks River corridor would also benefit from the relocation of the barge landing and access road away from the river. However, because the 50-yard horizontal buffer rule would no longer apply to people on the elevated

boardwalk and bridge, this alternative would result in notably shorter horizontal distances between humans and bears. This could contribute to an increase in habituation of bears. Overall, the impacts of the selected alternative will result in short- and long-term, moderate, adverse, and primarily localized impact on the brown bear. These effects would not result in impairment.

Bald Eagles

Management for the protection of bald eagles and bald eagle habitat is not specifically identified as a specific purpose in the establishing legislation of the park. Managing for bald eagles and bald eagle habitat is a key component to the park purpose to protect habitats for and populations of fish and wildlife.

The selected alternative would result in moderate localized impacts on the bald eagles in the Brooks River area. These adverse effects would primarily result from the construction and future use of a new barge landing area and access road near an eagle nest and near Beaver Pond foraging and roosting areas. These activities could adversely affect bald eagle nesting in the Beaver Pond area. However, changes to the regional bald eagle population would be minimal. These effects would not result in impairment.

Salmon, Rainbow Trout and Arctic Grayling

ANILCA identified as a purpose of Katmai National Park and Preserve to protect habitats for, and populations of fish. The park's foundation statement also identified as a park purpose to protect, study, and interpret habitats supporting a high concentration of salmon.

The proposed bridge structure, which would involve up to 6 permanent pile systems in the Brooks River channel, would have short- and long-term, moderate, adverse, and localized effect on salmon, rainbow trout, and arctic grayling. Hydraulic changes to the river flow and morphology from the pilings could alter the natural processes that maintain the aquatic habitat and impede fish passage. Compared to alternative 1, the preferred alternative would increase overall adverse impact to salmon, rainbow trout, and arctic grayling fish primarily due to the installation of several permanent obstructions in the river. Removal of the temporary floating bridge and its associated negative effects on fish passage and spawning habitat, and the elimination of hauling wastes across the river in the spring, would benefit fish. There also would be a benefit to fish habitat under the preferred alternative due to the removal of fill on the north side of the river, which would eliminate a sedimentation source. Although some minor changes to fish populations in the area could occur (particularly arctic grayling), no changes would occur under the selected alternative to regional populations of salmon, rainbow trout, and arctic grayling. Effects to salmon, rainbow trout, and arctic grayling would not result in impairment.

Wetlands and Upland Vegetation

Management for wetlands and upland vegetation is not identified as a specific purpose in the establishing legislation of the park and wetlands and upland vegetation are not specifically identified in the park's general management plan as being of significance. Wetlands and uplands vegetation are key habitat components to the park purpose stated in ANILCA to "protect habitats

for, and populations of, fish and wildlife" which is identified as significant for Katmai National Park and Preserve. Also, wetlands and upland vegetation are an important part of the "vast multilake watersheds ...that link the freshwater and marine aquatic systems and provide critical habitat for fish and wildlife" that are identified as significant in the park foundation statement.

The selected alternative would result in a short- to long-term, moderate, adverse, and localized impact on wetlands and upland vegetation. Some wetlands would be lost, but the total loss would be less than 0.16 acre. The adverse effects would primarily result from displaced and altered vegetation along the alignment of the proposed boardwalks and new barge landing access road, loss of some wetlands due to fill and construction of a culvert along the new road, and construction of the barge landing and ramp at Naknek Lake. However, removal and revegetation of the existing barge landing access road will restore an estimated .34 acres of wetland function for a total estimated positive impact to wetlands of .18 acre. Wetlands and vegetation would also benefit from the reduced potential for vegetation trampling and social trails on both sides of the river. Effects to wetlands and uplands vegetation would not result in impairment.

Hydrology and Floodplains

Management for hydrology and floodplains is not specifically identified as a specific purpose in the establishing legislation of the park and hydrology and floodplains are not specifically identified in the park's general management plan as being of significance. Hydrology and floodplains are key components to the park purpose stated in ANILCA to "protect habitats for, and populations of, fish and wildlife." Also, hydrology and floodplains are an important part of the "vast multilake watersheds ...that link the freshwater and marine aquatic systems and provide critical habitat for fish and wildlife" that are identified as significant in the park foundation statement.

The selected alternative would have short- to long-term, minor, adverse, and localized impacts on hydrology and floodplains, primarily from the addition of six permanent flow obstructions to the channel (i.e., six sets of bridge pile systems spaced at 50ft) and the associated construction disturbances in the channel. The support piles, and river debris that catches on them, would alter flow hydraulics, which could also result in riverbed scouring and sandbar development. However, the hydrology would benefit from the removal of the floating bridge that alters river flow hydraulics and flooding, and contributes to bank erosion near its anchors. Relocation of the barge landing access road to the south and trail to the north of Brooks River will also benefit hydrology of Brooks River. Effects to hydrology and floodplains would not result in impairment.

Natural Soundscape

Management for natural soundscape is not specifically identified as a specific purpose in the establishing legislation of the park and hydrology and floodplains are not specifically identified in the park's general management plan as being of significance. Natural soundscape is a key habitat component to the park purpose stated in ANILCA to "protect habitats for, and populations of, fish and wildlife".

The selected alternative would have moderate and localized impacts on the natural soundscape. Adverse impacts would primarily result from construction-related noise, increasing the audio exposure of human activities on the boardwalks/bridge, and introducing park operations noises to a new access corridor and barge landing area to the south. The removal/relocation of two notable noise sources along open, exposed areas of the Brooks River corridor (barge landing and access road) would benefit the soundscape along Brooks River, but would introduce noise sources to a relatively undisturbed area to the south. Effects on the natural soundscape would not result in impairment.

CULTURAL RESOURCES

Archeological Resources

The Brooks River Archeological District National Historic Landmark was identified as a significant fundamental resource in the park's foundation statement.

The selected alternative would have long-term, localized, minor adverse impacts on archeological resources contributing to the significance of the Brooks River Archeological District. Although ground-disturbing construction activities have the potential to adversely impact archeological resources, site avoidance and protection measures would be implemented to minimize or avoid site disturbances. Effects on the archeological resources would not result in impairment.

Historic Structures and Cultural Landscape

The Brooks River Archeological District National Historic Landmark was identified as a significant fundamental resource in the park's foundation statement. Although no historic structures would be directly impacted by proposed construction activities under this alternative, the introduction of new constructed elements (e.g., the boardwalk and vehicle access ramp) into the core area of the Brooks Camp historic district would be expected to impact character-defining features of the cultural landscape, altering elements such as views and vistas, historic setting and feeling, historic patterns of circulation and spatial organization.

The selected alternative would have long-term, localized, moderate adverse impacts on historic structures and cultural landscape features contributing to the significance of the Brooks Camp historic district. These adverse impacts are attributed to the introduction of new constructed elements (bridge, boardwalks, and ramps) that would diminish the integrity of the Brooks Camp cultural landscape. Effects on the historic district and cultural landscapes would not result in impairment.

Ethnographic Resources

The Brooks River area is the site of an annual redfish harvest and other traditional uses. These traditional uses are a key component of cultural heritage resources and values identified as significant in the park's foundation statement.

The selected alternative would have long-term, localized, minor adverse impacts on ethnographic resources associated with Brooks River and the Brooks River Archeological District. Adverse impacts would occur primarily from reduced access to the lower Brooks River for native Sugpiat people to conduct traditional activities due to construction of the bridge and boardwalk, and from erosion or other disturbance associated with visitor use and park concessioner operations. The establishment of a barge landing, access road, and boat storage area near the Beaver Pond, and removal of the spit road and loading ramp on the south bank of Brooks River would have a beneficial impact on ethnographic resources. Although ground-disturbing construction activities have the potential to adversely impact ethnographic resources, site avoidance and protection measures would be implemented to minimize or avoid site disturbances. Effects on the ethnographic resources would not result in impairment.

VISUAL/SCENIC RESOURCES

Visual and scenic resources within the Brooks River area are a key component of the park purpose stated in ANILCA "to protect scenic, geological, cultural and recreational features."

The selected alternative would result in localized, moderate, long-term, adverse impacts on the visual resources from the perspective of a visitor looking at the bridge or new barge landing site, but would result in localized, moderate, long-term, beneficial visual impacts for visitors while on the bridge or boardwalks. Effects on the visual and scenic resources would not result in impairment.

SUMMARY

As described above, adverse impacts anticipated as a result of implementing the selected alternative, alternative 4 with modifications, on a resource or value whose conservation is necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or identified as significant in the park's general management plan or other relevant NPS planning documents; would not rise to levels that would constitute impairment.

**ATTACHMENT B: STATEMENT OF FINDINGS FOR
FLOODPLAINS AND WETLANDS**

**Brooks River Visitor Access
Environmental Impact Statement**

National Park Service
Katmai National Park and Preserve

Recommended:_____

Superintendent

Date

Certification of Technical Adequacy and Servicewide Consistency:

Chief, NPS Water Resources Division

Date

Approved:_____

Alaska Regional Director

Date

1.0 INTRODUCTION

Executive Orders 11988, “Floodplain Management” and 11990, “Protection of Wetlands” require the National Park Service and other federal agencies to evaluate the likely impacts of actions in floodplains and wetlands. NPS *Procedural Manual #77-1: Wetland Protection* provides NPS policies and procedures for complying with Executive Order 11990, and NPS *Procedural Manual #77-2: Floodplain Management* provides NPS procedures for complying with Executive Order 11988. This “Statement of Findings” (SOF) documents compliance with these NPS wetland protection and floodplain management procedures.

The National Park Service has selected an alternative that will improve visitor access and resource protection within the Brooks River area of Katmai National Park. The project will involve the replacement of the Brooks River floating bridge and access trails with an elevated bridge and boardwalk system. The National Park Service will also relocate the existing barge landing site and access road to a location away from the mouth of the Brooks River.

2.0 NPS SELECTED ALTERNATIVE

The selected alternative involves the installation of two primary boardwalks on the north and south sides of the Brooks River within Katmai National Park and Preserve, each connected by an elevated bridge across the river. The boardwalks will contain a number of viewing/pullout areas, each capable of accommodating 20–25 people. The barge landing will be relocated to an area approximately 2,000 ft south of the existing site and will require the construction of a new access road, approximately 1,500 ft in length.

North Boardwalk: The north boardwalk will start adjacent to the lodge and then continue south through the wetlands for approximately 560 ft. The boardwalk will be at least 10 ft above grade once it clears the area around the lodge. This boardwalk will be 8 ft wide and designed to accommodate both pedestrians and vehicles simultaneously.

The north boardwalk will consist of up to four viewing/pullout areas. Two will face west and overlook the wetland and Brooks River. Two will be placed on the each side of the north end of the bridge to provide upriver and downriver viewing opportunities.

Bridge: The bridge will follow the existing alignment of the floating bridge. This bridge will be a preengineered, medium-span bridge approximately 415 ft in length. The spans will measure approximately 50 ft. There will be approximately 6 sets of piles in the riverbed. The bridge will be built using the same techniques as the boardwalk system. This bridge will be a minimum of 10 ft above the river.

South Boardwalk: An 8-foot-wide pedestrian-vehicle boardwalk will cross a wetland south of the southern bridge terminus and then cut west through a wooded area. The boardwalk will follow the edge of the western wetland before ending approximately 100 ft from the bus parking

area. This boardwalk will be 10 ft above grade and will ramp down to grade as it approaches the bus parking area. This section of boardwalk has an estimated length of 630 ft.

The south boardwalk will consist of up to three primary viewing/pullout areas. Two will be placed on the each side of the south end of the bridge to provide upriver and downriver viewing opportunities. One will face east and overlook the wetland. Because of the length of the south boardwalk, one to two additional smaller pullout areas may be installed to allow for the safe passage of pedestrians and vehicles.

Barge Landing and Access Road: A new barge landing will be located on the shore of Naknek Lake about 2,000 ft south of the existing barge landing. There will be a hardened beach landing ramp (24 ft to 30 ft wide and 170 ft to 240 ft long) and parking for miscellaneous small boats / trailers during the summer operating season. The boat parking area will also be used to overwinter the park's landing craft. A new access road, approximately 1,500 ft in length, will replace the one that went around the south side of the Beaver Pond as proposed in the 1996 Development Concept Plan. The existing barge landing site and the access road on the south side of the river will be removed and the landscape will be restored.

3.0 FLOODPLAIN

3.1 Site Description

Brooks Camp is part of the Katmai National Park and Preserve and is on the lower Brooks River near Naknek Lake. The Brooks River is roughly 1.5 miles long, and flows from Lake Brooks into Naknek Lake (figure B-1). The project activities will be within the estimated 100-year floodplain. Brooks Camp, on the north side of Brooks River, appears to be situated above the 100-year floodplain (NPS 2009).

3.2 Floodplain Values

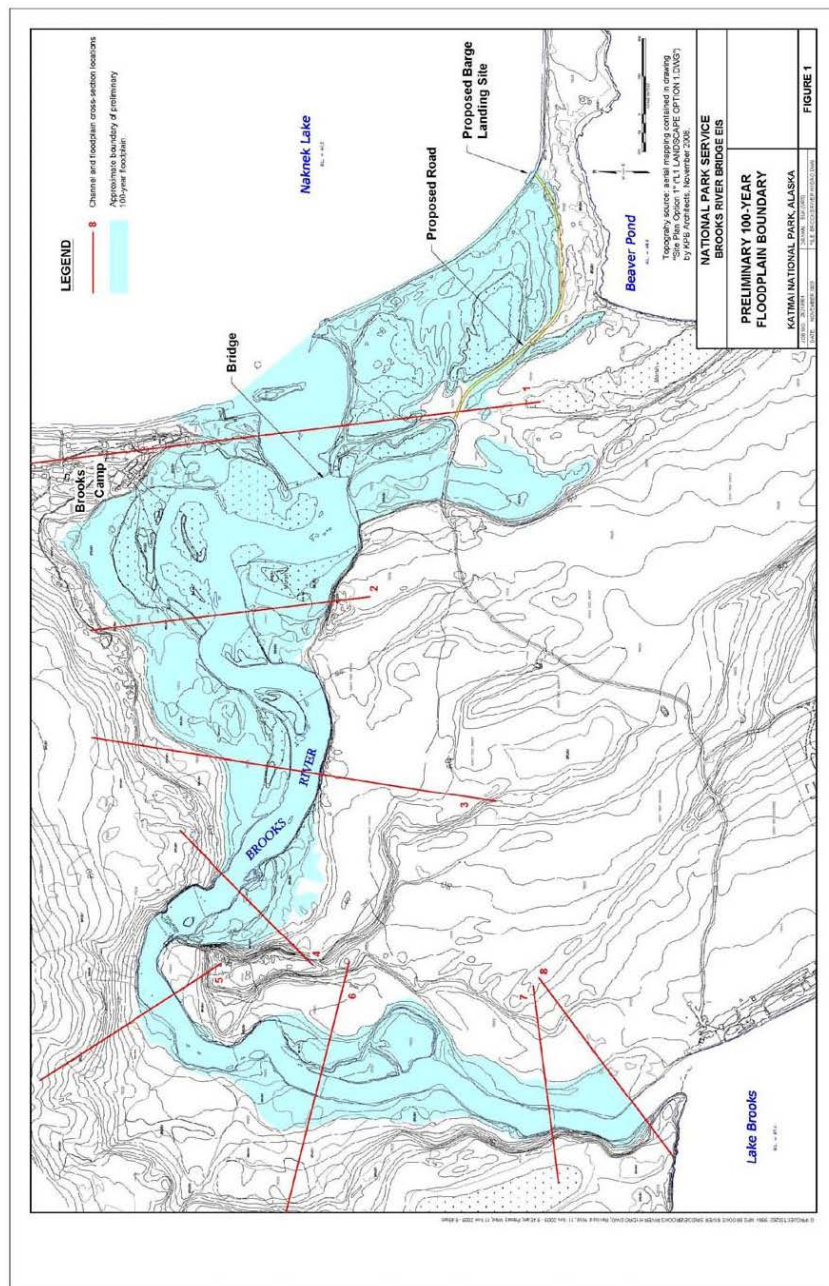
Values associated with floodplain use include recreation, such as hiking and sightseeing, as well as wildlife habitat for a diversity of species. Floodplains also play a necessary function in the overall adjustment of a river system. Floodplains influence the hydrology of a watershed by dissipating floodwater energy, and they serve as a temporary storage component for sediment eroded from the watershed.

3.3 Nature of Flooding and Associated Floodplain Processes

Lake Brooks accounts for approximately 20 percent of the total Brooks River watershed area. Flooding along Brooks River can result from rain, snow, and spring breakup. A U.S. Geological Survey (USGS) gauging station is on Brooks River at the outlet of Lake Brooks. The gauging station is a partial record station, with only eight discharge measurements on record. There are also no historical flood data available for Brooks River.

Brooks River is characterized as an alluvial river. Brooks River transitions from a relatively steep, confined boulder and cobble bedded channel to a meandering sand/gravel/cobble river as

it flows into Naknek Lake. The hydraulics of the flow is generally slowing from a relatively swift, turbulent flow condition in the upper half of the channel to a lower gradient, slower flow condition near Naknek Lake. Flooding would likely cover a wider area in the lower half of Brooks River because the topographic slope is less steep and wider alluvial valley. The Brooks River response to normal hydrologic and geomorphic forces, such as wind waves from Naknek Lake, includes progression of meandering in the lower reach causing some channel migration and riverbank erosion.



Brooks River Visitor Access
Floodplains Statement of Findings
November 2009

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FIGURE B-1

3.4 Justification for Floodplain Use

3.4.1 Rationale for Location in the Floodplain

The bridge and associated boardwalk, as well as the barge landing site and associated access road will have to be in the floodplain. There are no alternative upland sites associated with the river crossing or barge landing.

3.4.2 Investigation of Alternative Sites

All alternative sites investigated would also involve facilities being in the floodplain.

3.5 Site-Specific Flood Risk

3.5.1 Recurrence Interval

Much of the lower Brooks River valley is in the 100-year floodplain. A 100-year flood is defined as the flood elevation that has a 1 percent chance of being equaled or exceeded in any given year. The rate at which flooding occurs would be related to the rate of precipitation and would also be influenced by the presence or absence of ice in the river channel. Flooding associated with precipitation would likely be attenuated because of the size of Lake Brooks and related storage capacity.

3.5.2 Hydraulics of Flooding at the Site

Because of the surface roughness (trees, brush, surface undulations) of the floodplain, it is predicted that floodplain velocities will typically be less than 1 foot per second; however, main channel velocities are likely to be as high as 8 ft/s in the upper portion of the reach to as low as 2 ft/s near Naknek Lake. Channel bottom and banks are likely to erode, altering channel patterns and shapes in some areas.

Water depths near the new Brooks River bridge and boardwalk during a 100- year flood would range from about 2 ft to 5 ft. However, the bridge and boardwalk are elevated 10 ft., leaving most of these structures 5 ft. to 8 ft. above water during a 100-year event. Floodplain water depths in near the road and barge landing site would likely be less than 2 ft. Given the relatively wide area inundated across the lower Brooks River valley during a 100-year event, and the small footprint of the proposed improvements, construction of the proposed improvements would likely not affect the base flood elevation.

3.5.3 Time Required for Flooding to Occur

Floods are more likely when the water level of Naknek Lake is at its highest. This usually occurs in August and September from spring snowmelt. Although extended rains lasting three or more weeks in August and September may raise the water level of Naknek Lake and Brooks River, the time required for flooding to occur would be at least 24 hours. This is because Naknek Lake, Lake Brooks, and adjacent wetlands have the capacity to temporarily store additional water.

3.5.4 Opportunity for Evacuation

Depending upon the rate of rainfall for a given event, it is likely that the natural attenuation effect of Lake Brooks would allow sufficient time for evacuation provided that visitors are near the road and trail system in the Brooks River and Camp area. In the event of a 100-year or larger flood, the lower portion of the road between Lake Brooks and the Brooks River footbridge would likely be under water and closed to vehicular traffic after evacuation for public protection. Evacuation would occur by boat to higher ground in the Brooks River area or by floatplane or boat to communities outside the park.

3.5.5 Geomorphic Considerations

Brooks River is characterized as an alluvial river that widens in the lower portion near Naknek Lake. Increased bank erosion and channel migration would likely occur during a 100-year flood. Depending upon the occurrence of debris and/or ice jams during a flood, channel and bank erosion could increase.

3.6 Floodplain Mitigation

Construction activities in the estimated 100- year floodplain include a new Brooks River bridge and boardwalk, and a new barge landing site and associated access road (figure B-1). It is not anticipated that these facilities will have an impact on the floodplain base elevation. Mitigation and compliance with regulations and policies to prevent impacts to water quality, floodplains, and loss of property or human life will be adhered to during and after the construction. If required, permits with other federal and cooperating state and local agencies will be obtained prior to construction activities. After construction activities are completed, the sites will be returned as close as possible to natural contours; floodplain fill and grading requirements will be minimized. If a flood notification is issued, people within the affected flood area will be evacuated. The area will be closed until the flood event had subsided and authorities deem the area safe for the public to return. The structures and facilities are designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60).

3.7 Summary

Based on the preliminary floodplain assessment, the Brooks Camp area improvements are within the 100-year floodplain of the lower Brooks River (figure B-1). The estimated water surface elevations associated with the 100-year recurrence interval should be considered preliminary and approximate. The assessment is based on limited available hydrologic and hydraulic data and does not take into account the influence of Naknek Lake storm surge.

Although the location of proposed structures in the flood zone will result in risks from the possibility of flooding, methods to minimize flood damage will be incorporated into the overall design of the facilities. In addition, efforts to protect vegetation in the floodplain will be undertaken as standard procedure during site preparation and construction. Therefore, floodplains will be protected to the maximum extent possible, and potential flood hazards would be minimized.

In accordance with Executive Order 11988 for the protection of floodplains, mitigation and compliance with regulations and policies to prevent impacts on water quality, floodplains, and loss of property or human life will be strictly adhered to during the design, construction, and operation of the proposed improvements to the Brooks Camp area. The National Park Service finds that no long-term adverse impacts on the 100-year designated floodplain will occur from the selected alternative.

4.0 WETLANDS

4.1 Description of Affected Wetlands

Fourteen individual wetlands were delineated in the project vicinity in 2009 and 2012 (figure B-2) by qualified wetland professionals David Erikson, Senior Biologist, Joan Kluwe, Senior Planner of URS Group, and Bud Rice, NPS (URS 2009, NPS 2012). The 2012 wetlands delineation focused on determining the extent of wetlands within the footprint of the proposed road route to a new barge landing facility and turnaround/storage area near Naknek Lake, approximately 0.5 mile south of Brooks Camp (NPS 2012). This survey mapped the wetland boundaries more accurately than the 2009 survey. One small wetland (wetland X) also was identified in the 2012 survey that was not included in the 2009 survey.

Affected wetlands are classified as palustrine emergent persistent, saturated wetland (PEM1B), palustrine, emergent persistent, semi-permanently flooded wetland (PEM1F), palustrine scrub-shrub/emergent persistent saturated wetland (PSS/EM1B), palustrine scrub-shrub/emergent persistent, saturated wetland (PSS/EM1B), palustrine emergent persistent, seasonally flooded wetland (PEM1C), palustrine open water permanently flooded wetland (POWH), riverine, lower perennial, unconsolidated bottom, permanently flooded wetland (R2UBH) and lacustrine, littoral, unconsolidated bottom (L2UB). All of these wetland types are common in the Brooks Camp area and the region. The palustrine emergent wetlands (PEM1B, C, and F) are common around low-lying areas in the region like the Brooks River, Colville River, Savanoski River, and Brooks Lake. Palustrine scrub-shrub wetlands (PSS1B) are typically dominated by willows and are common along streams and rivers. Miles of lacustrine littoral wetlands (L2UB) occur around Naknek, Colville, and Grosvenor Lakes, among others. In general, wetlands are more prevalent in low-lying western portions of KATM and less prevalent towards the Aleutian Range as the Landscape tilts up towards the volcanos.

Nonvegetated wetlands in the project area include (1) Brooks River, which is classified as a riverine, lower perennial, unconsolidated bottom, permanently flooded wetland (R2UBH); (2) the littoral zone of Naknek Lake; and (3) the portions of the beaver pond that are less than 2 meters deep at low water, classified as lacustrine, littoral, unconsolidated bottom (L2UB). These water bodies often have aquatic and/or emergent vegetation along the shorelines.

Deepwater habitats in the project area include the portion of Naknek Lake that is deeper than 2 meters at low water (lacustrine, limnetic, unconsolidated bottom, permanently flooded (L1UBH)) and the portion of the beaver pond deeper than 2 meters deep at low water (lacustrine, limnetic, unconsolidated bottom, permanently flooded (L1UBH)).

Naknek Lake

This wetland occurs between the high water line of Naknek Lake and extends to a water depth of 2 meters at low water. Naknek lake water table rises approximately 8 ft annually above low water table. The area is classified as a lacustrine, littoral, unconsolidated bottom wetland (L2UB). These wetlands have little to no vegetation and are composed of Naknek gravels. Wind and wave action rework the gravels near shore. This type of wetlands is the most prevalent wetland type in this area of the park because there are so many miles of lakeshore.

Wetland A

This wetland is a wet herbaceous meadow in a long, narrow (22 ft) depression between two forested ridges paralleling the proposed barge landing access road route. The vegetation in this wetland is dominated by bluejoint reedgrass (*Calamagrostis canadensis*), followed by marsh horsetail (*Equisetum palustre*). There were individual balsam poplar (*Populus balsamifera*) and white spruce (*Picea glauca*) in the slightly elevated features in the wetland, and they were not considered representative of the wetland vegetation. The only shrub was Bebb willow (*Salix bebbiana*). Soils consist of a 6-inch horizon of fibrous peat, a 6-inch horizon of fine-grained volcanic ash with redox concentrations, and then 9-inch horizon of fibrous organics below the ash layer. Gravel was encountered at the bottom of the test pit. The two surveys found saturated soil at 8 to 12 inches below the surface, and standing water was measured at 8 to 16 inches. All three jurisdictional wetland criteria were met. The area was classified as a palustrine emergent persistent, saturated wetland (PEM1B).

Wetland B

The second wetland along the barge landing access road route was located in the same long, narrow depression as Wetland A, but it is separated from Wetland A by a stretch of uplands. Dominant species included bluejoint (*Calamagrostis canadensis*) and Northwest Territory sedge (*Carex utriculata*). The criteria for hydrophytic vegetation were met. Soils consist of a 6-inch mat of fibrous peat over a 10-inch horizon of volcanic ash. The upper 6 inches of ash had faint redox concentrations, whereas the lower 4 inches did not, suggesting minimal fluctuation in the water level 12 inches below the surface. The primary indicator of wetlands hydrology was saturation of the soil within 12 inches of the surface. There were also small areas of standing water within the observation point. All three jurisdictional wetland criteria were met. The area was classified as a palustrine emergent persistent, saturated wetland (PEM1B) in the 2009 and 2012 surveys.

PROPOSED INFRASTRUCTURE AND WETLANDS CLASSIFICATION

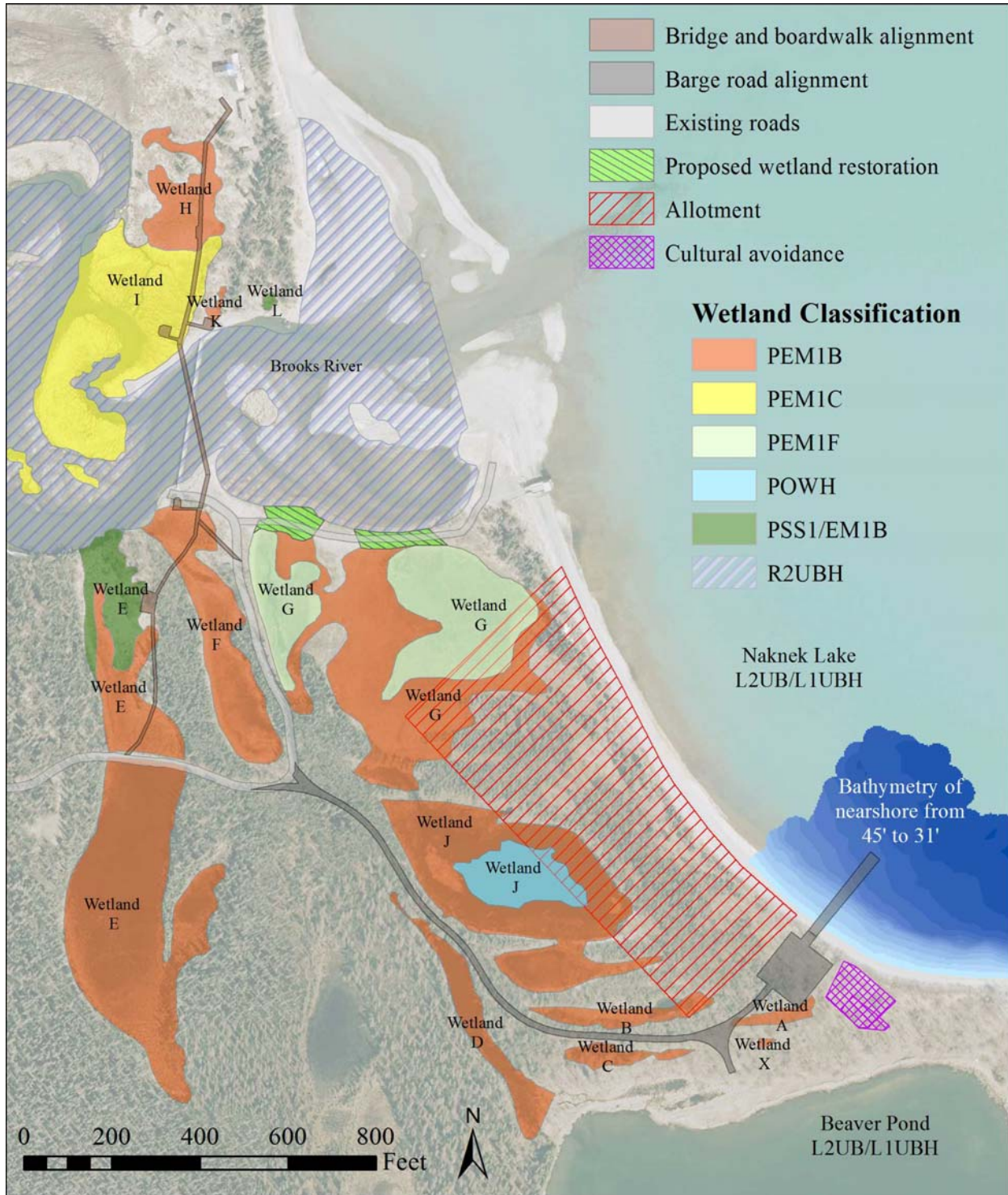


Figure B-2

Wetland C

Wetland C is a narrow depression on the south side of the proposed barge landing access road route and near an active eagle nest adjacent to the beaver pond. Vegetation in this depression was dominated by Northwest Territory sedge (*Carex utriculata*) and water hemlock (*Cicuta virosa*). The soil profile shows a 4-inch mat of fibrous organics over a 10-inch horizon of fine-grained volcanic ash. Below the ash, the fibrous organics continued to the bottom of the soil test pit. The primary indicator of wetland hydrology was saturation to the surface. There was also standing water in low areas approximately 0.5 inches deep within the area. All three jurisdictional wetland criteria were met for this site. The area was classified as a palustrine emergent persistent, saturated wetland (PEM1B) in the 2009 and 2012 surveys.

Wetland D

This wetland is a long, narrow depression west of the proposed barge landing access road route. This depression did not appear to connect directly with the beaver pond. The perimeter of the wetland had thick emergent vegetation, and there was open water with aquatic vegetation in the center. Standing water occurred in portions of the wetland but was not continuous. Vegetation was dominated by longawn sedge (*Carex macrochaeta*), Northwest Territory sedge (*Carex utriculata*), and marsh fivefinger (*Comarum palustre*). Aquatic vegetation in areas of open water consisted mostly of burreed (*Sparganium angustifolium*). Other species included water horsetail (*Equisetum fluviatile*) and water hemlock (*Cicuta virosa*). At the northern end of the wetland the vegetation is dense bluejoint (*Calamagrostis canadensis*) in the lowest parts of the depression with small amounts of Bebb willow (*Salix bebbiana*) and birch (*Betula spp.*) present. The soil profile shows a 3-inch mat of fibrous organics over an 8-inch horizon of volcanic ash with redox concentrations. Below the ash, soils turn to gravel. Wetland hydrology was evident from the standing water in the center of the depression in several areas along the wetland's length. Saturated soil was also documented at 10 inches below the surface where surface water was not present. All three jurisdictional wetland criteria were met at the southern end of the wetland. The area was classified as a combination of palustrine, emergent persistent, semi-permanently flooded wetland (PEM1F) and saturated wetland (PEM1B).

Wetland E

This wetland is in a low depression extending from the edge of Brooks River; it is west of the bear viewing platform, and south of Valley of Ten Thousand Smokes access road. Bluejoint (*Calamagrostis canadensis*) was the only dominant species. Longawn sedge (*Carex macrochaeta*) made up only 5 percent of the total, and Northwest Territory sedge (*Carex utriculata*) was only 1 percent. Diamondleaf willow (*Salix planifolia*) occurred as a few individual plants. Other shrubs included Bebb willow (*Salix bebbiana*) and Barclay's willow (*Salix barclayi*). Small individual specimens of white spruce (*Picea glauca*) and paper birch (*Betula papyrifera*) were also present in the slightly elevated area but showed signs of stress. Soils have a 3.5- to 4-inch mat of organic material over a 3.5- to 8-inch horizon of volcanic ash. The layer below the ash varies between fibrous peat, silt loam over sand and gravel, or sandy loam. The primary indicator of wetland hydrology was saturation within 7 to 12 inches of the surface. All three jurisdictional wetland criteria were met. The southern portion of the wetland

was classified as palustrine emergent persistent, saturated (PEM1B). The northern portion was classified as palustrine scrub-shrub/emergent persistent, saturated (PSS1/EM1B).

Wetland F

Wetland F is a large wet meadow in a long, narrow depression that extends south from Brooks River near the elevated bear viewing platform and parallels Valley of Ten Thousand Smokes access road on the west side. There were no sizable areas of standing water in this wetland at the time of the survey. The vegetation in this wetland is mostly all herbaceous. Dominants include longawn sedge (*Carex macrochaeta*) and bluejoint (*Calamagrostis canadensis*). The only other common species is the Northwest Territory sedge (*Carex utriculata*). The soil profile at the northern end of the wetland had a 4-inch surface horizon of fibrous organics over a 7-inch horizon of volcanic ash. Below the ash was a dark brown sandy loam mixed with a high percentage of fibrous organics. Below this layer, the soil transitions to a dark gray sand and gravel matrix. The soil profile at the southern end of the wetland had a 3-inch organic mat over a 7-inch ash horizon with faint redox concentrations.

Beneath the ash layer, there was a 1-inch horizon of fibrous peat. The lowest horizon is gravel. Surface water in the northern end of the wetland was about 1 inch deep. Subsurface saturation was observed at a depth of 5 inches. Saturation at the northern end of the wetland was documented at 10 inches below the surface. The water table was at 20 inches from the surface. All three jurisdictional wetland criteria were met. The area was classified as a palustrine emergent persistent, saturated wetland (PEM1B) with a small fringe scrub-shrub wetland.

Wetland G

This wetlands complex consists of both emergent wetlands and open water areas with aquatic vegetation. Vegetation was heavily dominated by the Northwest Territory sedge (*Carex utriculata*) and bluejoint (*Calamagrostis canadensis*). Other emergent species included pendantgrass (*Arctophila fulva*), water hemlock (*Cicuta virosa*), common mare's-tail (*Hippuris vulgaris*), and

longawn sedge (*Carex macrochaeta*). The wetland also contains diamondleaf willow (*Salix planifolia*) (FACW) and Barclay's willow (*Salix barclayi*). Aquatic vegetation was primarily burreed (*Sparganium spp.*). Wetland hydrology was evident from the abundance of standing water. All three jurisdictional wetland criteria were met. The wettest areas with emergent vegetation is classified as a palustrine emergent persistent, semi-permanently flooded (PEM1F). The remainder of the wetland is classified as palustrine emergent persistent, saturated (PEM1B).

Wetland H

This large grass/sedge wet meadow is in a depression on an elevated river terrace just west of Brooks Camp. The plant cover is very uniform over most of the wetland and grades into shrub habitats on three sides. The vegetation is heavily dominated by bluejoint (*Calamagrostis canadensis*), with only a small amount of Northwest Territory sedge (*Carex utriculata*). The soil profile showed a 12-inch fibrous peat organic horizon over a 17-inch horizon of volcanic ash. There was only coarse gravel below the ash layer. Saturation was to the surface of the ground.

Some small areas within the observation point had standing water up to 1 inch deep. All three jurisdictional wetland criteria were met. The area was classified as a palustrine emergent persistent, saturated wetland (PEM1B).

Wetland I

This wetland is a large emergent marsh on the northern shoreline of Brooks River. Much of this wetland is flooded during high water periods, and the lower portions of the marsh were inundated during this survey. A portion of this marsh was filled to create the northern access to the floating bridge on Brooks River. Vegetation in the higher portions of the wetland was dominated by bluejoint (*Calamagrostis canadensis*). Other minor species included water horsetail (*Equisetum fluviatile*), yellow willowherb (*Epilobium luteum*), bog yellowcress (*Rorippa palustris*), Northwest Territory sedge (*Carex utriculata*), and longawn (*Carex macrochaeta*) sedge. Soils contained at least 16 inches of fibrous organic peat. The wetland had saturation to the surface. All three criteria for jurisdictional wetlands were met. The area was classified as a palustrine emergent persistent, seasonally flooded wetland (PEM1C).



**Drainage Connecting Wetlands D and J;
Wetland J is in the Background**

Wetland J

The wetland consists of a large emergent marsh around the perimeter with an area of open water in the center. This wetland is not directly connected to Wetland G to the north. However, the 2012 survey found a drainage connection between the northern portion of wetland D and wetland J, which the proposed access road would need to cross (see photograph).

The emergent vegetation around the perimeter of the marsh was dominated by bluejoint reedgrass (*Calamagrostis canadensis*), longawn sedge (*Carex macrochaeta*), and Northwest Territory sedge (*Carex utriculata*). Soil was a 6-inch mat of fibrous organic material over a horizon of volcanic ash. Fibrous organic material continued below the ash horizon. The primary indicator for wetlands hydrology along the perimeter of the wetland was saturation to the surface. Standing water was evident in the center of the wetland. All three jurisdictional wetland criteria were met for this site. The area near the observation point, along the perimeter of the wetland, was classified as a palustrine emergent persistent, saturated wetland (PEM1B), and the pond in the center of the wetlands was classified as palustrine open water permanently flooded (POWH) in the 2009 and 2012 surveys.

Wetlands K and L

Two small wetlands were delineated between Brooks Camp and the northern shoreline of Brooks River by NPS employees in 2008 (Rice 2008). All three criteria for jurisdictional wetlands were met for both sites. Wetland K was classified as a palustrine emergent persistent saturated (PEM1B). Wetland L was classified as palustrine scrubshrub/emergent persistent saturated (PSS1B/EM1B).

Wetland X

The 2012 survey mapped a very small wetland depression immediately south of wetland A (see figure B-2). This area had Balsam poplar, highbush cranberry and fireweed growing along the elevated margins of the site, but the lower portions of the depression had bluejoint reedgrass, marsh horsetail, and Barclay's willow (*Salix barclayi*). The soil consisted of a 6-inch horizon of fibrous peat, a 6-inch horizon of fine-grained volcanic ash, and then a 14-inch horizon of loamy sand below the ash layer. Gravel was encountered at the bottom of the test pit. A sulfidic odor emanated from the freshly opened soil pit. The soil was determined to have high organic content in the surface layer of a sandy soil, as indicative of a histic epipedon. Saturated soil occurred within 12 inches of the surface and the water table was within 12 inches of the surface. The area met all three jurisdictional wetland criteria and therefore was classified as a palustrine emergent persistent, saturated wetland (PEM1B).

4.1 Functional Assessment of Affected Wetlands

Palustrine wetlands are known to provide a variety of ecological functions depending on the location and type of wetland (Larson 1989). Some of the major ecological functions of wetlands include the following:

- discharge of groundwater
- flood control or moderation
- water quality control and improvement
- stabilization of sediments
- retention, removal, and transformation of nutrients
- fish and wildlife habitat
- biomass production and export

Wetlands in the study area provide several of these functions to some degree, and the major functions are discussed below. However, because of the small size of some of the wetlands in the project area, the ecological functions provided by some of these habitats are limited.

Discharge of groundwater is an important function of wetland habitats; however, because of the location of many of these wetlands, adjacent to Brooks River, the opportunity to provide this function is limited. Wetland G could potentially perform this function to some degree, but the lack of an outlet suggests discharge is not substantial. Flood control or moderation is a function performed by the large wetlands adjacent to Brooks River—wetlands E, F, G, H, I, and J. This function could be considered one of the more important for these wetlands as a whole. These wetlands provide areas for floodwater storage so the excess water can spread out and moderate the velocity of the floodwaters. Reducing the velocity of the floodwaters in the river can limit scouring of the riverbed. No federally threatened or endangered species or their habitats occur within the project area or these wetlands.

Wetland I is the only wetland in the surveyed area that provides any substantial functions as habitat for fish. The southern portions of this wetland are within the floodway portion of Brooks River and provide food and cover for small fish in the river. This wetland also provides the function of bank stabilization, which protects habitat in other areas in the river. These riparian wetlands also support insects and aquatic invertebrates that wash down river to Naknek Lake to serve as food for fish in the lake.

All of these wetlands also provide some level of wildlife habitat for waterfowl and shorebirds as well as moose and brown bear and a variety of small mammals. Waterfowl, such as the common merganser, can use open water areas in Wetlands B, D, G, I, and J for feeding and rearing. The early emerging grasses and sedges in the large wetlands along Brooks River and other smaller wetlands can provide spring foraging habitat for brown bear after emerging from their dens. The willow habitats along the perimeters of the wetlands can provide winter forage habitat for moose, nesting habitat for songbirds in the summer, and habitat for small mammals such as snowshoe hare.

Maintenance of water quality is an important function of wetlands, particularly in this area. Runoff from roads and paths can carry sediment into the Brooks River and Naknek Lake. Wetlands E, F, G, and I are in positions for retaining, removing, and transforming nutrients, retaining inorganic sediments, and acting as a filter system and maintaining water quality in the adjacent water bodies.

Wetlands are known for their production of biomass. This biomass is exported to adjacent areas in the form of dissolved or particulate organic carbon from the wetland through leaching,

flushing, erosion and other mechanisms or through the aquatic and terrestrial food webs. All of the wetlands in the area provide this function to some degree.

Wetlands have benefit and provide benefits for humans, such as open space areas and places for recreational activities such as birding, wildlife viewing, photography, general nature appreciation, and esthetics. The wetlands adjacent to Brooks Camp and Brooks River provide the best areas for these functions because of their location and the numbers of visitors that come to enjoy the scenic nature of the river and its wildlife and fish.

Overall, wetlands in the surveyed area provide a wide variety of important ecological functions and enhance the experience of people visiting Brooks Camp and Katmai National Park and Preserve.

Table 1: SUMMARY OF APPROXIMATE WETLAND IMPACTS RESULTING FROM THE SELECTED ALTERNATIVE

Wetland (see figure B-2)	Code	Total Acres	Approximate Wetland Area Impacted	Description
A	PEM1B	0.2	-1,000 ft ²	Impacts due to construction of access road.
B	PEM1B	0.3	0	No direct loss of wetlands.
C	PEM1B	0.3	0	No direct loss of wetlands.
D	PEM1B	0.2	-150 ft ²	Impacts due to construction of a culvert along the access road
	PEM1F	0.3	0	No direct loss of wetlands.
E	PEM1B	4.1	-18 ft ²	Impacts from boardwalk pilings (two 8- inch diameter pilings spaced 12 ft apart for a length of approximately
	PSS1B/EM1B	0.6	0	No direct loss of wetlands.
F	PEM1B	1.0	-8 ft ²	Impacts from boardwalk pilings (two 8- inch diameter pilings spaced 12 ft apart for a length of approximately
G	PEM1B	2.7	+14,979 ft ²	Restoration of wetland function by removal of barge access road.
	PEM1F	1.3		
H	PEM1B	0.7	-14 ft ²	Impacts from boardwalk pilings (two 8- inch diameter pilings spaced 12 ft apart for a length of approximately
I	PEM1C	2.7	-14 ft ²	Impacts from boardwalk pilings (two 8- inch diameter pilings spaced 12 ft apart for a length of approximately
J	PEM1B	2.4	-150 ft ²	Impacts due to construction of a culvert along the access road
	POWH	0.7	0	No direct loss of wetlands.
K	PEM1B	0.1	0	
L	PSS1B/EM1B	0.1	0	
X	PEM1B	0.1	0	No direct loss of wetlands.
Brooks River	R2UBH		-24 ft ²	Impacts from up to 14 sets of bridge piles in river. Bridge piles are estimated to be 12 inches in diameter.
Naknek Lake shoreline	L2UB		-5,550 ft ²	Impacts from construction of a barge ramp (approximately 25 ft by 222 ft)
Total Negative Wetland Impact				-6,928 ft ² (-0.16 ac.)
Total Positive Wetland Impact				+14,979 ft ² (+0.34 ac.)
Total Overall Wetland Impact				+8,051 ft² (+0.18 ac.)

4.3 Adverse and Beneficial Impacts on Wetlands

Table 1 provides a summary of wetland impacts resulting from the selected alternative, including acreages affected by wetland type. The selected alternative will adversely impact approximately .16 acre of wetlands within the Brooks River area. Impacts will be from the installation of pilings for the elevated bridge and boardwalk, the construction of a new barge access road, and the installation of a boat ramp. Because the boardwalk will be elevated at least 10 ft above the ground, no indirect impacts on wetlands from boardwalk shading are anticipated.

The selected alternative would have a beneficial impact on approximately .34 acre of wetlands from the restoration of natural wetland functions when the existing barge road is removed. Overall, the selected alternative would have a net gain of approximately .18 acre of wetlands.

4.3.1 Biotic Functions

The selected alternative would have a negligible adverse impact on wetland biotic functions, such as fish and wildlife habitat, floral and faunal productivity, and native species and habitat diversity. Biotic functions would be adversely affected when wetland areas are modified through the placement of a culvert and fill to accommodate the proposed barge landing access road near the beaver pond (figure B-2—Wetlands A, J and D).

4.3.2 Hydrologic Functions

The selected alternative will likely not adversely impact the hydrologic functions of the wetlands within the surveyed area. Standard erosion and sediment control measures will be used during the installation of the proposed bridge and boardwalk and construction of the proposed barge landing access road.

Removal of the barge landing access road on the south side and pedestrian trail on the north side of the Brooks River and restoring the areas' predevelopment elevations could provide additional flood attenuation and detrital export to Wetlands G and I (figure B-2) within the lower part of Brooks River. Other hydrologic functions, such as stream flow maintenance, groundwater recharge and discharge, water supply, and water purification will not be adversely affected.

4.3.3 Cultural Functional Resources

The selected alternative will have a minor to moderate adverse impact on the cultural resources of the Brooks River area. Specifically, the installation of a bridge over Brooks River will affect the historic cultural landscape and archeological/ethnographic resources of the Brooks River and its floodplain in the project area.

The selected alternative will have a positive impact on visitors experiencing the wetlands in the Brooks River area. Park visitors will be able to experience wetland specific exhibits and ranger-led programs. The installation of ramps and emergency egress stairs/ladders from the bridge/boardwalk will ensure that recreational access to Brooks River and adjacent wetlands would not be adversely affected.

4.3.5 Research and Scientific Values

Because the wetlands in the project area are not classified as nonimpacted wetland reference sites, the selected alternative will not adversely impact wetland research and scientific values. The wetlands in the project area have not been used for studies or long-term monitoring, and do not have documented research and scientific values.

4.3.6 Economic Values

The selected alternative will not have an adverse effect on flood protection for Brooks Camp facilities, on fisheries resources within the river and adjacent Naknek Lake and Lake Brooks, or on tourism.

4.4 Investigation of Alternative Sites

The National Park Service investigated alternative elevated bridge and boardwalk alignments in addition to the no-action and selected alternative. Alternative 2 would have similar impacts on wetlands as the selected alternative (modified alternative 4) (see section 4.3). In this alternative, the north boardwalk would be installed over a wetland between the lodge and Brooks River and the south boardwalk would be installed over two wetlands between the river and the bus parking area. Alternative 3, which includes the same bridge design as the selected alternative, would have the least impact on wetlands. In this alternative, the north boardwalk would be installed over the upland trail corridor between the lodge and the river. Approximately six sets of piles would be placed in the Brooks River riverbed to accommodate the bridge span. The south boardwalk would be placed over a previously disturbed upland area. The barge landing site would be relocated to an area approximately 200 ft south of the existing site and would use all but a small portion of the existing access road, which may currently affect a wetland immediately south of the road. A hardened beach landing ramp would be installed at the new landing site within Naknek Lake. Alternative 5 would have similar impacts on wetlands as alternative 3 with two exceptions: (1) the north boardwalk would be installed over a wetland between the lodge and Brooks River; and (2) the barge landing site and access road would be relocated to a new location approximately 2,000 ft south of the existing site. The construction of the new barge access road and removal of the existing barge access road would have the same impacts on wetlands as the selected alternative.

The no-action alternative and alternatives 2, 3, and 5 would not fully meet the purpose and need of the project, which is to improve visitor access and resource protection within the Brooks River area. The area contains a high concentration of brown bears during the summer, especially in July and September. To travel between the lodge on the north side of the river and the bus parking area on the south side of the river without being delayed by bears, the boardwalk would need to start/end near Brooks Lodge and the bus parking area. Using several years of bear monitoring data, the National Park Service has learned that the forested upland area between the lodge and the river (this area is commonly called the Corner) provides suitable habitat for bears to rest, away from park visitors. Removing the trail and restoring this upland area would improve bear habitat. In addition, relocating the barge landing site and access road away from the mouth of the river would improve barge operation.

4.5 Wetland Mitigation

Construction activities in wetlands will be limited to the minimum area needed to install the boardwalk and bridge pile supports. The installation of the boardwalk supports will occur during the winter season(s) when the ground is frozen to reduce soil compaction and avoid injuring wetland vegetation growth. Equipment servicing and refueling will not be conducted within wetlands. Equipment leaking fuel, oil, hydraulic fluid, or other pollutants will not be operated within wetlands.

The rehabilitation of former trail and road areas will use local native plants. Discontinued trails and roads will be removed and the areas would be revegetated with local native plant species.

4.6 Wetland Compensation

The selected alternative would result in adverse impacts to 0.16 acre of wetlands. It is anticipated that the removal of the existing barge access road in the selected alternative would restore wetland function and compensate for any wetland loss from the installation of the elevated bridge and boardwalk and construction of the new barge landing site and access road (Wetland G in figure B-2). Removing the road and grading the area to its natural elevation will enable surface water from Brooks River and Naknek Lake to flow into the adjacent wetland during flood events. It is expected that this will increase the size of the wetland by approximately 0.34 acre. The overall wetland gain will be approximately 0.18 acre. The ratio of impacted to restored wetland acreage is 1:2.1.

The majority of the impacted wetlands occur from the installation of the ramp at Naknek Lake in wetlands classified as lacustrine, littoral, unconsolidated bottom (L2UB). The ramp would not affect wetlands vegetation, but it would affect hydric soils and hydrology — some soils would be altered with the placement of the ramp below the ordinary high water mark and on the lake bottom, and shoreline geomorphology and possibly shoreline erosion may occur. However, these adverse effects would be very small and localized, given the size of the ramp and the abundance of this wetland in Naknek Lake.

The removal of the existing barge road is expected to increase wetland G, which is composed of palustrine emergent persistent, semi-permanently flooded (PEM1F) and palustrine emergent persistent, saturated (PEM1B)(see figure B-2, proposed restored wetland). Restored wetlands are expected to be classified as PEM1B, which is the most common classification of wetlands in the project area. In addition to increasing the acreage of Wetland G, the removal of the barge road is expected to restore wetland connection between Wetland G and the Brooks River. The restored wetland acreage is expected to provide the following wetland functions discussed in 4.1: discharge of groundwater; flood control and moderation; provide habitat for moose, brown bear, and a variety of small mammals; maintenance of water quality; production of biomass; and increase human recreation opportunities.

Restoration will consist of removal of fill from the old road bed and revegetation of the disturbed area. The existing road was created by adding gravel to the road alignment. The NPS will remove identifiable fill until the organic layer is reached. The NPS will then scarify the natural substrate where it has been compacted. Historic photos show that area of the existing

road was vegetated with low willows prior to road construction. The park will relocate similar willows from other areas in the Brooks River drainage. In addition, the park will relocate vegetative mat from the new road alignment to rehabilitate the old road bed. The NPS does not anticipate need for erosion control expected because the adjacent river is a backwater area, with the primary current running to the north.

The road removal component of the project will occur in 2015 or 2016, after the new access road is constructed. Full function of the compensation wetlands is expected to occur by 2018. Funding for the road restoration will be included in project funds.

Every spring and fall, park staff will evaluate the condition of the surface vegetation to determine whether or not native species have established or whether more revegetation efforts are required. Because the park is using local plants to revegetate the road bed, no invasive plant issues are anticipated. Monitoring will continue for five years if revegetation efforts are successful. If vegetation is not establishing, the park will reevaluate and revise the plan and continue restoration efforts.

5.0 CONCLUSION

The National Park Service finds that the selected alternative is consistent with the policies and procedures of *NPS Procedural Manual #77-2: Floodplain Management* and *NPS Procedural Manual #77-1: Wetland Protection* including the “no net loss of wetlands” policy.

6.0 REFERENCES

Larson, J., P. R. Adamus, and P. R. Clairain

- 1989 "Functional Assessment of Freshwater Wetlands: A Manual and Training Outline."
University of Massachusetts, Amherst, Environmental Institute Publication 87-1.

National Park Service

- 2009 "Draft Brooks River Visitor Access Floodplains Statement of Findings." On file at park headquarters.
- 2012 "Preliminary Determination of Waters of the United States, Including Wetlands for Brooks River Access Barge Landing Alternative, NPS, Katmai National Park and Preserve. Prepared by B. Rice, G. Yankus, and W. Rapp. On file at NPS AK Regional Office.

Rice, B.

- 2008 "Field Trip Report for Wetlands Evaluations at Brooks Camp and Lake Camp, Katmai National Park and Preserve." Memorandum to Joan Darnell and Helen Lons, National Park Service, Anchorage, Alaska.

URS Group

- 2009 "Preliminary Jurisdictional Determination of Waters of the United States, Including Wetlands: Brooks River Bridge Project. Anchorage, Alaska.

ATTACHMENT C

PROGRAMMATIC AGREEMENT BETWEEN U.S. DEPARTMENT OF THE INTERIOR, NATIONAL PARK SERVICE, KATMAI NATIONAL PARK AND PRESERVE AND THE ALASKA STATE HISTORIC PRESERVATION OFFICER REGARDING THE BROOKS RIVER VISITOR ACCESS PROJECT AT KATMAI NATIONAL PARK AND PRESERVE

WHEREAS, Katmai National Park and Preserve (KATM) recognized the national significance of the archeological resources of Brooks River by designating the Brooks River Archeological District (XMK-00051) in 1978, which is also designated the Brooks River Archeological District National Historic Landmark in 1993; and the Brooks Camp Cultural Landscape (XMK-00204), designated in 2011; and

WHEREAS, KATM recognizes the ethnographic values associated with the Alaska Native peoples' customary and traditional use of the Brooks River fishery; and

WHEREAS, KATM recognizes that historic structures associated with the Northern Consolidated Airlines – Brooks Lodge complex (Brooks Camp) Historic District (XMK-00142) are eligible for the National Register of Historic Places (NRHP) under Criterion A as a Cultural Landscape, and are also eligible as a historic district; and

WHEREAS, KATM has determined that actions associated with the Brooks River Visitor Access Project, which include construction and installation of the bridge and boardwalk, relocation of the KATM barge landing site, and relocation of the barge landing access road have the potential to adversely affect historic properties and landscapes as defined at Section 301(5) of the National Historic Preservation Act (NHPA) as amended (16 U.S.C. 470w-5), and as defined at 36 CFR 800:16(1); and

WHEREAS, KATM has determined that the exact nature of the effects to historic properties cannot be fully determined in advance of the undertaking; and

WHEREAS, because KATM desires to supplement the review process set forth in the 2008 *Nationwide Programmatic Agreement (NPA) among the National Park Service (NPS) (U.S. Department of the Interior), the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers (NCSHPO)* in order to streamline review of actions having to do with construction of the Brooks River Visitor Access Project (the undertaking), KATM has elected to comply with Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) (hereinafter referred to as 'Section 106') through execution and implementation of a Programmatic Agreement and a Brooks Camp Cultural Resources Management Plan (CRMP) (Appendix A) pursuant to 36 CFR § 800.14 and Stipulation IX (B) of the 2008 NPA; and

WHEREAS, KATM has consulted with the ACHP in accordance with 36 CFR § 800.14 and Stipulation IX (B) of the NPA to develop this PA and the ACHP has declined to participate or comment; and

WHEREAS, KATM has consulted with the Bristol Bay Native Association; the Bristol Bay Native Corporation; the Alaska Peninsula Corporation; Paug-Vik Incorporated, Limited; South Naknek Village Council; Naknek Village Council; King Salmon Tribal Council; Heirs of Palakia Melgenak; and the Council of Katmai Descendants and they have been invited to concur in this PA as pursuant to 36 CFR 800.14 (b)(1)(1); and

WHEREAS, KATM, in consultation with the SHPO has established the Undertaking's Area of Potential Effects (APE) as identified on a site map that shows direct and indirect effects (Appendix B), as defined in 36 CFR 800.16 (d) of the Council's regulations, which encompasses direct and indirect effects for all Environmental Impact Statement (EIS)-evaluated action Alternatives; and

WHEREAS, KATM recognizes the area comprising the Undertaking is of great importance to the Alaska Native people of the Alaska Peninsula region who reside near and use the Project Area for subsistence harvesting, gathering, and ceremonial purposes; and

WHEREAS, KATM recognizes that this and future proposed actions in the APE may affect previously unidentified historic properties; and

WHEREAS, pursuant to 36 CFR Part 800.14, the Signatories and other consulting parties, including the Concurring Parties have developed stipulations and the attached Cultural Resources Management Plan (Appendix A) incorporated by reference into this PA to ensure implementation of measures to avoid, minimize, and/or mitigate effects to historic properties;

NOW, THEREFORE, KATM and the SHPO agree that upon the KATM decision to proceed with the construction and installation of the Brooks River Visitor Access Project, KATM shall ensure that the following stipulations are implemented in order to take into account the effects of its undertakings on historic properties.

STIPULATIONS

NPS shall ensure that the following stipulations are carried out.

Since construction of the bridge presents the potential for direct effects, as well as long term indirect and cumulative effects, KATM recognizes the need for cultural resources management planning as well as the need to more fully address the area's ethnographic resources. Therefore KATM will prepare the following products as mitigation.

I. CULTURAL RESOURCES MANAGEMENT PLAN

- A. A Cultural Resources Management Plan (CRMP) is presently being developed in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 CFR 44716), which will be adopted for purposes of detailing the avoidance, minimization, and mitigation measures set forth to implement this PA. The measures identified in the CRMP shall be carried

out by KATM. KATM will use archeologists/historians who meet the Secretary of the Interior's Qualifications to carry out measures specified in this PA, in coordination with the SHPO.

- B. Upon the signing of this PA, the document continues to be developed and presently provides solid overview of KATM's cultural resources at Brooks Camp. The document presently provides an introduction to the area, a description of the activities proposed by the Brooks River Visitor Access Project as well as past undertakings within KATM, an overview of the Regional History, Prehistory, and Environment, and an initial overview and preliminary analysis of known cultural resources within the APE (Appendix A).
- C. All known historic properties in the project area, including archeological and ethnographic resources, historic buildings, and cultural landscape features have been identified in the attached CRMP (Appendix A) and will be clearly marked and flagged for avoidance during construction.
- D. Within four years of the signing of this PA, KATM will expand the CRMP to include a second volume entitled "Brooks River Cultural Resources Analysis, Evaluation, and Recommendations" The purpose of this volume will be to take the next step within the CRMP. The envisioned "Analysis and Recommendations" volume will be a proactive multi-disciplinary effort to address anticipated undertakings and provide a framework for the long-term management of KATM cultural resources. This volume will provide management with specific information about cultural resources in the Brooks River area, identifying potential impacts and providing recommendations to minimize harm where possible. It will be especially useful as reference for management and to inform future Section 106 undertakings during initial project planning stages.
- E. The second volume will generally adhere to the Cultural Landscape Report format and standards which are consistent with the *Secretary of the Interior's Standards for Treatment of Historic Properties*. The report will provide analysis, evaluation, and treatment recommendations for the cultural resources within the area. The SHPO and consulting parties will have the opportunity to review at minimum, two document drafts; each draft will be out for review for a minimum of 30 days, prior to the document being finalized and a copy provided to the SHPO and to the consulting parties.

II. ETHNOGRAPHIC OVERVIEW AND ASSESSMENT

- A. In conjunction with this proposed project, in 2010 Dr. Patricia Partnow initiated an ethnographic resources survey to identify and document places of importance to Native Katmai area descendants. The survey will be completed by September 30, 2013. Within 90 days after of completion of the survey the KATM Section 106 coordinator will submit to the Alaska SHPO a synthesis

and evaluation of the compiled ethnographic traditional use/cultural landscape information along with a determination of eligibility for listing in the NRHP. This evaluation will be done in consultation with Native Katmai area descendants including the Council of Katmai Descendants, the Alaska SHPO and NPS Alaska Region ethnographic staff. SHPO will respond to this request for concurrence on the determination of eligibility within 30 days of receiving the document.

- B. Within three years from the signing of the PA, KATM will prepare an ethnographic Overview and Assessment that integrates Dr. Partnow's research with available information on Project Jukebox and other sources. Work on the overview will involve members of the Council of Katmai Descendants in choosing topics and developing approaches to commemorate their people;
- C. The SHPO and consulting parties will have the opportunity to review at minimum, two document drafts. Each draft will be out for review for a minimum of 45 days prior to the document being finalized and printed. Final copies will be provided to the SHPO and consulting parties.

III. PROFESSIONAL QUALIFICATIONS AND TRAINING

- A. All archeological work will be conducted or directly supervised on-site by archeologists who meet the Secretary of the Interior's Standards for Archeology (36 CFR Part 61).
- B. KATM shall ensure that any contractors involved in the Project shall expressly refer to and require compliance with this PA and relevant guidance in the accompanying CRMP.

IV. CONTINUING CONSULTATION

NPS will continue to consult with the Alaska SHPO and all of the Consulting and Concurring Parties, including Bristol Bay Native Association; the Bristol Bay Native Corporation; the Alaska Peninsula Corporation; Paug-Vik Incorporated, Limited; South Naknek Village Council; Naknek Village Council; King Salmon Tribal Council; Heirs of Palakia Melgenak; the Council of Katmai Descendants; and Sonny Peterson, owner of Katmailand, Inc., holder of the Brooks Lodge Concession Contract.

V. ADDITIONAL INVENTORY AND MONITORING

Archeological monitoring and additional surveys (if needed as determined by the KATM lead archaeologist) will precede and/or accompany construction-related ground disturbance to ensure that significant archeological resources are considered

and as feasible, measures are implemented to avoid, minimize, and/or mitigate adverse effects to the greatest extent possible.

VI. INADVERTENT DISCOVERIES AND HUMAN REMAINS PROTOCOLS

- A. In the event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered, KATM will comply with the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) (25 USC 3001) following the procedures set forth in a Memorandum of Agreement among the Park and traditional associated federally recognized tribes and interested parties signed on July 19, 2011 (CRMP Appendix 2).
- B. If previously unknown resources (other than human remains) are discovered, all work in the immediate vicinity of the discovery will cease until the resources are assessed and as feasible, measures are implemented to avoid, minimize, and/or mitigate adverse effects in consultation with the Signatories. If necessary, mitigation will proceed according to the plan set forth in Chapter V of the CRMP (Appendix A) and the MOA on Inadvertent Discovery (CRMP Appendix 2).

VII. ANNUAL REPORTING REQUIREMENT

KATM shall ensure that an annual report on all actions carried out pursuant to this Agreement is provided to the SHPO at the end of each calendar year.

VIII. REVIEW AND AMENDMENT OF THE PA AND CRMP

- A. If the undertaking is not completed within seven years of the date this Agreement is signed, the CRMP and the PA will be reviewed and updated through consultation among the Signatories and other consulting parties.
- B. Any Signatory to this PA may propose to KATM that the PA and/or the CRMP be amended, whereupon KATM shall consult with any other Signatories to this PA to consider such an amendment. 36 CFR 800.6(c) (7) shall govern the execution of any such amendment.

IX. RESOLVING OBJECTIONS

Should any Signatory to this PA object in writing to the NPS regarding any action carried out or proposed with respect to the implementation of this PA, KATM shall consult with the objecting party and other signatories.

- 1. If, after initiating such consultation, KATM determines that the objection cannot be resolved through consultation, it shall forward all documentation relevant to the objection to the ACHP, including KATM's proposed response to the objection.

2. Within 30 calendar days after receipt of all pertinent documentation, the Council shall exercise one of the following options:
 - a. Advise KATM that the ACHP concurs in KATM's proposed response to the objection, whereupon KATM will respond to the objection accordingly.
 - b. Provide KATM with recommendations, which KATM shall take into account in reaching a final decision regarding its response to the objection.
 - c. Notify KATM that the objection will be referred to the ACHP membership for formal comment and proceed to refer the objection and comment within 45 calendar days. KATM shall take the resulting comment into account.
3. Should the ACHP not exercise one of the above options within 30 calendar days after receipt of the pertinent documentation, KATM may assume the Council's concurrence in its proposed response to the objection.

X. TERMINATION

Any signatory to this PA may terminate it by providing thirty (30) days' notice to the other signatories explaining the reasons for the proposed termination. KATM will consult with the other signatories explaining the reasons for the proposed termination. KATM will consult with the other signatories during this period to seek agreement on amendments or other actions that will avoid termination. In the event of termination, KATM will request comments of the ACHP under 36 CFR § 800.7(a) and comply with 36 CFR 800 with regard to individual undertakings otherwise covered by this agreement.

XI. ANTI-DEFICIENCY ACT

All requirements set forth in this PA requiring the expenditure of KATM funds are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 U.S.C. Section 1341). No obligation undertaken by KATM under the terms of this PA will require or be interpreted to require a commitment to expend funds not obligated for a particular purpose.

1. IF KATM cannot perform any obligations set forth in the PA due to the unavailability of funds, the signatories to this PA intend the remainder of the agreement to be executed.
2. In the event that any obligation under the PA cannot be performed due to the unavailability of funds, KATM agrees to utilize its best efforts to renegotiate the provision, and may require that the parties initiate consultation to develop an amendment to this PA when appropriate.

XII. DURATION

This PA shall become effective upon execution by the signatories to this PA and shall remain in effect until terminated or seven years after it becomes effective. If KATM wishes to continue this Agreement it shall so notify the signatories to this Agreement and re-initiate the review of this PA in accordance with 36 CFR § 800.14.

ATTACHMENTS: Appendix A: Brooks River Visitor Access Project Cultural Resources Management Plan (CRMP) and Appendix B: Area of Potential Effects (APE) map

SIGNATORIES:

KATMAI NATIONAL PARK AND PRESERVE

By: _____ Date _____
(Diane Chung, Superintendent)

ALASKA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date _____
(Judith Bittner, Alaska SHPO)

ATTACHMENT D: ERRATA

The NPS is making a technical correction to the wetlands portions of Chapters 2, 3, and 4 to reflect updated design configurations of the barge access road and inadvertent omission of an impacted wetland and wetland restoration areas in the FEIS.

Chapter 2, Table 4, Summary of Impacts of the Alternatives, is amended to include impacts of construction of the barge landing on Naknek Lake as found in Table 1 of this attachment for alternatives 2-5.

The first paragraph in Chapter 3, Affected Environment, Vicinity of Southernmost Proposed Barge Landing Site and Access Road (p. 87) is changed to the following:

A lacustrine, littoral, unconsolidated bottom wetland (L2UB) occurs between the high water line of Naknek Lake and extends to a water depth of 2 meters at low water (see figure 10b). The proposed barge landing ramp would occur in this wetland. Although wetlands A, B, C, D, and J are immediately adjacent to the proposed access road route (see figures 10a and 10b), the 2012 survey found that the proposed access road would avoid jurisdictional wetlands, except for a small drainage connecting URS-mapped wetlands D and J and some fill in wetlands A.

Figures 10A and 10B (p. 88-89) will be replaced with the figure C-1 of this attachment.

The Wetlands and Uplands Vegetation section of Chapter 4, pages 171-183, is amended to reflect the impacts to wetlands described in Table C-1 of this attachment.

The NPS is also replacing Appendix B of the FEIS, Statement of Findings for Floodplains and Wetlands, with the Statement of Findings for Floodplains and Wetlands attached to this Record of Decision as Attachment B.