



Kennecott Operations Plan

Environmental Assessment

March 2013



Kennecott Operations Plan

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1.0 PURPOSE AND NEED FOR ACTION

The National Park Service (NPS) is considering alternatives for management of the Kennecott Mines National Historic Landmark (NHL) in Wrangell St. Elias National Park and Preserve. In this Environmental Assessment (EA), the NPS analyzes four management alternatives and their impacts on the environment. These alternatives are described fully in Chapter 2 of this document.

In total, NHL encompasses 14,231 acres of public and private lands (See Figure 1). However, proposed management in this document is focused on NPS-owned portions of the mill town and surrounding area. Nevertheless, some components of management (such as access/transportation) affect the entire Kennecott/McCarthy area. Many Kennecott structures (both historic and non-historic) and lots are in private ownership; this plan is intended to address only NPS owned properties. Figure 2 shows NPS and privately owned lots within the mill town. Participation and inclusion of proposed actions by private property owners will be at the sole discretion of those owners.

1.1 PURPOSE OF ACTION

This document is a revision of the 2001 Interim Operations Plan for the NHL, which was written to develop management strategies for the NPS when the National Park Service acquired the privately owned Kennecott Mines National Historic Landmark in June 1998. The purpose of the Kennecott Operations Plan is twofold:

- Provide long term guidance and protocols for an NPS/community partnership.
- Provide long term goals, guidance and management strategy for NPS-owned portions of the Kennecott Mines National Historic Landmark. This includes historic structure preservation and stabilization, interpretation, NPS utilities and infrastructure, access/transportation, and vegetation management.

Background: The 1998 acquisition was initially facilitated by the locally-based non-profit organization Friends of Kennicott, formed in 1988 by a diverse partnership representing local landowners, tourism, mining, conservation and historical preservation interests to conduct emergency stabilization of key structures such as the Mill Building. Friends of Kennicott actively worked with the local community and NPS to realize a shared vision for the future. Realizing the benefits public ownership would bring, Friends of Kennicott, the Conservation Fund, Kennecott Copper Corporation, and others began to lobby Congress for NPS acquisition of the Landmark. These efforts succeeded in 1998 with a federal appropriation specifically supporting a community based partnership concept for management. Much of the spirit and intent of the partnership management strategy was written into the 2001 Interim Operations Plan.

The Kennecott site, mined for its copper in the early 1900s, is approximately 5 miles from where the McCarthy Road ends at the Kennicott River, and lies in the heart of Wrangell-St. Elias National Park and Preserve (WRST); the largest National Park unit in the system, covering 13.2 million acres. Kennecott lies in a wilderness containing some of North America's biggest and most rugged mountains and glaciers. WRST was established under the Alaska National Interest Lands Conservation Act of 1980, and is just one of multiple overlaying management agencies and designations affecting Kennecott. National to global designations include National Park, National Historic Landmark, and World Heritage Site.

In 1998 NPS acquired 2,839 acres, including much of the historic mill town, the subsurface rights to the mine, and the natural area surrounding a contemporary local community. With the acquisition, NPS assumed new responsibility for protecting the important elements of the historical, cultural and natural landscape. In addition to being a historic site of national significance, the NHL also includes natural areas easily accessible to visitors and is a gateway to the park's backcountry. Its cultural landscape

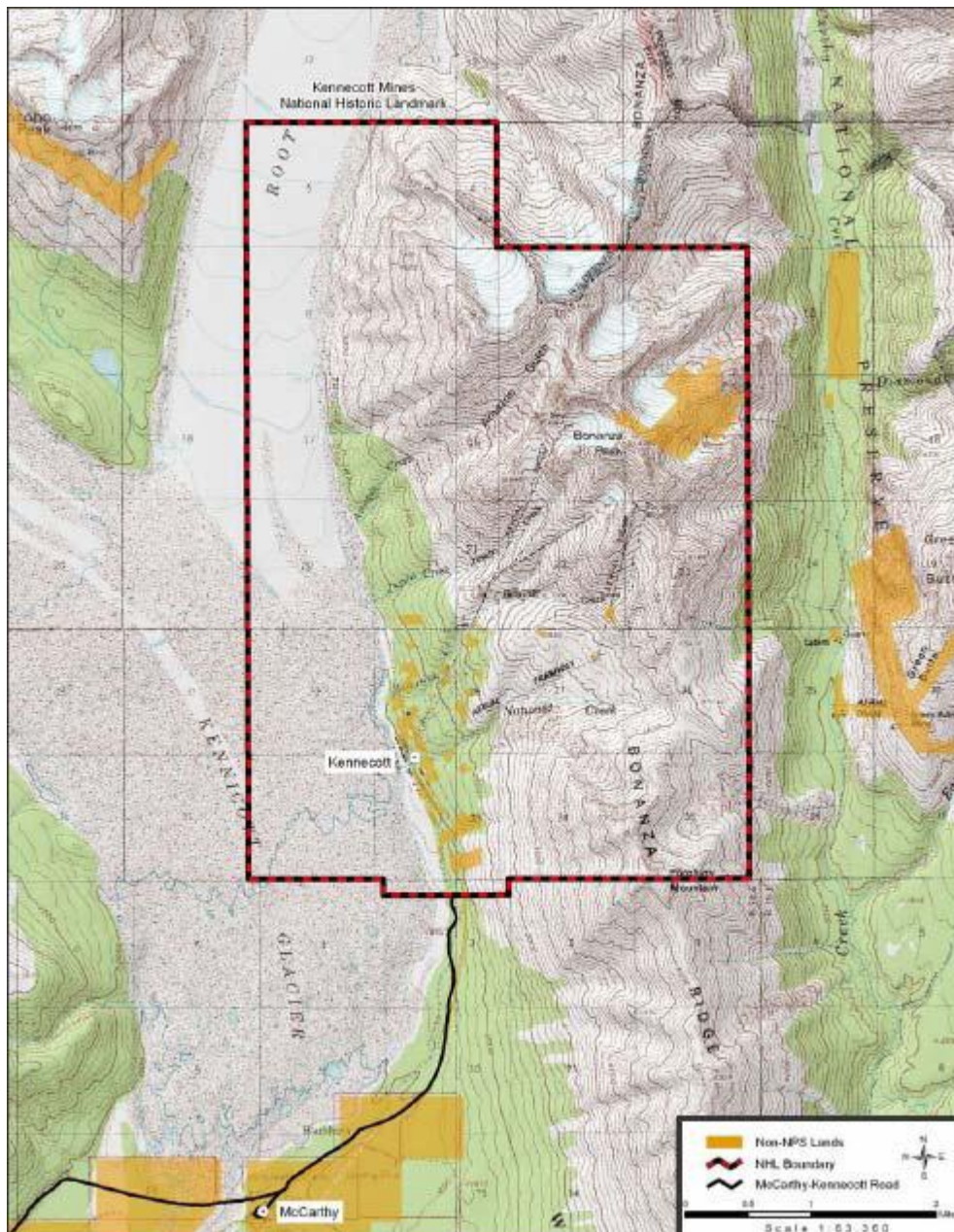


Figure 1: Kennecott Mines National Historic Landmark boundary

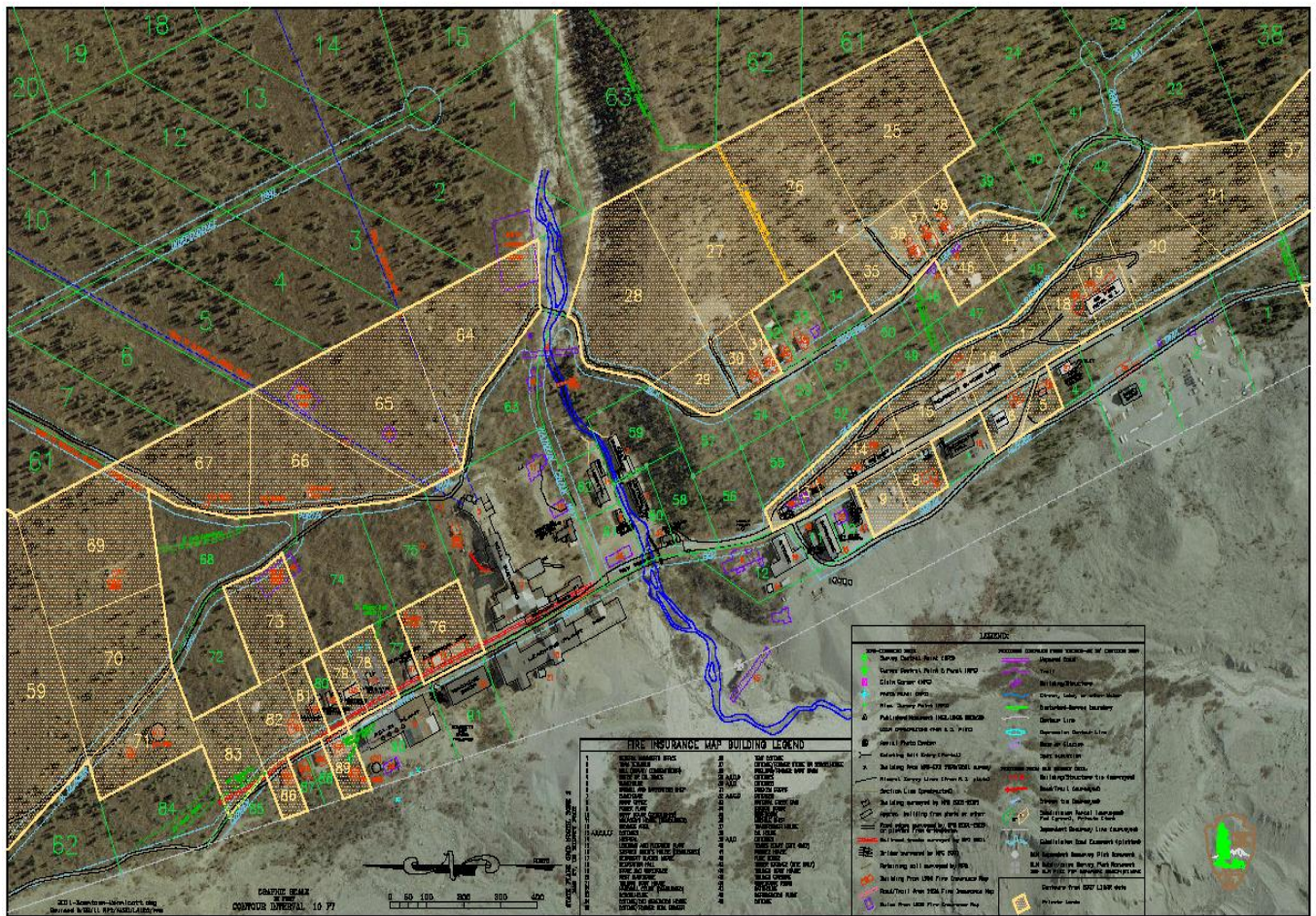


Figure 2: Kennecott Mill town land status.

reflects a mixture of historic mining era buildings and artifacts intermixed with the ongoing life of an Alaska community, members of which own land and businesses intermingled with NPS holdings at Kennecott and in the nearby area of the town of McCarthy. Additional management layers within the NHL include subdivision easements, covenants, and architectural control bodies. The National Park Service is one owner among many. Currently Kennecott Mines NHL is the most popular visitor destination in WRST.

1.2 NEED FOR ACTION

The 2001 Interim Operations Plan was intended to provide guidance for management of the NHL for a five-year period. The Interim Operations Plan needs to be revised for the following reasons:

- The 2001 Interim Operations Plan is out-of-date and new direction is needed to address contemporary issues.
- There are major projects on the horizon, including stabilization of the 14-story concentration mill, stabilization of the leaching plant, and construction/installation of a potable water/fire suppression system.
- Much has been accomplished in the NHL since 2001. A revision is a good opportunity to document the stabilization, preservation, and adaptive re-use of historic structures that has occurred.
- There has been discussion and concern within the Kennecott/McCarthy community regarding work that has been performed relative to the community vision that was presented in the Interim Operations Plan.
- The NPS has acquired additional private parcels within the NHL since 2001.
- The Interim Operations Plan called for development of a communication process and procedure for joint NPS/community review of proposed projects. This needs to be described and implemented.
- New issues have developed in light of changes in access to the NHL that have occurred since the Interim Operations Plan. There is a growing component of Off Road Vehicle use and easier access to the site with privately owned full-sized motor vehicles.

1.3 MANAGEMENT GOALS AND MANAGEMENT CONCEPTS

The following goals and management concepts were developed in cooperation and consultation with the community of McCarthy/Kennecott. They are statements of purpose and condition for management of the NHL. The preferred alternative should be the alternative that best meets the goals.

1.3.1 Goals

General Goal: The general goal for management of NPS lands in and around the NHL is to conserve the scenery, natural and historic objects, and wildlife habitat and to provide for the enjoyment of the same by such means as will leave them unimpaired for the enjoyment of the future generations. The focus for management of the Kennecott Mines National Historic Landmark is to stabilize, preserve, and interpret the key patterns, relationships, and remaining structures and features that define the historic, cultural and natural character of the NHL. In some cases, individual features may have such a high degree of historical significance that rehabilitation or restoration is warranted. NPS will strive to meet this general goal while recognizing and working in partnership with the embedded Kennecott community.

Partnerships: The NPS recognizes that a viable and diverse community of individuals and families existed in the area prior to the creation of the NHL, indeed prior to the entire region being designated a

national park. NPS will work in partnership with this local community to manage the NHL in such a way as to maintain the character of the local communities of Kennecott and McCarthy. NPS and the Kennecott/McCarthy community define the partnership as an active cooperation trying to achieve mutual goals and objectives. The partnership is mutually beneficial.

Communications: In recognition of the irreplaceable value of local knowledge to the development and implementation of NPS policy, and acknowledging that local residents, non-profit organizations, and businesses provide visitor services and contribute to the rich hospitality experienced by park visitors, NPS will establish frequent, on-going communication with the local Kennecott/McCarthy community. The communications protocol is described in Chapter 2, under Actions Common to All Alternatives.

Cultural Resources

Structures: The goal of the NPS Kennecott preservation program is to apply measures necessary to sustain the existing form, integrity and materials of key historic buildings within the Kennecott NHL by repairing and replacing deteriorated roofs, walls and foundations and, in some cases, by replacing and maintaining windows, siding and paint to ensure preservation of historic structures for generations to come. Some historic structures have been specifically identified for adaptive re-use. These will be generally managed at a higher standard consistent with the “Rehabilitation” definition provided in the *The Secretary of Interior’s Standards for Treatment of Historic Properties*. Other historic buildings may be preserved or managed as ruins. Hazardous substance mitigation (lead paint abatement) will be done concurrently with stabilization and rehabilitation of historic structures.



Photo 1: Power Plant

Archeological Features: Preserve archeological resources contributing to the character and interpretation of the NHL. If removal is required to facilitate building stabilization, archeological objects or features will be returned to their original location upon completion of the project. Wrangell-St. Elias National Park and Preserve (WRST) will implement a regularly scheduled inventory of these archeological resources to ensure their retention and assess their vulnerability and stability. Resources determined to be intrusive or non-contributing to the historic district may be removed if they present a safety hazard.

Small-Scale Features: To preserve the character of the landscape and to enhance the interpretive environment, consideration may be given to preserving and/or reconstructing small-scale structures and features. These features include functional and ornamental elements (such as benches), utilities (light standards, utilidors, and water systems) and mining features (such as equipment). Reestablishment or reconstruction of small-scale features must be based on historical documentation. Preference for restoration will be to those features (such as hose houses or utilidors) that may serve some modern use.

Circulation Systems: The majority of existing roads and trails throughout the mill town reflect historic patterns, and these will be maintained whenever possible. Pathways and boardwalks may be reintroduced within the mill town. The addition of new roads within the mill town will be discouraged.

Natural Resources

Vegetation: Existing vegetation throughout the mill town is largely the result of growth since the historic period (1900 – 1938). Limited, selective thinning of vegetation would occur on NPS properties to reestablish historic views and view sheds and to protect the site from the effects of fire and damage to the buildings. The NHL provides habitat for unique and rare plant species that NPS will continue to monitor.

Invasive vegetation which is considered a threat to other resources will be controlled and removed whenever feasible. Revegetation of disturbed areas resulting from NPS activities will utilize native seeds/cuttings from local population sources. In some cases re-vegetation with historically accurate, but non-native and non-invasive plants may be considered as part of maintaining the cultural landscape.

Wildlife: The NHL provides habitat for numerous wildlife species. In particular the Kennicott Valley provides important black and brown bear habitat in the form of soapberry patches which has potential for conflict with visitors and residents. NPS will protect wildlife habitat and work to prevent negative wildlife/human interactions, while recognizing that wildlife is a resource for local subsistence use.



Photo 2: Black bear

Water Resources: Local streams provide water for the community as well as for NPS operations. On NPS lands, NPS will manage the quality of surface waters consistent with the Clean Water Act. NPS will continue to monitor water quality and will consult with the community in developing any necessary mitigation measures in regards to proposed activities.

Natural Soundscape: NPS recognizes that natural quiet is a component of the NHL, the surrounding landscape, and the communities within it. It is also critical to the quality of life of local residents and quality of experience for visitors. NPS will consider impacts of proposed activities on the natural soundscape and will work with the community in developing mitigation measures in order to reduce impacts.

Subsistence: Federally qualified subsistence use is allowed within WRST in accordance with Titles II and VIII of ANILCA. Local residents depend upon the resources from the park for personal consumption, cultural identity, and to maintain a subsistence way of life.

Interpretation

NPS conducted a three day exhibits workshop in Kennecott in early June of 2011 with 13 NPS and regional staff and 17 local businesses, residents, park partners and other community members. Discussions produced valuable ideas for an interpretive approach that will form the foundation for specific interpretive projects spanning the next decade.

Interpretation at Kennecott will enable visitors to learn about the mines and the mill town, the historic relationship of Kennecott and McCarthy, natural resources and the surrounding wilderness, and the contemporary community through a variety of media, interpretive techniques, and programs. Interpretive programs will emphasize the opportunity for self-guided tours and a sense of exploration, utilizing unobtrusive interpretive displays. Where advantageous to the program, the NPS would enter agreements with qualified providers to conduct guided tours and with partners to facilitate fundraising and cooperative projects.

Photo 3: Public meeting



Access/Transportation

As a partner in the community, NPS supports and will manage for long-term pedestrian visitor access to the mill town, utilizing local shuttle systems. NPS will continue to support landowner use of subdivision easements and access to subsistence resources.

Administration and Operations

NPS Utilities and Infrastructure: The goal is to support historic preservation treatments and maintenance, visitor use, and park management in a manner least obtrusive to the historical character of the NHL. Where possible, systems will be designed consistent with historical utility systems and circulation patterns. Serious consideration will be given to use of alternative energy sources, provided they can be employed with minimal impact on the environment, the local community, and the historic landscape.

Hazardous Materials: As part of the acquisition of the Kennecott properties by the National Park Service, a number of stipulations pertaining to hazardous wastes and lead paint were established. The NPS has entered into agreements with the Alaska Department of Environmental Compliance and the U.S. Environmental Protection Agency. Under those agreements, the NPS affirmed its obligation pertaining to the abatement of lead paint hazards in accordance to state and OSHA regulations pertaining to worker safety and training. Hazardous substance mitigation is part of all general management actions and will be consistent with the 1999 Kennecott NHL Mitigation of Hazardous Material Issues Work Plan and with the park's 2003 Hazardous Materials and Waste Management Management Plan for Kennecott NHL.

Visitor and Resource Protection: NPS will manage the NHL to protect the cultural and natural resources of the historic mining district and the surrounding glacial landscape; and provide a safe, educational, and rewarding experience for the area's visitors and residents.

1.3.2 Management Concepts

The 2001 Interim Operations Plan for the Kennecott National Historic Landmark included a section titled **Management Concepts**. This section described elements of a shared community vision for management of the NHL. The Management Concepts were derived from two primary sources: 1) the set of documents that were produced at the time the NHL was established (including, but not limited to, the 1997 Park Service report "Kennecott Acquisition Past, Present and Future", which supported federal ownership of the NHL; and 2) the Alaska National Interest Lands Conservation Act (ANILCA) of 1980. These Management Concepts emerged from more than a decade of public discussion preceding the acquisition of the NHL and were put into writing by a local non-profit (Friends of Kennicott) and endorsed by the community in general at the time of acquisition.

In all management activities, the McCarthy/Kennecott community seeks to assure a future in which Kennecott:

- Is stabilized to prevent deterioration of historic structures or artifacts and to make them available to the public, to the greatest extent possible in accordance with public safety
- Is managed with a "light touch" in which projects are undertaken in small steps, at modest costs, with minimal intervention process.
- Is not just an abandoned mining town, but also a place that reflects the vitality, creativity, and community spirit of today's residents.
- Retains the slow pace, quiet, and spaciousness that foster contemplation and individual reflection. In particular, NPS will encourage visitors to enjoy the NHL as pedestrians, and will seek to

minimize the impact of management activities (including, but not limited to, noise and visual impact) on both visitors and local residents alike.

- Is part of a larger community in which residents act both individually and collectively to guide the future of the area.
- Contributes to a strong, reasonably diverse economy that includes locally owned and operated businesses, community-based nonprofits, and traditions of barter and subsistence.
- Protects and honors small-town values: safety, cooperation, self-sufficiency, and personal freedoms consistent with state and Federal laws.
- Is a place where tourism is allowed to evolve within the capacity of the community, rather than a place where external intervention and control accelerate growth.
- Is seen by local residents and visitors alike in its true context: a remote outpost of civilization in the midst of an enormous mountain wilderness.
- Is managed to protect the cultural and natural resources of this historic mining district and the surrounding glacial landscape; and provides a safe, educational, and rewarding experience for the area's visitors and residents.

The NPS supports the management concepts that the community and Friends of Kennicott have articulated above, with the exception of application of the second bullet statement to preservation of historic structures in Kennecott. The terms “small steps”, “modest cost”, and “minimal intervention” were discussed at a June, 2012 workshop in Kennecott. Workshop group members clarified that these terms are not focused solely on structural stabilization, but rather a broader landscape picture and, importantly, the long term NPS presence.

Relative to the other concepts presented above, NPS is legally mandated to operate under the Laws, Regulations, and Policies presented in Section 1.4 of this EA. If a proposal is necessary to meet the Laws, Regulations, and Policies but conflicts with the concepts presented above, NPS must defer to its laws, regulations and policies. If this is necessary, NPS will consult with the community utilizing the communication protocol described in Chapter 2 under Actions Common to All Alternatives.

1.4 RELATIONSHIP OF PROJECT TO OTHER DOCUMENTS, PROVISIONS, AND PLANNING

Management of the Kennecott Mines National Historic Landmark has resulted in numerous planning documents. Early planning has produced a foundation upon which subsequent plans have built. The following is a chronological listing of planning documents that relate to or have influenced the current planning effort.

KEEPING SPECIAL PLACES SPECIAL: McCarthy, Kennicott and WRST: A Great Challenge, A Unique Opportunity (Joseph Sax, 1990). In 1990, Friends of Kennicott was officially chartered as an independent organization to work on emergency stabilization and facilitate NPS acquisition. Their first mission statement: *“to preserve, restore and render available to the public the historic mine buildings located at Kennicott.”* Lobbying began in Congress and the Alaska Legislature for funding. The Wrangell Mountains Center and McCarthy-Kennicott Historical Museum—with funding from the National Trust for Historic Preservation, Alaska Division of Tourism and the Alaska Conservation Foundation—hired Joseph Sax to produce the first recommendations for Kennicott. Sax recommended a five-point program, with the following elements:

- Stabilize threatened historic buildings, doing the “minimum necessary work to protect structures and repair hazards to visitors.”

- Acquire in fee land Company's unsold mountainside land and subsurface interest above Kennecott. On a voluntary basis seek compatible use of individually owned tracts. Link acquisition to stabilization and preservation of, and option to acquire, historic buildings.
- Clean up hazardous wastes in Kennicott buildings.
- Put private land in McCarthy-Kennecott under protective covenants.
- Manage McCarthy Road and environs as scenic, low-speed corridor.

Kennicott Alaska, A Partnership Proposal (NPS/DOI proposal to Congress, May 1991).

This proposal for NPS acquisition of the site was developed as a partnership including 1) owners of the surface and mineral estate; 2) Alaska's State Historic Preservation Officer; and 3) the Friends of Kennicott. Primary elements of the proposal included:

- Clean-up of hazardous substances to bureau specifications by owners.
- Acquisition of surface and subsurface by the NPS.
- Basic stabilization of historic structures by the NPS and others.
- Cooperative comprehensive planning for Kennicott and access corridor.

A Proposal for Ownership and Management of the Kennicott Property, *Protecting the Cultural and Natural Heritage of Alaska's Wrangell St. Elias National Park* (Friends of Kennicott, 1994). This document featured a cost-effective, local-federal partnership.

Kennecott Acquisition—Past, Present, and Future (WRST staff in cooperation with Friends of Kennicott, 1997). This document described the Kennecott history, current issues, and visions for future management of the site. Under the topic "Management Plans for Kennecott", the following is described: "What is to be maintained is the sense of...a site abandoned but still haunted by past residents, a place that has not been sanitized. It is a place of discovery for the visitor, but one where investigation and inquiry can be done safely and with respect for the remaining historic objects and structures." With regard to historic structures, this document goes on to state "The Kennecott historic structures were excessively overbuilt with large timbers and complex framing. With proper care to the foundations and the "skin" to prevent interior weathering, they will stand for a very long time."

Partnership Management Strategy (Mike Loso with funding from NPS and SHPO, 1998). Created with extensive stakeholder input, this report contained the first articulation of the "Management Concept", which was recognized in the NPS 2000 Kennecott Interim Operations Plan. This report also emphasized and articulated the benefits of partnerships.

Kennecott National Historic Landmark Mitigation of Hazardous Material Issues Work Plan (NPS and Alaska Department of Environmental Conservation, 1999): This agreement, signed in 1999 by the NPS and Alaska Department of Environmental Conservation (ADEC), requires NPS to mitigate hazardous materials issues and identifies methods and strategies to do so. It specifically identifies 144,000 square feet of building surfaces covered with lead-based paint. The recommended management option is that the potential exposure to lead-based paint be mitigated as part of the stabilization/maintenance of the site, through a combination of removal and disposal of the lead-based paint, encapsulation of the lead-based paint or repainting with non-lead paint, or capping impacted surrounding soils.

Cultural Landscape Report (CLR) and Interim Operations Plan (NPS, 2001). The Cultural Landscape Report (CLR) outlined the treatment, management philosophy, management zones, and treatment recommendations that would guide NPS management and preservation of the Kennecott NHL. This document also includes a detailed chronological site history accompanied by maps showing the

evolution of the mill town over the past century, from its mining and milling heyday, through its abandonment, to its current “rebirth” as a national historic landmark and tourist attraction.

The Interim Operations Plan, which is Appendix A of the CLR, provided for both short-term and long-term NPS actions focused on compatible design, incremental change, and the reestablishment of the historic character of the site. Under this plan, NPS would begin to rehabilitate the company store for a visitor contact station, offices, and storage. Interpretive programs would be offered by NPS, concessioners, and other cooperators. Exhibits would be developed in coordination with the McCarthy Museum. Structures would be stabilized on a priority basis. A number of buildings would be opened for visitors to tour independently. Historical pathways would be reestablished and some vegetation clearing would take place. NPS would work cooperatively with the community to address the rehabilitation of the community building and fire and EMS response.

The Interim Operations Plan identified the primary NPS management goal as enhancing visitor understanding of Kennecott by preserving, protecting and interpreting key remaining structures and landscape features, patterns and relationships that define the historic, cultural and natural character of the NHL. Within the NHL, it designated six land use zones:

1. *Administrative Core*, including the office, manager’s residence, depot, hospital, and staff housing. Appropriate uses for Zone 1 are NPS operations, offices, interpretation, and a visitor center.
2. *Industrial Core*, including the concentration mill, tram deck, power plant, leaching and flotation plant, machine shop, tailings, flume structures, and warehouses. Appropriate uses of Zone 2 are interpretation, storage, equipment repair, workshop, and utility infrastructure.
3. *Residential A*, including Silk Stocking Row, old lodge, barracks, and local access roads. Appropriate uses are interpretation, residential, lodging, and tent cabins.
4. *Residential B*, including north end cottages. Appropriate uses are private residences and interpretation.
5. *Residential C*, including vegetated and cleared hillsides and historic dumps. Appropriate uses are residential, undeveloped, and natural resource protection.
6. *Commercial*, including the store, post office, storage, resident services, meat house, community facilities, housing and tent cabins. Appropriate uses are concession/commercial (outfitters, bike rentals, guided tours, guest services, gift shop, bookstore), offices and community center.

McCarthy Road/Chitina Valley Roundtable Project Phase III Report (2002). The three phase Roundtable Project was begun in 1999 by the Copper River/Wrangell’s Tourism Work Group of the Alaska Land Managers Forum in response to the Alaska Department of Transportation and Public Facilities (ADOT&PF) proposal to upgrade the McCarthy Road between Chitina and McCarthy. The Roundtable Project forecasted potential for growth and traffic volumes along the road, documented land use and development issues, and crafted specific options and management tools for addressing change and growth in the community. The project included substantial public input and participation by residents from Chitina, McCarthy, and along the road. The McCarthy Road Coordinating Group, brought together through this project, included stakeholders such as Ahtna Inc., Chitina Native Corporation, Chitina Traditional Village Council, ADOT&PF, NPS, University of Alaska and the Alaska Department of Natural Resources (DNR). For the Kennicott River Segment (MP 55-60), the Phase III Report identified the following issues:

1. Uncoordinated development makes arrival at the end of the road confusing and not entirely welcoming to visitors.
2. Appropriate recognition of this area as the “reception” area to the park and the community of McCarthy/Kennecott.
3. Opportunities for private development.

4. Need to coordinate pedestrian, bicycle, automobile, and off-road vehicle circulation for safety and to improve visitors' experience along this busy stretch.
5. Vehicular access across the Kennicott River.
6. Provision of public infrastructure/utilities.

Six desired future conditions were listed:

1. No "Glitter Gulch", e.g., a desire for aesthetic development along the end of the road that enhances visitors' experience of WRST and the presentation of McCarthy as a community.
2. Coordination of public projects within the corridor.
3. Ability to meet parking needs while not detracting from the spectacular setting.
4. Appropriate roles between private and public sectors.
5. Development of appropriate "tourism/visitor" facilities.
6. Resolution of access issues.

Implementation Actions included the following:

1. Development of West Side Business Owners organization to coordinate development west of the Kennicott River.
2. Development of arrival sequence facilities as outlined in Roundtable meetings.
3. Cooperative Agreement for coordinated public/private provision of visitor facilities on west side.
4. Cooperation for development of "Gateway" prior to entering the community. Provision of public facilities and orientation at NPS McCarthy Road Information Station.

The expectation of the Roundtable was that its recommendations could be jointly implemented by stakeholders "without imposition of additional governmental influence."

McCarthy Walk-In Campground Environmental Assessment (NPS, 2002). NPS prepared this EA on the proposed McCarthy walk-in campground for primitive tent camping near the McCarthy airport, approximately one mile from McCarthy. The site would occupy 42 acres in a glacial fluvial outwash and access would be limited to non-motorized methods along a designated trail traversing federal land. Alternative 2 was the agency preferred alternative and included vault toilets, bear-resistant trash receptacles, water, and a centralized food preparation area. Alternative 2 incorporated a number of mitigation measures aimed at minimizing human-bear conflicts and other adverse effects.

In 2003, NPS signed a Finding of No Significant Impact (FONSI) to implement Alternative 2. There were 4 public comments received on the EA that were addressed by the FONSI. Concerns were expressed over potential impacts to local use of the area, disposal of garbage and human waste, access to the campground, and potential for bear-human interactions. The campground has not been constructed and is considered again in this document.

Environmental Assessment: Interim Park Operations Support Complex, Kennecott District (NPS, 2003). In this EA, WRST analyzed the potential environmental impacts of a proposed park operations support complex located at approximately mile 60 along the McCarthy Road, west of the Kennicott River. This field season support camp would be for NPS employees temporarily stationed for up to five months at the Kennecott Mines NHL and employees of NPS contractors. Proposed development within the 4-acre complex included portable housing structures, material staging and storage yard, and utilities including drinking water, septic, and telecommunications. In 2003, NPS signed a FONSI to implement Alternative 2, the proposed action. The site has been constructed and is currently in operation.

Kennecott Utilities Study, An Assessment of National Park Service Utility Needs at the Kennecott National Historic Landmark (NPS, 2003). This study assessed utility needs at the Kennecott NHL for the six months of the year it would be in operation (April 15th – October 15th) by investigating electrical power generation, utilidor configurations, heating, fire protection, potable water, and sewage disposal alternatives. Among the study's conclusions and recommendations were the following:

- Electrical power: A combination of hydroelectric power generation and diesel generation would accommodate the NHL's needs; having both hydroelectric and diesel generation available would provide redundancy to the system during times of low stream flow, during start-up and shutdown, and during maintenance on the hydroelectric facility.
- Utilidors: Currently, wooden plank utilidors house the steam supply, condensate steam, and water for the structures; the utilidors are in poor condition, with many beyond repair. In some cases wooden utilidors were suggested to preserve the historic system, while in other instances buried utilities were suggested for protection of the utilities and reduction of installation and maintenance costs.
- Heating: Buildings would not be heated year-round. Propane-fired forced air furnaces and boiler systems would be added to cottages 39C, 32C, 32D, future cottages acquired, temporary cabana housing and support building, Store, West Bunkhouse, New School, Old School, Recreation Hall, Depot, General Managers Office, and Dairy Barn to provide an adequate comfort level in spring, summer, and fall when Kennecott is staffed and open for park visitors.
- Fire Protection: The current water service is incapable of providing enough water for fire suppression, so another source is necessary. Bonanza Creek is recommended for this purpose; water supplied from this source could be used to supply water for the hydroelectric facility, fire suppression system, and potable water. The distribution system would consist of underground piping with installed hydrants, a sprinkler system at 12 structures, and a mini-pumper truck.
- Sanitary Sewer System: The five buildings (Old School, Recreation Hall, New School, Machine Shop, and West Bunkhouse combined with the Company Store) that need sewer service are the same selected for water service. While conventional septic systems are typically ideal for remote locations and minimal use facilities, at Kennecott the steep terrain and small lot sizes complicate this option. Therefore, other options like alternative toilets and package treatment plants may be preferable for certain buildings depending on use rates and site characteristics.
- Water: A water utility infrastructure at Kennecott does not exist at this time. Proposed management and development at Kennecott would establish the means to deliver potable water; water for hydroelectric power generation, and water for fire protection. The Kennecott Utilities Study and 2005 Value Analysis examined several concepts for water infrastructure for the area upslope of the Mill Building and along the historic rail corridor.

Kennecott Mines Support Facility Plan and Environmental Assessment (NPS, 2006). This EA considered proposals and impacts associated with housing for NPS employees, construction materials storage, power generation and distribution, sanitary sewer system, fire suppression system, water gathering and storage, potable water treatment and distribution, utilidors, transportation, McCarthy Visitor Information Station, and shuttle service. The EA considered two alternatives (the preferred alternative and the No Action alternative). Fifty parties provided comments during the EA public review period.

A Finding of No Significant Impact (FONSI) was signed in 2007, with a decision to implement Alternative 2, the Preferred Alternative. The Decision included some of the following elements:

Housing for NPS employees:

- NPS Housing assessment identifies the future need for up to 32 employees. Employees include those duty-stationed at the NHL, as well as transient and contract employees. The NPS will incrementally provide housing as positions and funding become available in the future.
- Maintain all existing, under-construction, and planned housing in the NHL, McCarthy, and the Operations Support Complex (west side).
- Encourage employee rentals of local privately-owned housing.

Power Generation and Distribution:

- A combination of hydroelectric power generation and propane power generation would accommodate power needs in West McCarthy and Kennecott. These systems would need further compliance and evaluation, which would include public participation before final decisions are made.
- NPS would consider emerging technologies such as hydrogen fuel cells as they become available.

Sanitary Sewer System: Collection, treatment and disposal of sewage (wastewater) in both NHL and the west side Operations Support Complex would be achieved primarily by septic systems (septic tanks and leach fields).

Water Gathering and Storage: Installation of water lines will entail further evaluation and compliance before implementation, public involvement would be a part of that process.

Transportation: This plan was written to reflect the standards outlined in the McCarthy scenic corridor plan.

Interpretive Concept Plan (NPS, 2011). In the summer of 2011, a workshop was held in McCarthy. The three-day workshop was designed to: 1) gather input on the types of interpretive techniques and exhibits that will best communicate park themes and facilitate identified audience experiences; 2) identify what and where Kennecott's stories will be told; and 3) Develop a media plan that identifies interpretive techniques for both the buildings and the Kennecott Mines NHL setting. Workshop attendees included 13 Alaska NPS regional specialists and WRST staff, seven WRST partner organizations, local and regional subject matter experts, and eight members of the local community, for a total of 28 participants. The Interpretive Concept Plan was developed based on the results of the workshop. Concepts from the Plan have been incorporated into the Proposed Action described in Chapter 2 of this EA.

1.5 APPLICABLE LAWS, REGULATIONS, AND POLICIES

Management of the NHL must be consistent with the laws, regulations, policies, and plans of the federal government. The legal and policy framework that governs management of the NHL is extensive; the following information summarizes the most important directives relevant to management of the NHL.

NPS Organic Act of 1916: By enacting the NPS Organic Act of 1916, Congress directed the U.S. Department of the Interior and NPS to manage units of the National Park System “to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (16 USC 1). The Redwood National Park Expansion Act of 1978 reiterates this mandate by stating that the NPS must conduct its actions in a manner that will ensure no “derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress” (16 USC 1 a-1).

The evaluation of whether impacts of the Preferred Alternative would lead to an impairment of park resources and values is included as Appendix A of this document. Impairment is more likely when there are potential impacts to a resource or value whose conservation is:

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

Section 201(a) of ANILCA states that the park will be managed for the following purposes, among others:

To maintain unimpaired the scenic beauty and quality of high mountain peaks, foothills, glacial systems, lakes and streams, valleys, and coastal landscapes in their natural state; to protect habitat for, and populations of, fish and wildlife including but not limited to caribou, brown/grizzly bears, Dall sheep, moose, wolves, trumpeter swans and other waterfowl, and marine mammals; and to provide continued opportunities, including reasonable access for mountain climbing, mountaineering, and other wilderness recreational activities. Subsistence uses by local residents shall be permitted in the park, where such uses are traditional in accordance with the provisions of title VIII.

Alaska National Interest Lands Conservation Act (ANILCA) of 1980: This is the act of the U.S. Congress that created the Wrangell-St. Elias National Park and Preserve in which the NHL is located. When acquired by the NPS in 1998, the NHL became a part of the WRST conservation system unit and thus subject to the provisions of ANILCA.

Kennecott Mines National Historic Landmark: Kennecott was listed on the National Register of Historic Places (NRHP) in 1978 and became a National Historic Landmark in 1986. Kennecott Mines National Historic Landmark is nationally significant under National Register Criterion A as physically representative of early copper mining in Alaska and under Criterion C for engineering as this is the world's first ammonia-leaching plant. The period of significance spans from the first claims in 1900 to the closure of the operation in 1938. If the need arises, the park has the ability to recognize and preserve structures and features outside of the period of significance.

National Historic Preservation Act of 1966 (NHPA) as amended: NHPA requires Federal agencies to take into account the effects of their undertakings on historic properties and mitigate or minimize any adverse impacts. "Undertaking" is defined as a project, activity or program, funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency; those carried out with federal financial assistance; and those requiring a federal permit, license, or approval. Under the law, federal agencies must consult with the State Historic Preservation Officers (SHPOs) and the public regarding the effects of their projects. Consultation should be initiated early in the project planning process, before the project actually occurs. Often, an archeological survey will be conducted to identify and record sites. Sites which may be eligible for the National Register of Historic Places (NRHP) are defined as "historic properties". Adverse effects to historic properties must be avoided or mitigated. Because Kennecott is an NHL, it has the highest designation under the National Register of Historic Places. Because of that significance, any action that is determined as having an adverse effect is automatically subject to review not only by the SHPO, but also the Advisory Council on Historic Preservation (ACHP) and the Secretary of the Interior.

2008 Systemwide Programmatic Agreement: The 2008 Programmatic Agreement (PA) between the NPS and the National Conference of State Historic Preservation Officers (SHPOs) and the ACHP allows the NPS to streamline the compliance process from the standard NHPA process for certain activities such as maintenance and installation of signs provided that the projects meet certain criteria. The streamlined process is used on many NPS projects in the park and must be reported to the SHPO on an annual basis. A separate PA describes the management of Kennecott specifically.

Kennecott Programmatic Agreement: An original 1999 Programmatic Agreement between the SHPO and Wrangell-St. Elias National Park and Preserve (WRST) has been replaced by the 2010 PA. Under the current PA, WRST may perform a variety of undertakings without additional review by the SHPO or the ACHP provided that those undertakings do not produce adverse effects, are in keeping with the Secretary of Interior's applicable standards and guidelines, and are monitored by an archeologist. The undertakings which were allowable for streamlined review under the 1999 PA were created in consultation with SHPO, local tribal councils, the Friends of Kennecott and the McCarthy Area Council. The 2010 expands those slightly and reflects the 2008 NPS Systemwide PA.

National Environmental Policy Act (NEPA): Under NEPA, federal agencies must consider indirect effects and cumulative effects as well as direct effects. NEPA actions usually require some form of review or comment from the public or from specific interested parties.

The Secretary of the Interior's Standards and Guidelines on Historic Preservation: As part of the Department of the Interior, the NPS adheres to the Secretary's Standards. There are standards and guidelines for archeology and historic preservation, architectural and engineering documentation, professional qualifications, rehabilitation, treatment of historic properties, preserving, rehabilitating, restoring and reconstructing historic buildings, and for the treatment of cultural landscapes. These standards and guidelines influence topics from personnel decisions to treatment procedures for buildings at Kennecott.

The Secretary of the Interior's Standards for the Treatment of Historic Properties: The following classes of treatment are recognized.

- *Preservation* means the act or process of applying measures necessary to sustain the existing form, integrity and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive mechanical, electrical and plumbing systems and other code-required work to make properties functional are appropriate within a preservation project.
- *Rehabilitation* means the act or process of making possible the efficient compatible use for a property through repair, alterations and additions while preserving those portions or features that convey its historical, cultural or architectural values.
- *Restoration* means the act or process of accurately depicting the form, features and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period.
- *Reconstruction* means the act or process of depicting, by means of new construction, the form, features and detailing of a non-surviving site, landscape, building, structure or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

NPS 28: Cultural Resource Management Guideline: Director's Order 28 instructs the NPS to protect and manage NPS-owned cultural resources in accordance with *NPS Management Policies 2006*, comply with the Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation, and follow the NPS Cultural Resource Management Handbook. Of particular relevance to management of historic structures at Kennecott are the following descriptions:

Ultimate Treatment (section 8:C.1.a): The ultimate treatment of a historic structure is a general definition of its development limits based on considerations of use and the historic character that should be presented to the public. It is accomplished through one or more construction projects, after which the structure is preserved by preservation maintenance. Subsequent rehabilitation or restoration may be

needed to update the structure's functional aspects and to repair or replace damaged or deteriorated features. Pending ultimate treatment, a structure is stabilized and protected in its existing condition; it may also receive interim treatment compatible with its planned appearance and use.

Removal or Neglect (section 8:C.1.c):

Demolishing a historic structure or deliberately allowing it to decay naturally is justifiable only when all alternatives have been determined infeasible in the planning process. *NPS Management Policies 2006* prohibits demolition unless necessary for public safety or to eliminate an unacceptable intrusion. No structure listed in or potentially eligible for the National Register will be removed or deliberately neglected without review by cultural resource specialists and approval by the regional director.

Executive Order 13006: Executive Order 13006 directs federal agencies to “utilize and maintain” historic properties and encourages them to locate federal facilities in historic properties particularly those within historic districts.

36 CFR-79: Curation of Federally Owned and Administered Archeological Collections outlines the standards and guidelines for the curation of cultural resource collections. These regulations include information on the facilities in which artifacts are stored and exhibited, how and to whom artifacts may be loaned, and how to keep records associated with each artifact.

Title 43 CFR 36.11(g)(2): This Alaska-specific regulation was promulgated in 1986. This regulation authorizes federal agencies to issue permits for the use of Off Road Vehicles (ORVs) on existing ORV trails, except in areas designated as wilderness, upon a finding that such ORV use would be compatible with the purpose and values for which the area was established. Permit conditions are required to protect resources. Under this regulation, recreational use of ORVs may be permitted on existing trails, in the park or preserve portions of Wrangell-St. Elias, with a finding of compatibility.

Title 36 CFR 13.46: Allows the use of surface transportation traditionally employed for subsistence uses. The 1986 Wrangell-St. Elias National Park and Preserve General Management Plan made the determination that ORVs were a traditional means of access to subsistence resources in the park.

Title 36 CFR Part 13: This section lists the regulations for the National Park System Units in Alaska. Subpart V lists the special regulations that apply to Wrangell St. Elias National Park and Preserve and section 13.1904 lists regulations specific to the Kennecott Mines National Historic Landmark.

1.6 SCOPING PROCESS

The scoping process for the Kennecott Operations Plan began on September 8, 2010 with a public meeting in Kennecott. The general planning process and timelines were explained and public concerns and comments were noted.

On December 13, 2010, a scoping letter went out to 210 people and organizations. It formally announced the scoping period for the Kennecott Operations Plan, explained the purpose of the Plan, and invited comments. The park also posted the letter on the NPS Planning, Environment, and Public Comment (PEPC) website for public review and comment. The park asked for comments by January 31, 2012 and received comments from the McCarthy Area Council (MAC), National Parks Conservation Association, State of Alaska, Friends of Kennicott, Alaska Quiet Rights Coalition, and several individuals. Additionally, a public meeting was held in Anchorage on February 23, 2011. The meeting included a presentation by the NPS Regional Historical Architect and an explanation of the planning process. Questions, comments, and concerns were noted.

In March of 2011, the park Interdisciplinary Team (IDT) met for three days to review public comment and develop a proposed action package for the Kennecott Mines National Historic Landmark. Proposals included historic structure stabilization/preservation, interpretation, NPS utilities and infrastructure, transportation/access, vegetation management, and management of small scale features and archeological resources. The IDT also discussed a protocol for communications with the McCarthy/Kennecott community. The resulting proposed action package was made available to the McCarthy/Kennecott community and posted on the PEPC website for public review and comment in May, 2011. NPS asked for comments by August 31, 2011.

To facilitate review of the proposed action package, the McCarthy Area Council assigned a sub-committee to thoroughly review and comment on the document. Additionally, NPS held three public meetings in Kennecott/McCarthy during the course of the summer to answer any questions regarding the proposed action package. The community requested and was granted an extension on the comment period to September 15, 2011.

NPS received 31 written comment letters on the Proposed Action for Management of Kennecott Mines National Historic Landmark. These included a MAC subcommittee re-write, which was signed or otherwise endorsed by 43 individuals. Friends of Kennicott also submitted a comment letter, generally supporting and supplementing the MAC subcommittee re-write. Comments were received from several other organizations or agencies, including Alaska Quiet Rights Coalition, the State of Alaska, and National Parks Conservation Association.

The IDT met again in October 2011 to review the public comments and modify the proposed action package, based on public comment. The modified version of that proposed action package is the basis for the proposed action identified in this Environmental Assessment.

1.7 ISSUES OF CONCERN RAISED DURING SCOPING

1.7.1 Issues and Topics Evaluated in the Kennecott Operations Plan/EA

Issues and impact topics identified during the scoping process form the basis for environmental analysis in this document. The issues of concern raised during scoping regarding topics to be addressed in this combined Plan/EA include the following:

Water Resources: Both water quality and water quantity/flow patterns are key issues. Protecting local drinking water sources is a priority of McCarthy's; at the same time, seasonal discharge patterns and flooding are important issues at National Creek within the NHL.

Vegetation: Currently, the vegetation within the mill site reflects the re-growth that commenced at the conclusion of mining operations. Elsewhere within the landmark boundary vegetation reflects conditions that existed before mining occurred. This plan proposes limited vegetation clearing for the purposes of visual enhancement as well as fire protection. Localized impacts on vegetation could result and will be considered within the analysis. The spread of invasive plants may be affected by actions proposed within the alternatives. The Federal Noxious Weed Control Act, Executive Order #13112, and NPS Director's Order 77-7 require that all actions be reviewed for possible contributions to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species and to implement mitigating measures.

Cultural Resources: The management of historic structures is an important concern: which ones would be left to deteriorate, which ones would be stabilized, which ones would be rehabilitated and

adaptively re-used. In addition to the National Environmental Policy Act (NEPA), the impacts on cultural resources are evaluated under the National Historic Preservation Act.



Photo 4: National Creek

Wildlife: Vegetation thinning could potentially reduce or affect wildlife habitat. Increased visitation could lead to increased interaction with wildlife in the area, leading either to population increases or declines, depending on how adaptable the species in question is to human presence. Management actions associated with human-bear conflicts could increase direct and indirect injury and mortality for both black and brown bears.

Visual Resources: Visual resources are an important aspect of the character of Kennecott and McCarthy, as well as Wrangell-St. Elias National Park and Preserve in general. Several of the actions proposed in this EA could generate localized impacts on visual quality as well as contribute to cumulative impacts on the same.

Visitor Use and Experience: The historic town of McCarthy is both a point of departure for wilderness explorers and “flightseers” as well as a destination with certain historic values. While Kennecott also serves as a gateway to the glacial high country, it is primarily a destination with significant historic values, as reflected by its NHL designation. The alternatives would have a direct or indirect bearing on the quality of the experience visitors to the area will receive. Cumulatively, the proposed action may facilitate increased visitor use and experience in the coming decades, with both adverse and beneficial impacts on visitor experience.

Transportation and Access: Managing visitor access and parking at the NHL are important components in balancing visitor experience with increased visitation. Limitations on access and parking, both physically and legally, constrain the amount of motorized access that could occur into the NHL.

Natural Soundscape: During its period of operation in the early 1900's, the Kennecott millsite was an industrial complex and a noisy place. Now, NPS recognizes that natural quiet is a component of the NHL, the surrounding landscape, and the communities within it. It is also critical to the quality of life of local residents and quality of experience for visitors. Components of the proposed action, such as historic building stabilization, have and will continue to generate noise. The impacts of the noise are considered in this EA.

Socioeconomic Environment: The Kennecott Operations Plan will affect visitation to the McCarthy-Kennecott area. It will also influence future partnerships and/or concessions opportunities. These decisions will impact socioeconomics in the surrounding community.

1.7.2 Issues Dismissed from Detailed Analysis

NEPA regulations emphasize the importance of adjusting the scope of each EA to the particular interaction of the project and its setting, and focusing on the specific potential impacts of that project. There is no need, according to the regulations, to include information on resources that would not be affected by the project. As a result, different EAs will discuss somewhat different lists of resources. Brief rationales dismissing certain issues from further analysis are provided below:

Air Quality: None of the proposed actions is likely to generate more than short-term and negligible fugitive dust and/or tailpipe emissions.

NPS/Community Communication: Improvement of NPS/community communications was a common theme throughout the comments received during scoping and in comments on the proposed action package. The Final Kennecott Operations Plan will contain a section describing a protocol for NPS/community communications. This protocol was developed through public review and comment. There are no alternatives developed around this protocol and no environmental effects associated with it, so it will not be further discussed in this document.

Climate Change: Secretarial Order 3226 directs federal agencies to ensure that climate change impacts are considered in connection with departmental planning and decision making. The *2006 NPS Management Policies* direct the operation and management of facilities, vehicles, and equipment in a manner to minimize the consumption of energy, water, and nonrenewable fuels. Wrangell-St. Elias is projected to become warmer and drier over the next century with winter temperatures becoming significantly warmer (SNAP 2009). Although precipitation is predicted to increase, the amount will likely be insufficient to offset an increase in evapotranspiration caused by warmer temperatures and a longer growing season. A longer growing season will mean shorter periods of frozen ground and changes in the timing of peak melt and river water levels. Seasonal changes will lead to drying of wetlands, streams, and lakes that are not glacially fed. However, it may lead initially to higher water levels in glacially fed waters. It is anticipated that both the Root and Kennicott Glaciers will continue to decline and that vegetation will recolonize the areas vacated by the glaciers. While this may affect the character of the NHL the proposed actions will not further impact or be a direct response to climate change.

Wilderness: The proposed actions would not take place within the Wrangell-St. Elias Wilderness.

Wetlands: Executive Order #11990 and NPS Director's Order #77-1 require the protection of wetlands, but none of the proposed sub-actions would be located on wetlands or affect them indirectly.

Threatened and Endangered species of flora and fauna: Grizzly (brown) bears, Peregrine falcons, and grey wolves all frequent the area. While each of these has been listed by the U.S. Fish and Wildlife Service at one time and place or another, none is currently listed in Alaska. No other listed species are known to be present. There are some plant populations that occur within the NHL which are considered by the Alaska Natural Heritage Foundation to be rare either within the state or globally. These populations are not within the core mill town and are not threatened.

Fisheries: Although NPS monitoring has found fish in the Nizina River, Clear Creek, and McCarthy Creek, none of the actions have the potential for generating significant short-term or long-term impacts on fish habitat or populations.

Environmental Justice: Executive Order #12898 requires federal agencies to examine their policies and projects for disproportionate impacts on low-income and minority populations. The percentages of minority and low-income residents in the project area do not appear to vary notably from average levels in the state.

Subsistence: Section 810(a) of ANILCA requires the proposed action to be evaluated for potential impacts on subsistence resources and activities, that is, habitat losses and fish and wildlife populations, access by hunters and fishers, and competition among hunters and fishers for subsistence resources. This issue was dismissed from analysis because the proposed action, at most, would have negligible impacts on subsistence. The ANILCA section 810(a) summary evaluation and analysis is provided in Appendix B.

1.8 PERMITS AND APPROVALS NEEDED TO IMPLEMENT PROJECT

Storm Water Permits: The Alaska Department of Environmental Conservation (DEC) sets water quality standards for Alaska waters and regulates discharges into these waters (18 Alaska Administrative Code (AAC) 70). All discharges of storm water from construction projects disturbing five acres or more require a National Pollutant Discharge Elimination System (NPDES), Storm Water General Permit for Large and Small Construction Activities from the EPA and must be reviewed by DEC to obtain Section 401 Certification under the CWA. A Notice of Intent (NOI) form must be submitted to EPA prior to the start of construction activities. The NOI form requests general information about the operator in charge of day-to-day operations of the construction site, location of the site, name of receiving waters, estimated start date of the project, and other information.

A Storm Water Pollution Prevention Plan (SWPPP) must be prepared prior to submission of an NOI and must:

1. Identify all potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges from the construction site;
2. Describe the practices to be used to reduce pollutants in storm water discharges from the construction site; and
3. Assure compliance with the terms and conditions of the permit.

Wetlands Permit: While impacts to wetlands are not anticipated, Waters of the United States could be impacted by work in Bonanza or National Creeks. Any construction projects involving permanent alterations to these creeks would require a General Permit (GP) from the Anchorage District of the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA). If the area of impact is less than half an acre, the project(s) might qualify for a nationwide permit; otherwise, individual permits would be necessary. In addition, Section 401 of the CWA requires State water quality certification or waiver of certification prior to issuance of a Section 404 permit.

Alaska Department of Transportation and Public Facilities (ADOT&PF) Permits: The ADOT&PF may require permits for any use or modifications of the McCarthy Road and/or its right-of-way (ROW). The NPS would acquire the necessary authorization from ADOT&PF for the project.

Photo 5: Concentration Mill



2.0 CHAPTER 2: ALTERNATIVES

2.1 Introduction

This section describes three action and a No Action alternative for management of the Kennecott Mines National Historic Landmark (NHL). Each action alternative presents a different means of working towards identified goals through varying combinations of management for historic structure stabilization and preservation, vegetation, transportation/access, and NPS Utilities and Infrastructure. Also discussed in this Chapter are management actions common to all alternatives and actions that have been considered but dismissed from further analysis.

The NPS developed the alternatives for managing the NHL based on the legal, regulatory, and policy direction presented in Chapter 1, combined with the public comments received during public scoping and on the proposed action package. These comments highlighted the important issues and helped narrow the scope of alternative development.

An alternative is not automatically rendered unreasonable if it requires the amending of a park plan or policy; causes a potential conflict with local, state, or federal law; or lies outside the scope of what Congress has approved or funded or outside the legal jurisdiction of the NPS. Sometimes an alternative may be presented so that the analysis can demonstrate that taking such action (or inaction) would result in non-compliance with legal, regulatory, and policy direction.

The following topics are discussed for each alternative:

Zone by Zone proposals (zones are based on the 2001 Cultural Landscape Report and described on page 8 of this EA).

- Archeological Resources
- Vegetation
- Circulation/Access
- Proposed historic structure stabilization/preservation
- Interpretation

Transportation/Access

- Trails

NPS Utilities and Infrastructure

- Water gathering and storage
- Water treatment
- Potable water distribution lines
- Fire suppression
- Sanitary sewer system
- Power generation and distribution
- West side development
- Airport Office

Other

- Jumbo transfer station

- Jumbo mine aerial tramway
- Mudhole Smith cabin
- Jumbo Mine/Root Glacier outhouse
- Cemetery

2.2 Actions Common to All Action Alternatives

2.2.1 Partnerships

The NPS recognizes that a viable and diverse community of individuals and families existed in the area prior to the creation of the NHL, indeed prior to the entire region being designated a national park. NPS will work in partnership with this local community to manage the NHL in such a way as to maintain the character of the local communities of Kennecott and McCarthy. NPS and the Kennecott/McCarthy community define the partnership as an active cooperation trying to achieve **mutual** goals and objectives. The partnership is mutually beneficial.

NPS also recognizes that, as the largest single entity in the NHL, park management activities have the potential to have a greater impact on local residents than the activities of those residents are likely to have on the NHL. NPS will not infringe on the property rights of individuals to conduct any legal activity they choose on their private land within the NHL.

2.2.2 Local Hire

WRST was established by ANILCA. Within that act is a provision in title 13 section 1308(a) whereby Congress directed the Secretary of Interior to establish a program under which “any individual who by reason of having lived or worked in or near a conservation system unit, has special knowledge or expertise concerning the natural or cultural resources of such unit and management thereof (as determined by the Secretary), shall be considered for selection for any position within such unit” without regard to nationwide, standard open hiring procedure.

WRST has a proven track record of utilizing this local hire authority throughout the park and particularly in the McCarthy/Kennecott area. Local hires are invaluable for the local knowledge they bring to NPS programs as well as providing efficiency in housing for remote locations. The National Park Service will continue to look for opportunities to hire locally, while remaining compliant with Federal personnel requirements.

Civic Engagement by Park Employees

WRST recognizes that many of its employees in the NHL are also local residents. Local residents value sound park employment opportunities in the community, and both the park and local community recognize that allegiances to both the local community and NPS can coexist, and that it is mutually beneficial to cultivate those joint allegiances. WRST has developed the following direction in its employee handbook:

Employees at Wrangell-St. Elias National Park and Preserve sometimes find themselves participating in public processes involving park decisions, both as park employee and member of the community. This is sometimes a fine balance. The NPS encourages public participation by NPS employees: “One very important group that is not usually thought of as being part of the “public” is NPS employees. We must recognize the valuable service that our employees provide by informing the public about the NPS mission, issues, and challenges. Because of their expertise and knowledge, we must give employees an

opportunity for meaningful involvement during the decision-making process.” (Director’s Order 75A: Civic Engagement and Public Involvement).

The park encourages public participation by park employees and provides the following guidelines to prevent confusion or misunderstanding:

- Park employees who attend a public meeting during work hours and are NOT representing the park at the meeting need to: 1) get permission from their direct supervisor; and 2) take leave time for the time spent attending the meeting.
- During public meetings, park employees should preface their comments by informing the group whether their comments are being made as an employee representing the NPS or as a public participant.

Those employees representing NPS at any public meeting need to clear their participation with their supervisor.

2.2.3 Communications

In recognition of the irreplaceable value of local knowledge to the development and implementation of NPS policy, and acknowledging that local residents, non-profit organizations, and businesses provide visitor services and contribute to the rich hospitality experienced by park visitors, NPS will establish frequent, on-going communication with the local Kennecott/McCarthy community. The communication protocol will consist of the following elements:

- The Superintendent and/or park planner will be responsible for setting annual spring and fall meetings. These will occur prior to Memorial Day and Labor Day and will be held at the Tony Zak Community building. The spring meeting will be an announcement of all proposed actions for the area that season. The fall meeting will be a review of the season’s actions and expectations for the following year. The fall meeting will emphasize what project planning/compliance might occur during the course of the winter and how or when public involvement might occur. Spring and fall meetings will be intended to be brief and primarily informative, encouraging maximum participation.
- The spring/fall meetings will be supplemented with a series of additional in-depth meetings held in Kennecott/McCarthy during summer months to discuss particular issues of concern. These meetings will be held as needed and advertised at least two weeks in advance. As time and budget allow, these meetings will be structured as working groups in order to share information and open up a productive, conversational dialogue to define issues and brainstorm solutions; as opposed to a “public meeting”.
- Once every five years, WRST will initiate a review of the Kennecott Operations Plan, seeking full community input in advance of adopting any revisions to the current plan. These reviews will focus on any discrepancies between the plan and its implementation.
- A WRST leadership team member will attend each MAC meeting. The WRST leadership team generally consists of the park superintendent and the division chiefs.
- Provide a web-based educational component regarding projects at Kennecott. This will include a generalized overview of how projects are entered into the budget system, and where and when project design, contracting, and NEPA and NHPA compliance occurs. Identify points in the process where there are opportunities for public involvement. These materials will be posted on the park’s website and on the Friends of Kennicott website.

- Continuation of the annual Superintendent's letter.

The park will inform the community with advanced notice of all issues requiring their input and the schedule and location of all meetings, through announcements at the mail shack and in the local paper, and through the community e-mail database. A list of participants will also be recorded and kept as part of the meeting record. The park will look into creating an email listserve that community members can join or leave at their own wishes.

2.2.4 Covenants and the Architectural Control Committee

The Architectural Control Committee (ACC) was created in 1976, prior to NPS purchases in Kennecott, by the Great Kennecott Land Company to oversee neighborhood covenants in the Millsite Subdivision that are intended to keep the historic atmosphere of Kennecott intact. The Millsite Subdivision's covenants are described in the Kennecott Subdivision Declaration of Restrictions, dated September 15, 1976. These covenants describe building restrictions, conditions of subdivision easements, composition of the Architectural Control Committee, process for revision of the covenants, and covenant enforcement. Since NPS acquisition of lots in the Millsite Subdivision in 1998, the park's Superintendent has served as the ACC chair. The covenants are attached to this plan/EA as Appendix C.

The Architectural Control Committee and NPS worked with interested lot-owners during the summer of 2010 to revise the covenants. This effort was dropped due to the highly polarized comments received from lot-owners regarding the proposed changes, which included proposed changes to the composition of the ACC (to provide for more non-NPS representation) and changes to the voting procedure. Consequently, the ACC will continue to operate under the existing covenants for another ten-year period (until 2020). The NPS, as a lot-owner in the Millsite Subdivision, has been and will continue to be a willing participant in future efforts to revise the covenants.

While the ACC may serve to notify lot-owners of non-compliance with covenants, it is not the ACC's responsibility to enforce the covenants. According to the Declaration of Restrictions, "If any lot owner or their successors shall violate or attempt to violate any of the covenants herein during the period for which they are enforced, it shall be lawful for any person owning any real property subject thereto to prosecute any proceedings at law or in equity against the person or persons violating or attempting to violate any such covenants, and prevent him or them from so doing or to recover damages for such violation." NPS has the same rights and responsibilities as other Millsite Subdivision property owners regarding covenant implementation and enforcement. The NPS is willing to work with Millsite landowners and other stakeholders on ways to improve management of covenants that maintain their effectiveness, provide for reasonable flexibility, and reduce the need for legal action as a management tool.

2.2.5 Visitor and Resource Protection

Emergency Medical Service (EMS)

The NPS would continue to develop area-wide EMS response in partnership with local individuals, organizations and EMS providers inside and outside the community. The NPS supports the development of an EMS function within the Kennecott-McCarthy Volunteer Fire Department (KMVFD) that would have primary EMS-response duty on private land in the Kennecott-McCarthy area. The NPS would remain the primary EMS provider on NPS-managed lands, but may provide EMS service on non-NPS-managed land, under specific circumstances. The authority for providing EMS assistance to neighboring communities and outside agencies is specifically provided for in 16USC1b(1), "Rendering of emergency rescue, firefighting, and cooperative assistance to nearby law enforcement and fire prevention agencies and for related purposes outside of the National Park System".

The NPS will seek a cooperative agreement with the KMVFD that would address agency cooperation related to EMS and firefighting response. The NPS will continue to coordinate emergency response training and encourage participation by all interested parties. All EMS functions performed by the NPS would be in accordance with NPS Director's Order #51 (EMS), the WRST Emergency Medical Services Plan and under the direction of the Park EMS Medical Advisor. The NPS supports the Park's EMS Medical Advisor's providing advice and oversight on EMS to the KMVFD and area guide services.

Search and Rescue (SAR)

The NPS would continue to provide SAR response within the NHL and greater park area. Major EMS and SAR incidents can quickly overwhelm local NPS staff resources. Due to this, the NPS supports an on-call EMS/SAR team of non-NPS responders. During an emergency incident, EMS/SAR team members would be hired and paid for the duration of that incident using the AD/Emergency Hire System. During on-call time, EMS/SAR team members are considered volunteers and are not paid. The NPS would continue to provide SAR training to staff and area volunteers. NPS would operate within the Incident Command System. The NPS would work to improve radio communication with other agencies, such as the KMVFD and AK State Troopers.

Fire Response

Protection of structures from wildland fire would be accomplished through the proposed clearing and thinning of vegetation around structures, as well as suppression response from NPS staff and the KMVFD. The NPS would work closely with KMVFD and State of AK Division of Forestry to develop appropriate fire response strategies. The NPS would continue to work with land owners adjacent to NPS-managed lands on fire fuels reduction. A regional NPS Fire Fuels Management EA is currently in process and the park will adhere to decisions made in that document. The NPS supports the development and implementation of Alaska Department of Natural Resources (AKDNR) Community Wildland Fire Protection Plan. The NPS prohibits fires on NPS lands within the millsite, 36CFR13.1904. Fire extinguishers are maintained in all NPS properties. NPS staff is limited in structural firefighting capability and qualifications and are not certified to enter a burning building.

According to the National Fire Protection Association (NFPA), the single largest cause of fire in historic buildings is arson. Regular patrols of the NHL would be conducted by NPS personnel to guard against this threat. A winter caretaker would be considered to provide overall site security.

Bear-Human Conflict Management

The NPS would continue to address this issue through education of NPS staff, visitors and area residents on appropriate behavior around bears and through enforcement of the Park's food storage regulation. Placement of additional bear-resistant garbage cans will be considered if need increases. When necessary, the NPS would actively manage bear behavior if the animal poses a threat to human safety. The NPS would impose emergency closures when necessary to protect human safety. Trails through soapberry patches will be monitored for bear activity.

Law Enforcement

The NPS would continue to provide a prevention-based law enforcement program in the NHL. Emphasis would be placed on education and enforcement of regulations that protect visitor safety and the area's natural and cultural resources. A memorandum of understanding would be maintained with the AK State Troopers, allowing for mutual assistance between the agencies when necessary.

2.2.6 Acquisitions

NPS acquisition of properties within the NHL has been and will continue to be contingent on willing sellers. If approached by a willing seller, NPS prioritizes potential acquisitions within the NHL based on the following criteria:

- Protection and management of the historic landscape.
- Ability of the property to support NPS operations.

NPS will continue to follow Departmental policies and American Society of Testing and Materials International (ASTM) standards regarding the screening of properties for environmental liabilities posed by acquisitions.

2.2.7 Transportation/Access

Kennecott Arrival/Orientation

The park held a public meeting in summer 2012 to discuss the arrival and orientation of visitors to Kennecott. Issues that were addressed included:

- What to do with the “shuttle turnaround” area (the Turnaround currently has an area for shuttle buses to drop off visitors and make a turn without having to backup into the road or across pedestrian pathways, a sculptural metal sign that announces the landmark, and one kiosk/shelter with two benches and four exhibit panels). NPS proposes to add additional benches and vegetation screening. Interpretive exhibits will be updated. A bicycle rack will be provided.

The following items were discussed and decided:

- Shuttle van drop off and pick up needs to best accommodate those businesses that are providing that service. In light of this, shuttle van pick ups and drop offs will continue at the current location (between the Blackburn school and St. Elias Alpine Guides office) with occasional overflow pick-ups and drop-offs at the shuttle turnaround.
- To provide the best visitor orientation, the shuttle turnaround will be linked via a raised boardwalk to the Blackburn school. The existing deck behind the Blackburn school will be expanded and roofed to provide a covered seating area. A bulletin board will be installed in this area. The existing outhouse will be expanded to provide men’s and women’s vault toilets. Additionally, there will be some identifying feature (sign, arrowhead on the door) visible to those getting off shuttle vans that identify the Blackburn building as an NPS facility.
- NPS will avoid parking in the space north of the Blackburn building.

Motor Vehicle Use Within the NHL

Use of the rights-of way in the NHL is governed by the Kennicott Subdivision plat filed with the State of Alaska by the Great Kennecott Land Company in 1976. Local landowners accepted the conditions of the plat when they purchased their land, prior to the acquisition of the remaining parcels by WRST in 1998. The NPS is a neighbor of landowners within the subdivision and recognizes that it is bound by the same conditions.

The Kennecott subdivision plat filed with the State of Alaska specifies that “the rights-of-way as shown or noted are private, reserved for the use of the present owners of lots in this subdivision and their guests, but not the public in general.” The NPS supports park visitors coming to the NHL in a non-motorized fashion and utilizing local shuttle services to access the site because of the complexity of motorized access to the millsite subdivision, and the effects of motorized use on visitor experience.



Photo 6: Shuttle turnaround

A community workshop was held in Kennecott in the summer of 2012 to discuss access to the millsite subdivision and to discuss parking. The workshop addressed these issues over a 3-night period and was well attended by local business owners, millsite subdivision lot owners, and those supporting motorized access. NPS facilitated the meeting and the group developed the following vision statement for access to the millsite subdivision:

- Access to the millsite subdivision is predominantly through shuttle services and other non-motorized means. Vehicle access and parking will be managed to minimize impacts to visitors and residents, minimize congestion and maximize safety.

The NPS is committed to working with the community towards achieving this vision. The following action items, which focus on education, were identified by the workgroup:

- All educational materials will be developed in consultation or partnership with community members.
- Signage should be minimized and aimed at effective conveyance of information. Land status maps that clearly show intermixed land pattern would be used. Signs can include “bullet statement” messages. Kiosks with signs meeting these standards have been installed at the footbridge and the airport. Signs placed on NPS lands will conform with the Sign Guidance identified in the Cultural Landscape Report.
- Brochures: to be developed in partnership with community. Should include information on the following: Why this place is different. This is a community; respect that there are people walking on the roads, it is a shared trail. Describe physical characteristics that lead to safety concerns. Encourage the use of shuttle services and alternatives.

- Brochures to be distributed at Sportsman shows, to motorized groups and other outreach opportunities, including Fairbanks (to reach dipnetters). Also distributed around westside/McCarthy/Kennecott and by businesses.
- Websites: Can display information similar to brochures. Visitors use websites for trip planning. Other websites possibilities: Friends of Kennicott, local businesses.

The community expects NPS to set an example regarding motorized access. In recognition of this, NPS is committed to maintaining a usable employee shuttle service and encouraging employees to use it. Visiting NPS staff need to be conscious of minimizing motorized trips between McCarthy and Kennecott.

Subsistence ORV use: The use of Off-Road Vehicles by federally qualified subsistence users in the area is authorized by 36 CFR 13.460, which allows the use of “surface transportation traditionally employed”. The 1986 Wrangell St. Elias National Park and Preserve General Management Plan made the determination that ORVs were a traditional means of access for subsistence purposes in the park. This Kennecott management plan does not propose any restrictions on this activity.



Photo 7: Footbridge, Kennicott River

Parking

Kennecott residents and the park agree that Kennecott has very limited parking space. In consultation with the local community, the park has identified the following action items:

- Provide limited (10-space) designated parking in the dairy barn area. Users to include: handicapped; local use for non-shuttle times; special events; visitors; and lot owners with no property access. Additionally, NPS has established and will continue to maintain a parking area for employees and contractors near the Dairy Barn. NPS will run a shuttle for employees that live on the West Side or McCarthy but work in Kennecott, so as to minimize park vehicle traffic.
- Consider options for a pedestrian trail from the designated public parking in the Dairy barn area to the shuttle bus turnaround or Blackburn school area.
- When access to private property is restricted due to winter conditions, Kennecott landowners will be free to park on the main rights-of-way within Kennecott.
- WRST will work with the local community to support an efficient public shuttle system and adequate hours of operation, to reduce the need for parking within the NHL.
- The park will develop a public education campaign through the park's website, signs, and brochures at information kiosks in Kennecott/McCarthy and along the McCarthy Road, informing the public of the local shuttle system and the lack of public parking in the NHL.
- No parking at the shuttle turnaround (after a parking spot is designated).
- No parking on NPS owned portions of easements in the millsite subdivision.
- Utilize restored features (boardwalks, railroad rails) to discourage parking.
- A 10 mph speed limit will be posted through the Kennecott subdivision, posted at the NHL boundary.

Roads

Alaska State ROW, McCarthy to Kennecott: NPS would encourage ADOT&PF to design the rail corridor road as a one-lane gravel road that maintains its historic character with a 25-mph speed limit designed to accommodate safe vehicle passing.

Subdivision easements within the NHL: A cooperative agreement will be sought with NHL lot owners and businesses to address NHL road maintenance.

Wagon Road: Segments of the Wagon Road that occur on NPS lands will be managed primarily as a pedestrian trail, with allowance for motorized use for those accessing private property along the trail and for federally qualified subsistence users engaged in subsistence activities.

Toe of the Kennecott Glacier Road: This road traverses private land, university sub-division lands, and finally NPS lands (see map). The NPS portion of this road will be designated a park road, open to motorized use. Motorized travel on NPS lands off the designated road will only be allowed for federally qualified subsistence users engaged in subsistence activities.

Walk-In Campground

A 2002 Environmental Assessment and Finding of No Significant Impact proposed and evaluated effects of a walk-in campground. NPS is still committed to the concept, which would designate 42 acres of land east of Kennicott River for primitive tent camping. The site under consideration is one mile northeast of McCarthy and 0.35 mile from McCarthy Airport. Public input will be solicited prior to final determination of the detailed site location in order to minimize impacts on valued resources (water supplies, popular recreational sites, etc.).

Campground facility development and amenities would include vault toilets, bear-resistant trash receptacles, bear-resistant food storage boxes, and centralized food storage area. Camper food storage, food preparation, and food consumption would be restricted to the centralized area and prohibited at individual campsites. Access to the campground would be provided by local shuttle vehicles and non-motorized methods. Routes of access would be either the trail described above, or from McCarthy airport using public rights-of-way (Kennecott-McCarthy Road and/or the Wagon Road) crossing a platted subdivision on nonfederal land. NPS rangers would patrol the campground to ensure compliance with food storage, non-motorized access, and other regulations.

However, before a campground is approved in the proposed location, potential human-bear conflicts will be given full consideration. In particular, this area harbors an abundance of soapberry (*Sheperdia Canadensis*) bushes on which bears feed heavily in July and August, and the bears depend on this food resource to prepare for their winter hibernation. If careful consideration leads to a conclusion that human presence would negatively impact the bears, the campground will either be relocated or closed to campers during the period when bears are feeding in the area.

2.2.8 NPS Utilities and Infrastructure

Solid Waste Management:

NPS supports working with the community to deal with solid waste issues, by promoting pack in/pack out concepts for visitors and landowners alike, and by supporting a recycling program. Bear proof garbage containers have been installed in Kennecott and the kiosk on the west side. Bear proof recycling containers will be installed at the Company Store and at the old school in Kennecott. NPS supports the development of a privately owned solid waste transfer facility and would consider utilizing such a facility if economically viable.

West Side Development

With NPS acquisition of a five-acre lot adjacent to the McCarthy airport, further development at west side will not be considered. Cabanas that are currently located in the Dairy Barn area at Kennecott may be relocated to west side. This will not require any further development of the area.

2.3 Alternative Descriptions

2.3.1 Alternative 1—No Action

Overview

The primary management philosophy in the *No Action Alternative* would be limited to maintaining the structures and landscape features as they exist today, with no additional treatment. This alternative is displayed in Figure 3.

Zone by Zone proposals

Vegetation, all Zones: Vegetation clearing around historic structures for fire and windfall protection would not occur; no selective thinning to improve viewsheds would occur; and no invasive plant monitoring and/or removal would occur.

Archeological Resources, all Zones: Wherever feasible, all categories of archeological resources identified in the 2000 Cultural Landscape Report will be retained on the landscape. If removal is

necessary for public safety or to facilitate building stabilization, archeological resources will be re-located as close to the original documented location as possible.

Circulation/Access, all Zones: No maintenance of historic circulation/access routes as proposed in the Action alternatives would occur.

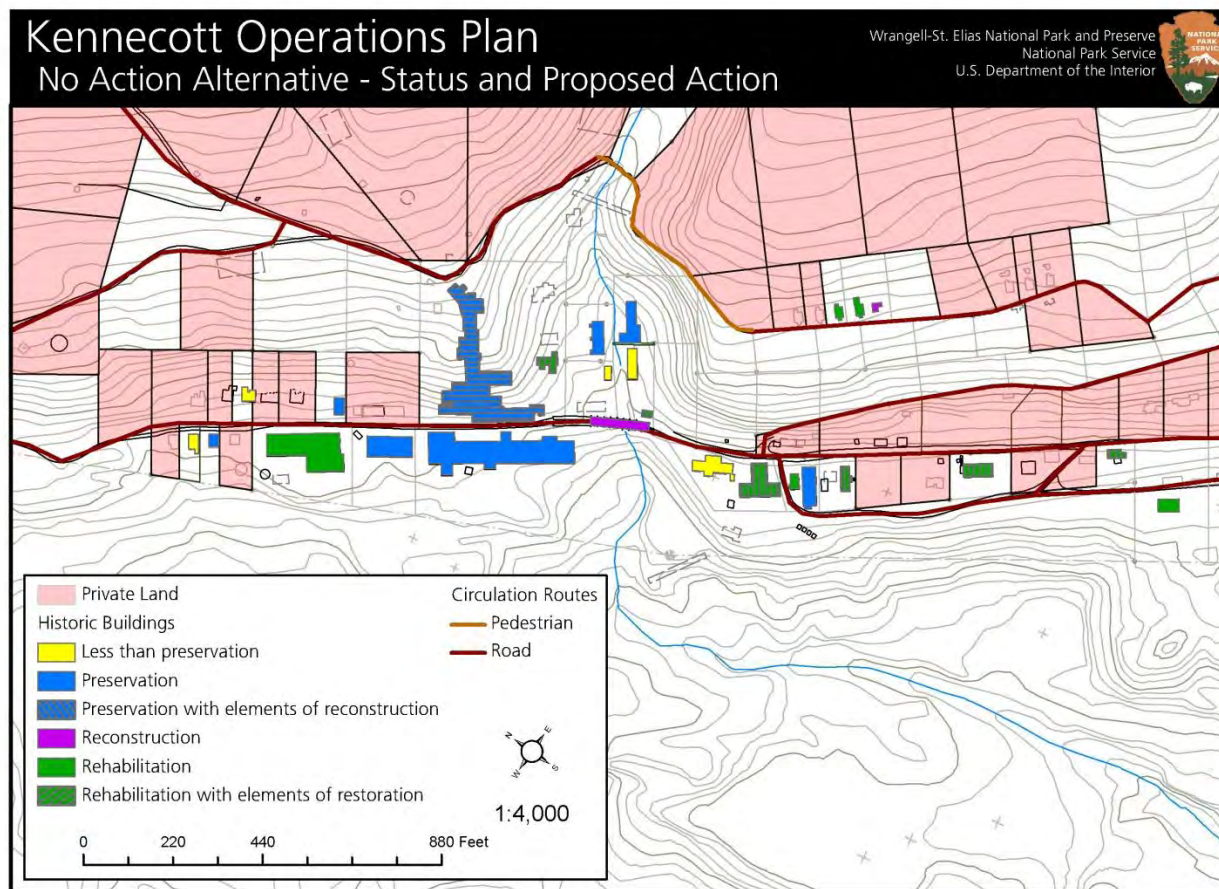
Proposed historic structure stabilization/preservation:

1. **Administrative Zone**
 - General Manager's Office: cyclic maintenance

Photo 8: Kennecott from the toe of the Kennecott Glacier



Figure 3: Alternative 1, No Action



- Hospital: no additional work; manage as ruins
- Assay Office: salvageable parts would be left in place
- Railroad Depot: cyclic maintenance
- Sawmill and Carpenter's Shop: Allowed to deteriorate in place.
- Company Store: No additional work to provide office or exhibit space. Cyclic maintenance and maintain as primary visitor contact point.
- Railroad trestle: cyclic maintenance
- 2. **Industrial Core Zone**
 - Tram terminus, concentration mill, and leaching plant: no further work would be done. Structures would be managed as ruins.
 - Machine Shop: cyclic maintenance; no further work would be done.
 - Power Plant: cyclic maintenance; but no painting and no window repair
 - Transformer House: cyclic maintenance
- 3. **Commercial Zone**
 - Refrigerator Plant: cyclic maintenance
 - West Bunkhouse: complete exterior preservation work; no interior work; no adaptive re-use would occur as partnership or otherwise
 - New Schoolhouse: no additional interior work; cyclic maintenance.
 - Recreation Hall: cyclic maintenance; continue lease agreement.
 - Old Schoolhouse: cyclic maintenance; continue use as NPS offices
 - Dairy Barn: cyclic maintenance
- 4. **Residential A Zone**
 - East Bunkhouse: no further stabilization work; manage as a ruin
 - National Creek Bunkhouse: no further stabilization work; manage as a ruin
 - South and North Silk Stocking cottages: cyclic maintenance
- 5. **Residential B Zone**
 - Kennecott Cottage 39C, Lot 88: cyclic maintenance
 - Kennecott Cottage 13C, Lot 80: no work proposed; manage as a ruin
 - Kennecott Cottage 39B, Lot 87: no further work; manage as a ruin

Interpretation, all Zones: Informal interpretation would continue during the summer months (May – September). The Company Store would continue to serve as the primary visitor contact point. Evening and special programs conducted by NPS personnel would continue in various locations. NPS would continue mill tours through a concessions contract as long as conditions in the mill building are safe for visitors.

Transportation/Access

Kennecott Arrival/Orientation: No further work would be done at the Shuttle bus turnaround or the McCarthy Road Information Station.

Motor Vehicle Use Within the NHL: NPS would take no action towards educating motorized visitors regarding motorized use on subdivision easements within the NHL.

Parking: NPS would not work with the community to develop a parking policy for the NHL; would not designate any parking areas within the NHL; and would not develop any parking.

Trails: NPS would conduct periodic maintenance in order to maintain existing trails. No additional trails in the area would be designed or constructed.

Walk-in Campground: NPS would not construct a walk-in campground.

NPS Utilities and Infrastructure

Water System: No water system would be designed or constructed to provide potable water or fire suppression capabilities. Water collection and treatment for NPS housing and employees would continue as is. Water is currently taken out of National Creek and treated to provide potable water and toilet facilities at the Silk Stocking cottages, New Schoolhouse, and the Dairy Barn.

Sanitary Sewer system: No additional sewer lines or septic systems would be constructed.

Power generation and distribution: Given the reduced power needs, NPS would continue operations utilizing diesel and propane generators. No hydroelectric or solar power generation would be considered.

West Side development: No further west side development would occur.

Airport Office: Installation of a co-gen unit to supplement existing power generation and provide heating capabilities occurred in 2011. The area would serve as the telecommunications hub for Kennecott and west side NPS facilities. This office would serve as an incident command post and provide an aviation support function.

Other

Jumbo transfer station: No further work would occur.

Jumbo mine aerial tramway: No work proposed.

Mudhole Smith cabin: No further work would occur.

Jumbo Mine/Root glacier outhouse: A vault toilet would not be installed at this location.

Cemetery: No action.

2.3.2 Alternative 2: Preferred Alternative

2.3.2.1 Overview

Under this alternative, historic structure stabilization and preservation would be based on past planning documents, including the Cultural Landscape Report and the Interim Operations Plan. Historic structures would be managed to reflect a diversity of treatments. Some structures would be managed as ruins and allowed to deteriorate in place, some would be stabilized and preserved, and some would be rehabilitated to accommodate adaptive re-use. Under this alternative, preservation treatments include painting and/or window replacement to provide weatherization in order to protect the public's investment and ensure that buildings are standing for generations to come. Wherever possible, archeological resources would be retained on the landscape. Vegetation clearing would be done around buildings for fire protection and would be done in selected areas to improve viewsheds. Some historical circulation routes will be improved and maintained as described below.

On transportation/access issues, NPS would work with the community to manage the NHL as a non-motorized visitor destination. NPS would work with the community on managing parking within the NHL. Under this alternative, NPS would develop 3.5 mile pedestrian trail along the east side of the Kennicott Glacier and would develop a walk-in campground. For NPS Utilities and Infrastructure, a water system providing potable water and limited fire suppression capabilities would be developed; a sanitary sewer system would be developed; and power generation and distribution would be provided through propane, diesel generator, and consideration of alternative sources.

Detailed NPS proposals for each of the buildings and structures within the NHL are presented below.

2.3.2.2 Zone by Zone Proposals

Archeological Resources, all Zones: Wherever feasible, all categories of archeological resources identified in the 2000 Cultural Landscape Report will be retained on the landscape. If removal is necessary for public safety or to facilitate building stabilization, archeological resources will be re-located as close to the original documented location as possible.

Administrative Core Zone

Vegetation: The following vegetation clearing would be done around all historic structures on NPS lands in this zone, for fire and windfall protection; and for access to the buildings:

- Clear all spruce within 30' of all structures.
- Limb spruce trees up to 10' above the nearest surface fuel within 100' of all structures.
- Clear all woody vegetation within 5' of all structures.
- Selectively clear or plant other vegetation to maintain quality viewsheds.

Invasive plant species will be managed consistent with the 2010 NPS Alaska Region Invasive Plant Management Plan and EA. This document and Finding of No Significant Impact (FONSI) describe the following elements of invasive plant management:

1. Continue physical control methods where effective.
2. Allow limited use of herbicides to control infestations not responding to physical control methods; and
3. Implement mitigating measures with best management practices and monitoring of overall program effectiveness and environmental effects.

Revegetation: Where needed native vegetation may be planted to screen modern NPS facilities using native seeds/cuttings from local populations. In some selective cases historically accurate non-invasive non-native plants may be planted to enhance the cultural landscape.

Circulation/Access: The following are proposed for this zone:

- Improvement and maintenance of a pedestrian trail from the General Manager's Office, up the creek to the footbridge, connecting to the top of the mill building (see Figure 4). This trail would connect with the Old Wagon road and Silk Stocking Loop described in the Residential A zone.
- Where historically appropriate, reconstruct hose houses that will be used to store limited wildland fire suppression supplies (such as backpack pumps or extinguishers).

General Manager's Office

What has been done: Between 2004 – 2009, reconstruction of site to reverse previous flood damage and installed ramp that meets Americans with Disabilities Act (ADA) standards, constructed cribbing retaining walls, mitigated lead contaminated materials, dismantling and reconstruction of east, north and west additions, replaced deteriorated logs at foundation, new foundation, restored log structure, installed new electrical wiring and lighting, interior restoration, restored and replaced wood windows and doors, widen doors for ADA access, painted exterior and interior, reinstalled cabinet works. Six historic photos were added to rooms on ground level in 2009.

Proposed Actions (structural): Cyclic maintenance. For most preserved or rehabilitated historic structures, cyclic maintenance means repairs to roofing, windows (re-caulking), and re-painting on a 5 – 10 year cycle.

Small scale features: Reconstruction of boardwalk and stairs from GMO to Hancock addition.

Interpretation: Opened to the public in 2009. Enhance the sense of discovery by developing a hands-on resource space for corporate history. Plan components include durable, functional period workplace furnishings, mostly large tables and office chairs, and tabletop magnifying glasses, reinstallation of refinished drafting table and storage drawers that were taken out of the building during restoration and currently stored in the Machine Shop, and interpretive panels that introduce corporate leadership, including financial investors, and their on-site jobs. Part of self-guided walking tour and guided tour with concessioner.

Vegetation: Re-vegetate area with native seeds/cuttings from local populations.



Photo 9: General

Managers Office

Hospital

What has been done: Severe flood damage in 2006. Foundation stabilized, removal of ruins from east end. Windows and doorways screened to control access into unstable and unsafe environment.

Proposed Actions (structural): Implement interior false-work to keep walls, floors and roof from collapsing. Maintain a roof. No interior access proposed. No painting proposed.

Interpretation: Manage and interpret as a ruin. No interior access proposed. Part of a self-guided walking tour. Modify existing accessible windows so that visitors can see inside.

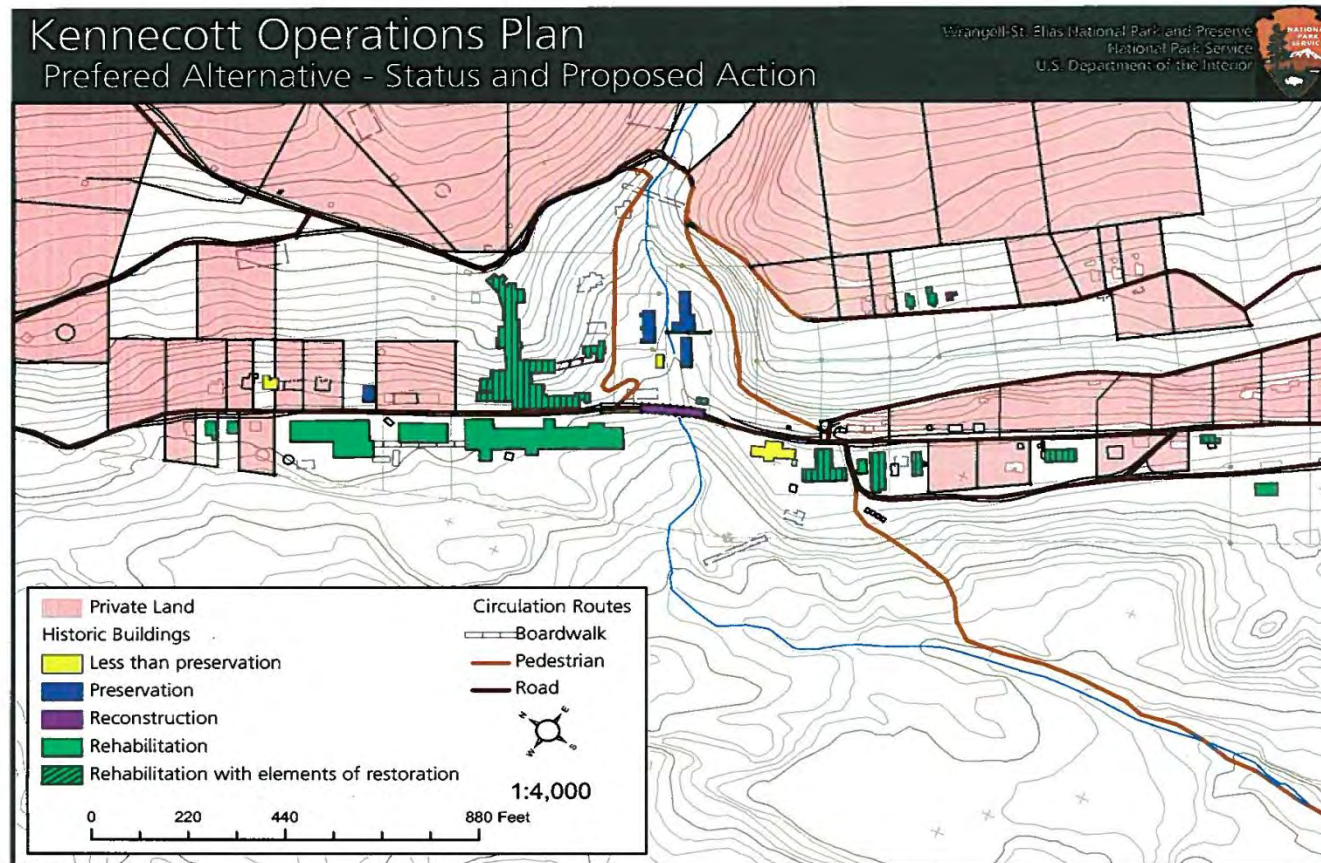
Assay Office

What has been done: Severe flood damage in 2006 resulted in a loss of structural integrity. Removed and relocated salvageable building parts to another site in 2010.

Photo 10: Hospital



Figure 4: Preferred Alternative



Proposed Actions (structural): Will move salvageable remains of the building back to its original location.

Interpretation: Manage and interpret as a ruin. Part of a self-guided walking tour.

Vegetation: Remains of the building will be kept clear of tall woody vegetation for viewshed and fire protection.

Railroad Depot

What has been done: 2002: Included lead paint mitigation, lifted and leveled, new foundation, siding repairs, construct interior ticket counter, stove, restored interior finishes, painted exterior siding, and new roofing. Installed exterior panel on the Flood of 2006.

Proposed Actions (structural): Cyclic maintenance. Restore electrical systems.

Interpretation: Opened to the public from 2004 - 2007 as a visitor center. Replicate original Wells Fargo and Railroad Depot signs. Produce at least one panel for the interior. Part of a self-guided walking tour and guided tour with concessioner.

Sawmill and Carpenters Shop

What has been done: No action. Structure collapsed in the 1970's.

Proposed Actions (structural): Allow ruin to deteriorate in place.

Interpretation: Manage and interpret as a ruin. Part of a self-guided walking tour.

Vegetation: Keep the site and the margins around it free of vegetation in order to interpret as ruin and to protect from fire/rot. Selective thinning to improve and/or maintain views.

Company Store

What has been done: 2008 work included lifting and leveling of building, subfloor excavation for access, new foundation, floor structure, retaining wall at east elevation, removed siding, installed structural shear diaphragm and wall structure, reinstall siding, restored and replaced windows and doors, new electrical wiring, new furnace, clean and mitigate lead paint in store area, reconstructed egress rampways, repainted, constructed curatorial storage area and ranger cache. Opened as visitor contact station in 2008, with exhibits installed in 2010.

Proposed Actions (structural): Work to include: Level 1--construct public restrooms, complete field lab area, interior finishes, lights, elevator/lift to Level 2 and 3, install utilities and additional furnaces. Level 3--construct staff office area, interior finishes, lights and communications. Maintain as visitor contact point and administrative office space.

Vegetation: Thin some trees to open up viewshed in front of deck area.

Interpretation: Opened to the public in 2009. Maintain as primary exhibit space with visitor access. To minimize interpretive intrusions in the town, the General Store will provide a central interpretive focus and a place to fully develop the landmark's primary stories. Given the need for durability and low maintenance, the full range of exhibit techniques can be used including hands-on and interactive media. Replicate original Post Office and General Store sign and open the post office for general public access. Consider developing the outside area of the front and back of store as a gathering place for visitors.

Small scale features: Maintain Hoist House #52. Clear random building material from interior, strong interpretive value. Re-establish cribwall/utilidor from Company Store to the end of the Carpenter's shop.



Photo 11: Company Store

Railroad Trestle

What has been done: Reconstructed in 2009 to preserve railroad feature and provide owner access to property north of National Creek. Work included dismantling of flood damaged trestle, contracted for concrete footings, and constructed replica of historic trestle.

Proposed Actions (structural): Minor finish work such as closing up utilidor. Cyclic maintenance.

Interpretation: Part of a self-guided walking trail.

Vegetation: Selectively clear for viewshed of glacier and tailings retaining wall.

National Creek Re-Channelization

What has been done: Re-channelization using rip-rap done in 2010. Planted alder and willow cuttings for stabilization and aesthetics in 2011. A stone flood wall was constructed by the upper foot bridge and rip-rap has been placed at the East Bunkhouse.

Proposed Actions (structural): Based on the geotechnical evaluation of National Creek, we know that the rock glacier at the head of the valley continuously contributes a large sediment load to the stream. Engineering for stream rechannelization identified the need for the periodic removal of sediment. Removal will require periodic excavation from the stream bed to retain its current configuration. Excavation will require the use of heavy equipment such as backhoes and dump trucks. Planted materials in the actual streambed will be periodically impacted.



Photo 12: National Creek

Industrial Core Zone

Vegetation: The following vegetation clearing would be done around all historic structures on NPS lands in this zone, for fire and windfall protection; and for access to the buildings:

- Clear all spruce trees within 30' of all structures.
- Limb spruce trees up to 10' above the nearest surface fuel within 100' of all structures.
- Clear all woody vegetation within 5' of all structures.

Selective thinning for viewshed would also be undertaken in order to enhance views. Specific areas of consideration in this zone would be on NPS lands along the Portal trail above the mill building and along the trail linking the GMO to the top of the mill building (See Figure 3). Revegetation of disturbed areas (such as proposed water lines) would be conducted utilizing native herbaceous vegetation seed collected from the surrounding area. Such plantings would also be considered in order to screen certain views. In some selective cases historically accurate non-invasive non-native plants may be planted to enhance the cultural landscape. Area will continue to be monitored for invasive plants and populations of such will be controlled and removed.

Circulation/Access: The following are proposed for this zone:

- Construct accessible trails and boardwalks behind the power plant, machine shop, and leaching plant (See Figure 4).
- In cooperation and consultation with private lot owners, consider restoration of boardwalks and/or railroad within this zone as a tool to control parking.

Tram Terminus

What has been done: Friends of Kennecott re-roofed the western most area in the 1990s; NPS has maintained brushing; maintained roof; supported foundation repairs; walkway and railing; secured the site with doors.

Proposed Actions (structural): Work to include structural repairs to the upper mill including the tram deck, structural reinforcement to ore bin, floor repairs, and reconstruction of upper tram deck and roof. Dependent on funding, construction of a protective roof structure over the upper tram deck and roof may be considered rather than reconstruction.

Interpretation: Open to the public as part of a concession tour.

Vegetation: Maintain scenic views through continued brushing.

Concentration Mill

What has been done: Study, design, and engineering for the internal stabilization of the building. Maintained roofing, added hand rails for stairs, and hardened walking surfaces along tour route.

Proposed Actions (structural): Work to include structural repairs including foundation repairs and column and truss repairs Levels 1 through 7. Mock-up for project to test internal stabilization methods was performed in 2011, with other work scheduled for 2012 and 2013. Repairs to the mill to repair the foundations and reestablish deteriorated timber crib retaining walls will require site disturbance during the period of construction. Once completed, the landscape will be restored.

Additional work dependent on funding will include structural repairs to the mill structure at Levels 8 and above. This work will include foundation and column and truss repairs, new roof construction, and stabilization of the ore bins.

The intent of the proposed work is to stabilize the structure for a guided visitor opportunity. Long term (more than 10 year) plans would include siding repairs and replacement and painting. Window repairs and replacement may be required to protect the interior of the building and to provide draft control as part of future fire suppression within the mill.

Recent work has been done to identify and delineate the deposition of detonation cord and blasting caps on the north side of the mill building. The inventory revealed the presence of large amounts of debris (estimated between 1500 and 1800 cubic yards) on the north side of the mill building potentially containing undetonated blasting caps. This area will continue to be posted as closed as long as the site is hazardous. Some of the mill building stabilization efforts identified above will require working in this area. Site specific mitigation of the hazard, through removal of the debris material, will occur prior to work being conducted in these specific areas. Removed material will be taken to a safe area, screened for blasting caps, and burned. Long term, much of the debris potentially containing blasting caps may remain on site. The area will be clearly posted and, if necessary, physical barriers will be put up at access points.

Archeological resources: Replace ore chute. Minimize disturbance to other interior and exterior archeological resources during stabilization.



Photo 13: Inside the Concentration Mill

Interpretation: Interpretation of the stabilized mill building through partnership/concession-led tours that meet NPS standards for interpretation. In the Sacking Garage, bring the sacking process to life by displaying an original flat car loaded with burlap bags filled with ore, show the sacking and stacking process with working pulleys to raise and lower the chute, and reinstall the original tracking scale and winch used to pull cars back and forth.

Small scale features: Track inclines on north and south sides of mill building will be brushed or otherwise cleared and managed as ruins; reconstruction of roof enclosure will occur on the utilidor along south edge of mill building. Internal stabilization of scale house and lab sheds.

Leaching Plant

What has been done: Measures were taken to prevent collapse or further deterioration of the building, including temporary roofing and foundation repairs on the north and south sacking sheds.

Proposed Actions (structural): Ongoing work to include repairs to halt collapse onto railroad corridor, site stabilization, foundation replacement, repairs to floor and wall structure, lead paint mitigation (including painting), rehabilitation of doors and windows to control access. Scheduled work includes structural repairs to the walls of the leaching plant including column realignment and footings, shear wall repairs, truss repairs, and asbestos abatement. Allow south addition to collapse and manage as a ruin. Implement interior false-work/rigging to keep ruin structure from collapsing onto the railroad corridor or into the north addition. No interior access proposed in the south addition.

Interpretation: Continued tour opportunity with mill building. North sacking shed identified for future milling exhibit to accommodate physically challenged visitors that cannot access the Mill. Exhibits could include installation of original equipment such as shaker tables and crushers that demonstrate the different milling processes.

Small scale features: Stabilization/reconstruction of bracing and the original track incline for the leaching plant deck, north of leaching plant. Reestablish the deck at the north elevation with an integrated accessibility ramp into sacking shed.

Machine Shop

What has been done: 2002 work included new foundation, retaining wall construction, partial roof reconstruction, re-roofing, siding repair, painting, and some window restoration.

Proposed Actions (structural): Scheduled work to include reestablishment of collapsing service decks on north and south sides, door and window repairs, siding repair, and reconstruction of a porch roof over the east entrance.

Interpretation: This is the largest open interior space in Kennecott, and could be used to display original machinery such as the overhead hoist, forge, drive shaft, and belts, as well as return original machines and tools that were purchased in 1938 and shipped to Dunkle Mines. Produce at least one panel for the interior. After proposed structural repairs, building will be open to the public. Part of a self-guided walking tour.

Power Plant

What has been done: 2007 work included repair/replacement of entire building foundation, column repairs, partial roof replacement, re-roofing, smoke stack capping and structural stabilization, exterior wall repairs, ADA rampway system, access control, alleyway boardwalks. Repainted doors to mitigate lead paint hazard. Exhibit panel installed in upper mezzanine in 2006.

Proposed Actions (structural): Mediate oil and asbestos in the area. Boiler and stack preservation treatment. Window repair/lead abatement including painting.

Interpretation: Roadside viewing platforms opened to the public in 2006. Maintain the one interpretive exhibit panel on upper mezzanine. Inside tour could be led by a concessioner on an ADA rampway. Exterior and upper decks can be part of a self-guided walking tour.

Small scale features: The following are proposed:

- Stabilization of structure members (those affected by fire of the south deck of the power plant).
- Reconstruct small section of boardwalk with stairs west of power plant.



Photo 14: Power Plant

Transformer House

What has been done: 2006 to 2011 work included asbestos abatement and site clearing, re-roofing, site grading to resolve drainage into the building, new foundation, repairs to floor structure, repairs to exterior siding.

Proposed Actions (structural): Repair or replace missing windows and doors and paint. Landscape to improve drainage away from building.

Interpretation: Not open to the public. Part of a self-guided walking tour. Modify existing windows so that visitors can see inside.

Commercial Zone

Vegetation: The following vegetation clearing would be done around all historic structures on NPS lands in this zone, for fire and windfall protection and to maintain public access:

- Clear all spruce trees within 30' of all structures.
- Limb spruce trees up to 10' above the nearest surface fuel within 100' of all structures.
- Clear all woody vegetation within 5' of all structures.

Vegetation screening will be considered in this zone, particularly to screen the Dairy Barn area from the shuttle turn-around viewshed. Views of the glacier will be maintained. Disturbed area revegetation would be considered as needed utilizing native herbaceous vegetation seed or historically accurate plantings collected from the surrounding area. In some selective cases historically accurate non-invasive non-native plants may be planted to enhance the cultural landscape. Area will continue to be monitored for invasive plants and populations of such will be controlled and removed.

Refrigerator Plant

What has been done: 2008 work included reconstruction of south, west walls and floor framing, roof repairs and reroofing, window and door repairs, lead mitigation and painting, new electrical wiring and lights and new steps and porch.

Proposed Actions (structural): Cyclic maintenance. Re-construct cribbing walls.

Interpretation: Opened to the public in 2008. Part of a self-guided walking tour. Produce at least one panel for the interior.

Small scale features: Restore historic ramp to the railroad corridor. Restore boardwalk.

West Bunkhouse

What has been done: 2003 work included a new shingle roof and interior lead paint mitigation. New foundation was started in 2011 and completed in 2012.

Proposed Actions (structural): 2013 work to include exterior rehabilitation consisting of floor and wall repairs, construction of exterior shear diaphragm, siding repair and painting, repairs to doors and windows. Retain interior options for potential partnerships and/or interpretation. Depending on the nature of future partnerships and the adaptive re-use of this building, it may be necessary to make significant changes to the building to protect occupants from fire, to meet operational needs of the users, and to install electrical, heating and plumbing services. The prospective partner would be responsible for all interior improvements in accordance with *The Secretary of Interiors Standards for Treatment of Historic Properties*.

Partnership: NPS will consider partnering with a non-profit for long-term adaptive re-use and management of this building. Criteria for potential partners include:

- Financially capable of funding interior rehabilitation to accommodate proposed adaptive re-use.
- A partner who places value on protection of historic, cultural, and natural resources.
- A partner who has an existing or historic connection with the community and/or Kennecott.
- Adaptive re-uses of the building must also allow some public access for interpretive purposes.

Of the three bunkhouses remaining in the mill town, the National Creek and East Bunkhouses are in poor condition and will be managed into the future with little or no interior access to the public.

Only the West Bunkhouse retains a high level of integrity reflective of its historic past, both with respect to its exterior appearance and to its interior design, functionality, and spatial layout. Because of the high historic and interpretive value of the structure, NPS has classified the interior rooms of the building relative to potential adaptive re-use. The purpose is to give potential partners an indication of where adaptive re-use might be considered. NPS rated each interior portion of the building as primary or secondary space. Primary space indicates rooms or areas that have maintained the integrity of their character-defining elements and retain high interpretive value. In general, adaptive re-use of these areas is acceptable provided the proposed use is compatible with the historic use of the room and as long as the design and materials needed for restoration are reflective of the original structure. Areas identified as primary space have a high interpretive value and NPS (or its partner) will have access for interpretation purposes. The following rooms and/or areas of the West Bunkhouse were identified as primary spaces:

Ground floor: Locker room; wash-up/sink area; office; west staff bunk room; staff area corridor; back porch.

First floor: Entryway; west side dining hall; and Kitchen/Pantry area.

Second floor: Lounge area; bunkrooms 1, 2, and 3 on the east end; and the hallway/corridor.

Third floor: Head of the stairway and the hallway/corridor.

Interpretation: Open to the public after interior modification, in cooperation and consultation with prospective partner. After adaptive re-uses to support partnership have been determined, develop an interpretive panel for the interior that links the building, via text and images, to the historic use of the structure. Include interpretation of the Japanese cooks. Part of a self-guided walking tour and guided tour with concessioner.



Photo 15: West Bunkhouse

New Schoolhouse

What has been done: 2003-2009 work included lifting and leveling of building, new foundation, floor structure, foundation skirting, lead paint mitigation, remove and restore historic siding, install shear diaphragm, restore doors and windows, reestablished two working restrooms, restored interior finishes, new electrical system and lighting, new septic and leach field system. Used as site maintenance offices and crew training room. ADA ramp completed in 2011.

Proposed Actions (structural): Restore classrooms after maintenance activity is removed from building. Install chalk boards, refinish floors.

Interpretation: Possible future classroom for visiting school groups and/or interpretive exhibit space. Part of self-guided walking tour. Acknowledge the location of the handball court/hockey rink in future interpretive material.

Small scale features: Re-establish cribwall/utilidor between New School and West Bunkhouse.

Recreation Hall

What has been done: 2001 - 2003 work included new foundation, dismantled and reconstructed east and west wall structure, lead paint mitigation, removed and reinstalled interior walls and ceiling and exterior siding, installation of structural shear diaphragm, repairs to trusses and roof sheathing, lead paint mitigation, exterior and interior painting, interior finishing, restoration of windows and doors, construction of ADA ramp, furnace, new electrical wiring, projector installation, furnace and ducting installation. In use as a theater and shared community hall.

Proposed Actions (structural): Cyclic maintenance. Install sprinkler system. ADA compliant hardening of walkways to outhouses.

Partnerships: Currently working on lease agreement with Wrangell Mountain Center to manage the building for community events, interpretive programs, and classroom purposes.

Interpretation: Opened to the public in 2003. Part of a self-guided walking tour. Two interpretive panels were installed in 2004.

Small scale features: Hose house was rehabilitated and will be utilized to provide storage for fire suppression supplies (backpack pumps or extinguishers).

Old Schoolhouse

What has been done: Work has included dismantling and reconstruction of the west and east walls, lead paint mitigation, removed and reinstalled historic siding, installed shear diaphragm, restored windows and doors, reroofing, new electrical and lighting, interior and exterior painting, and floor repairs. In use as park offices.

Proposed Actions (structural): Cyclic maintenance. Utilize boardwalk behind building to connect this building with the shuttle turnaround, thus providing a continuous visitor orientation space. Porch behind building would be extended and roofed. Benches installed to provide covered visitor space. Existing outhouse “expanded” to provide men’s and women’s vault toilets.

Interpretation: Convert the Blackburn School into a staffed, contact station offering backcountry information, orientation, and safety messages. Possible space dedicated to concessioner who offers guided tours through Kennecott NHL. Install interpretive panels that introduce each of the landmark’s

themes and that interpret the Blackburn School building history. Update the Scope of Sales and develop displays for Alaska Geographic sales. Part of a self-guided walking tour. Possible future use as winter caretaker office.

Dairy Barn

What has been done: 2009 - 2011 work included new foundation and roof, construction of a shear diaphragm, lead paint mitigation including painting, door and window repairs, insulation, interior finishes, new electrical system, lights, plumbing. Connections to existing septic system/leach field. Communication system installation.

Proposed Actions (structural): Cyclic maintenance. Future use as shop/break room and this area will be utilized for employee parking. Enclosure for generator, construct material shed and security shed.

Residential A Zone

Vegetation: The following vegetation clearing would be done around all historic structures on NPS lands in this zone, for fire and windfall protection and for access to the buildings:

- Clear all spruce trees within 30' of all structures.
- Clear all woody vegetation within 5' of all structures.
- Limbing of spruce trees up to 50' from the buildings. Consideration will be given to the effects on thinning/limbing on adjacent landowners and maintaining privacy/vegetation screening.

Elsewhere in this zone, selective thinning would occur in order to open views of the Kennicott Glacier and/or mill building. Specific locations include:

- Selectively clear mill building view sites on the Silk Stocking trail approaching the National Creek bridge.
- Selectively clear specific view positions along the historic wagon road on south side of National Creek to frame views of historic structures and glacier and mountains beyond. See description under Circulation and Access.

Encourage and/or allow vegetable and flower gardens present in 1938, including vegetable beds and flower boxes, based on historical documentation and precedent. Consider re-establishment of foundation plantings, and grass between cottages as reflective of the period. Invasive and high water demanding species will be avoided. Area will continue to be monitored for invasive plants and populations of such will be controlled and removed. Disturbed area revegetation would be considered as needed utilizing native herbaceous vegetation seed collected from the surrounding area.

Circulation/Access: The old wagon road from the Company Store through the landslide at the south slope of National Creek would be cleared and maintained for pedestrian use only. The landslide would be by-passed or a trail constructed through it (see Figure 4).



Photo 16: East Bunkhouse and National Creek Bunkhouse

East Bunkhouse:

What has been done: 2010 work included excavation of flood materials from the interior of the structure, lead waste removal, foundation replacement, and repairs to exterior structural walls, shear diaphragm, floor structure, and access control. The new foundation was designed to resist future flooding and to be part of the flood control strategy for National Creek. Work also included removal of bathhouse wing from the west end of the building.

Proposed Actions (structural): Re-siding and painting, with salvaged materials and new, “shadow” reconstruction of lower-level windows and doors (openings are framed but do not contain actual doors or windows). Replace roof and stabilize. Re-grading around building. This building is critical to maintain in place for National Creek stability.

Interpretation: Manage and interpret as a bunkhouse. Controlled access proposed. Part of a self-guided walking tour.

National Creek Bunkhouse:

What has been done: Windows and doors screened to prevent access.

Proposed Actions (structural): Work to include interior reinforcement to help stabilize the structure, re-roofing to extend the life of the ruin structure. Manage as a ruin as part of the Kennecott streetscape.

Interpretation: Manage and interpret as a ruin. No interior access proposed. Part of a self-guided walking tour. Modify existing windows on the lower level so that visitors can see inside.

South Silk Stocking Cottage:

What has been done: 2008 work included new foundation, roofing, window and door rehabilitation, exterior and interior lead mitigation, painting, refinished floors, new electrical wiring, propane lighting, plumbing, septic/leach field. In use as employee housing. Missing garage structure reconstructed to

provide summer storage, for both cottages, to keep staff bicycles etc. out of the landscape and provide space for power generator and backup battery bank.

Proposed Actions (structural): Cyclic maintenance.

Interpretation: Part of a self-guided walking tour, incorporating educational materials regarding respect for private property.

North Silk Stocking Cottage:

What has been done: 2008 work included new foundation, roofing, window and door rehabilitation, exterior and interior lead mitigation, painting, refinished floors, new electrical wiring, propane lighting, plumbing, septic/leach field. In use as employee housing.

Proposed Actions (structural): Cyclic maintenance. Remove sauna above cottage.

Interpretation: Part of a self-guided walking tour, incorporating educational materials regarding respect for private property.

Residential B Zone

Vegetation: The following vegetation clearing would be done around most historic structures on NPS lands in this zone, for fire and windfall protection and for building access:

- Clear all spruce trees within 30' of all structures.
- Clear all woody vegetation within 5' of all structures.
- Limbing of spruce trees up to 50' from the buildings. Consideration will be given to the effects on thinning/limbing on adjacent landowners and maintaining privacy/vegetation screening.

In cooperation with private landowners, clear woody vegetation along the rail corridor north of the Mill building to end-of-rail to reestablish conditions reflective of historic period and improve glacier views.

Encourage and/or allow vegetable and flower gardens present in 1938, vegetable beds, flower boxes. Invasive and high water demanding species will be avoided. Area will continue to be monitored for invasive plants and populations of such will be removed. Disturbed area revegetation would be considered as needed utilizing native herbaceous vegetation seed collected from the surrounding area.

Circulation/Access: Maintain historic access routes for pedestrian and local vehicle use.

Kennecott Cottage 39C, Lot 88

What has been done: Previous owners did interior work. Interpretive panel installed. New roof installed.

Proposed Actions (structural): Work to include lead paint mitigation, re-establish trim and cabinetry details, repairs to interior paneling, floors and ceiling, new electrical wiring and lights, interior and exterior painting, doors and window repairs. Reconstruct outhouse and boardwalk in the back.

Interpretation: Opened to the public in 2006. One interpretive panel installed in 2007. Manage as an historic period residence and as part of a self-guided walking tour.

Vegetation: Re-establishment of historical vegetation - this may be a lawn and garden.

Kennecott Cottage 13C, Lot 80

What has been done: This cottage on the east side of the railroad bed, was acquired by NPS in 2005. Nothing has been done.

Proposed Actions (structural): Manage as ruin.

Interpretation: Manage and interpret as a ruin. No interior access proposed. Part of a self-guided walking tour.

Vegetation: Selective thinning that allows views of boardwalk, cottage, and railroad bed without allowing for entry to this unsafe area.

Kennecott Cottage 39B, Lot 87

What has been done: Acquired by NPS in 2011. Collapsed under snow load, winter 2012.

Proposed Actions (structural): Consolidate collapsed material and manage as ruin.

Interpretation: Part of a self-guided walking tour.

Vegetation: Clearing for fire protection as identified above.

2.3.2.3 Transportation/Access

Trails and Glacier Access

Kennecott is not just a historic site; one of the most common and important activities undertaken by visitors to Kennecott is use of the hiking trails that provide access to surrounding frontcountry and backcountry, including the heavily visited Root and Kennicott Glaciers. Two of the most popular hiking trails in the park are included, in their entirety, within the boundaries of the Kennecott NHL: trails to the Root Glacier and to the Bonanza/Jumbo Mines. Management of these and other trails and associated visitor activities is therefore central to the Kennecott Operations Plan. This section addresses trails which provide access to the surrounding frontcountry and backcountry from the Kennecott townsite, including the following: 1) the Root Glacier Trail with connections to the glacier itself and the Erie Mine area; 2) the Bonanza Trail with connections to Bonanza and Jumbo Mines; 3) the “Wagon Road” towards McCarthy, and 4) a proposed trail alongside the Kennicott Glacier towards the Kennicott River footbridge with connection to a proposed walk-in campground. Short pedestrian trails and boardwalks within the Kennecott townsite are discussed elsewhere in this document (see proposals listed under “Circulation and Access” for the Industrial, Administrative Core, and Residential A zones), but we note here that these shorter trails work in concert with frontcountry/backcountry trails to promote and preserve a pedestrian-oriented experience within and around the NHL.



Photo 17: Root Glacier trail

All frontcountry/backcountry access trails will be managed and maintained as pedestrian-oriented trails with accommodation, where appropriate, for permitted uses of motorized vehicles by local residents and their guests and for subsistence activities. To preserve the wilderness character of the area surrounding the NHL, regulatory and interpretive signs will be kept to a minimum along the corridors of these trails, but a strong emphasis will be placed on provision of educational and interpretive information at trailheads and within the NHL itself. This information will be delivered by an appropriate combination of posted signs and maps, available pamphlets and self-guided tours, and direct contact by NPS rangers and other interpretive partners, and will collectively emphasize the following: 1) safe and low impact travel techniques in the front and backcountry, including bear safety; 2) interpretation of natural/cultural/glacial history of the surrounding area, and 3) appropriate locations and practices for hiking, camping, picnicking, food storage, use of toilets, etc., with an emphasis on protecting natural resources and private property. Patrolling of trails will be provided at a level sufficient to enforce visitor observance of these practices.

NPS will construct a 3.5 mile pedestrian trail to the NHL from the footbridge over the east (dry) fork of Kennicott River. The route will generally follow the east side of the Kennicott Glacier, staying well away from private property, from the viewshed of the railroad corridor, and from popular swimming areas at the toe of the glacier. Route planning will incorporate community input and will take into account the evolving viewshed as the Glacier continues to thin and retreat. At the north end, the foot trail would connect with the old Wagon Road in the vicinity of the West Bunkhouse or Company Store. Near the south end, a trail segment that links with the proposed walk-in campground would also be included. The

trail would be constructed and maintained exclusively for non-motorized use, with a tread approximately 2 feet in width constructed of unconsolidated outwash and existing moraine material, and with minimal alterations of grade as necessary only to ensure safety and that water will move off the trail.

2.3.2.4 NPS Utilities and Infrastructure

Mill Site Water System: The design for the water system is still underway and the Kennecott Operations Plan/EA will not serve as the NEPA compliance document for the water system. Instead, once specific design details are known, the project will be presented and analyzed in a separate EA. The EA would consider the impacts of the proposed system on water quality and quantity, vegetation, wildlife, area access, scenic quality, and the integrity of the cultural landscape. The comments submitted by the MAC subcommittee and individuals regarding the water system will be retained and addressed in that site-specific EA.

Components of a water system may include a water source (either a well or water intake from Bonanza Creek); a water storage tank; waterline between intake and the storage tank; water treatment; water distribution lines for potable water and/or limited fire suppression.

Sanitary Sewer System

Collection, treatment and disposal of sewage (wastewater) generated by visitors and staff in NHL buildings and on the west side of the Kennicott River would be achieved primarily by septic systems (septic tanks and leach fields).

The NHL buildings that could potentially be equipped with sewer service are the Dairy Barn, Old School, New School, West Bunkhouse, and Company Store.

The existing ADEC approved septic system and leach field has been expanded to service the Dairy Barn property acquired in 2005. The Store, West Bunkhouse, New School, Old School and Dairy Barn would be serviced by this system field.

Excavations would be made along the west side of the site behind the Store and under the historic wagon road. About 1050 lineal feet of buried sewer line from the Store to the Dairy Barn would be provided. Sewage lift station(s) may be required. The lift station would be installed in a buried manhole in the line between the Store and Dairy Barn. A total of 6-8 manholes would be constructed.

Power Generation and Distribution

A power generation and distribution plan will be developed based on projected power requirements for the next 10 to 20 years. The plan and subsequent design will take into account expansion of the system and use of alternate energy sources of power generation including hydro and solar power at Kennecott NHL. This information would include projected costs and the total hours of generator time that would be reduced/saved with alternative systems installed.

The generator located south of the Dairy Barn will continue to provide power for NPS operations at Kennecott as other alternatives are considered. NPS will construct an enclosure around the generator connex in order to mitigate noise production and visual impact.

Airport Operations Facility/office and lots

Installation of a co-gen unit to supplement existing power generation and provide heating capabilities occurred in 2011. Long term intent is for this area to serve as the telecommunications hub for Kennecott and west side NPS facilities and serve as a winter office. This office also will serve as an incident command post and provides an aviation support function.

The NPS acquired a 5 acre lot adjacent to the McCarthy airport in 2012. This lot was acquired with the intent of future development to provide support for NPS operations in the McCarthy/Kennecott area. While no specific site plan has been prepared, the lot may be developed to include the following:

- Water
- Year-round housing unit (at back of lot)
- Seasonal housing
- Staging area for materials and supplies
- Communications hub
- Secure storage area

A specific site plan and development of the area will be handled in a separate compliance document and will be done in communication with the community.

2.3.2.5 Other

Jumbo Transfer Station

What has been done: 2008 work included volunteer effort for emergency foundation and roof repairs, improvements to stop animal access into the building.

Proposed Actions (structural): Future work to include reroofing, wall and floor repairs, structural repairs.

Jumbo Mine Aerial Tramway

What has been done: 2003 documentation.

Proposed Actions (structural): Stabilization of the NPS-owned lower portion of the tramway system. Stabilization to include replacement of deteriorated structural members on tram towers, capping of column members with metal to prevent further deterioration, and bracing and reaffixing missing connections.

Vegetation: Brush removal would occur around NPS owned towers. The portion of the tramway visible from the tram terminus will be brushed to that the tramway system is evident. This action is dependent on possible NPS acquisition of Lot 65 above the tram terminus.

Mudhole Smith cabin

What has been done: Vegetation clearing for fire protection.

Proposed Actions (structural): Replace sill logs, remove non-historic interior flooring, cap the chimney hole to prevent rain and snow from getting in, and maintain the roof and door window openings.

Interpretation: Interpretive site with exhibit regarding aviation history in the area.

Jumbo Mine/Root Glacier outhouse

A vault toilet would be installed near the junction of the Root Glacier trail and the Jumbo Mine trail. The intent is to take pressure off the more remote (and unserviceable) Jumbo Creek outhouse.

The existing Jumbo Creek outhouse will be re-built and re-located. The interior of the new outhouse will be constructed of materials that are easier to clean.

Cemetery

NPS would consider developing a map of the cemetery that would be part of a self-guided tour. Proposed activities at the cemetery include fence maintenance/reconstruction; brushing of native vegetation in order to define cemetery plots; and maintenance of grave markers. To date no invasive plants have been documented in the cemetery but it will continue to be monitored for them and if found, they will be removed. Non-invasive, non-native plants do grow in the cemetery and will not be removed as they may be a part of historic plantings. A cultural landscape report has been prepared for the cemetery which includes recommended treatments. These proposed actions are consistent with the cultural landscape report recommendations. The final cultural landscape report for the cemetery will be made available for public review and will be appended to this document.



Photo 18: Kennecott cemetery

2.3.3 Alternative 3: Management Concepts Alternative

2.3.3.1 Overview

Under this alternative, historic structure stabilization and preservation would reflect the Management Concepts presented in the Interim Operations Plan and in section 1.3.2 of this EA. Most historic structures would be managed within the “preservation” class of *The Secretary of Interior’s Standards for the Treatment of Historic Properties*. Treatments would emphasize interior stabilization and (where necessary) re-roofing, but would not include re-painting or window replacement. Wherever possible, archeological resources would be retained on the landscape. Vegetation clearing would be done only to maintain historical circulation routes. The NHL would continue to be monitored for invasive plants and populations of such would be manually removed, with no use of herbicides. No small scale features would be reconstructed.

On transportation/access issues, NPS would work with the community to manage the NHL as a non-motorized visitor destination. NPS would not propose to develop additional parking but would work with the community on managing parking within the NHL. Under this alternative, NPS would develop 3.5 mile pedestrian trail along the east side of the Kennicott Glacier and would develop a walk-in campground. NPS would work with the community to consider the development of additional non-motorized trails in the area. For NPS Utilities and Infrastructure, no water system would be developed and power generation and distribution would be provided through propane, diesel generator, and consideration of alternative sources, primarily solar.

Detailed NPS proposals for each of the buildings and structures within the NHL are presented below. Before park/community discussions focusing on how to treat individual structures are conducted, a meeting was held in June 2012 to focus on the general question of how managing with a “light touch”, as articulated in the Management Concepts section of this document, is to be interpreted in light of the *The Secretary of Interior’s Standards for the Treatment of Historic Properties*. Once this translation has been agreed upon by both NPS and the local community, it will be consistently applied in all decisions about how to treat individual structures into the future. Once established, any changes to that understanding will be made only with full discussion and buy-in from NPS, the State Historic Preservation Officer, and the local community.

2.3.3.2 Zone by Zone Proposals

Archeological Resources, all Zones: Wherever feasible, all categories of archeological resources identified in the 2000 Cultural Landscape Report will be retained on the landscape. If removal is necessary for public safety or to facilitate building stabilization, archeological resources will be re-located as close to the original documented location as possible.

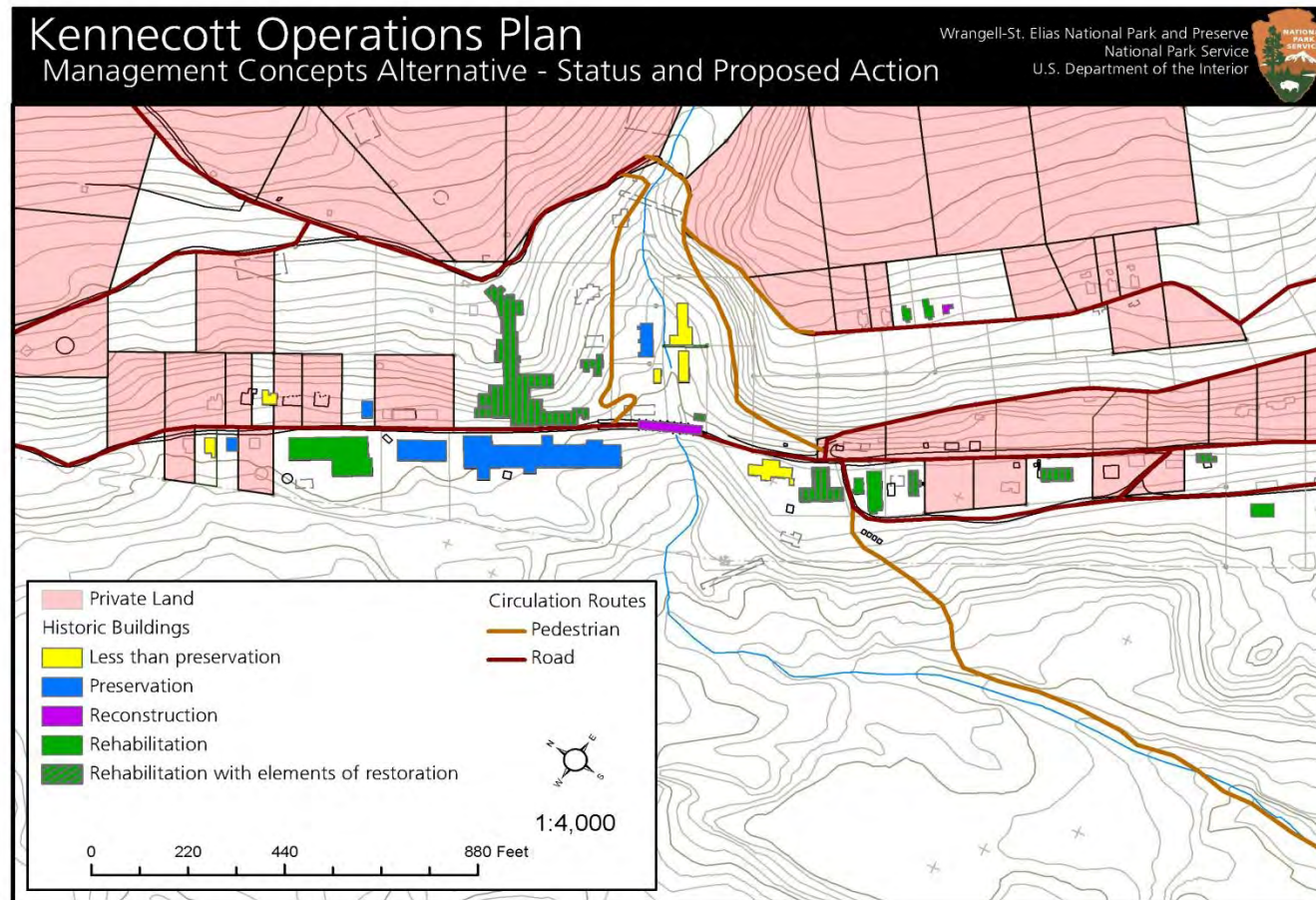
Administrative Core Zone

Circulation/Access: The following are proposed for this zone:

- Improvement and maintenance of a pedestrian trail from the General Manager’s Office, up the creek to the footbridge, connecting to the top of the mill building (see Figure 5). This trail would connect with the Old Wagon road and Silk Stocking Loop described in the Residential A zone.

General Manager’s Office: Same as Alternative 2 for Proposed Actions (structural) and Interpretation. No proposed re-vegetation.

Figure 5: Alternative 3 Management Concepts



Hospital: Same as Alternative 2.

Assay Office: Same as Alternative 2 for Proposed Actions (structural) and Interpretation but no proposed vegetation clearing.

Railroad Depot: Same as Alternative 2.

Sawmill and Carpenters Shop: Same as Alternative 2 for Proposed Actions (structural) and Interpretation, but no vegetation clearing proposed.

Company Store

Proposed Actions (structural): Phase II work to include: Level 1--complete field lab area, interior finishes, lights, install utilities and additional furnaces. Level 3--construct staff office area, interior finishes, lights and communications. Maintain as primary visitor contact point and administrative office space. No water system would be developed under this alternative; consequently no water would be provided to this building. Visitors/employees would continue to utilize vault toilets and the second floor could not be converted to employee office space (without a sprinkler system).

Interpretation: Opened to the public in 2008. Maintain as primary exhibit space. To minimize interpretive intrusions in the town, the General Store will provide a central interpretive focus and a place to fully develop the landmark's primary stories. Given the need for durability and low maintenance, the full range of exhibit techniques can be used including hands-on and interactive media. Consider developing the outside area of the front and back of store as a gathering place for visitors.

Railroad Trestle: Same as Alternative 2 for Proposed Actions (structural) and Interpretation but no proposed vegetation clearing.

National Creek Re-Channelization: Same as for Alternative 2.



Photo 19:

Railroad Trestle

Industrial Core Zone

Tram Terminus

Proposed Actions (structural): Structural repairs to the upper mill including the tram deck, structural reinforcement to ore bin, and floor repairs. Upper tram deck and roof would not be reconstructed. No window replacement or painting.

Interpretation: Open to the public as part of a mill town tour.

Concentration Mill

Proposed Actions (structural): Work to include structural repairs including foundation repairs and column and truss repairs Levels 1 through 7. Repairs to the mill to repair the foundations and reestablish deteriorated timber crib retaining walls will require site disturbance during the period of construction. Once completed, the landscape will be restored.

Additional work would include structural repairs to the mill structure at Levels 8 and above. This work would include foundation and column and truss repairs and stabilization of the ore bins.

The intent of the proposed work is to stabilize the structure for a guided visitor opportunity.

Interpretation: Interpretation of the stabilized mill building through partnership/concession-led tours that meet NPS standards for interpretation. In the Sacking Garage, bring the sacking process to life by displaying an original flat car loaded with burlap bags filled with ore, show the sacking and stacking process with working pulleys to raise and lower the chute, and reinstall the original tracking scale and winch used to pull cars back and forth.

Leaching Plant

Proposed Actions (structural): Ongoing work to include repairs to halt collapse onto railroad corridor, site stabilization, lifting and leveling sacking sheds, foundation replacement, and repairs to floor and wall structure. Work would include structural repairs to the west, north and south walls of the leaching plant including column realignment and footings, shear wall repairs, truss repairs, and asbestos abatement. Allow south addition to collapse and manage as a ruin. Implement interior false-work/rigging to keep ruin structure from collapsing onto the railroad corridor or into the north addition. No interior access proposed.

Interpretation: Continued tour opportunity with mill building.

Machine Shop

Proposed Actions (structural): Collapsing service decks would not be re-established; no door and window repairs; and porch roof over east entrance would not be reconstructed.

Interpretation: Part of a self-guided walking tour.

Power Plant

Proposed Actions (structural): Mediate oil and asbestos in the area. Boiler and stack preservation treatment.

Interpretation: Viewing deck opened to the public in 2006. Maintain the one interpretive exhibit panel on upper mezzanine. Inside tour could be led by a concessioner on an ADA rampway. Part of a self-guided walking tour.

Transformer House

Proposed Actions (structural): Cyclic maintenance.

Interpretation: Not open to the public. Part of a self-guided walking tour. Modify existing windows so that visitors can see inside.



Photo 20: Ore chute going in to Leaching Plant

Commercial Zone

Refrigerator Plant: Same as Alternative 2 for Proposed Actions (structural) and Interpretation. No restoration of small scale features proposed.

West Bunkhouse: Same as Alternative 2 for Proposed Actions (structural) except that interior options for potential partnerships will be limited without the water system to provide potable water and/or fire suppression capabilities. Same as Alternative 2 for Partnerships and Interpretation.

New Schoolhouse

Proposed Actions (structural): Cyclic maintenance. Maintain toilet facilities.

Interpretation: Possible future classroom for visiting school groups and/or interpretive exhibit space. Part of self-guided walking tour. Acknowledge the location of the handball court in future interpretive material.

Recreation Hall: Same as Alternative 2 for Proposed Actions (structural), Partnerships, and Interpretation. No restoration of small scale features proposed.

Old Schoolhouse: Same as Alternative 2.

Dairy Barn: Same as alternative 2.

Residential A Zone

Circulation/Access: The old wagon road from the Company Store through the landslide at the south slope of National Creek would be cleared and maintained for pedestrian use only. The landslide would be by-passed or a trail constructed through it (see Figure 5).

East Bunkhouse:

Proposed Actions (structural): Re-siding with salvaged materials. Repair roof and stabilize. This building is critical to maintain in place for National Creek stability.

Interpretation: Manage and interpret as a ruin. No interior access proposed. Part of a self-guided walking tour.

National Creek Bunkhouse: Same as Alternative 2.

South and North Silk Stocking Cottages: Same as Alternative 2 for Proposed Actions (structural). Because it is a residential area, NPS would not direct the public to this area, as part of a self-guided walking tour or otherwise.

Residential B Zone

Circulation/Access: Maintain historic access routes for pedestrian and local vehicle use.

Kennecott Cottage 39C, Lot 88

Proposed Actions (structural): Work to include re-roofing. No interior work, no exterior painting or door and window repairs.

Interpretation: Interior closed to the public in 2006. One interpretive panel maintained on exterior of building. Part of a self-guided walking tour.

Kennecott Cottage 13C, Lot 80: Same as Alternative 2 for Proposed Actions (structural) and Interpretation. No selective thinning proposed.

Kennecott Cottage 39B, Lot 87

Proposed Actions (structural): None. Manage as ruin.

Interpretation: Part of a self-guided walking tour.

2.3.3.3 Transportation/Access

Trails and Glacier Access: Same as Alternative 2. In addition, NPS would work with the community to consider construction of other non-motorized trail opportunities in the area. The benefits of developing non-motorized trails in the area include:

- Providing enhanced visitor experience.
- Reducing motorized/non-motorized user conflicts, particularly on existing subdivision easements.

2.3.3.4 NPS Utilities and Infrastructure

Mill Site Water System: A water system to provide potable water and water for fire suppression would not be developed. NPS would rely on its existing water system to provide water for employee use to the Silk Stocking cottages, the new School, and the Dairy Barn.

Sanitary Sewer System

Collection, treatment and disposal of sewage (wastewater) generated by visitors and staff in NHL buildings and on the west side of the Kennicott River would be achieved primarily by septic systems (septic tanks and leach fields).

The buildings that would be equipped with sewer service are the Dairy Barn, New School, and Silk Stocking cottages.

The existing ADEC approved septic system and leach field has been expanded to service Dairy Barn property acquired in 2005. The New School and Dairy Barn would be serviced by this system field.

Power Generation and Distribution:

A power generation and distribution plan will be developed based on projected power requirements for the next 10 to 20 years. The plan and subsequent design will take into account expansion of the system and use of alternate energy sources of power generation including solar power at Kennecott NHL. This information would include projected costs and the total hours of generator time that would be reduced/saved with alternative systems installed.

The generator located south of the Dairy Barn will continue to provide power for NPS operations at Kennecott as other alternatives are considered. NPS will construct an enclosure around the generator connex in order to mitigate noise production and visual impact.

Airport Office: Same as Alternative 2, but no permanent housing constructed.

2.3.3.5 Other

Jumbo Transfer Station: No preservation/stabilization work proposed.

Jumbo Mine aerial tramway: No stabilization of tram towers or vegetation clearing.

Mudhole Smith cabin: Manage as is; no preservation/stabilization work proposed; no interpretive site would be developed.

Jumbo Mine/Root Glacier outhouse: A vault toilet would be installed near the junction of the Root Glacier trail and the Jumbo Mine trail. The intent is to take pressure off the more remote (and unserviceable) Jumbo Creek outhouse.

Cemetery: No action.



Photo 21: Tram tower

2.3.4 Alternative 4: Restoration Alternative

2.3.4.1 Overview

Under this alternative, historic structures within the Administrative Core zone would be restored or reconstructed to replicate 1938 conditions. In other zones, all structures would be stabilized and preserved and some would be rehabilitated to accommodate adaptive re-use. Preservation treatments would include painting and/or window replacement to provide weatherization in order to protect the public's investment and ensure that buildings are standing for generations to come. Wherever possible, archeological resources would be retained on the landscape. However, any material associated with Consolidated Wrangell activities would be removed from the site. Vegetation clearing would be done around buildings for fire protection and would be done extensively within the Administrative Core, Commercial, and Industrial Core zones to replicate 1938 conditions and to improve viewsheds. Historic circulation routes will be maintained and enhanced. Some small-scale features would be restored.

On transportation/access issues, NPS would work with the community to manage the NHL as a non-motorized visitor destination. NPS would not propose to develop additional parking in the NHL, but would work with the community on managing parking within the NHL. Under this alternative, NPS would develop 3.5 mile pedestrian trail along the east side of the Kennicott glacier and would develop a walk-in campground. For NPS Utilities and Infrastructure, a water system providing potable water and fire suppression capabilities would be developed; a sanitary sewer system would be developed; and power generation and distribution would be provided through propane, diesel generator, and development of a hydroelectric system.

2.3.4.2 Zone by Zone Proposals

Administrative Core Zone

Vegetation: In order to replicate 1938 conditions and provide fire protection, extensive thinning would occur on NPS lands within this zone. Thinning would consist of removal of all alder, poplar, willow, and white spruce. Thinned vegetation would be chipped with chips hauled off site. Larger materials such as white spruce would be cut into usable lengths, stacked, and left for local use as firewood. Area will continue to be monitored for invasive plants and populations of such will be controlled and removed.

Circulation/Access: The following are proposed for this zone:

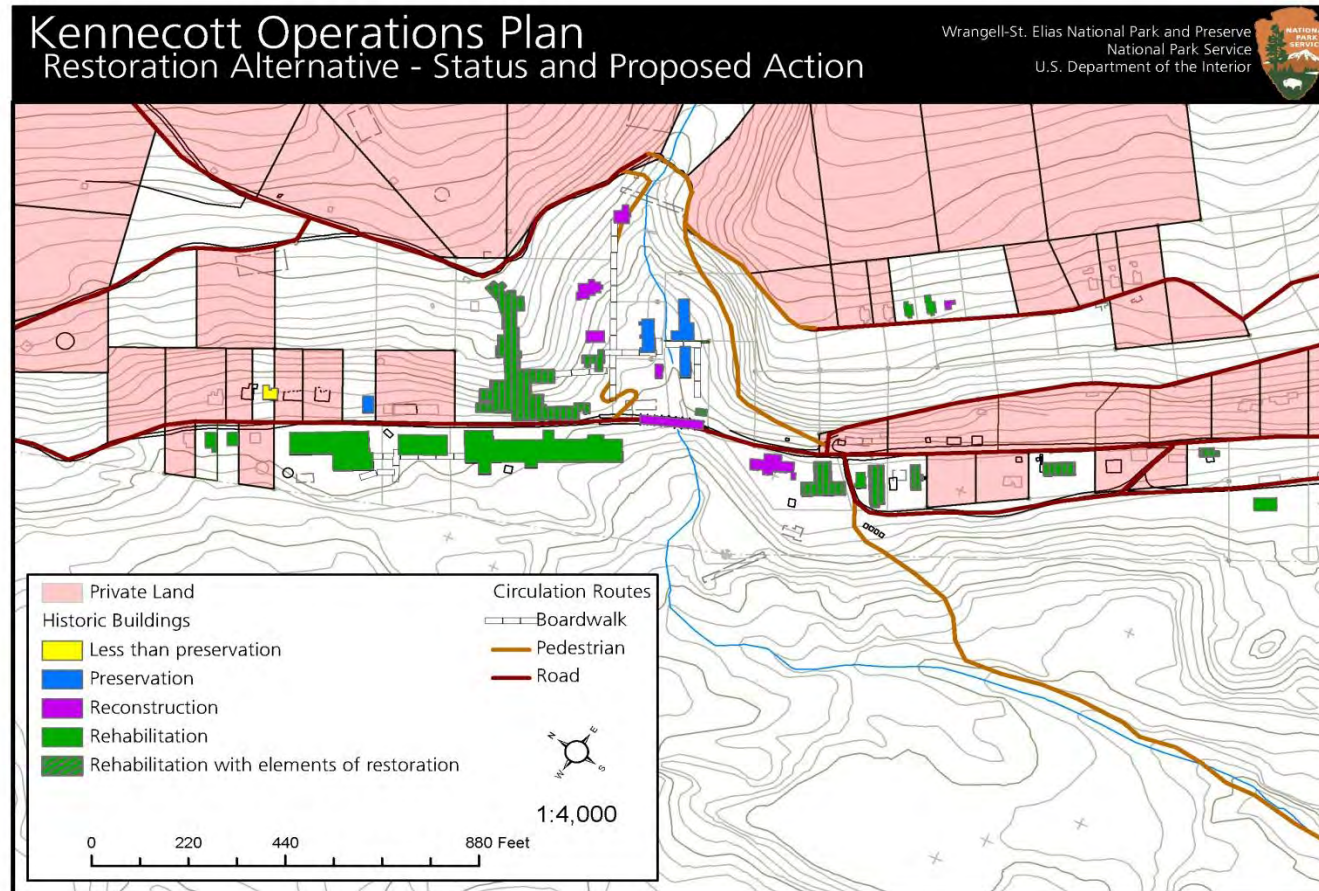
- Improvement and maintenance of a pedestrian trail from the General Manager's Office, up the creek to the footbridge, connecting to the top of the mill building (see Figure 6). Part of this trail would be reconstructed boardwalk. This trail would connect with the Old Wagon road and Silk Stocking Loop described in the Residential A zone.
- Reconstruction of boardwalk between reconstructed and restored structures, based on historical photos.
- Where historically appropriate, reconstruct hose houses in association with the proposed fire suppression system. See NPS Utilities and Infrastructure section.

General Manager's Office: Same as Alternative 2.

Hospital: Same as Alternative 2.

Assay Office

Figure 6: Alternative 4 Restoration



What has been done: Severe flood damage in 2006 resulted in a loss of structural integrity. Removed and relocated salvageable building parts to another site in 2010.

Proposed Actions (structural): Reconstruct building utilizing salvageable remains where possible. No interior access.

Interpretation: Exterior plaque identifying building. Part of a self-guided walking tour.

Railroad Depot: Same as Alternative 2.

Sawmill and Carpenters Shop

Proposed Actions (structural): Reconstruct utilizing historic photos. No interior access.

Interpretation: Exterior plaque identifying building. Part of a self-guided walking tour.

Company Store: Same as Alternative 2.

Railroad Trestle: Same as Alternative 2.

Staff House, Superintendent's Residence, and the Stephen Birch House

Proposed Actions (structural): These historic structures, now completely gone, would be reconstructed based on historic photographs and knowledge of the historic architecture (see Figure 6 for location). Interior finish work would be replicated to the extent possible, similar to the interior finish done on the General Manager's Office.

Interpretation: Reconstructed for interior and exterior access. Opportunity for part of a concession or NPS-led interpretive tour. Interior interpretive panels explain significance of each building as a part of the administration of the site.

National Creek Re-Channelization: Same as Alternative 2.

Industrial Core Zone

Vegetation: In order to replicate 1938 conditions and provide fire protection, extensive thinning would occur on NPS lands within this zone. Thinning would consist of removal of all alder, poplar, willow, and white spruce. Thinned vegetation would be chipped with chips hauled off site. Larger materials such as white spruce would be cut into usable lengths, stacked, and left for local use as firewood. Area will continue to be monitored for invasive plants and populations of such will be controlled and removed.

Circulation/Access: The following are proposed for this zone:

- Construct accessible trails and boardwalks behind the power plant, machine shop, and leaching plant (See Figure 6).
- Where historically appropriate, reconstruct hose houses in association with the proposed fire suppression system. See NPS Utilities and Infrastructure section.

Tram Terminus: Same as Alternative 2.

Concentration Mill: Same as Alternative 2.

Leaching Plant: Same as Alternative 2.

Machine Shop: Same as Alternative 2.

Power Plant: Same as Alternative 2.

Transformer House: Same as Alternative 2.

Commercial Zone

Vegetation: The following vegetation clearing would be done around all historic structures on NPS lands in this zone, for fire and windfall protection and to maintain public access:

- Clear all spruce within 30' of all structures.
- Clear all woody vegetation within 5' of all structures.
- Limb spruce trees up to 10' above the nearest surface fuel within 100' of all structures.

The area will continue to be monitored for invasive plants and populations of such will be controlled and removed.

Refrigerator Plant: Same as Alternative 2.

West Bunkhouse: Same as Alternative 2.

New Schoolhouse: Same as Alternative 2.

Recreation Hall: Same as Alternative 2.

Old Schoolhouse: Same as Alternative 2.

Dairy Barn:

Proposed Actions (structural): Communication system installation. Cyclic maintenance. Future use as shop/break room and this area will be utilized for employee parking.

Residential A Zone

All actions for this Zone same as Alternative 2.

Residential B Zone

All actions same as proposed in Alternative 2.

2.3.4.3 Transportation/Access

All Transportation/Access actions same as proposed under Alternative 2.

2.3.4.4 NPS Utilities and Infrastructure

Mill Site Water System: Same as proposed for Alternative 2.

Sanitary Sewer System: Same as proposed for Alternative 2.

Power Generation and Distribution

A power generation and distribution plan will be developed based on projected power requirements for the next 10 to 20 years. The plan and subsequent design will take into account expansion of the system and use of alternate energy sources of power generation including hydroelectric at Kennecott NHL. This information would include projected costs and the total hours of generator time that would be reduced/saved with alternative systems installed.

The generator located south of the Dairy Barn will continue to provide power for NPS operations at Kennecott as other alternatives are considered. NPS will construct an enclosure around the generator connex in order to mitigate noise production and visual impact. NPS would develop a hydroelectric power system utilizing water out of Bonanza Creek, a Pelton wheel housed in the Power Plant, power generation equipment, and batteries. Any consideration of hydroelectric power will consider the effects on water quality and quantity and on local landowners.

Airport Office: Same as Alternative 2.

2.3.4.5 Other

All actions same as described under Alternative 2.

2.4 Environmentally Preferable Alternative

The NPS is required to identify the environmentally preferable alternative in its NEPA documents for public review and comment. The NPS, in accordance with the DOI policies contained in the Department Manual (516 DM 4.10) and the Council on Environmental Quality's Forty Questions, defines the environmentally preferable alternative as the alternative that best promotes the national environmental policy expressed in NEPA (Section 101(b)) (516 DM 4.10). The Council on Environmental Quality's Forty Questions further clarifies the identification of the environmentally preferable alternative, stating, "simply put, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources." Alternative 2, the Preferred Alternative, is the environmentally preferable alternative because it provides the most attainable preservation of historic structures and provides for long-term protection of the cultural resource within this National Historic Landmark.

2.5 Preferred Alternative

Alternative 2 is the NPS preferred alternative because it best meets the purpose and need described in Chapter 1 of this EA. Alternative 2 provides a balance between managing the NHL for a sense of abandonment vs. full restoration to replicate 1938 conditions. It provides a balance of historic structure treatments while ensuring that significant historic structures are stabilized and maintained to be enjoyed for generations to come. It proposes development of a water system which is needed to provide quality visitor services, administrative support, and some level of fire detection/suppression. And it describes a communication protocol for continuing to work and partner with the McCarthy/Kennecott community.

2.6 Summary and Comparison of Alternatives

Table 2-1 provides a summary comparison of the basic proposed action components of each alternative. Table 2-2 provides a summary of the direct and indirect environmental effects of each alternative, based on the impact topics identified in Chapter 1.

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Table 2-1 Summary of Alternatives

	Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3 (Management Concepts)	Alternative 4 (Restoration)
Vegetation	Vegetation clearing around historic structures for fire protection would not occur; no selective thinning to improve viewsheds; and no invasive plant monitoring and/or removal would occur.	Vegetation clearing would be done around buildings for fire protection and would be done in selected areas to improve viewsheds (including lower portion of Jumbo aerial tramway). Invasive species monitoring and control would occur. Some revegetation would occur utilizing local seed sources.	Vegetation clearing would be done only to maintain historic circulation routes. The NHL would continue to be monitored for invasive plants and populations of such would be manually removed, with no use of herbicides.	Vegetation clearing would be done around buildings for fire protection and would be done extensively within the Administrative Core, Commercial, and Industrial Core zones to replicate 1938 conditions and to improve viewsheds. Invasive species monitoring and control would occur.
Historic structures	Stabilization would cease. Resulting historic structure treatment classes: less than preservation: 5; preservation: 8; reconstruction: 1; and rehabilitation: 10	Under this alternative, treatments include painting and/or window replacement to provide weatherization in order to protect the public's investment and ensure that buildings are standing for generations to come. Resulting historic structure treatment classes: less than preservation: 3; preservation: 4; reconstruction: 2; rehabilitation: 16	Treatments would emphasize interior stabilization and (where necessary) re-roofing, but would not include re-painting or window replacement. Resulting historic structure treatment classes: less than preservation: 6; preservation: 5; reconstruction: 2; rehabilitation: 13	Under this alternative, historic structures within the Administrative Core zone would be restored or reconstructed to replicate 1938 conditions. This includes the full reconstruction of the staff house, Superintendent's residence, and the Stephen Birch house. Resulting historic structure treatment classes: less than preservation: 1; preservation: 4; reconstruction: 6; rehabilitation: 17
Circulation patterns	Circulation patterns would not be maintained or restored.	Historic circulation routes would be maintained or improved. Some boardwalks and hose houses would be restored.	Historic circulation routes would be maintained or improved.	Historic circulation routes will be maintained and enhanced, including extensive boardwalk reconstruction in the Administrative zone.
Small scale features	Small scale features would not be maintained or restored.	Maintains or restores some small scale features (hoist houses, utilidors, boardwalk, service decks).	Small scale features would not be maintained or restored.	Maintains or restores small scale features (hoist houses, utilidors, boardwalk, service decks).
Interpretation	Informal interpretation would continue during the summer months (May – September). The Company Store would continue to serve as the primary visitor contact point.	Consistent with 2011 Interpretive Concept Plan.	Implementation of 2011 Interpretive Concept Plan limited by lack of new water system.	Consistent with 2011 Interpretive Concept Plan.
Kennecott arrival/orientation	No changes to current shuttle turnaround.	Shuttle turnaround linked to Blackburn school and used as visitor orientation area.	Use of Blackburn school as visitor orientation area may be limited by lack of new water system.	Same as alternative 2.

Motor vehicle use	No action.	NPS would work with the community to manage the NHL as a non-motorized visitor destination through education.	Same as alternative 2.	Same as alternative 2.
Parking	No action.	Designate limited (10-space) parking in Dairy Barn area. Enforce no parking on NPS-owned portions of subdivision easements. No parking in shuttle turnaround.	Same as alternative 2.	Same as alternative 2.
Trails	No new trail construction.	Construct 3.5 mile Kennicott Glacier pedestrian trail.	Construct 3.5 mile Kennicott Glacier pedestrian trail and consideration of an additional 5 miles of pedestrian trails.	Same as alternative 2.
Walk-in Campground	Would not be constructed.	Campground would be constructed.	Campground would be constructed.	Campground would be constructed.
Water System	No new water system.	Water system would be developed providing potable water and limited fire suppression (sprinkler) systems.	No new water system.	Water system would be developed providing potable water and limited fire suppression. Also would develop hydroelectric system utilizing Bonanza and/or National Creeks.
Airport Office	No development at new lot.	New lot would be developed to provide permanent housing, seasonal housing, and secured storage.	New lot would be developed to provide seasonal housing and secured storage.	Same as alternative 2.

Table 2-2 Summary of Direct and Indirect Impacts from Alternatives

	Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3 (Management Concepts)	Alternative 4 (Restoration)
Water Resources	Direct and indirect effects on water resources would be minor because of the temporary duration and low intensity of the impacts.	Direct and indirect effects on water resources would be minor because of the temporary duration and low intensity of the impacts.	Direct and indirect effects on water resources would be minor because of the temporary duration and low intensity of the impacts.	Direct and indirect effects on water resources would be moderate because of the long-term nature and medium intensity of some of the impacts.
Vegetation	Direct and indirect effects on vegetation would be moderate because of the long-term nature and medium intensity of some of the impacts (mostly lack of invasive species control).	Results in 5 acres of vegetation clearing or thinning. Direct and indirect effects on vegetation would be moderate because they are generally long-term, low to medium intensity, and affect a common park resource.	Results in 3 acres of vegetation clearing or thinning. Direct and indirect effects on vegetation would be minor because they are generally long-term, low intensity, and affect a common park resource.	Results in 13.25 acres of vegetation clearing or thinning. Direct and indirect effects on vegetation would be moderate because the large-scale clearing represents a long-term, high intensity impact that affects a common park resource.

Cultural Resources	This alternative has less potential than the others to result in removal of archeological features as a result of historic structure stabilization and/or introduction of non-historic elements (such as water tanks or water lines) into the cultural landscape. The impact to the entire cultural landscape as it exists today would be negligible .	Because of the introduction of non-historic elements, some actions proposed in this alternative would result in an adverse effect to the cultural landscape. Additionally, some archeological resources would be displaced from the landscape as a result of historic structure stabilization. These would be long term, medium intensity impacts to an important park resource and would result in moderate impacts to cultural resources.	Actions associated with this alternative would result in long term, low intensity impacts to an important park resource and would result in minor impacts to cultural resources.	Because of the introduction of non-historic elements, some actions proposed in this alternative would result in an adverse effect to the cultural landscape. Additionally, archeological resources would be displaced from the landscape as a result of water line installations and historic structure stabilization and restoration. These would be long term, medium intensity impacts to an important park resource and would result in moderate impacts to cultural resources.
Wildlife	Direct and indirect effects on wildlife would be moderate because of potential habitat changes and loss of diversity due to uncontrolled invasive plant species.	Direct and indirect effects on wildlife would be moderate because of impacts on bear habitat and habituation associated with the campground and Kennicott glacier trail.	Same as alternative 2.	Direct and indirect effects on wildlife would be moderate because of impacts on bear habitat and habituation associated with the campground and Kennicott glacier trail and habitat loss associated with large-scale vegetation clearing.
Visual Resources	The No Action alternative proposes fewer actions than any other alternative that could adversely impact visual resources. Direct and indirect impacts to visual resources would be negligible .	Within the milltown, the direct and indirect effects resulting from water system development, vegetation clearing, historic structure stabilization, and painting of historic structures would result in a moderate impact to visual resources.	Within the milltown, the direct and indirect effects resulting from loss of historic views and some painting of historic structures would result in a minor impact to visual resources.	Within the milltown, the direct and indirect effects resulting from water system development, large-scale vegetation clearing, historic structure stabilization and restoration, and painting of historic structures would result in a major impact to visual resources.
Visitor Use and Experience	Lack of action under this alternative would result in long-term, medium intensity negative impacts, resulting in overall moderate impacts to visitor use and experience.	Overall, implementation of this alternative would result in an improvement to visitor use and experience.	This alternative proposes some actions that would result in a positive effect on visitor experience. Because of limitations imposed by not developing a water system, this alternative would have less of a positive effect than Alternative 2.	Same as alternative 2.
Transportation and Access	Direct and indirect effects of this alternative would have a negligible effect on visitor and local resident	Direct and Indirect effects of Alternative 2 on visitor and local access would be minor .	Same as alternative 2.	Same as alternative 2.

	access.			
Soundscape	This alternative, because of the cessation of stabilization efforts, would have the least direct and indirect impact on the natural soundscape and would result in a minor impact to soundscape within the Kennecott mill town.	For visitors and local residents within the Kennecott mill town, these impacts would be long-term (5 years) and high intensity, resulting in a moderate impact to soundscapes within the milltown. Outside the milltown, backcountry visitors would experience negligible impacts to the natural soundscape.	To local residents and visitors to the Kennecott milltown, the impacts described above would be long-term (5 year) and high intensity, resulting in a moderate impact to soundscape within the Kennecott milltown. For backcountry visitors, impacts to the natural soundscape would be negligible.	Local residents and Kennecott milltown visitors would experience long term (10 year), high intensity impacts that would result in a moderate impact to soundscape within the milltown. Backcountry visitors would experience negligible impacts to the natural soundscape.
Socioeconomics	The loss of seasonal jobs due to cessation of historic structure stabilization work in the area would result in a moderate negative effect on area socioeconomics.	Long term loss of seasonal employment opportunities in the area would have a minor negative effect on area socioeconomics. Expected increase in visitor use would benefit local businesses.	Same as alternative 2.	Historic structure stabilization and restoration proposed under this alternative would have a minor beneficial effect to area socioeconomics.

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Chapter 3: Affected Environment

3.0 Introduction and Background

This chapter describes the existing environment that could be affected by implementing actions proposed by the alternatives. Impact topics identified in Chapter 1 are discussed.

Kennecott Mill Town, perched dramatically on a mountainside above the historic village of McCarthy and the Kennecott Glacier, is a vivid reminder of the rich resources and ambition that drew adventurous souls to the “last frontier” of Alaska a century ago. Kennecott is tucked away in a remote corner of Wrangell-St. Elias National Park and Preserve, the largest unit of the entire national park system.

The Kennecott mines and mill operated from 1901 to 1938, when their exceptionally high-grade copper veins were depleted. Approximately \$200 million in copper ore was extracted during this relatively brief period, profits from which were used to capitalize mining ventures in other regions of North and South America. Kennecott Copper Corporation is still an important company on the international mining scene today. The remaining structures at the mill site and mines symbolize an ambitious time of exploration, perseverance, and development in Alaska’s extreme environment and remote setting. In 1986, 14,231 acres of public and private land were designated a National Historic Landmark (NHL) District. In 1998, the National Park Service acquired 2,839 acres of land in the historic mill town, including its primary structures.

Photo 23: Kennecott, 1935



Listings in the National Register of Historic Places and National Historic Landmarks Program point out that Kennecott was one of the largest copper mines in the country and contained “the last of the great high-grade copper ore deposits of the American West” (NPS, 1978; NHLP, 2004). The mine and mill are representative of mining processes of their era. The camp or mill town still contains the powerhouse, tramway station, bunkhouses, and commissary, as well as the visually-dominant 14-story concentration

mill. Kennecott was also the site of the world's first successful, commercial-scale ammonia-leaching plant in 1916. This pioneering process greatly increased the amount of recoverable copper ore.

Kennecott's mines constituted one of the richest copper deposits in the world (Bundtzen, 1982). At the peak of production in 1916, the mines were producing 175 tons of crude ore per day, averaging 70 percent copper. When Kennecott was abandoned in 1938, total production of copper was over 590,000 tons; in addition, about nine million ounces of silver were produced as a byproduct. This constituted almost 86 percent of Alaska's copper production and almost half its silver production (U.S. Bureau of Mines, 1975).

The National Historic Landmarks Program noted in 2004 that threats or damages to the Kennecott NHL include deterioration of structures and lack of maintenance in the six decades between the time the mine and mill closed in 1938 until they were purchased by NPS in 1998 (NHLP, 2004). The principal mill-related industrial structures, buildings at the mine entrances, and the mines themselves all went without maintenance for half a century. A number of structures have reached the critical point where preservation is no longer possible. Still other structures are in better condition but have suffered damage from previous attempts at salvage of building materials and thus made more vulnerable to deterioration from the area's harsh climate. Increasing visitation to the NHL raises the risk that one or more buildings will eventually be destroyed by fire or vandalism.

3.1 Project Area

The project area is located approximately 310 miles east of Anchorage, Alaska, near the eastern terminus of the 60-mile McCarthy Road. It extends in a corridor for several miles west along the McCarthy Road from the Kennicott River out to the DNR firewise pavilion and several miles northeast along the McCarthy-Kennecott extension of that road up to and including the Kennecott Mines National Historic Landmark.

3.2 Water Resources

Because actions proposed in Chapter 2 of this EA have the most potential to affect Bonanza and National Creeks, they are the focus of this discussion. The following general information is also provided.

3.2.1 General Information

Two different types of rivers and streams flow in the McCarthy-Kennicott area. McCarthy Creek and the Kennicott River represent one type; they draw much of their water from melting glacier ice and carry a large load of silt and glacial rock flour as suspended sediment. The Kennicott River is a tributary to the Nizina River; the Nizina River is tributary to the Chitina River; the Chitina a tributary to the first order Copper River that flows into the marine waters of Prince William Sound. The other stream type consists of the clear water streams originating from springs. Examples of these are Swift Creek, Clear Creek, National Creek, Amazon Creek, Bonanza Creek and Jumbo Creek. These latter streams run clear year around except during heavy rains or the peak of spring snowmelt; turbidity and suspended sediments increase during extended or heavy rainfall, and during extended dry periods, surface flows diminish considerably. Drainage off Bonanza Ridge flows in a westerly direction, either as subsurface outwash or along the margin of Kennicott Glacier.

Fisheries: Glacial waters seldom have substantial resident fish populations, but they do provide migration routes from the ocean to spawning and wintering ground in clear water tributaries and lakes. Glacial streams generally have a higher gradient, higher sediment load, higher turbidity, and lower biotic productivity than non-glacial streams.

NPS inventory and monitoring efforts have found coho salmon, Dolly Varden, and slimy sculpin in the Nizina River; Dolly Varden in Clear Creek and in McCarthy Creek; and no fish in the Kennicott River, Jumbo Creek, Bonanza Creek, or National Creek (Markis et al., 2004).

3.2.2 National Creek

Mining History: National Creek lies in a steeply sloping valley, a tributary to the Kennicott Glacier valley and ultimately the Kennicott River. Historically, the stream played a very important role in the operation of the Kennecott mine and mill. Fundamental to the development of the site was a reliable supply of water for industrial and domestic consumption. By the end of 1910, workers had constructed a 150-foot-long crib dam made from local timber and located at the top of a small gorge above the manager's house. Located in close proximity to the camp, the dam stored drinking water and supplied water for a 250 horsepower hydroelectric plant constructed at the northern end of the mill town. A 1913 photo shows that the crib dam filled with sediment.

After construction of the concentration mill, water necessary for operating mill equipment came from two pipes. One led from the National Creek dam to the concentration tables while a second pipe channeled water from a point above the dam to the upper concentrator. National Creek ran through the center of the Administrative core of the milltown and during the period of peak mining operation (1915 – 1938) was flanked by several buildings, including Stephen Birch's house, the hospital, National Creek bunkhouse, the East bunkhouse, and the assay building.

Natural flood events have had a significant effect during the period when the mine operated and since the mine closing in 1938. Flood damage caused by the bursting of the National Creek dam in 1980, and again in 1983 and 2006, recontoured the central part of the mill town and deposited large volumes of silt through the National Creek bunkhouses, hospital, and assay building. The destruction of boardwalks and fire-hose casings in the National Creek area respectively eliminated indications of previously well-defined circulation patterns. West of the railroad trestle, flooding ruptured the tailing crib and deposited tailings farther down slope. In the process, waste removal systems exiting into National Creek (such as flumes and pipes) sustained major damage.

In an effort to minimize future flooding damage to historical structures, NPS in 2010 and 2011 did extensive work to the National Creek stream channel. Work consisted of removing gravel, sediment, and debris, straightening the channel away from structures, and lining the stream channel with large rock to return the stream to its original location. These actions will enhance channel function by decreasing avulsion, diverting flow away from the buildings and removing debris that was in the stream.

Geomorphology and hydrology: The headwaters of National Creek begin at 5,500 feet, and its confluence with the Kennicott Glacier is at about 1,750 feet above mean sea level (MSL). The average elevation of the basin is approximately 4,000 feet. The gradient in the vicinity of Kennecott is 8.6 percent. The total drainage area is approximately 2.2 square miles. National Creek is a tributary to the unnamed marginal melt water channel that parallels the Kennicott Glacier and then becomes the Kennicott River below the glacier's terminus (Hart Crowser, 2005).

The climate of Kennecott has elements of both coastal Alaska as well as the continental interior. It is neither as cold as the interior nor as wet as the coast. The mean annual precipitation is about 23 inches (Jones and Gass, 1993) and the average annual temperature in the region is slightly below freezing. March, April, and May are the driest months of the year, while September and October are the wettest, with an average of about 3 inches of precipitation in September. The hydrology of the National Creek watershed is dominated by snowmelt. Beginning usually in April, stream flow increases rapidly, with seasonal peak flow typically occurring in June; however, heavy rains in September are the typical cause

of the annual peak flow events. Low flow occurs October through March; data from the 1920s indicate that groundwater continues to supply flow to the stream during the winter months (Hart Crowser, 2005).

Water quantity and quality: There is ample stream flow from National Creek to use as a water source for hydroelectric or public water supply, depending on the quantity of water needed (Hart Crowser, 2005). The low flow period occurs in the winter, when there is generally less of a need for a public water supply, hydroelectric generation and in particular firefighting. The summer low flow occurs in late August, with September punctuated by storm flows. Overall, the mean annual flow was estimated in 2005 to be approximately 3.5 cfs (Hart Crowser, 2005). The low flow during the late 1920s was approximately 2 to 3 cfs.

Generally, there is a very high sediment load in National Creek. There are abundant sources of sediment that provide seasonal input. The total sediment contribution to National Creek was estimated at approximately 3,600 cubic yards per year per square mile, or about 4,000 tons/year (assuming 1.1 tons/cubic yard). For perspective, Reid and Dunne (1996) presented total sediment yield for various basins in the Pacific Northwest; they indicated a range of 31 to 335 tons/square mile/year (Reid, 1981).

Nearly all of the area clear-water streams, including National Creek, cross private property and are regularly used by residents for domestic water supplies. Concern whether geoenvironmental hazards related to the mines and mill exist at Kennecott was studied by Eppinger et al. (2000). Surface water samples from the Kennecott area had low metal concentrations. Although sediment, rock, and concentrate data indicated that high concentrations of potentially toxic elements such as arsenic, cadmium, copper, and mercury are found in mill and mine-waste piles, these metals are not mobilized because of the absence of acid-generating minerals in Kennecott-type deposits and the waste piles and mill tailing derived from them.

At Kennecott, surface waters are near neutral in pH and have relatively low conductivities (Eppinger et al., 2000). With respect to drinking water standards, none of the significant inorganic parameters listed by the Alaska Department of Environmental Conservation exceed established maximum contaminant levels. NPS water quality sampling specifically from National Creek confirm these findings. However, water sampling conducted in 2010 showed the presence of fecal coliform in water samples taken from National Creek.

3.2.3 Bonanza Creek

Mining History: Historically, a water intake was constructed at an elevation of 2350 feet on Bonanza Creek. The water was used for milling operations, power generation, fire protection, and drinking water. Water supply proved to be one of the most critical factors in operating the concentration mill facilities. The absence of enough water during the winter season required measures to conserve what was available. Improvements to the concentrator's water supply in 1917 (possibly by the installation of a cooling pond and water tanks to the northeast with which to recycle water) enabled the concentrator to run at full capacity for the first time. The power plant, requiring 100 gallons per minute of new water for cooling purposes, received water from both Bonanza Creek and from the concentrator's cooling pond. In spite of the supply improvements, both the concentration mill and power plant used water "over and over until it was practically worn out." (Gilbert et al., 2001)

Water Quantity and Quality: Bonanza Creek is a steep creek of repeating waterfalls and plunge pools originating in mountainous terrain with minimal glacial influence. The U.S. Geological Survey (U.S.G.S.) and National Park Service entered into a cooperative agreement in July 2006 to operate a hydrologic monitoring station on Bonanza Creek. Two gaging stations were installed and monitored for a five-year period. An upstream gaging station (15209750) was installed at the location of the historic Kennecott Mine hydroelectric plant water-intake site, about 3,000 feet east of the confluence with the

Kennicott Glacier, at 2,500 feet elevation. The second station (15209760) was established at the intersection of the Root Glacier trails and Bonanza Creek at about 1,950 feet elevation. The following table displays water quantity information measured at the two sites.

Table 3-1 Water Quantity Measurements at Bonanza Creek

WY	Date	Upstream (15209750)				Downstream (15209760)		
		Stage (ft.)	Velocity (ft.2/s)	Area (ft2)	Discharge (cfs)	Velocity (ft2/s)	Area (ft2)	Discharge (cfs)
2007	5/22/2007	6.04	0.72	5.94	4.29	0.94	1.92	1.83
	6/29/2007	6.02	0.80	6.46	5.22	0.79	3.24	2.60
	9/19/2007	6.10	1.28	7.00	9.02	1.48	3.39	5.05
2008	4/3/2008	5.76	0.25	3.05	0.77	-	-	0.30
	6/6/2008	6.10	1.21	7.56	9.20	1.49	3.75	5.62
	8/28/2008	6.06	0.91	5.11	4.69	1.35	2.76	3.74
	9/17/2008	6.03	0.78	4.40	3.45	0.95	2.57	2.46
2009	10/23/2008	5.95	2.12	3.62	2.12	1.42	1.74	1.42
	5/21/2009	6.14	1.37	6.43	8.83	2.61	3.72	9.74
	7/21/2009	5.98	0.63	5.11	3.23	0.72	4.72	3.61
	9/16/2009	5.91	0.80	4.35	3.49	0.86	1.94	1.66
2010	10/22/2009	5.91	0.85	4.19	3.57	0.89	2.02	1.80
	5/25/2010	6.11	1.53	7.23	11.0	2.16	3.63	7.85
	6/9/2010	6.08	0.96	7.22	6.90	1.76	2.38	4.19
	7/22/2010	6.11	1.33	9.55	12.7	2.36	3.95	9.33
	7/23/2010	6.12	1.35	9.09	12.3	2.14	4.08	8.75
	9/5/2010	5.94	0.76	5.32	4.05	1.05	1.95	2.05
2011	10/18/2010	5.88	0.55	4.28	2.34	0.58	1.47	0.80
	5/24/2011	6.05	0.88	6.65	5.90	1.38	2.82	3.88
	7/11/2011	6.02	0.80	5.52	4.41	1.03	2.71	2.80
2012	10/5/2011	5.89	0.59	4.50	2.68	0.5	2.02	1.01

Five water quality samples for suspended sediment analyses were collected, though only one had sufficient volume and sediment for a complete size analysis. Recent NPS water sampling in Bonanza Creek (2010) showed that, with respect to drinking water standards, none of the significant inorganic parameters listed by the Alaska Department of Environmental Conservation exceed established maximum contaminant levels. In addition, Bonanza Creek tested negative for fecal coliform.

3.3 Vegetation

History: During the years of active mining operations, site vegetation was managed by logging, hand clearing and grazing to maintain a more open condition, thereby resulting in views of structures within the town site proper and views of the Kennicott Glacier to the west. During the early years of town site development, trees and larger vegetation were logged for clearing and construction of mill and town-site improvements. Since 1938 establishment and natural regeneration of indigenous, non-native, and invasive species has occurred.

Remnant vegetation from early gardening can still be found within the site, including rhubarb, chives, and grasses. During the active mining years residents planted flower beds and vegetable gardens to supplement food imported to the mill town. Gardens in both community and individual cottage plots included: potatoes, cabbage, carrots, turnips, kale, radishes, strawberries and lettuce.

Vegetation description: The project area occurs in the McCarthy mountains subsection of the Wrangell Mountains ecoregion (NPS, 2001c). Vegetation in the valleys is mostly open white spruce (*Picea glauca*) or mixed spruce-birch forest. Some closed deciduous mid-to tall shrubs are present, especially on valley side slopes. High elevations have mostly exposed rock, talus, and scree with little vegetation. More stable lower slopes and valley bottoms have deciduous shrubs that generally increase in height in density downslope. Some white spruce forests occur at low elevations. Unvegetated or sparse shrubs and herbs occur in active floodplains. Less disturbed floodplains have deciduous shrubs or cottonwood (*Populus balsamifera*) trees, and later successional stages have white spruce forest.

Before the Kennecott mill site was developed in the early 1900's, repeated natural disturbances (e.g., advancing glaciers, floods, and fire) resulted in vegetation that was successional and supported four primary plant communities (Gilbert et al., 2001). These communities were:

- Seral herbs located along the moraine of Kennecott glacier with scattered and newly established fireweed (*Epilobium angustifolium*), dryas (*Dryas drummondii*), soapberry (*Shepherdia Canadensis*), and willow (*Salix spp.*) seedlings.
- Open white spruce forest with cottonwood, paper birch, and an understory of willow and alder.
- Closed white spruce forest on upper slopes, with paper birch as an associate and an understory of willow and alder (*Alnus crispa*).
- Open tall alder-willow shrub riparian zone along National Creek with barren areas from repeated flooding.

Today a white spruce-hardwood forest with alder, willow, poplar, and mixed herbaceous plants dominates existing vegetation at the mill site (Gilbert et al., 2001). Virtually all of the land cleared during the mining era has revegetated. The lower elevations of Bonanza Ridge are forested. Further up the ridge, at tree line, the trees give way to shrubs and herbaceous vegetation. The ridge top is in the alpine zone. A spruce beetle outbreak that began in 1990 has killed many mature spruce trees. White spruce communities comprise 33% of the Kennecott Mill site, shrub communities comprise 41%, and the remaining 26% cover is herbaceous (NPS, 2000a).

Higher elevations above tree line in the study area support sub-alpine and alpine plant communities. As the upper elevational limit of trees is approached, spruce forest becomes more open and there is a higher cover of tundra shrubs. In the southern Wrangell mountains, shrub tundra and meadows within it contain a group of species generally absent in northern regions of the park. This trend is particularly evident in lush meadow areas where the vegetation is often dominated by species with coastal affinities such as *Arnica latifolia*, *Erigeron peregrinus*, *Carex nigricans*, *Heracleum lanatum*, *Juncus mertensianus*, *Luetkea pectinata*, *Senecio traingularis*, *Vahlodea atropurpurea*, and *Valeriana sitchensis* (NPS, 2005b).

Snowbed areas and north-facing slopes in the alpine zone are characterized by a high cover of heaths (principally *Cassiope tetragona*), mountain avens (*Dryas alaskensis*), polar willow (*Salix Polar*) and netted willow (*S. reticulate*) with a characteristic assemblage of common forbs including *Antennaria monocephala*, spring beauty (*Claytonia sarmentosa*), mountain sorrel (*Oxyria digyna*), *Polygonum viviparum*, and buttercups (*Ranunculus eschscholtzii*) (NPS, 2005b). Club moss (*Huperzia selago*) and the grasses *Hierochloe alpine* and *Trisetum spicatum* are also common on snowbed sites. A small group of species is noticeably more abundant in snowbed sites in the southern Wrangell Mountains as compared to northern regions of the park. *Luetkea pectinata*, *Potentilla diversifolia* and *Sibbaldia procumbens*, for example, are abundant in the south and west parts of the park and uncommon or absent in the north and east. Dry sites from the sub-alpine to alpine zone support a range of plant communities from discontinuous graminoid-forb associations to continuous dryas-graminoid-forb tundra depending on slope, aspect, substrate and slope morphology. Xeric alpine plant communities harbor numerous rare and endemic plant species. Endemic species that occur in dry sites throughout alpine areas of the park include *Astragalus nutzotinensis*, *Erigeron purpuratus*, *Saxifraga reflexa* and *Senecio ogoturukensis*.

The entire NHL has not been surveyed for rare plants. Six Alaska Natural Heritage Program listed rare plants have been documented for Bonanza Ridge (Table 3-2) and 41 rare plant species that are known to occur in the Chitina valley (available in Gilbert et al., 2001) may also be found in the McCarthy-Kennecott area.

Table 3-2. Rare plants documented for Bonanza Ridge

Common Name	Scientific Name	AKNHP Rank
Aleutian cress	<i>Aphragmus eschscholzianus</i>	G3/S3
Presl's sedge	<i>Carex preslii</i>	G4/S1
Mountain fragile fern	<i>Cystopteris montana</i>	G5/S3
Creeping savin	<i>Juniperus horizontalis</i>	G5/S1S2
Mountain stitchwort	<i>Minuartia biflora</i>	G5/S2
Pale poppy	<i>Papaver alboroseum</i>	G3/S3

AKNHP = Alaska Natural Heritage Program

G = global rank

S = State rank

G1 = critically imperiled globally (5 occurrences or fewer)

G2 = imperiled globally (6 – 20 occurrences)

G3 = either very rare and local throughout its range or found locally in a restricted range, threatened throughout its range.

G4 = widespread and apparently secure globally, although it may be rare in parts of its range

G5 = demonstrably secure globally, although it may be rare in parts of its range

S1 = critically imperiled in the state, 5 or fewer occurrences

S2 = imperiled in the state, 6 – 20 occurrences

S3 = rare or uncommon in the state, 21 – 100 occurrences

Exotic Species and Invasive Weeds: For the purpose of this discussion, native and exotic species are defined per the 2006 NPS Management Policies (NPS 2006). Native species are defined as all species that have occurred, now occur, or may occur as a result of natural processes on lands designated as units of the National Park System. Native species in a place are evolving in concert with each other. Exotic species are those species that occupy park lands directly or indirectly as the result of deliberate or accidental human activities. Exotic species are also commonly referred to as nonnative, alien, or invasive species. Because an exotic species did not evolve in concert with the species native to the place, the exotic species is not a natural component of the natural ecosystem at that place. Genetically modified organisms exist solely due to human activities and therefore are managed as exotic species in parks. Not all exotic species are detrimental to habitat quality or biodiversity; however, they are of concern because they can threaten the genetic integrity of native flora through hybridization, typically flourish in disturbed areas resulting in the exclusion of native vegetation, and can change the structure and function of ecosystems through alterations of geochemical and geophysical processes (McKee 2003). The term “noxious weed” is used when referring to an exotic species that has been officially designated by a federal, state, or county government as injurious to the public health, agriculture, recreation, wildlife habitat, or the biodiversity of native habitats.

The NPS has conducted surveys for exotic and invasive species in Alaska's parklands since 2000 (Bauder and Hays 2004). Since this time, they have documented 38 exotic plant species occurring within the park (Terwilliger and Gilmore, 2010). Of these 38 species, 29 have been documented within a 5-mile radius of the Kennecott mill site. Table 3-3 displays the invasive species that have been documented within this area. The Alaska Exotic Plant Information Clearinghouse (AKEPIC) rank is used to determine the invasive ability and veracity of an exotic plant species. The ranks range from 0 to 100, with 100 representing the highest level of invasive ability. Species without a rank are generally new enough to the state that their invasiveness has not been quantified.

Table 3-3 Exotic Plant Species Documented within the Analysis Area

Scientific Name	Common Name	Area of infestation (acres)	AKEPIC Rank
<i>Bromus inermis</i>	Smooth brome	0.358	62
<i>Capsella pastoris</i>	Shepard's purse	2.061	40
<i>Caragana aborscens</i>	Siberian peashrub	0.029	66
<i>Cerastium fontanum</i>	Mouse-ear chickweed	6.162	36
<i>Chenopodium album</i>	Lambsquarter	1.863	37
<i>Crepis tectorum</i>	Narrowleaf hawksbeard	2.645	54
<i>Descuriana sophia</i>	Tansymustard	0.353	41
<i>Elymus repens</i>	Quackgrass	0.0001	59
<i>Galeopsis tetrahit</i>	Hempnettle	0.004	40
<i>Hordeum jubatum</i>	Foxtail barley	8.396	63
<i>Lappula squarrosa</i>	European stickweed	1.671	44
<i>Lepidium densiflorum</i>	Common pepperweed	2.91	25
<i>Leucanthemum vulgare</i>	Oxeye daisy	0.006	61
<i>Linaria vulgaris</i>	Yellow toadflax	0.011	69
<i>Matricaria discoidea</i>	Pineappleweed	2.709	32
<i>Papaver nudicaule</i>	Icelandic poppy	0.007	NA
<i>Phleum pratense</i>	Common timothy	0.583	54
<i>Plantago major</i>	Common plantain	2.166	44
<i>Polygonum aviculare</i>	Prostrate knotweed	0.604	NA
<i>Polygonum convolvulus</i>	Black bindweed	0.003	50
<i>Rumex crispus</i>	Curly dock	0.007	48
<i>Silene noctiflora</i>	Nightflower campion	0.078	42
<i>Stellaria media</i>	Common chickweed	0.006	42
<i>Taraxacum officinale</i>	Common dandelion	127.362	58
<i>Thlaspi arvense</i>	Field pennycress	0.295	NA
<i>Trifolium hybridum</i>	Alsike clover	22.144	57
<i>Trifolium pratense</i>	Red clover	0.043	53
<i>Trifolium repens</i>	White clover	1.196	59
<i>Veronica serpyllifolia</i>	Thymeleaf speedwell	0.149	NA

The NPS conducts annual inventory and control efforts within the NHL. In 2011, work was performed on several species growing around cottages on Silk Stocking Row. This area had previously been disturbed by construction and remodeling of the cottages. Lambsquarter, common dandelion, prostrate knotweed, various clovers, pineapple weed, tansymustard, common chickweed, mouse-ear chickweed, and oxeye daisy were inventoried and controlled. The WRST Exotic Plant Management Team (EPMT) and SAGA crews also focused on control work around the Recreation Hall, the Company Store, and the General Managers Office. One large (> 1 acre) infestation near the office contains 12 species of invasive plants. South of the General Managers Office near the National Creek Bridge, Kentucky bluegrass was documented for the first time by the WRST EPMT. The infestation was mapped and controlled.

3.4 Cultural Resources

The historic significance of the Kennecott Mine and Mill Town are described in Section 1.5 under the section labeled “**Kennecott Mines National Historic Landmark**”. Cultural resources include: historic properties as defined in the National Historic Preservation Act (NHPA), cultural items as defined in the Native American Graves Protection and Repatriation Act (NAGPRA), and archeological resources as defined in the Archeological Resources Protection Act (ARPA).

As defined by the NHPA, a historic property or historic resource is any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP), including any artifacts, records, and remains that are related to and located in such properties. As defined by ARPA, archeological resources include any materials of human life or activities that are at least 100 years old, and that are of archeological interest.

Section 106 of the NHPA provides the framework for Federal review and consideration of cultural resources during Federal project planning and execution. The implementing regulations for the Section 106 process (36 CFR Part 800) have been promulgated by the Advisory Council on Historic Preservation (ACHP). The Secretary of the Interior maintains the NRHP and sets forth significance criteria (36 CFR Part 60) for inclusion in the register. Cultural resources may be considered “historic properties” for the purpose of consideration by a Federal undertaking if they meet NRHP criteria. Historic properties are those that are formally placed in the NRHP by the Secretary of the Interior, and those that meet the criteria and are determined eligible for inclusion.

Those properties on the NRHP that possess exceptional value in illustrating the nation’s heritage can be designated by the Secretary of the Interior as a National Historic Landmark. Only 3% of properties listed in the NRHP are designated as National Historic Landmarks. Section 800.10 of ACHP regulations, as well as Section 11(f) of the NHPA, offer protection from a Federal undertaking which may directly and adversely affect any National Historic Landmark. In addition, once a property is designated as a National Historic Landmark, the NPS commits to assist in the preservation of these irreplaceable properties through the National Historic Landmarks Assistance Initiative. The Assistance Initiative promotes the preservation of National Historic Landmarks through technical assistance to their stewards—owners, managers, and friends groups—and education of the general public about the importance of National Historic Landmarks. The NPS works with partners such as other federal agencies, state governments, local governments, colleges, private organizations and individuals, and nonprofit organizations to educate and assist the public in preserving its historic heritage (NPS, 2003c).

In 1986, 14,231 acres of public and private land at Kennecott were designated a National Historic Landmark District. While NHL and National Register status are often a source of pride for landowners and the community, they grant no protection to the resources from the actions and development decisions of private landowners. The acquisition by NPS of 2,839 acres in the historic mill town within the NHL in 1998, including most of the mill town’s primary structures, was a major step forward on behalf of Kennecott’s preservation.

The Kennecott NHL faces a number of challenges related to its long-term preservation. Many of the historic structures are in need of stabilization to prevent their collapse or gradual deterioration and disintegration from decades of exposure to the harsh forces of nature in the area.

3.4.1 Cultural Landscapes

Cultural landscapes are broadly classified as geographic areas that include both natural and cultural resources, and the wildlife or domestic animals therein that are associated with a historical event, activity, or person, or that exhibit either cultural or aesthetic values.

At Kennecott, as in all mining ventures, the occurrence and utilization of natural resources as well as broader landforms and topography helped shape the development and operation of the mines and mill. From the early exploration and discovery of high-grade copper ore on Bonanza ridge to the eventual siting of infrastructure, processing facilities and related services at the moraine on the edge of the Kennicott Glacier, the nature of the landscape heavily influenced the configuration and functional relationships of the mill town’s components (Gilbert et al., 2001). Vegetation clearing, the location of the copper ore and mines above the mill site, the steep terrain, the presence of the Kennicott Glacier, and the

presence of Bonanza and National creeks, exploited for hydroelectric power and water, respectively, all affected development of the Kennecott cultural landscape. This landscape was intensively inventoried by NPS in its 2001 *Cultural Landscape Report*.

Outside the NHL, the historic town of McCarthy, associated with Kennecott almost from the very beginning, would represent an undesignated cultural landscape. The existence and location of the town at the foot of the mountain, near the confluence of Kennicott River and McCarthy Creek, and its close proximity to the mill town are a function of both the natural landscape and historical, social and economic factors. The road from McCarthy to Kennecott, following the old railroad bed, and the old wagon road between McCarthy-Kennecott would also have features of cultural landscapes.

3.4.2 Archeological Resources

Archeology is the study of physical evidence left behind by past generations, both prehistoric and historic, and later discovered on the ground, under the ground, and underwater.

At the time of the first contact with Europeans, what is now Wrangell-St. Elias National Park was occupied primarily by Athapaskan Indians, in particular the Ahtna of the Copper River drainage. When the Athapaskan Indians arrived in the area is not well known, but they may have been present for more than a thousand years (NPS 1986). Numerous sites representing the later Athapaskan tradition, dating to about 800 BP, have been documented along the western boundary of the national park and preserve. Major excavations have been conducted at Dakah De'nin's Village, a site situated along the Copper River near Chitina, dated from the prehistoric period. Directly across the river, at Taral, investigations have revealed an historic period occupation (NPS, no date-b). To date, no significant prehistoric archeological resources have been identified in the Kennecott-McCarthy area.

Within the NHL, archeological features help define the character of Kennecott (NPS, 2000a). Archeological resources in the NHL include collapsed buildings, pipelines, large industrial artifacts (e.g. mining equipment, remnant cable, and machinery), dumps, and equipment storage piles. Most of these are considered significant because of their association with historic activities at Kennecott during 1900 – 1938. Other later features that are not considered significant are not managed as cultural resources. Approximately 70% of the mill town's surviving archeological resources are considered to be in stable condition, that is, having reached an equilibrium with the processes of deterioration and erosion. Stable resources would include large metal objects; wooden features like collapsed buildings tend not to be in stable condition.

Outside the NHL, an archeological survey along the McCarthy road conducted by the Alaska Office of History and Archeology identified significant historic resources, most associated with the Copper River and Northwestern Railway, including trestles, railway remains, remnants of old homesteads and artifact scatters (NPS, 2002). Archeological-cultural surveys by WRST staff at the proposed McCarthy walk-in campground and the West Side support complex did not identify any significant resources at either site (NPS, 2003a).

3.4.3 Historic Structures and Buildings

Within the NHL, historic structures include boardwalks, dams, bridges, tram towers, and landscape features such as tailings piles. Many of these structures are made of wood and are continually deteriorating (NPS, 2000a). A failed dam on National Creek and subsequent flood events have caused flood damage to the National Creek bunkhouse, railroad trestle, and the assay building.

The NHL includes 45 major residential, commercial, and industrial historic buildings, 25 outbuildings, and the four upper mountain mine sites. Twenty-three buildings have been acquired by NPS. All of them

are built of wood and have survived more than 60 years of abandonment and neglect; their condition ranges from poor to fair (NPS, 2000a).

Outside the NHL, McCarthy contains a number of historic buildings and some historic structures like the switching station.

3.4.4 Cultural Objects, Museum Collections and Archives

Kennecott artifacts include cultural objects and archival materials. Cultural objects are items like tools, domestic items, remnants of larger features, wooden pipes, equipment, and machinery parts (NPS, 2000a). The objects, made of both metal and wood, are scattered throughout the landscape but may also be found in buildings, dumps, and equipment storage piles. The metallic objects are considered stable but the wooden objects continue to be subject to erosion and weathering-related deterioration.

Archival materials consist of forms, receipts, and other paper documents, usually found in buildings. These materials have been collected over the decades both by collectors and through combined efforts of the University of Alaska, NPS, and the McCarthy Museum. Uncollected archival materials remaining in the mill town tend to be in poor condition (NPS, 2000a).

3.5 Wildlife

Wrangell-St. Elias National Park and Preserve contains one of the largest protected ecosystems in North America, and supports numerous populations of wildlife species. Wildlife management in the preserve is a cooperative effort among the National Park Service and the Alaska Department of Fish and Game (NPS, 2004a). The study area is situated in the preserve in Game Management Unit 11; notable wildlife species are brown (grizzly) bear, black bear, moose, lynx, and red fox (NPS, 2000a). Caribou do not typically occur in the project area; the three caribou herds that use portions of the park and preserve are found north of the Wrangell Mountains (NPS, 2004a). Dall sheep are present at higher elevations, and are not typically found in areas where proposed actions would occur. Other wildlife species in the area include snowshoe hare, red squirrel, porcupine, ermine (short-tailed weasel), northern red-backed vole, meadow vole, and the little brown bat (NPS, 2000a).

Two passerine migratory routes pass through the park and there are records for 239 species of birds with approximately 53 species listed as residents (NPS, 2005c). Common birds in the McCarthy-Kennecott area include the great horned owl, northern goshawk, spruce grouse, northern raven, and black-billed magpie. Other passerine birds that can be seen in the area are the gray jay, dark-eyed junco, yellow-rumped warbler, orange-crowned warbler, black-capped chickadee, American robin, Swainson's thrush, ruby-crowned kinglet, alder flycatcher, and common redpoll (NPS, 2000a).

Encounters between humans and bears (both black and brown) have been common in the McCarthy-Kennecott area for many years. In 2000 and 2001, the NPS conducted a bear study to quantify the nature of these encounters and describe the resident bear population (Wilder, 2003). A human-bear conflict is defined as any instance where human food, garbage, or other attractants bring bears into close proximity with humans; where bear opportunistically receive food rewards from human encounters; where property is damaged; where bears are killed or wounded; or any encounter where bears display aggressive behavior toward humans. Food and food odors are bear attractants; unsecured attractants can increase the number of human-bear conflicts.

Data indicate that at least 26, and possibly as many as 36, bears were killed during the years 1999 to 2001 (Wilder, 2003). In 2000-2001, there were 157 reports of bear-human conflicts, although this is likely an underestimate, as many incidents go unreported. The most common reason for conflicts was human food, and bears received a food reward in 37% of reported incidents. In the cases where the human party in the

conflict was identified as either a local resident or park visitor, local residents were involved in 80% of reported human-bear conflicts. A dangerous situation currently exists in the area due to the high number of food conditioned bears and lack of basic services for local residents.

Soapberry (*Shepherdia Canadensis*) occurs on recent glacial moraines in very extensive stands. The fruit are relatively high in protein and energy and is easily digestible. In the fall bears seek out the most productive and nutritious food sources available. The ripening of soapberry draws bears to the McCarthy-Kennecott area.

Based on the NPS bear study (Wilder, 2003), current knowledge and research regarding human-bear conflicts in the McCarthy-Kennicott area indicate that:

- The number of resident humans in the area, the number of humans visiting the area, the amount of road and trail access, the amount of off-road and off-trail travel, and the occurrence and sanitation of human development are positively correlated with the frequency of human-bear conflicts.
- Bears are common in the McCarthy-Kennicott area.
- Natural food sources for bears are abundant.
- Soapberries are an important food resource for bears in the area, and may influence the occurrence of human-bear conflicts.
- Past human-bear conflicts in the area have involved many bears rather than a few “problem” bears.
- High-quality food sources and increased human presence increase habituation of bears to humans.
- Unsecured attractants are a major cause of human-bear conflicts, and maintain the presence of food-conditioned bears.
- Bears habituated to humans and conditioned to human foods are responsible for the majority of recorded human injuries arising from human-bear conflicts.
- Defensive actions (shooting of bears) associated with human-bear conflicts would increase direct and indirect injury and mortality for black and brown (grizzly) bears.

3.6 Visual Resources

Wrangell-St. Elias National Park and Preserve has some of the most spectacular scenery and visual resources anywhere in North America. While the Wrangell Mountains in the project vicinity are not as lofty as in other parts of the park, the McCarthy-Kennicott gateway community is still known for its outstanding views of rugged Alaskan wilderness, including glaciers, snow-capped mountains, rivers, and extensive boreal forests.

Within the NHL, visual resources include a historic component, that is, the view of aging, individual, historic buildings and structures in various states of deterioration, and more holistically, the appearance of the historic mill town in its entirety. In recent decades, unmanaged vegetation, especially trees and shrubs, have encroached upon and obstructed many historic views (Gilbert et al., 2001). Also, certain newer, non-historic structures and land uses within the NHL may not be entirely consistent with the desired appearance and character of the Kennecott Mill Town, or may impinge upon important viewsheds. An example is the existing NPS materials lay down/storage area near the Dairy Barn, in which supplies and tarp(s) covering them can be visually prominent or obtrusive.

3.7 Visitor Use and Experience

The NPS Organic Act calls for the national park system and NPS, “to provide for the enjoyment of the resources in such manner and by such means as will leave them unimpaired for the enjoyment of future generations”. WRST has two mission goals that follow from this broad statutory mandate:

Mission Goal IIa: *Visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational opportunities.*

Enjoyment of national parks is a fundamental aspect of the visitor experience. Visitor enjoyment and safety are affected by the quality of park programs, facilities, and services, whether provided by the NPS, a concessioner, or a contractor. Availability of park facilities, services, and recreational opportunities refers to convenient locations and times of operation that fit visitors’ transportation and schedule needs (NPS, 2000b).

Mission Goal IIb: *Park visitors and the general public understand and appreciate the preservation of parks and their resources for this and future generations.*

Visitors’ park experiences grow from enjoying the park to understanding why it exists and the significance of its resources. Satisfactory visitor experiences build public support for preserving this country’s heritage as contained in the national parks (NPS, 2000b).

Additionally, WRST strives to meet the management concepts developed jointly by the community of Kennecott/McCarthy and the NPS. Relative to visitor use and experience, the following apply:

- *Kennecott is stabilized to prevent deterioration of historic structures or artifacts and to make them available to the public, to the greatest extent possible in accordance with public safety.*
- *Kennecott is not just an abandoned mining town, but also a place that reflects the vitality, creativity, and community spirit of today’s residents.*
- *Kennecott/McCarthy retains the slow pace, quiet, and spaciousness that foster contemplation and individual reflection. In particular, NPS will encourage visitors to enjoy the NHL as pedestrians, and will seek to minimize the impact of management activities (including, but not limited to, noise and visual impact) on both visitors and local residents alike.*
- *Kennecott/McCarthy is a place where tourism is allowed to evolve within the capacity of the community, rather than a place where external intervention and control accelerate growth.*
- *Kennecott/McCarthy is seen by local residents and visitors alike in its true context: a remote outpost of civilization in the midst of an enormous mountain wilderness.*

3.7.1 Visitation

Total visitation at WRST is on the rise. Recreation visits to the park grew from 40,352 in 2002 to approximately 60,000 in 2011. The Kennecott District is the most heavily visited area of the park. NPS estimates current visitation to the McCarthy/Kennecott area to be about 12,000 visitors annually. Visiting McCarthy-Kennecott was the third most popular reason for visiting the park, and walking around Kennecott mine site was the third most popular visitor activity. Furthermore, the most popular backcountry in WRST is the backcountry surrounding the McCarthy-Kennecott area. Most park visitation takes place between June and September, and visitors come to the Kennecott District by road or air.

The University of Alaska (Fairbanks) conducted a study of Kennecott on-site visitation in 2004. They divided visitors into the following categories: Outdoor Enthusiast, Park Experience, History Buff, General Visitor, and Tourist Visitor. Each is described fully in the *Visitor Preferences for Interpretation in the Kennecott Mill Town, Final Report* (Taylor, 2005). The report also identified several important characteristics of NHL visitors:

- Most visitors stay on average 2 – 3 days and are interested in a variety of activities.
- Most arrive by vehicle and over 75% are visiting for the first time.
- Nearly half are 50 years old or older, and nearly 80% have at least a bachelor's degree from college.
- Over 60% were traveling in family groups.
- Further structure stabilization, exploring the outside of more town buildings, the addition of signs and exhibits, and a film explaining historical significance all ranked fairly high on the “add to visitor experience” end of the scale.

3.7.2 Existing Visitor Facilities

At present, the area still offers limited facilities and services to accommodate the use and contribute to the enjoyment and education of Kennecott-McCarthy visitors. There is no welcome sign for visitors arriving at the McCarthy-Kennecott area, but NPS has installed a sculptural metal sign just inside the southern boundary of the NHL that announces the landmark. While some visitor facilities are provided, information on services and activities can be hard to find. Lack of readily available information about land ownership patterns can sometimes result in visitors accidentally trespassing on private lands. A McCarthy Road Information Station—with interpretive and informational media—is located a mile west of the Kennicott River footbridge, but it is set back from the road where it is inconspicuous, and it does not have sufficient staffing. While maps and other information are available at the McCarthy Road Information Station, the facilities provide inadequate wayfinding. There are private businesses in the vicinity of the McCarthy Road Information Station that provide information to the visitor, but it is focused on private tour opportunities.

Private parking is provided for visitors (for a fee) on the west side of the Kennicott River. From there, a visitor can shuttle gear across the footbridge and wait for a privately operated shuttle bus to travel the six miles to Kennecott. It would be easy for visitors who have not been to the site before or who have not done some pre-planning to be confused. Visitor lodging is limited but provided by private establishments in McCarthy and Kennecott.

Just inside the NHL boundary, the NPS has constructed a shuttle bus turnaround in compliance with a previous public planning process. Partially completed in 2009, the stop contains an area for shuttle buses to drop off visitors and turn around, a sculptural metal sign that announces the landmark, and one kiosk/shelter with four exhibit panels. A local business, Wrangell Mountain Air, provides the shuttle buses, and St. Elias Alpine Guides, a park concessionaire, provides the coordination for visitors to be dropped off. The shuttle buses, however, do not use the shuttle stop, but drop passengers in front of a private business. Visitors, as a result, miss the gateway orientation and end up confused as to the location of NPS services, other local businesses, the identify of buildings, and what is NPS or private property.

The following is description of the current NPS visitor services in Kennecott:

- Recreation Hall: Restored historical building, opened to the public in 2003. There is a box with WRST maps outside the entrance at the head of the stairs. Inside and available for interpretive or community programs, there is a film screen and projector; the building has a 200-person capacity. NPS is currently working on a lease agreement in cooperation with a local non-profit to manage the building for community and special events. Two exhibit panels by NPS and Friends of Kennicott provide information.
- Refrigeration Plant: Opened to the public in 2008; no current exhibits.
- General Store/Visitor Center: Opened to the public in 2008 as a visitor center. It has an exterior box with WRST maps. The right half of the store is a re-creation of the General Store using a 1917 inventory and includes 822 objects (mostly reproduced cans with scanned labels) and 378

historic objects. These objects were installed in 2010. The General Store also contains exhibits on wildflowers, bear safety, maps, ore display, historical photos, aerial view of the glacier, and leave no trace. Alaska Geographic Association sales take up about one quarter of the store.

- Power Plant: Top level mezzanine/viewing was opened to the public in 2006; inside tour by concessions. Accessible ramp installed in 2006. One exhibit panel on the mezzanine installed in 2006.
- General Manager's Office: The oldest structure in Kennecott, opened to the public in 2009. Five historic photographs and one contemporary photo on the main level in three rooms.
- Kennecott Cottage 39C, Lot 88: Opened to the public in 2006; one exhibit panel installed in 2007.
- Train Depot: Opened to the public in 2004. Used as a visitor center until 2007. One exhibit panel outside the front door produced in 2010.
- Concentration mill: Concession tours only. Three, two-hour tours offered per day.

While the Kennecott mill town retains much of its historic, rustic character and charm, ongoing stabilization and rehabilitation activities may interfere with visitor enjoyment of individual structures and buildings. Some of the structures are off-limits to general visitors for safety reasons or are being used for storage. In addition, some non-historic, non-compatible more recent development detracts from the overall historic character of the site.

Several public toilets are available in the McCarthy-Kennecott area: two at the McCarthy Road Information Station, two at the second footbridge, one at the "Y" by the Museum, one at McCarthy airport, one by the Company Store, two at the Recreation Hall, and one trail pit toilet at the Jumbo Creek camping area.

3.8 Transportation and Access

3.8.1 General

The main transportation route in the area is along the McCarthy Road, which reaches its eastern terminus on the west bank of the Kennicott River at about MP 60. A state-built footbridge provides access for pedestrians further east. There is no access for the general public with vehicles to cross the river at this point. Approximately ¼ mile downstream of the footbridge is a vehicular bridge constructed on private land. Bridge passes are available from a local business, by trip or season for a fee. NPS and some local businesses utilize this bridge to haul freight to McCarthy or Kennecott.

On the east side of the footbridge, the one-lane, unpaved McCarthy Road continues, bypassing downtown McCarthy and continuing for about four miles up to the Kennecott Mill Town, following the original railroad alignment. This road is used by automobiles, shuttle vans, off-road vehicles, motorcycles, bicycles, and pedestrians. It generally lacks well-developed wide spots to allow vehicles to pass and on busier days this can lead to congestion. ADOT&PF and local businesses maintain the road from the footbridge to the NHL boundary. An historic, unpaved wagon road provides an alternative route for hikers, bikers, and pedestrians from McCarthy to Kennecott.

The McCarthy road, state right-of-way ends at the entrance of the Kennicott Subdivision, about 1 mile south of the NPS "Kennecott Mines National Historic Landmark" sign at the shuttle turnaround. The roads within the Kennecott subdivision are easements across private and public (NPS managed) lands. The legal description of these roads is found on the subdivision plat which was recorded with the State recorder's office in 1977. This plat states "the rights-of-way as shown or noted are private, reserved for the use of the present owners of lots in this subdivision and their guests." Neither individual Kennicott

Subdivision lot owners nor the NPS have authority to unilaterally impose restrictions on the use of the Kennecott Subdivision easements, for transportation purposes, by the other lot owners and their guests.

The majority of the landowners in Kennecott have requested of WRST that, as the rights-of-way cross their private land, their property rights as specified by the plat be respected. They have also raised with WRST liability concerns regarding use of motorized vehicles by the general public on the Kennecott rights-of-way, as those vehicles pose a hazard to pedestrians on steep and narrow roads with reduced visibility. The residents have specifically requested that the park notify non-local visitors to the NHL that they are welcome to use the rights-of-way on foot or bicycle, but that ORV, motorcycle, and motor vehicle use by the general public within the subdivision is not allowed. The Kennecott Subdivision landowners have communicated to local residents within the greater McCarthy/Kennecott area that they are guests of the subdivision residents. This informal message regarding motor vehicle use within the Kennecott Subdivision does not apply to area residents.

3.8.2 Parking

West of the Kennecott River there are 8 – 10 free day parking spaces available at the NPS McCarthy Road Information Station, and there are several privately owned, fee based overnight parking lots, including one at the footbridge. The State and the NPS have recognized that parking and loading/unloading at the footbridge presents logistical issues for the general public and area landowners. Past efforts to secure public lands for parking near the foot bridge have been unsuccessful.

East of the Kennecott River, informal, unmarked parking spaces for up to about 15 vehicles used to be available at the footbridge on the State right-of-way and private property; however, in 2005 this space was eliminated and now the site can only be used for loading and unloading supplies and passengers from vehicles.

Within the NHL, motorists now park vehicles along the rail corridor adjacent to the Kennecott Glacier Lodge (within a subdivision easement), at the shuttle bus turnaround, and along the lower glacier road behind the Recreation Hall in an uncontrolled fashion.

Besides walking and bicycling, several privately operated van shuttles are the principle method for visitors to reach McCarthy or the NHL from the Kennecott River. These shuttles do not usually operate early or late in the day, and are not generally able to readily accommodate wheelchairs or transport bicycles. If specifically requested by customers, shuttles can make early or late runs.

3.8.3 Off Road Vehicle Use

Local residents use Off Road Vehicles (ORVs) for a variety of purposes, including as a commuter vehicle, hauling material, or in pursuit of subsistence resources (berry picking, hunting). ORV use by visitors has become more commonplace since the installation of the footbridge across the Kennecott River. Although designed for pedestrian use only, bollards blocking ORV traffic on the footbridge were removed by local residents and have not been replaced.

Visitor use of ORVs to access Kennecott (or points beyond, such as the Bonanza mine) is problematic for several reasons:

- Legally, ORVs cannot be driven on the McCarthy road (state right-of-way). Alaska Statute 28.10.011 requires all motor vehicles driving “upon a highway or other public parking place” shall be registered. However, ORVs do not comply with Federal Department of Transportation standards for tires and rims. No ORV on the market today meets federal emission standards since no manufacturer has applied for such. Therefore, they are deemed unsafe for road use and

cannot be registered as motor vehicles. (Language directly from a brochure titled “Alaska’s ATV Law”, written and distributed by the Alaska State Troopers).

- Legally, ORVs cannot be driven across the Kennicott River foot bridge. Alaska Statute 13 AAC 02.455(f) state no snowmobile or other off highway vehicle may cross or travel on a sidewalk, a location intended for pedestrian or other non-motorized traffic, an alley, or a vehicular way or area which is not open to snowmobile or off-highway vehicle operation. The Kennicott River foot bridge was built with funds appropriated specifically for pedestrian access.
- Kennecott subdivision easements (which are unavoidable to a motorized Kennecott visitor) are private and reserved for the use of the present owners of lots in the subdivision and their guests.
- Recreational ORV use (including to access sport hunting in the national preserve) requires a permit in Wrangell-St. Elias National Park and Preserve, issued under 43 CFR 36.11(g)(2) which allows superintendents to issue permits for ORVs on existing ORV trails, upon determining that such use is compatible with park purposes. NPS has made no such determinations for the trails in and around Kennecott/McCarthy.

3.9 Soundscape

According to the NPS, the acoustical environment is comprised of a combination of acoustic resources, including natural, cultural, and historical sounds. A soundscape is defined as the way in which humans perceive this acoustic environment. Specifically, the natural soundscape encompass all of the natural sounds that occur in parks, including the physical capacity for transmitting those natural sounds and the interrelationships among park natural sounds of different frequencies and volumes (NPS 2006). Natural sounds may vary from bird calls and insect hums, to sounds produced by physical processes like wind rushing through leaves on trees, thunder, and rushing and falling water through rivers, creeks and streams within a park. According to the NPS, 72% of visitors indicate that a crucial reason for the need to preserve national parks is that parks provide opportunities to experience natural peace and the sound of nature (NPS, 2009g). Therefore, the NPS works to preserve, to the greatest extent possible, the natural soundscapes of parks.

3.9.1 Human Response to Changes in Noise Levels

Noise may have adverse effects on the human population in a variety of ways. Noise may interfere with human activities, such as sleep, speech communication, and tasks requiring concentration or coordination. At a physiological level, noise may also cause annoyance, hearing damage, and other health-related problems. The degree of disturbance from unwanted sound depends essentially on 1) the amount and nature of the intruding noise; and 2) the type of activity occurring where the noise is heard. In considering the first of these factors, it is important to note that individuals have different sensitivity to noise. Loud noise bother some people more than others, and some patterns of noise also affect a person’s perception of whether or not a noise is offensive. With regard to the second factor, individuals tend to judge the annoyance of noise relative to the natural sounds (i.e., without the intruding noise source) and activities occurring where the noise is heard. For example, if regions of a park are dedicated to enjoying the tranquility and serenity of the natural environment, sounds from motor boating or Off Road Vehicles might be distracting to the visitor experience. However, if these activities are consistent with the purpose of a particular region of a park, these sounds would be considered appropriate. Therefore, noise is a subjective term, and it is important to characterize the activities essential to the park’s purpose. Activities associated with stabilization of historic structures in a National Historic Landmark would certainly seem to be activities essential to the NHL’s purpose.

3.9.2 Noise Fundamentals

According to NPS, “although noise has been used as a synonym for sound, it is essentially the negative evaluation of sound by people, is extraneous, or undesired. Humans perceive sound as an auditory sensation created by pressure variations that move through a medium such as water or air and is measured in terms of amplitude and frequency” (NPS, 2009g). The magnitude of noise is usually described by its sound pressure. Since the range of sound pressure varies greatly, a logarithmic scale is used to relate sound pressures to some common reference level, usually the decibel (dB). Sound pressures described in decibels are called sound pressure levels and are often defined in terms of frequency-weighted scales (A, B, C, or D).

The A-weighted decibel scale is commonly used to describe noise levels because it reflects the frequency range to which the human ear is most sensitive (1,000 – 5,000 Hertz). Sound levels measured using an A-weighted decibel scale are generally expressed as dBA. Throughout this section, all noise levels are expressed in dBA. Several examples of sound pressure levels in the A-weighted (dBA) scale are listed in table 3-4.

Table 3-4. Example of Common Sounds

A-weighted Sound Level (dBA)	Overall Level	Noise Environment
120	Uncomfortably loud (32 times as loud as 70 dBA)	Military jet airplane takeoff at 50 feet
100	Very loud (8 times as loud as 70 dBA)	Jet flyover at 1,000 feet Locomotive pass-by at 100 feet
80	Loud (2 times as loud as 70 dBA)	Propeller plane flyover at 1,000 feet. Diesel truck 40 mph at 50 feet.
70	Moderately loud	Freeway at 50 feet from pavement edge at 10:00 a.m. Vacuum cleaner (indoor)
60	Relatively quiet (one-half as loud as 70 dBA)	Air condition unit at 100 feet. Dishwasher at 10 feet (indoor)
50	Quiet (1/4 as loud as 70 dBA)	Large transformers Small private office (indoors)
40	Very quiet (1/8 as loud as 70 dBA)	Bird calls. Lowest limit of urban ambient sound
10	Extremely quiet	Just audible (1/64 th as loud as 70 dBA)
0	Threshold of hearing	Quietest sound detectable by a healthy human ear

3.9.3 Existing Sound Levels (Kennecott mill town)

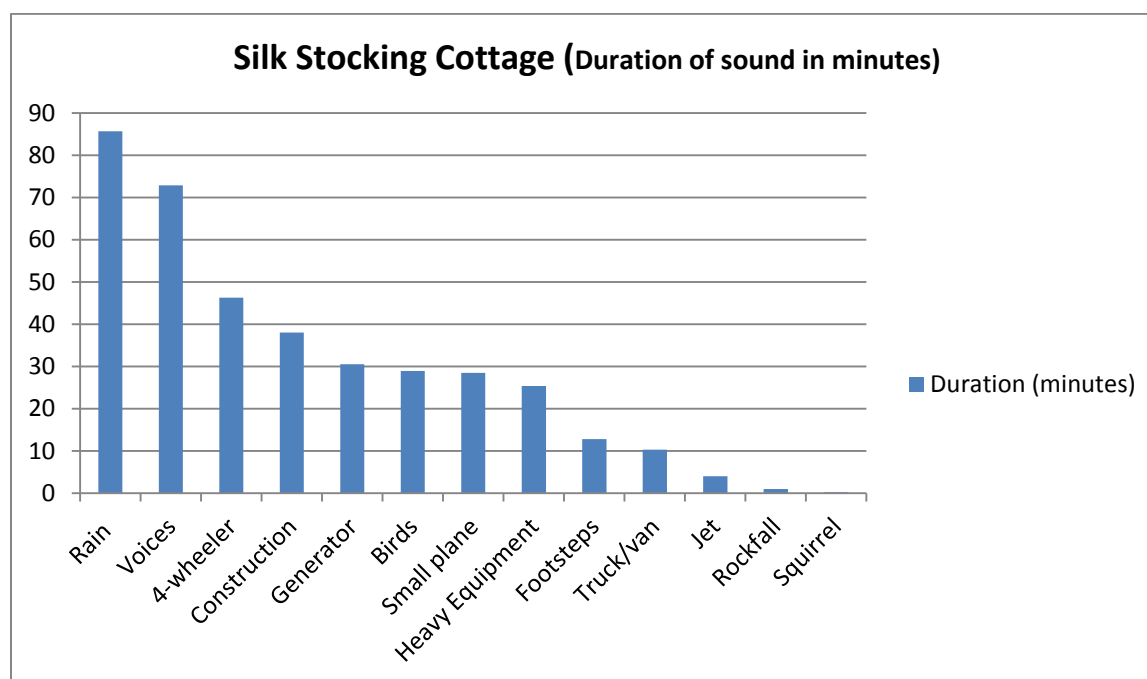
The Kennecott mill town at the peak of the mine’s production was a noisy place. The processing of the copper ore through the concentration mill; engines, turbines and boilers in the power plant; and transport of ore via railcar through the middle of the mill town made for a noisy environment. Work shifts went on 24 hours a day, seven days a week. Upon her arrival to Kennecott in 1937, Ethel LeCount, a nurse at the hospital, noted “the rumble of the mill and the tramline; the rattle of ‘high grade’ going down the chute to the sacking shed” as an introduction to her stay in Kennecott.

Kennecott is now a different place. Visitors come to see and learn about the history of the site but also to experience the wilderness setting outside of the mill town. Kennecott residents value the opportunity to live in a remote setting and enjoy natural sounds and quiet.

May through September are busy and sometimes noisy months in Kennecott mill town. NPS is in the process of doing major stabilization and restoration work on several historic structures throughout the milltown. Noise associated with stabilization work varies but can include general construction noise

(power tools, hammering, yelling); heavy equipment such as the park’s backhoe/front-end loader; work trucks or 4-wheelers; and the constant hum of the park’s generator. Larger or more complex restoration/stabilization work requires the use of contractors, sometimes involving heavy equipment (such as dump trucks) or specialized equipment (jack hammers or drill rigs). The noise associated with NPS stabilization efforts generally starts early in the morning (0630 or 0700) with the morning 4-wheeler “commute”, and tapers off at 1700 or 1730. Overtime or contract work sometimes occurs on weekends.

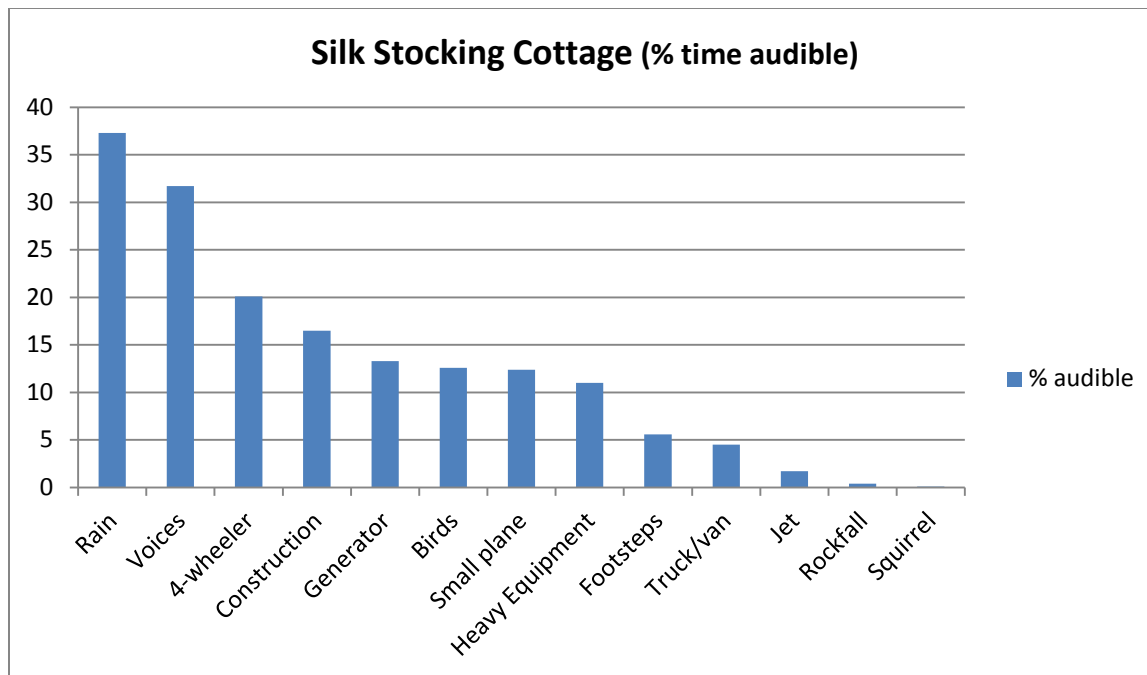
In an effort to characterize the sounds in and around the Kennecott millsite, NPS personnel conducted a series of “sound logging” sessions between August 22, 2012 and August 26, 2012. Duration of each session was generally 2 hours, with 2-2 hour sessions done at each location. Locations included: 1) Front porch of a Silk Stocking cottage; 2) Outside the General Manager’s Office; 3) at the Shuttle Turnaround; and 4) just north of the mill town on the Root Glacier trail. The following graphs display the sounds recorded at each location. For each sound logging location, the sounds recorded are characterized according to the overall level described in Table 3-4.



Silk Stocking sounds were characterized as follows:

- Rain: Not a hard rain, but steady. Quiet (50 dBA).
- Voices: Varied between Quiet (50 dBA) and Relatively Quiet (60 dBA).
- 4-wheeler: Ranged from Quiet (50 dBA) to Moderately loud (70 dBA) depending on proximity.
- Construction: Source was work being done on the pumphouse behind the cottage. Moderately loud (70 dBA) because of close proximity.
- Generator: Very quiet (40 dBA) and obscured by other sounds.
- Birds: Very quiet (40 dBA) and obscured by other sounds.
- Small plane: Ranged from Quiet (50 dBA) to Loud (80 dBA) depending on proximity.
- Heavy equipment: The park’s backhoe working in close proximity. Loud (80 dBA).
- Footsteps: Quiet (50 dBA).
- Truck/van: Ranged from Quiet (50 dBA) to Moderately loud (70 dBA) depending on proximity.

- Jet: Ranged from Quiet (50 dBA) to Moderately loud (70 dBA) depending on proximity.
- Rockfall: Glacier rockfall. Very quiet (40 dBA) and obscured by other sounds).
- Squirrel: Quiet (50 dBA).



The second set of sound logging sessions was taken at the General Manager's office on August 24, 2012. Two separate sessions were logged (from 1100 – 1300 and 1500 – 1645). The sounds shown in the graphs below (page 83) are characterized as follows:

- Water flow: The sound of National Creek. Relatively quiet (60 dBA).
- Voices: Varied between Quiet (50 dBA) and Relatively quiet (60 dBA).
- Construction: Power tools, sawing, hammering. Moderately loud (70 dBA).
- 4-wheeler: Ranged from Quiet (50 dBA) to Moderately loud (70 dBA), depending on proximity.
- Small plane: Ranged from Quiet (50 dBA) to Loud (80 dBA) depending on proximity.
- Helicopter: Operating out of McCarthy airport. Not flying directly overhead. Moderately loud (70 dBA) to Loud (80 dBA).
- Bird: Very quiet (40 dBA).
- Heavy Equipment: The park's backhoe, at a distance. Relatively quiet (60 dBA) to Moderately loud (70 dBA).
- Footsteps: Footsteps or sounds associated with bicycles. Quiet (50 dBA).

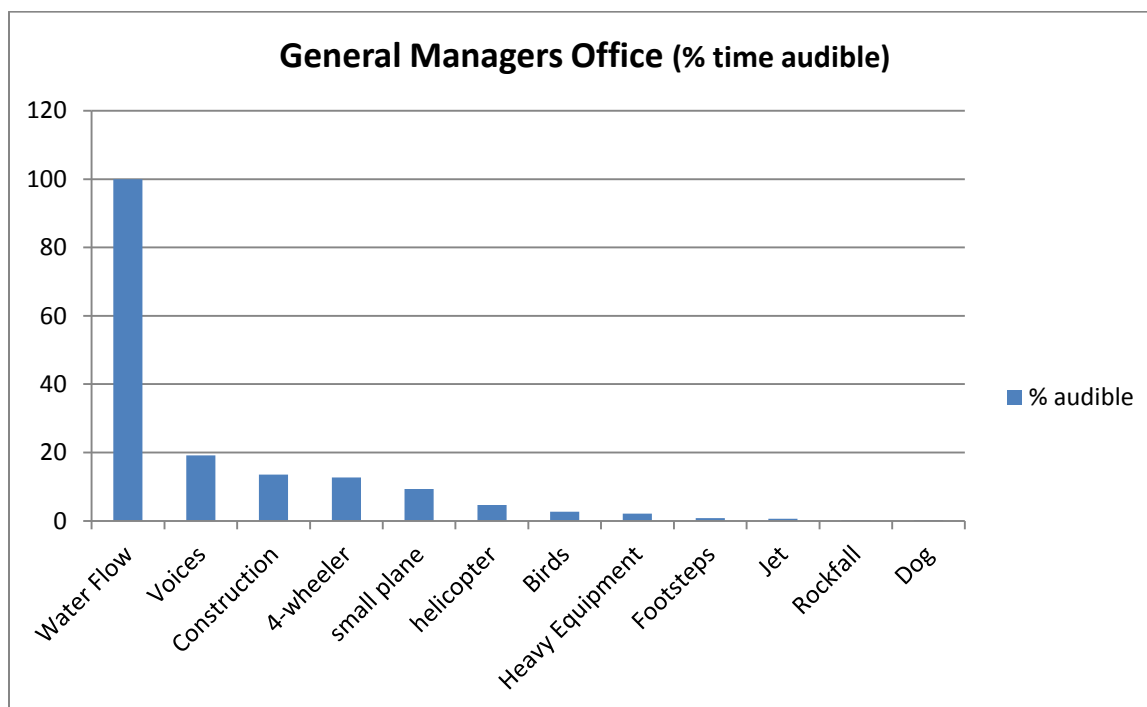
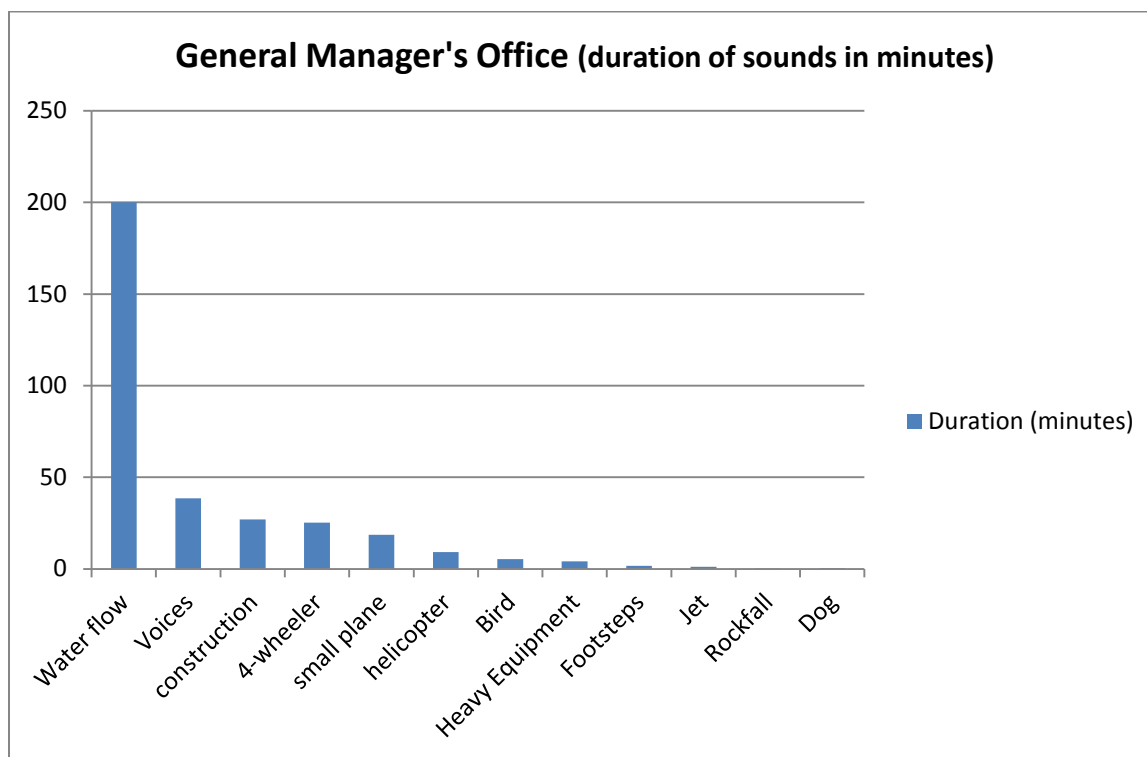
- Jet: Quiet (50 dBA) to loud (80 dBA) depending on proximity.
- Rockfall: Quiet (50 dBA).
- Dog: From a distance. Quiet (50 dBA).

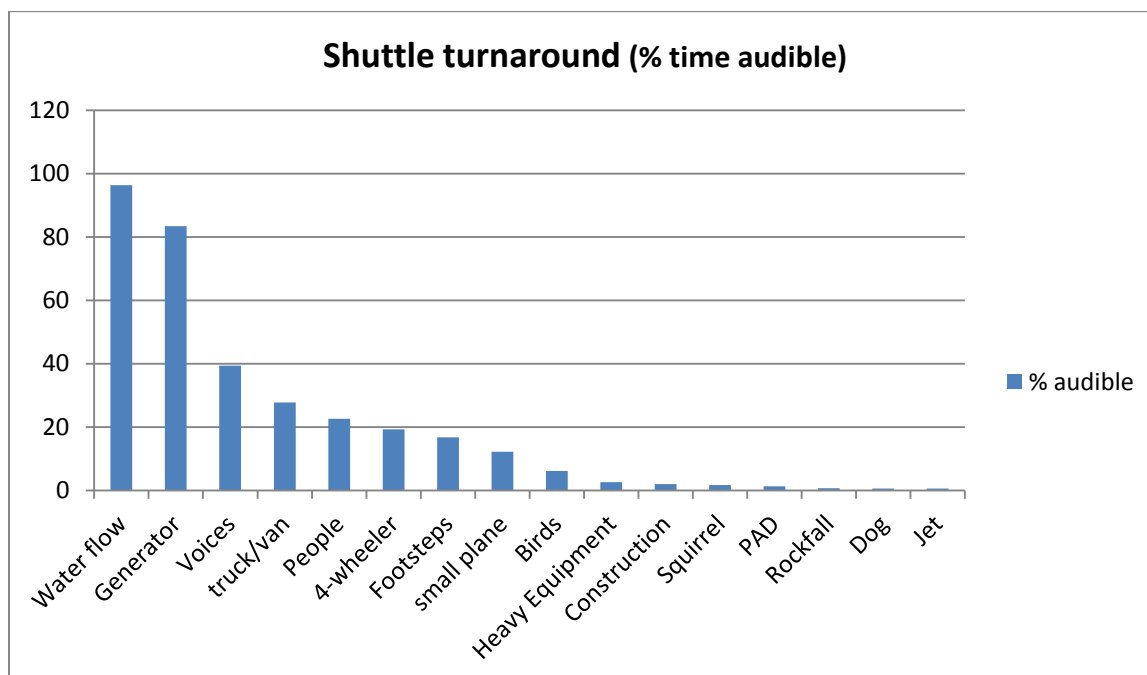
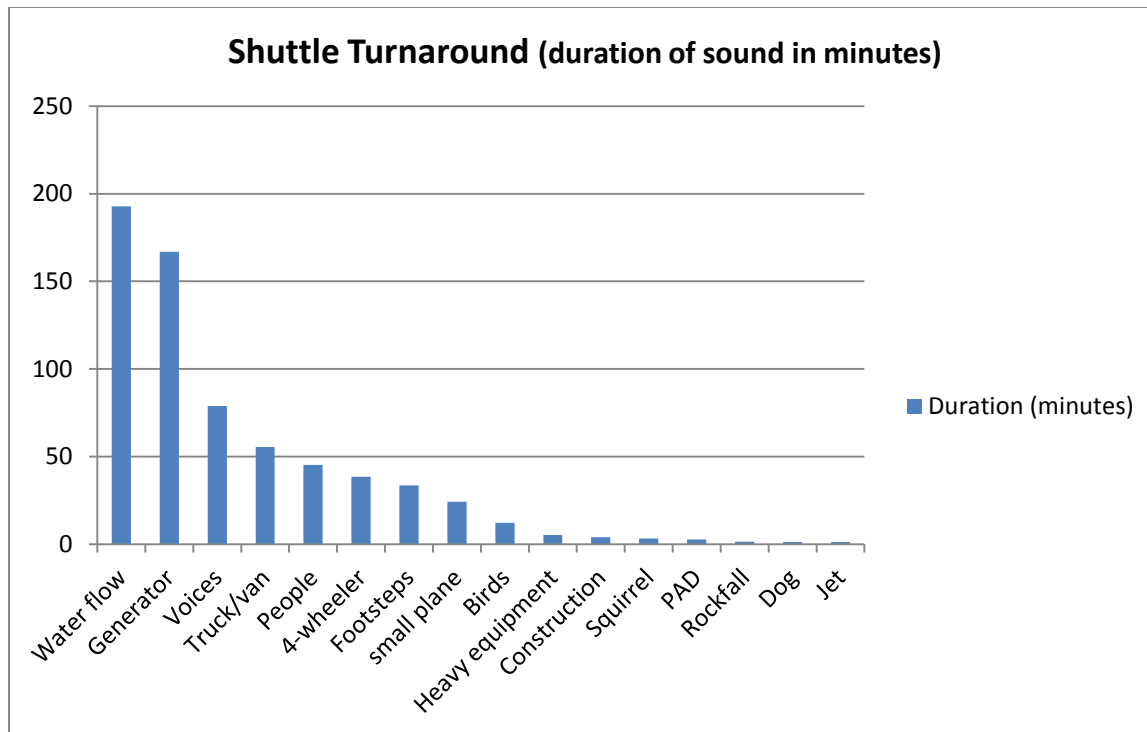
The third set of sound logging sessions was taken at the Shuttle Turnaround on August 25, 2012. Two separate sessions were logged (from 0845 – 1030 and 1600 – 1815). Some of the sounds shown in the graphs below (page 84) can be characterized as follows:

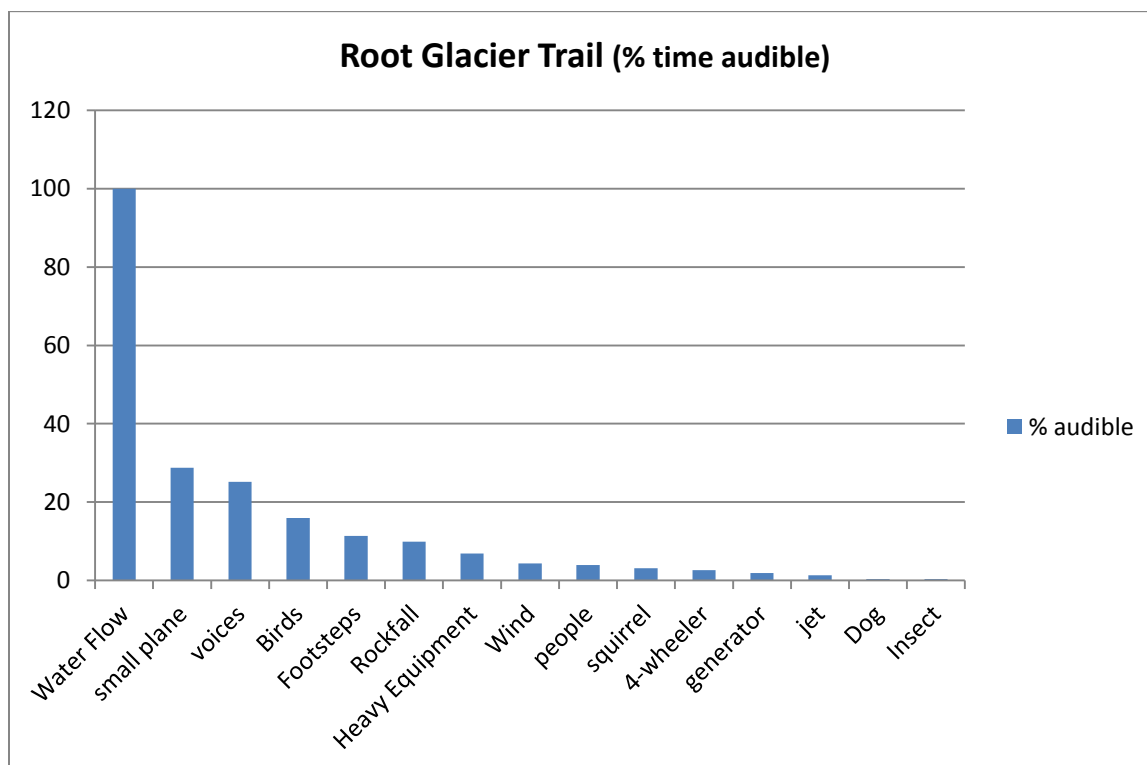
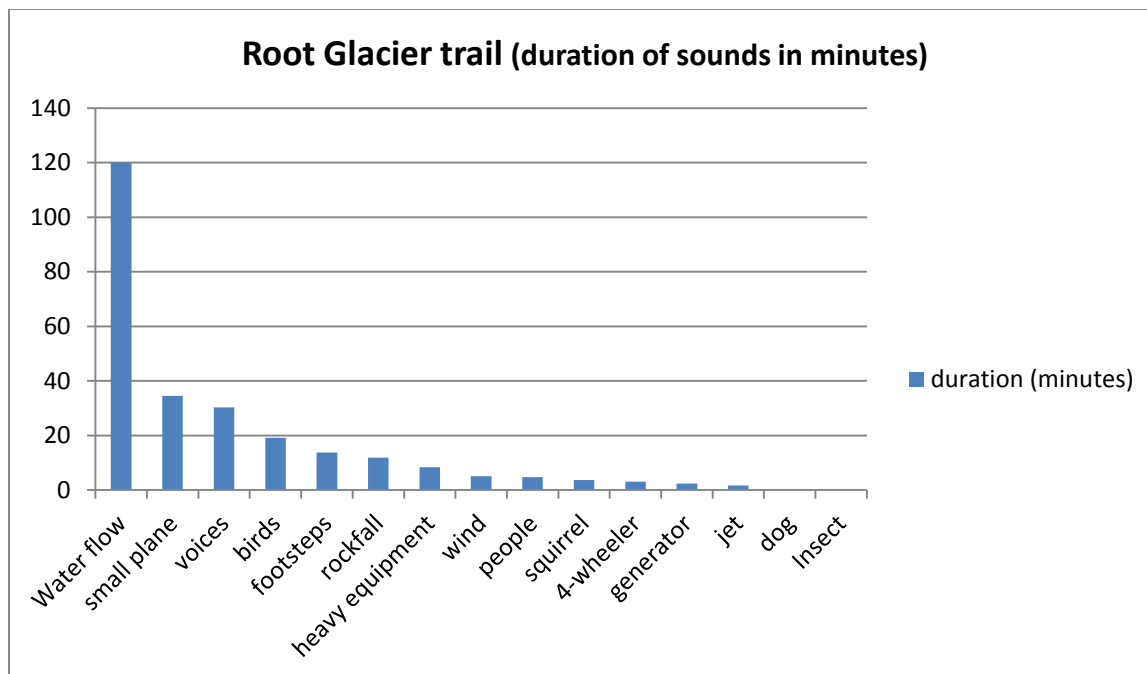
- Water flow: National Creek. Quiet (50 dBA).
- Generator: The NPS generator, a steady background noise at this location, but obscured by other noises. Relatively Quiet (60 dBA).
- Voices: Relatively Quiet (60 dBA).
- Truck/van: A dominant sound at this location. Relatively quiet (60 dBA) to Moderately loud (70 dBA) depending on proximity.
- People: Sounds associated with people, other than voices and footsteps, such as doors opening or closing. Relatively quiet (60 dBA).
- 4-wheeler: Ranged from Quiet (50 dBA) to Moderately loud (70 dBA), depending on proximity.
- Footsteps: Footsteps or sounds associated with bicycles. Quiet (50 dBA).
- Small plane: Ranged from Quiet (50 dBA) to Loud (80 dBA) depending on proximity.
- Birds: Very quiet (40 dBA).
- Heavy Equipment: NPS backhoe at a distance. Relatively Quiet (60 dBA).

The fourth sound logging session was taken along the Root Glacier trail approximately 100 yards from the last cottage. One session was logged on August 27, 2012 from 1000 to 1230. Some of the sounds shown in the graphs below (page 85) can be characterized as follows:

- Water flow: Dominant sound at this location but not loud enough to obscure other sounds. Quiet (50 dBA).
- Small plane: Ranged from Quiet (50 dBA) to Loud (80 dBA) depending on proximity.
- Birds: Very quiet (40 dBA).
- Voices: Very Quiet (40 dBA) to Quiet (50 dBA) depending on proximity.
- Footsteps: Very Quiet (40 dBA) to Quiet (50 dBA) depending on proximity.
- Rockfall: Quiet (50 dBA).
- Heavy Equipment: NPS backhoe at Dairy Barn. Could barely hear the back-up alarm. Very Quiet (40 dBA).
- Wind: Quiet (50 dBA).
- 4-wheelers: Quiet (50 dBA) to Relatively Quiet (60 dBA) depending on proximity.
- Generator: Local generator (not NPS), easily obscured by other sounds. Very Quiet (40 dBA).







3.9.4 Conclusions from sound logging data

Sound logging data represents a “snapshot in time” although the sessions were taken over a 4-day period. The conclusions drawn below are based only on the data presented above with the full realization that impacts to soundscape could be different dependent on the scale of NPS stabilization work occurring at the time. Based on review of the sound logging data, the following observations were made:

- During weekday “business hours” in the milltown, the soundscape is dominated by “non-natural” sounds.
- At the one site just outside of the milltown (Glacier Trail), natural sounds such as water flow or wind provided the background, broken occasionally by non-natural sounds.
- While impossible to accurately quantify, sounds that can be attributed to NPS activities account for less than ½ of the non-natural sounds; other sounds are associated with visitors or locals.
- Of the sounds attributed directly to NPS activities (Construction, Generator, Heavy Equipment, and 4-wheelers), those that are audible the most (% time audible) are Generator and 4-wheelers. This suggests that some mitigation aimed at decreasing the volume or duration of these sounds could go a long way at decreasing impacts.

3.10 Socioeconomics

In 1990, Joseph Sax characterized the McCarthy/Kennicott area as follows: “It was no doubt inevitable that change would come even to this solitary and isolated place. Beginning in the later 1950’s, a few people rediscovered the area, not for its minerals but for its breathtaking natural setting and for the ever-rarer opportunity it offered to live, not a primitive existence, but a life apart from contemporary rhythm and pace. There is no more stunning mountain and glacier backdrop above a river valley anywhere in the world. Bear and moose are still casual visitors in the streets of McCarthy, and Dall’s sheep are nearby. Gradually the population grew to the present few dozen, most of whom still do not spend the full winters there. There are also a few weekend-only residents who make the long trek from Anchorage as often as they can. Some new houses have been built, and a number of the original buildings have been restored.” (Sax, 1990).

Things have changed in 25 years, but this is still a good characterization of the community and the reasons people live there. The 2010 Census Demographic Profile for McCarthy Census Designated Place lists the population at 28 (USCB, 2010). The Census lists a total of 74 “housing units”, with 20 occupied and 53 for “seasonal, recreational, or occasional use”.

Full-time and seasonal residents of the area support their lifestyles in a variety of ways, including summertime businesses (guides, flying services, lodging, arts, contracting, mining) and subsistence activities. In the winter season, many seasonal residents go to Anchorage or elsewhere for employment opportunities. NPS hires a number of local residents as rangers, interpreters, or on the maintenance crew for historic structure stabilization in Kennecott. In 2011, NPS hired 20 seasonal workers on the maintenance crew and paid approximately \$575,000 in seasonal wages.

Business activity in the area peaks in the summer. Local businesses include 2 air taxi services, 3 guiding and/or rafting businesses, one arts and crafts shop, several lodges and B&Bs (some of which provide food service), a bar, a grocery store, and a diner. There is also a local contractor and freighting service.

Installation of a private bridge across the Kennicott River had a major socioeconomic effect on the community. The bridge is privately owned but available for use for a fee. This provides easier community access to freighting of goods and services, including building materials, food services, groceries, septic services, fuel, and a host of other items.

4.0 CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

This chapter provides an evaluation of the potential effects or impacts of each of the alternatives on the resources described in Chapter 3.

4.1 Impact Criteria

Summary impact levels (characterized as negligible, minor, moderate, or major) are given for each impact topic and are based on the intensity, duration, and context of the impact. Definitions are provided below:

Duration of Impact:

Temporary: Impact would occur during the proposed activity only. Once the activity has ended, resource conditions are likely to return to pre-activity conditions.

Long-term: Impacts would extend from several years up to the life of the plan.

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

Context of Impact:

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

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

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

Intensity of Impact:

Low: A change in a resource condition is perceptible, but it does not noticeably alter the resource's function in the park's ecosystem, cultural context, or visitor experience.

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

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

Overall Summary Impact Levels

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

Negligible: Impacts are generally low intensity, temporary, and do not affect unique resources.

Minor: Impacts tend to be low intensity or of short duration, although common resources may have more intense, longer-term impacts.

Moderate: Impacts can be of any intensity or duration, although common resources are affected by higher intensity, longer impacts while unique resources are affected by medium or low intensity, shorter-duration impacts.

Major: Impacts are generally medium or high intensity, long term, or permanent, and affect important or unique resources.

4.2 Cumulative Impacts

Cumulative impacts were assessed by combining the potential environmental impacts of the alternatives with the impacts of known projects that have occurred in the past, are currently occurring, or are reasonably foreseeable future actions. This analysis focuses on actions that have occurred since NPS acquisition of the site in 1998. In a memorandum issued on June 24, 2005 providing guidance on the consideration of past actions in cumulative effects analysis, the Council on Environmental Quality (CEQ) states: “The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent that this review informs the agency decision making regarding the proposed action.”

Extensive mining at four upper mountain mine sites and associated land development and disturbance occurred in and around the NHL from 1901 to 1938. These actions, undertaken at a time when measures to protect the environment were all but non-existent, caused widespread, long-term impacts in the McCarthy-Kennecott area on soils, water resources, hydrology and floodplains, and vegetation, among other resources. These conditions are documented in Chapter 3, Affected Environment. Because the effects of past mining does not continue to change the current environment and reversing the effects of past mining is inconsistent with the management of the area as a National Historic Landmark, only cumulative effects of past actions occurring after NPS acquisition will be assessed.

Past, present, and reasonably foreseeable future projects and actions in the vicinity of the project site are described below.

4.2.1 Past and Present Projects and Actions

Past NPS Activities:

Cultural Resources: Stabilization work accomplished to date on all NPS-owned historic structures is described on pp. 28 – 40 of this Environmental Assessment, under the headings “*What has been done*”. Work has focused on stabilization and, in some cases, adaptive re-use of historic structures. Stabilization and/or rehabilitation has been done on the General Manager’s Office, Hospital, Railroad Depot, Company Store, railroad trestle, Tram Terminus, Leaching Plant, Machine Shop, Power Plant, Transformer House, Refrigerator plant, West bunkhouse, New Schoolhouse, Recreation hall, Old schoolhouse, Dairy barn, East bunkhouse, South Silk Stocking cottage, and North Silk Stocking cottage. While these actions have a direct positive impact on the historic structures, there is sometimes a negative impact on the cultural landscape. For example, stabilization of historic structures requires removal of adjacent tailings, wood scatters, and archeological features. While inventoried and documented during the removal process, loss of these features constitutes a negative impact on the cultural landscape. Another example would be the loss of the assay building. This building was impacted by National Creek flooding in 2006. The building

was removed to facilitate stabilization of National Creek in order to protect other historic structures from future flooding.

Soils: Soils in and near the Kennecott Mill Town and in the town of McCarthy have been altered due to construction of buildings, roads, trails, and other facilities and from accumulation of tailings and oil-stained soil. Past mining at the higher elevation mine sites has also resulted in soil impacts. Besides the actual footprint of these facilities, soils in the immediate surrounding areas have been impacted by compaction from pedestrian and vehicle traffic. Dispersed soil impacts have also been caused by off-trail pedestrian traffic that has resulted in compaction over broad areas and erosion on steeper slopes. Concentrated areas of compaction and erosion often take the form of social trails.

NPS actions since acquisition have focused on removal of hazardous materials, which has resulted in a positive effect to area soils. Historic structure stabilization has resulted in excavation around building foundations and some landscape alteration and soil compaction to accommodate site access. These actions have resulted in long-term and moderate impacts to soils within the NHL.

Hazardous materials: Hazardous materials (i.e. asbestos, mine tailings, lead paint, batteries) present a source of contamination to groundwater and surface water and potential impact to aquatic biota. These materials have existed in the NHL for over 50 years, and leaching from these sources in the past and into the future is a continuing cumulative impact. Since NPS acquisition of the NHL in 1998, actions have been taken to clean up hazardous materials, including fuel releases, lubricant oil and greases, lead-based paints, and asbestos, consistent with the 1999 work plan and agreement between NPS and Alaska Department of Environmental Conservation. These actions have resulted in a positive impact to area soils, surface, and groundwater.

Water Resources: During the Kennecott mining era, National Creek and its floodplain were intensively altered by mining activity and material stockpiling. These alterations caused hydrologic and hydraulic changes in the fluvial system, floodplain, and wetlands that are evident today. In the vicinity of the mill, the stream channel was confined, dammed and diverted to support milling operations. Water diversion facilities were constructed upstream of the mill. Remnants of these facilities remain, causing blockage and flow restriction during floods. Dams, buildings, and mill tailings in the active floodplain are subject to scour and sediment deposition. Stream gravel has been deposited in the lower levels of buildings along National Creek. National Creek now has an abundance of both naturally occurring and mining-related debris and sediment accumulation (NPS, 2003b).

Other floodplains in the project area have been disturbed in the past, causing altered water flow. Actions included diverting stream channels away from infrastructure and installing culverts.

Since acquisition of the NHL in 1998, NPS actions have focused on re-channelization of National Creek in order to minimize flooding potential and minimize damage to adjacent historic structures. These actions have had a positive impact on stabilization of the stream channel. Work on adjacent historic structures (such as the railroad trestle) has had short-term negative impacts on water quality in National Creek. NPS and other local landowners utilize National Creek for potable water, an activity that has a negligible effect on water quality and quantity.

Vegetation: Vegetation clearing in the McCarthy-Kennecott area has resulted from construction and maintenance of the McCarthy road and construction of facilities along the road. Vegetation in and near the Kennecott Mill Town and in the town of McCarthy has been cleared for construction of buildings, roads, trails, and other facilities and invasive species have been introduced.

Past mining at the higher elevation mine sites has also resulted in vegetation impacts. Besides the actual footprint of these facilities, plants in the immediate surrounding areas have been impacted by trampling

from pedestrian and vehicle traffic. Dispersed vegetation impacts have also been caused by off-trail pedestrian traffic. Concentrated areas of pedestrian traffic often take the form of unofficial social trails where vegetation is often denuded. An additional impact to the vegetation of the area includes a bark beetle infestation in the 1990s which killed many of the mature white spruce trees on the terraces, side slopes and uplands.

Most of the areas where vegetation was historically cleared have stabilized and revegetated on their own to some degree. Before 1900, most areas of the NHL were in some successional stage of white spruce forest, except notably in the vicinity of National Creek. Today there is more total vegetation cover than at any time since the start of the mining era. This is due to the ongoing retreat of the Kennicott Glacier and the consequent colonization of its lateral moraines. All the vegetation in the NHL is a seral stage of white spruce forest, as it was before the miners arrived. However, a larger proportion of vegetated land is in early to middle succession than it was 100 years ago, and a smaller percentage is in late successional or mature forest.

Since acquisition, NPS activities that have affected vegetation include vegetation clearing associated with historic structure stabilization, vegetation clearing to facilitate new visitor developments (such as the shuttle turnaround), vegetation removal and thinning for wildland fire protection around historic structures, and invasive species removal. These activities have had a temporary, medium-intensity impact on a common park resource. These have resulted in a minor impact to vegetation.

Past Subdivision, Development, and other factors: In 1976, the Great Kennicott Land Company acquired rights to the lower half of Consolidated Wrangell's property. Taking advantage of increased visitation and tourism in the area, the Land Company proceeded to subdivide the property for sale to the public. In the mill town, a lot was assigned to practically each building. The dairy barn, schoolhouse, and generator shed were all adaptively reused for seasonal accommodations. Renovations to the apartment house transformed it into the Kennicott Glacier Lodge. Burned to the ground in 1983, the lodge was rebuilt in 1987 and later enlarged with a new south wing.

At the formation of Wrangell-St. Elias National Park and Preserve in 1980, Kennecott remained in private ownership. Establishment of the park nevertheless revitalized McCarthy as a tourist center. This increased tourism and visitation to the concentrator and mines, as did Kennecott's designation as a National Historic Landmark in 1986. The looting of portable artifacts and reuse of a variety of construction materials also stemmed from increased visitation. Natural forces have, however, proved equally if not more destructive. The 1964 earthquake felled tram towers and caused slippage of the tailing banks behind the West Bunkhouse. Flood damage caused by the bursting of the National Creek dam in 1980, and again in 1983 and 2006, recontoured the central part of the mill town and deposited large volumes of silt through the National Creek bunkhouses, hospital, and assay shed. The 2006 event destroyed the assay shed. The destruction of boardwalks and fire-hose casings in the National Creek area respectively eliminated indications of previously well-defined circulation and Kennecott's care in meeting fire insurance stipulations. West of the rail trestle, flooding ruptured the tailings crib and deposited tailings further down-slope. In the process, waste removal systems exiting into National Creek (such as flumes and pipes) sustained major damage.

Both natural and cultural agents have contributed to the general deterioration of the mill town. The sawmill, oil house (west of the power plant), and almost all privies have entirely collapsed. The laundry building was demolished in the late 1970's as a hazard. Fallen wood siding surrounds the mill building and the southern end of the leaching plant. Decking between structures has fallen into disrepair. Vegetation, primarily alder and willow, encroaches upon buildings and formerly barren hillsides, particularly in the central part of the site and northeast mill town area, obscuring both historic landscape features (such as gardens) and vistas (such as the general approach to the mill town and view from the

National Creek footbridge). More importantly, overgrowth in the National Creek area has entirely removed indications of its central function to Kennecott's operation.

4.2.2 Future Projects and Actions

The following reasonably foreseeable future actions have potential for interacting with the proposed action to produce cumulative impacts. These include actions that could occur on non-NPS lands in the area.

McCarthy Road upgrades: AKDOT will continue to upgrade the McCarthy Road. Upgrades will include brushing, widening, and resurfacing on some segments.

University of Alaska Lands: Additional University lands in the McCarthy area have been surveyed but not sold. These lands may become available in the future for sale or lease.

Private subdivision lots in the Kennecott millsite: Private lots may change hands and currently undeveloped lots may be developed.

Park visitation: NPS estimates approximately 12,000 visitors annually to the McCarthy/Kennecott area. Future trends are dependent on area transportation. McCarthy road upgrades will likely result in an upward trend in visitation to the area.

4.3 Water Resources

4.3.1 Alternative 1, No Action

Direct and Indirect Effects: Under the No Action Alternative, no new actions are planned that would contribute negative impacts to water resources. However, the lack of action to improve existing facilities could lead to adverse impacts on water resources.

There would be no improvement of existing trails or circulation routes under this alternative. The cut bank washout that currently exists on the old Wagon Road just south of National Creek would not be repaired and several existing trails are overgrown and in poor condition. Increased sediment loads from erosion of these trails could degrade the surface water quality of National Creek and other nearby streams. Given the high sediment load that exists naturally in National Creek (see Chapter 3), this would be considered a low-intensity impact of temporary duration.

Lack of sufficient public toilets on the north side of the NHL, specifically along the Root Glacier trail, could lead to surface water contamination with fecal coliform bacteria from improper disposal of human waste near streams. This would be considered a medium-intensity impact of temporary duration, affecting an important public resource within the NHL.

Under the No Action alternative, there would be no monitoring or control of invasive plant species. Existing infestations would be expected to spread. White sweetclover and other invasive plant species that have been documented in the NHL have been shown to have adverse impacts on watersheds. A 2011 study done on three Alaskan glacial rivers showed that white sweetclover at moderate to low densities may facilitate establishment of exotic species, and at high densities can reduce the cover and density of both exotic and native species (Conn et. al., 2011).

Under the No Action alternative, there would be no attempt at education or regulation of recreational ORV use. Without education of this user group, recreational ORV use in the area would be expected to increase. Increased recreational ORV use up the Jumbo trail could lead to impacts in the headwaters of Bonanza Creek. Some increased sediment runoff would be expected for trail routes that cross or are very near streams. The dispersion of increased suspended sediment in the short term from trail-stream crossings is fairly limited based on some Alaskan studies (Meyers et al. 2007, and Rinella and Bogan 2003). They found that most extended increase in turbidity occurred within about 10 to 30 meters of an ORV crossing, with little or no observed change at 100 meters from a crossing in most cases. Also effects on benthic organisms appeared to be limited in a similar fashion (Rinella and Bogan, 2003). During seasonal high flows sediment would disperse further downstream, both as suspended sediment, and larger particles as bed load, which would occur in a period of normally elevated sediment levels in streams, reducing its effect. Based on these factors, impacts to water resources from ORV trail use would be considered temporary in duration, low in intensity, but occurring to an important area resource.

Because the impacts described above are generally temporary in nature and low intensity, the overall direct and indirect impacts to water resources are minor.

Cumulative Effects: Past impacts to area water resources described in section 4.2.1 of this document have had a long-term positive impact on stream channel stability in National Creek.

The following reasonably foreseeable actions could affect water resources:

Private subdivision lots in the Kennecott millsite: Private lots may change hands and currently undeveloped lots may be developed. Depending on the proximity to area streams, private development

can impact water resources through land clearing, potential erosion, and proximity of outhouses or septic systems.

Park visitation: NPS estimates approximately 12,000 visitors annually to the McCarthy/Kennecott area. Future trends are dependent on area transportation. McCarthy road upgrades will likely result in an upward trend in visitation to the area. Increased visitation to Kennecott without improvement of the current availability or quality of toilets could result in an increase of human waste deposited near streams.

These reasonably foreseeable actions contribute a moderate negative impact to water resources in the NHL because of the potential for impacts to water quality that could directly affect the availability of drinking water to some area residents. The cumulative impact of this alternative plus these past, present, and reasonably foreseeable actions would be moderate.

Conclusion: Direct and indirect effects of Alternative 1 on water resources would be minor because of the temporary duration and low intensity of the impacts. However, combined with past, present, and reasonably foreseeable actions, impacts to water resources are moderate.

4.3.2 Alternative 2, Proposed Action

Direct and Indirect Effects: Under this alternative, historic structures would be managed to reflect a diversity of treatments. Some structures would be managed as ruins and allowed to deteriorate in place, some would be stabilized and preserved, and some would be rehabilitated to accommodate adaptive reuse. Detailed proposals for building stabilization are described on pp. 22 – 40 of this EA. Some historic structure stabilization efforts require the use of heavy equipment. Any equipment with tracks or exceeding 50 tons cannot use the railroad trestle for crossing National Creek and must utilize a low water crossing just east of the trestle. Operation of heavy equipment through or around National Creek contributes some sedimentation to the creek. Because of the naturally high sediment level in National Creek, this is a low intensity and temporary impact.

In 2010, National Creek was re-channelized in order to prevent future flooding and further damage to historic structures along the creek. Engineering for stream re-channelization identified the need for the periodic removal of sediment. Removal will require periodic excavation from the stream bed to retain its current configuration. Excavation will require the use of heavy equipment such as backhoes and dump trucks. This operation, while removing deposited sediments and gravels, would also release large amounts of suspended sediments downstream. Because of the naturally high sediment level in National Creek and the position of this activity in the watershed, this is a low intensity and temporary impact.

Vegetation clearing is proposed around historic structures in order to reduce fire hazard and some limited vegetation clearing is proposed to enhance viewsheds. Vegetation clearing reduces plant cover and exposes soils to rainfall and runoff, thereby increasing the likelihood of soil erosion and potential sedimentation into adjacent streams. However, proposed clearing would leave herbaceous shrubs and grasses in place and would occur on such a small scale that impacts would be considered low in intensity, and long-term in duration. Revegetation of native species may occur along watersheds which would increase bank stability.

Invasive plant species management would be consistent with the 2010 Alaska Region Invasive Plant Management Plan. For the Kennecott/McCarthy area this would include monitoring and the use of physical control. If infestations are resistant to physical control, spot treatments of herbicides would be considered based on risk analysis considering factors such as proximity to vegetation harvested by humans; the likelihood of affecting sensitive fish or wildlife habitat; and the likelihood of affecting watershed drinking water. Herbicide use would be subject to mitigation measures identified in Appendix H of this EA. The effects analysis for water resources described in the 2010 NPS Alaska Region Invasive

Plant Management Plan and EA is incorporated into this EA by reference. The 2010 EA found that the preferred alternative would have a minor impact on water resources and that “the short-term adverse effects of herbicides used to reduce or eliminate unwanted invasive plants will be outweighed by the long-term beneficial effects on native plant species and ecosystem integrity and wetlands and floodplain functions.” (NPS, 2010).

Improvements to existing circulation routes (such as the cut-bank washout on the old Wagon Road just south of National Creek) should stabilize the washout and minimize sedimentation into National Creek from that site. This alternative proposes a 3.5 mile pedestrian trail to the NHL from the footbridge over the east (dry) fork of Kennicott River. This trail would follow the glacial moraine and require minimal tread construction. On the north end, the trail would tie in with the old Wagon Road, so a crossing of National Creek would not be required. Any impacts to water resources from construction or pedestrian use of this trail would be temporary in nature and low intensity.

Installation of a vault toilet north of the NHL along the Root Glacier trail and relocation/reconstruction of the existing Jumbo Creek outhouse would minimize surface water contamination with fecal coliform bacteria from improper disposal of human waste near streams.

Because the impacts described above are generally temporary in nature and low intensity, the overall direct and indirect impacts to water resources are minor.

Cumulative Effects: Past impacts to area water resources described in section 4.2.1 of this document have had a long-term positive impact on stream channel stability in National Creek.

Reasonably foreseeable actions that could affect water resources are described below:

Private subdivision lots in the Kennecott millsite: Private lots may change hands and currently undeveloped lots may be developed. Depending on the proximity to area streams, private development can impact water resources through land clearing, potential erosion, and proximity of outhouses or septic systems.

Park visitation: NPS estimates approximately 12,000 visitors annually to the McCarthy/Kennecott area. Future trends are dependent on area transportation. McCarthy road upgrades will likely result in an upward trend in visitation to the area. Benefits associated with the proposed water system (flush toilets at the Company Store and availability of potable water) and the installation of a vault toilet along the Root Glacier trail would mitigate potential impacts to water quality from increased visitation.

These reasonably foreseeable actions contribute a minor negative impact to water resources in the NHL. The cumulative impact of this alternative plus these past, present, and reasonably foreseeable actions would be minor.

Conclusion: Direct and indirect effects of Alternative 2 on water resources would be minor because of the temporary duration and low intensity of the impacts. Combined with past, present, and reasonably foreseeable actions, impacts to water resources are minor.

4.3.3 Alternative 3, Management Concepts

Direct and Indirect Effects: Under this alternative, most historic structures would be managed within the “preservation” class of the *Secretary of Interior’s Standards for Treatment of Historic Properties*. Treatments would emphasize interior stabilization and (where necessary) re-roofing, but would not include re-painting or window replacement. Detailed proposals for building stabilization are described on pp. 49 - 53 of this EA. Some historic structure stabilization efforts would require the use of heavy equipment. Any equipment with tracks or exceeding 50 tons cannot use the railroad trestle for

crossing National Creek and must utilize a low water crossing just east of the trestle. Operation of heavy equipment through or around National Creek contributes some sedimentation to the creek. Because of the naturally high sediment level in National Creek, this is a low intensity and temporary impact.

In 2010, National Creek was re-channelized in order to prevent future flooding and further damage to historic structures along the creek. Engineering for stream re-channelization identified the need for the periodic removal of sediment. Removal will require periodic excavation from the stream bed to retain its current configuration. Excavation will require the use of heavy equipment such as backhoes and dump trucks. This operation, while removing deposited sediments and gravels, would also release large amounts of suspended sediments downstream. Because of the naturally high sediment level in National Creek and the position of this activity in the watershed, this is a low intensity and temporary impact.

Vegetation clearing is only proposed under this alternative in association with maintaining existing circulation routes. There would be no impacts to water resources associated with these activities.

The NHL would continue to be monitored for invasive plants and populations of such would be manually removed, with no use of herbicides. Physical control of existing invasive plant infestations in the area should result in control and containment of invasive plant species. If not, moderate to low densities of invasive species (specifically white sweetclover) may facilitate establishment of exotic species in riparian areas, and at high densities can reduce the cover and density of both exotic and native species (Conn et. al., 2011). This could result in long-term and medium intensity impacts to riparian areas.

Improvements to existing circulation routes (such as the cut-bank washout on the old Wagon Road just south of National Creek) should stabilize the washout and minimize sedimentation into National Creek from that site. This alternative proposes a 3.5 mile pedestrian trail NPS will construct a 3.5 mile pedestrian trail to the NHL from the footbridge over the east (dry) fork of Kennicott River. This trail would follow the glacial moraine and require minimal tread construction. On the north end, the trail would tie in with the old Wagon Road, so a crossing of National Creek would not be required. Any impacts to water resources from construction or pedestrian use of this trail would be temporary in nature and low intensity. This alternative explores the potential for other pedestrian trails in the area. Design and construction of these trails would need to be considered in another NEPA compliance document, but some of the proposed trails would require brushing, tread construction, and creek crossings.

Under this alternative, no improved water system would be designed or constructed. The focus would be on looking at solar as an alternative means of supplementing diesel powered generators. A vault toilet would be installed north of the NHL along the Root Glacier trail and the existing Jumbo Creek outhouse would be relocated/reconstructed. These actions would minimize surface water contamination with fecal coliform bacteria from improper disposal of human waste near streams.

Because the impacts described above are generally temporary in nature and low intensity, the overall direct and indirect impacts to water resources are minor.

Cumulative Effects: Past impacts to area water resources described in section 4.2.1 of this document have had a long-term positive impact on stream channel stability in National Creek.

The following reasonably foreseeable actions could affect water resources:

Private subdivision lots in the Kennecott millsite: Private lots may change hands and currently undeveloped lots may be developed. Depending on the proximity to area streams, private development can impact water resources through land clearing, potential erosion, and proximity of outhouses or septic systems.

Park visitation: NPS estimates approximately 12,000 visitors annually to the McCarthy/Kennecott area. Future trends are dependent on area transportation. McCarthy road upgrades will likely result in an upward trend in visitation to the area. Increased visitation to Kennecott without improvement of the current availability or quality of toilets could result in an increase of human waste deposited near streams.

These reasonably foreseeable actions contribute a moderate negative impact to water resources in the NHL because of the potential for impacts to water quality that could directly affect the availability of drinking water to some area residents. The cumulative impact of this alternative plus these past, present, and reasonably foreseeable actions would be moderate.

Conclusion: Direct and indirect effects of Alternative 3 on water resources would be minor because of the temporary duration and low intensity of the impacts. However, combined with past, present, and reasonably foreseeable actions, impacts to water resources are moderate.

4.3.4 Alternative 4, Restoration

Direct and Indirect Effects: Under this alternative, historic structures within the Administrative Core zone would be restored or reconstructed to replicate 1938 conditions. Detailed proposals for building stabilization are described on pp. 59 - 64 of this EA. The restoration and reconstruction of the Staff House, Stephen Birch house, and Manager's residence, which currently no longer exist, would require the use of heavy equipment for extensive site preparation. Site preparation and leveling for all three of these locations would be uphill and close to National Creek. These activities would result in some sedimentation into National Creek. Additionally, any equipment with tracks or exceeding 50 tons cannot use the railroad trestle for crossing National Creek and must utilize a low water crossing just east of the trestle. Operation of heavy equipment through or around National Creek contributes some sedimentation to the creek.

In 2010, National Creek was re-channelized in order to prevent future flooding and further damage to historic structures along the creek. Engineering for stream re-channelization identified the need for the periodic removal of sediment. Removal will require periodic excavation from the stream bed to retain its current configuration. Excavation will require the use of heavy equipment such as backhoes and dump trucks. This operation, while removing deposited sediments and gravels, would also release large amounts of suspended sediments downstream. The combined effect of the activities described in the last two paragraphs, while temporary in duration, would have a measurable effect on the resource condition of National Creek and would result in medium intensity impact.

Extensive vegetation clearing is proposed in the Administrative, Commercial, and Industrial Zones of the NHL, in order to replicate 1938 conditions. Vegetation clearing on this scale would eliminate plant cover and expose soils to rainfall and runoff, thereby resulting in soil erosion and sedimentation into National Creek. This would result in long-term and medium intensity impacts to National Creek.

Invasive plant species management would be consistent with the 2010 Alaska Region Invasive Plant Management Plan. For the Kennecott/McCarthy area this would include monitoring and the use of physical control. If infestations are resistant to physical control, spot treatments of herbicides would be considered based on risk analysis considering factors such as proximity to vegetation harvested by humans; the likelihood of affecting sensitive fish or wildlife habitat; and the likelihood of affecting watershed drinking water. Herbicide use would be subject to mitigation measures identified in Appendix H of this EA. The effects analysis for water resources described in the 2010 NPS Alaska Region Invasive Plant Management Plan and EA is incorporated into this EA by reference. The 2010 EA found that the preferred alternative would have a minor impact on water resources and that "the short-term adverse effects of herbicides used to reduce or eliminate unwanted invasive plants will be outweighed by the long-

term beneficial effects on native plant species and ecosystem integrity and wetlands and floodplain functions.” (NPS, 2010).

Improvements to existing circulation routes (such as the cut-bank washout on the old Wagon Road just south of National Creek) should stabilize the washout and minimize sedimentation into National Creek from that site. This alternative proposes a 3.5 mile pedestrian trail NPS will construct a 3.5 mile pedestrian trail to the NHL from the footbridge over the east (dry) fork of Kennicott River. This trail would follow the glacial moraine and require minimal tread construction. On the north end, the trail would tie in with the old Wagon Road, so a crossing of National Creek would not be required. Any impacts to water resources from construction or pedestrian use of this trail would be temporary in nature and low intensity.

Under this alternative, a water system would be designed and constructed to provide potable water for visitor use and for NPS facilities in Kennecott milltown. The water system would also provide water for limited fire suppression (sprinkler systems) in some historic structures. At this time, NPS is still exploring the potential for the use of groundwater as the source of water for a new system. Once NPS has enough information to consider design alternatives, a project-specific EA will be done considering site-specific effects on water resources.

This alternative also proposes alternative energy focusing on development of a hydroelectric system. The water resource demands associated with such a system are not yet known, so specific direct and indirect impacts are not displayed here. Effects of a hydroelectric system are considered under cumulative impacts (reasonably foreseeable actions).

Installation of a vault toilet north of the NHL along the Root Glacier trail and relocation/reconstruction of the Jumbo Creek outhouse would minimize surface water contamination with fecal coliform bacteria from improper disposal of human waste near streams.

The impacts described above vary from temporary in nature and low intensity to long-term and medium intensity. Because impacts would have a measurable effect on an important resource condition, impacts to water resources would be considered moderate.

Cumulative Effects: Past impacts to area water resources described in section 4.2.1 of this document have had a long-term positive impact on stream channel stability in National Creek.

The following reasonably foreseeable actions could affect water resources:

Private subdivision lots in the Kennecott millsite: Private lots may change hands and currently undeveloped lots may be developed. Depending on the proximity to area streams, private development can impact water resources through land clearing, potential erosion, and proximity of outhouses or septic systems.

Park visitation: NPS estimates approximately 12,000 visitors annually to the McCarthy/Kennecott area. Future trends are dependent on area transportation. McCarthy road upgrades will likely result in an upward trend in visitation to the area. Benefits associated with the proposed water system (flush toilets at the Company Store and availability of potable water) and the installation of a vault toilet along the Root Glacier trail would mitigate potential impacts to water quality from increased visitation.

Installation of a hydroelectric system: Such a system would require long-term withdrawal of water out of National or Bonanza Creek, an impact of long-term duration that would result in a measurable change in resource condition.

These reasonably foreseeable actions contribute a moderate negative impact to water resources in the NHL. The cumulative impact of this alternative plus these past, present, and reasonably foreseeable actions would be moderate.

Conclusion: Direct and indirect effects of Alternative 4 on water resources would be moderate because of the long-term nature and medium intensity of some of the impacts. Combined with past, present, and reasonably foreseeable actions, impacts to water resources would be moderate.

4.4 Vegetation

4.4.1 Alternative 1, No Action:

Direct and Indirect Effects: Under the No Action Alternative, stabilization of historic structures would stop. Only cyclic maintenance would occur. Cyclic maintenance of historic structures might require occasional removal of vegetation that is causing damage to structures or that obstructs access for siding replacement, painting, etc. This would amount to less than an acre of vegetation and would be a long-term but low intensity impact.

No vegetation clearing is proposed for fire protection or to enhance scenic views.

No monitoring or control of invasive plant species would occur. Existing infestations of invasive plants would be expected to spread. At moderate to heavy levels of infestation, invasive plant species decrease native plant species cover and diversity and can change ecosystem processes (soil nutrient cycles, natural succession, frequency of wildfire). This could result in long-term and high-intensity impacts to area vegetation.

There would be no improvement of existing trails or circulation routes under this alternative and no vegetation clearing in association with new trail construction would occur.

Under the No Action alternative, there would be no attempt at education or regulation of recreational ORV use. Without education of this user group, recreational ORV use in the area would be expected to increase. Increased recreational ORV use up the Jumbo trail could lead to impacts in the headwaters of Bonanza Creek. Use of ORVs off existing trails can result in disturbance to vegetation, including direct mortality, reduction in plant cover and biomass, soil compaction, and alterations in soil composition (NPS, 2011). ORV trail corridors often become vectors for dispersal of exotic plant species (Loomis and Lieberman, 2006). ORVs can disperse seeds and other reproductive plant parts through dirt and debris stuck in tire treads, wheel wells, or along the undercarriage. ORVs may increase the rate of invasion by exotic plants through seed dispersal and through disruption and disturbance of native plant communities, which allow exotic plants to become more easily established.

Because lack of control of invasive species could lead to long-term and medium intensity impacts, the overall direct and indirect impacts to vegetation are considered moderate.

Cumulative Effects: Past impacts to area vegetation described in section 4.2.1 of this document have had short-term, medium-intensity impacts on area vegetation. These have resulted in minor impacts to vegetation in the area.

The following reasonably foreseeable actions could affect vegetation:

Private subdivision lots in the Kennecott millsite: Private lots may change hands and currently undeveloped lots may be developed. Private development can impact vegetation resources through land clearing and long-term conversion of vegetation types. Although not predicted to occur on a large

number of acres, these impacts would be permanent and of a medium duration (impact results in a measurable change in resource condition).

University of Alaska lands: Sale and development of additional University lands would impact vegetation through land clearing and long-term conversion of vegetation types. These impacts would be permanent and of a medium duration.

McCarthy Road Improvements: Minor improvements and widening is proposed on the State right-of-way between McCarthy and Kennecott. Vegetation clearing associated with road improvements would be a long-term impact of medium intensity.

Park visitation: NPS estimates approximately 12,000 visitors annually to the McCarthy/Kennecott area. Future trends are dependent on area transportation. McCarthy road upgrades will likely result in an upward trend in visitation to the area. Increased visitation without trail improvements would result in increased numbers of social trails in the area, with associated soil compaction and vegetation trampling. Impacts would be temporary and of a low intensity.

These reasonably foreseeable actions contribute a moderate negative impact to vegetation in the NHL. The cumulative impact of this alternative plus these past, present, and reasonably foreseeable actions would be moderate.

Conclusion: Direct and indirect effects of Alternative 1 on vegetation would be moderate because of the long-term nature and medium intensity impacts associated with the lack of invasive species control. Combined with past, present, and reasonably foreseeable actions, impacts to vegetation would be moderate.

4.4.2 Alternative 2, Proposed Action

Direct and Indirect Effects:

Vegetation clearing is proposed around historic structures in order to reduce fire hazard and some limited vegetation clearing is proposed to enhance viewsheds. For fire clearing, all white spruce within 30' of buildings would be removed; spruce would be limbed 10' high within 100' of buildings; and all woody vegetation within 5' of buildings would be removed. Removal of spruce trees and all woody vegetation would decrease plant cover and alter plant composition within those areas. Herbaceous plant cover would be left in place. If not repeated on a regular cycle, these actions will result in alder and willow re-sprouting into cleared areas. Proposed fire protection treatments would amount to 1.22 acres of vegetation impacted.

Selective thinning to improve viewsheds would result in removal of some individual trees and shrubs, a decrease in plant cover, and an alteration of plant composition. Herbaceous plant cover would be left in place. Proposed selective thinning would result in 0.8 acres of vegetation impacted. Vegetation clearing would occur to define the first portion of the aerial tramway (from the tram terminus). Clearing would remove all trees and shrubs for a 20-foot wide swath for approximately 600 feet, resulting in 0.28 acres of vegetation removal. Herbaceous plant cover would be left in place. Because vegetation clearing for fire protection and improved viewshed will be maintained over time, the associated impacts would be considered a long-term impact of low intensity.

Proposed improvements (including housing, cabanas, and communications support) at the recently acquired airport lot would result in permanent removal of 2 – 3 acres of vegetation. This represents a permanent, medium intensity impact on a common park resource.

Invasive plant species management would be consistent with the 2010 Alaska Region Invasive Plant Management Plan. For the Kennecott/McCarthy area this would include monitoring and the use of physical control. If infestations are resistant to physical control, spot treatments of herbicides would be considered based on risk analysis considering factors such as proximity to vegetation harvested by humans; the likelihood of affecting sensitive fish or wildlife habitat; and the likelihood of affecting watershed drinking water. Herbicide use would be subject to mitigation measures identified in Appendix H of this EA. The effects analysis for vegetation described in the 2010 NPS Alaska Region Invasive Plant Management Plan and EA is incorporated into this EA by reference. Where herbicides are used, non-target plants subjected to drift or interspersed with the target invasive plant could experience no effect, reduced vigor, or death depending on the sensitivity of the plant species to the specific herbicide and the dose to which the plant was subjected. Infrequent impacts to individual plants generally have negligible to minor impacts on plant populations, plant communities, or ecological processes. The impacts of pesticide use on vegetation resources would therefore be directly adverse, site-specific, short-term, and negligible to minor.

Improvements to existing circulation routes (such as the old Wagon Road just south of National Creek) would result in vegetation clearing on less than one acre. This alternative proposes a 3.5 mile pedestrian trail to the NHL from the footbridge over the east (dry) fork of Kennicott River. This trail would follow the glacial moraine and require minimal tread construction and vegetation clearing. Impacts to vegetation associated with these activities would be long-term in duration (because the trails would be maintained) but low in intensity.

Under this alternative, a water system would be designed and constructed to provide potable water for visitor use and for NPS facilities in Kennecott milltown. The water system would also provide limited fire suppression (sprinklers) in some historic structures. At this time, NPS is still exploring the potential for the use of groundwater. Once NPS has enough information to consider design alternatives, a project-specific EA will be done considering site-specific effects on water resources.

Development of a walk-in campground with designated tent sites, vault toilets, bear-proof trash receptacles, and a centralized food preparation and eating area would result in vegetation disturbance (trampling or removal) of approximately 0.25 acres. Impacts to vegetation would be long-term in duration but low in intensity.

Installation of a vault toilet north of the NHL along the Root Glacier trail and relocation/reconstruction of the existing Jumbo Creek outhouse would require very little vegetation clearing.

All together, the activities described above would result in vegetation clearing or thinning on about 5.0 acres within the NHL. Associated impacts are generally long-term, low to moderate intensity, and affect a common park resource. Consequently, direct and indirect impacts to vegetation associated with this alternative are considered moderate.

Cumulative Effects: Same as described for Alternative 1, resulting in moderate impacts to vegetation from past and reasonably foreseeable actions.

Conclusion: Direct and indirect effects of Alternative 2 on vegetation would be moderate because they are generally long-term, low to medium intensity, and affect a common park resource. Combined with past, present, and reasonably foreseeable actions, impacts to vegetation would be moderate.

4.4.3 Alternative 3, Management Concepts

Direct and Indirect Effects: Under this alternative, most historic structures would be managed within the “preservation” class of the *Secretary of Interior’s Standards for Treatment of Historic Properties*.

Treatments would emphasize interior stabilization and (where necessary) re-roofing, but would not include re-painting or window replacement. Historic structure stabilization might require occasional removal of vegetation that obstructs access or stabilization efforts. This would amount to less than an acre of vegetation and would be a long-term but low intensity impact.

Vegetation clearing is only proposed under this alternative in association with maintaining existing circulation routes. This would consist of periodic clearing of shrubs or small trees that have grown into the trail. This would amount to a fraction of an acre, would be of temporary duration and low intensity.

Under this alternative, no permanent housing would be constructed at the recently acquired airport lot. The lot would be used for seasonal housing (cabanas) and communications. Vegetation removal would be required on approximately 1 acre.

The NHL would continue to be monitored for invasive plants and populations of such would be manually removed, with no use of herbicides. Physical control of existing invasive plant infestations in the area should result in control and containment of invasive plant species. If not, moderate to low densities of invasive species may facilitate establishment of exotic species and at high densities can reduce the cover and density of both exotic and native species. This could result in long-term and medium intensity impacts to area vegetation.

This alternative proposes a 3.5 mile pedestrian trail to the NHL from the footbridge over the east (dry) fork of Kennicott River. This trail would follow the glacial moraine and require minimal tread construction and vegetation clearing. This alternative explores the potential for approximately 4 miles of other pedestrian trails in the area. Design and construction of these trails would need to be considered in another NEPA compliance document, but some of the proposed trails would require brushing, tread construction, and creek crossings. Assuming the need for trail clearance and vegetation removal on all four miles and a 4-foot clearing width, this would result in long-term cutting and removal of 1.97 acres of shrubs and/or trees. Herbaceous ground cover would only be removed for trail tread construction, if necessary. These impacts would result in long-term and low intensity impact to vegetation.

Under this alternative, no improved water system would be designed or constructed.

Because the impacts described above are generally low intensity and effect a common park resource, the overall direct and indirect impacts to vegetation are minor.

Cumulative Effects: Same as described for Alternative 1, resulting in moderate impacts to vegetation from past and reasonably foreseeable actions.

Conclusion: Direct and indirect effects of Alternative 3 on vegetation would be minor because they are generally long-term, low intensity, and affect a common park resource. Combined with past, present, and reasonably foreseeable actions, impacts to vegetation would be moderate.

4.4.4 Alternative 4, Restoration

Direct and Indirect Effects: Under this alternative, historic structures within the Administrative Core zone would be restored or reconstructed to replicate 1938 conditions. Detailed proposals for building stabilization are described on pp. 59 - 64 of this EA. Historic structure stabilization would require occasional removal of vegetation that obstructs access or stabilization efforts. This would amount to less than an acre of vegetation and would be a long-term but low intensity impact.

Extensive vegetation clearing is proposed in the Administrative, Commercial, and Industrial Zones of the NHL, in order to replicate 1938 conditions. Vegetation clearing on this scale would eliminate all shrubs and trees within NPS-owned portions of the Industrial and Administrative core zones. Herbaceous

vegetation would be left to provide ground cover. This would result in a long-term and high intensity impact on 9.55 acres of existing vegetation.

Vegetation clearing is proposed around historic structures in order to reduce fire hazard and some limited vegetation clearing is proposed to enhance viewsheds. For fire clearing, all white spruce within 30' of buildings would be removed; spruce would be limbed 10' high within 100' of buildings; and all woody vegetation within 5' of buildings would be removed. Removal of spruce trees and all woody vegetation would decrease plant cover and alter plant composition within those areas. Herbaceous plant cover would be left in place. If not repeated on a regular cycle, these actions will result in alder and willow re-sprouting into cleared areas. Proposed fire protection treatments falling outside of the 9.55 acres in the Industrial and Administrative core zones described above would amount to 0.25 acres of vegetation impacted.

Selective thinning to improve viewsheds would result in removal of some individual trees and shrubs, a decrease in plant cover, and an alteration of plant composition. Only 0.2 acres of vegetation outside of the cleared acres in the Industrial and Administrative core zones would be affected by selective thinning. Vegetation clearing would occur to define the first portion of the aerial tramway (from the tram terminus). Clearing would remove all trees and shrubs for a 20-foot wide swath for approximately 600 feet, resulting in 0.28 acres of vegetation removal. Herbaceous plant cover would be left in place.

Proposed improvements (including housing, cabanas, and communications support) at the recently acquired airport lot would result in permanent removal of 2 – 3 acres of vegetation. This represents a permanent, medium intensity impact on a common park resource.

Invasive plant species management would be consistent with the 2010 Alaska Region Invasive Plant Management Plan. For the Kennecott/McCarthy area this would include monitoring and the use of physical control. If infestations are resistant to physical control, spot treatments of herbicides would be considered based on risk analysis considering factors such as proximity to vegetation harvested by humans; the likelihood of affecting sensitive fish or wildlife habitat; and the likelihood of affecting watershed drinking water. Herbicide use would be subject to mitigation measures identified in Appendix H of this EA. The effects analysis for vegetation described in the 2010 NPS Alaska Region Invasive Plant Management Plan and EA is incorporated into this EA by reference. Where herbicides are used, non-target plants subjected to drift or interspersed with the target invasive plant could experience no effect, reduced vigor, or death depending on the sensitivity of the plant species to the specific herbicide and the dose to which the plant was subjected. Infrequent impacts to individual plants generally have negligible to minor impacts on plant populations, plant communities, or ecological processes. The impacts of pesticide use on vegetation resources would therefore be directly adverse, site-specific, short-term, and negligible to minor.

Improvements to existing circulation routes and the construction of boardwalks in the Industrial and Administrative core zones proposed under this alternative would occur in areas already cleared (as described above) to replicate 1938 conditions. This alternative proposes a 3.5 mile pedestrian trail to the NHL from the footbridge over the east (dry) fork of Kennicott River. This trail would follow the glacial moraine and require minimal tread construction and vegetation clearing. Impacts to vegetation associated with this trail would be long-term in duration but low in intensity.

Under this alternative, a water system would be designed and constructed to provide potable water for visitor use and for NPS facilities in Kennecott milltown. The water system would also provide limited fire suppression (sprinklers) in some historic structures. At this time, NPS is still exploring the potential for the use of groundwater. Most distribution or collection lines associated with such a system would likely occur within the Industrial or Administrative core areas where vegetation would be removed to replicate 1938 conditions as described above. Once NPS has enough information to consider design

alternatives for a water system, a project-specific EA will be done considering site-specific effects on vegetation.

Development of a walk-in campground with designated tent sites, vault toilets, bear-proof trash receptacles, potable water, and a centralized food preparation and eating area would result in vegetation disturbance (trampling or removal) of approximately 0.25 acres. Impacts to vegetation would be long-term in duration but low in intensity.

Installation of a vault toilet north of the NHL along the Root Glacier trail and relocation/reconstruction of the existing Jumbo Creek outhouse would require very little vegetation clearing.

All together, the activities described above would result in vegetation clearing or thinning on about 13.25 acres within the NHL. The dominant impact is that of the 9.55 acres cleared to replicate 1938 conditions. This would result in a long-term, high intensity impact that affects a common park resource. Consequently, direct and indirect impacts to vegetation associated with this alternative are considered moderate.

Cumulative Effects: Past, present, and reasonably foreseeable actions and impacts are the same as described for Alternative 1 and would result in moderate impacts to area vegetation.

Conclusion: Direct and indirect effects of Alternative 4 on vegetation would be moderate because the large-scale clearing represents a long-term, high intensity impact that affects a common park resource. Combined with past, present, and reasonably foreseeable actions, impacts to vegetation would be moderate.

4.5 Cultural Resources

4.5.1 Methodology

This analysis assumes compliance with the national and site-specific NHL programmatic agreements between NPS and SHPO (See Appendices D and E, respectively). Specifically, the programmatic agreement regarding stabilization, rehabilitation, reconstruction, and maintenance of structures at Kennecott Mines National Historic Landmark states: “Undertakings associated with stabilization, rehabilitation, reconstruction, adaptive reuse, and ongoing maintenance of historic structures listed here will be reviewed for Section 106 purposes within WRST without further review by the SHPO or ACHP provided:

1. That these undertakings are based upon information adequate to identify and evaluate affected cultural resources;
2. That WRST finds that their effects on cultural resources in the NHL will not be adverse based on criteria in 36 CFR, 800.6;
3. That stabilization, rehabilitation, reconstruction and maintenance is compatible with the historic and architectural qualities of Kennecott Mines NHL in terms of scale, massing, color, and materials, and applicable policies, guidelines, and standards as identified in the *Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings...*”

Under any alternative, compliance with the programmatic agreements insures that proposed actions will not have an adverse effect on cultural resources in the NHL, or the adverse effect will be mitigated through consultation with SHPO. While an individual action may not result in a negative impact to an

historic property, successive actions to one or more may result in an Adverse Effect to the cultural landscape as a whole.

4.5.2 Alternative 1, No Action

Direct and Indirect Effects, Cultural Landscapes:

Under the No Action Alternative, stabilization of historic structures would stop. Only cyclic maintenance would occur. Table 4-1 summarizes the individual building treatments under Alternative 1 for NPS-owned historic structures and the anticipated effects of the treatment/non-treatment:

Table 4-1: Effects of Alternative 1 on historic structures

Historic Structure	Treatment	Effect
Concentration mill and tram terminus	Lower levels 1 – 7 stabilized. No further treatment on upper levels or tram terminus	Deterioration and possible collapse of upper portion of building
Leaching plant (north section)	Foundation replacement, repairs to floor and wall structure.	Stabilized building will remain a significant cultural landscape feature.
Leaching plant (south section)	No interior false-work/rigging	Potential collapse of south section onto the railroad corridor or into the north addition.
Power plant	Stabilization complete	Stabilized building will remain a significant cultural landscape feature
Machine shop	Stabilization complete on main structure. No stabilization of service decks.	Stabilized building will remain a significant cultural landscape feature; service decks will collapse
Store and Warehouse	Stabilization complete; no further work for adaptive re-use of structure.	Stabilized building will remain a significant cultural landscape feature.
Manager's Office	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
National Creek Bunkhouse	No re-roofing or interior reinforcement of building	Deterioration and possible collapse
West Bunkhouse	New foundation and stabilization complete; no interior work.	Stabilized building will remain a significant cultural landscape feature.
Schoolhouse	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
Assay Office	Impacted by 2006 flood; demolished in 2010 by NPS to accommodate the National Creek streambed work	Loss of a cultural landscape feature.
Recreation Hall	Stabilization complete	Stabilized building will remain a significant cultural landscape feature
Depot	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
Refrigerator plant	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
Other historic structures acquired by NPS since 2001		
Hospital	Foundation stabilized; no interior false-work or new roofing	Deterioration and possible collapse
Transformer House	Re-roofing, new foundation; no new windows	Stabilized building will remain a cultural landscape feature
Old Schoolhouse	Stabilization complete	Stabilized building will remain a cultural landscape feature

Dairy Barn	Stabilization complete	Stabilized building will remain a cultural landscape feature
East Bunkhouse	Foundation replacement done; no roof replacement	Deterioration
Silk Stocking Cottages (2)	Stabilization complete	Being adaptively used as housing. Stabilized buildings will remain a cultural landscape feature.
Cottage 39C, Lot 88	Stabilization complete	Stabilized building will remain a cultural landscape feature.
Cottage 13C, Lot 80	No stabilization	Structure will deteriorate and/or collapse
Cottage 39B, Lot 87	Structure collapsed from heavy snowload in 2012.	Ruins will deteriorate.

Archeological Features: This alternative would take no action to proactively preserve archeological resources contributing to the character and interpretation of the NHL. However, it would require the least amount of removal/relocation of archeological features because it proposes the least amount of historic structure stabilization.

Circulation systems: This alternative would not maintain circulation systems such as historic roads or trails. It does not propose re-construction of any boardwalks.

Small scale features: This alternative does not propose the restoration of any small scale features.

Fire risk: No improvement is proposed for a water system under this alternative. Fire suppression capabilities would remain as they are (very limited). No vegetation clearing would be done around historic structures. The potential exists for arson or wildland fire resulting in loss of historic structures.

Overall, this alternative proposes the fewest actions that would stabilize, preserve, and interpret the key patterns, relationships, and remaining structures and features that define the historic, cultural and natural character of the NHL. Conversely, this alternative has less potential to result in removal of archeological features as a result of historic structure stabilization and/or introduction of non-historic elements (such as water tanks or water lines) into the cultural landscape.

Actions Outside of the NHL: For actions outside of the NHL, cultural resource surveys would be conducted prior to any projects being implemented. Evaluation of potential impacts to cultural resources would occur consistent with NEPA and with section 106 of NHPA. This alternative does not propose any actions outside the NHL that could potentially effect cultural resources.

Cumulative Effects: Past stabilization efforts described in section 4.2.1 of this document have had a direct positive impact on the historic structures. Stabilization of historic structures requires removal of adjacent tailings, wood scatters, and archeological features. While inventoried and documented during the removal process, loss of these features constitutes a negative impact on the cultural landscape.

The following reasonably foreseeable actions could affect cultural resources:

Private subdivision lots in the Kennecott millsite: Private lots may change hands and currently undeveloped lots may be developed. Private development can impact cultural resources through placement of non-historical features on the landscape and/or removal of archeological features. Although not predicted to occur on a large number of acres, these impacts would be permanent and of high intensity.

Park visitation: NPS estimates approximately 12,000 visitors annually to the McCarthy/Kennecott area. Future trends are dependent on area transportation. Increased visitation to un-monitored historic sites or structures can result in displacement or looting of historic features. Un-managed social trails can detract from historic circulation patterns.

AKDOT improvements on McCarthy to Kennecott road: Vegetation clearing and/or widening of the road could result in displacement or removal of archeological features such as old railroad steel.

These reasonably foreseeable actions contribute a moderate negative impact to cultural resources in the NHL. The cumulative impact of this alternative plus these past, present, and reasonably foreseeable actions would be moderate.

Conclusion: This alternative has less potential than the others to result in removal of archeological features as a result of historic structure stabilization and/or introduction of non-historic elements (such as water tanks or water lines) into the cultural landscape. The impact to the entire cultural landscape as it exists today would be negligible. Combined with past, present, and reasonably foreseeable actions, impacts to cultural resources would be moderate.

4.5.3 Alternative 2, Preferred

Direct and Indirect Effects, Cultural Landscapes:

Under the Preferred Alternative, historic structures would be managed to reflect a diversity of treatments. Some structures are beyond repair and would be managed as ruins and allowed to deteriorate in place, some would be stabilized and preserved, and some would be rehabilitated to accommodate adaptive re-use. Under this alternative, preservation treatments include painting and/or window replacement to provide weatherization in order to protect the public's investment and ensure that buildings are standing for generations to come. Table 4-1 summarizes the individual building treatments under Alternative 2 for the NPS-owned historic structures within the NHL and the anticipated effects of the treatment/non-treatment:

Table 4-2: Effects of Alternative 2 on historic structures

Historic Structure	Treatment	Effect
Concentration mill and tram terminus	Building stabilized through foundation and column and truss repairs. Reconstruction of upper tram deck and roof.	Stabilized building will remain a significant cultural landscape feature.
Leaching plant (north section)	Foundation replacement, repairs to floor and wall structure.	Stabilized building will remain a significant cultural landscape feature.
Leaching plant (south section)	interior false-work/rigging; no external work	Managed as a ruin; internally stabilized building will slowly deteriorate.
Power plant	Stabilization complete	Stabilized building will remain a significant cultural landscape feature
Machine shop	Stabilization complete on main structure. Stabilization of service decks.	Stabilized building and service decks will remain a significant cultural landscape feature
Store and Warehouse	Stabilization complete; further interior work proposed for adaptive re-use.	Stabilized building will remain a significant cultural landscape feature.
Manager's Office	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
National Creek Bunkhouse	Re-roofing and interior reinforcement of building	Stabilized building will remain a significant cultural landscape feature.

West Bunkhouse	New foundation and stabilization complete; may be considered for adaptive re-use in partnership.	Stabilized building will remain a significant cultural landscape feature.
Schoolhouse	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
Assay Office	Salvaged remains would be returned to their original location and interpreted as a ruin.	Salvaged remains will deteriorate over time.
Recreation Hall	Stabilization complete	Stabilized building will remain a significant cultural landscape feature
Depot	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
Refrigerator plant	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
Other historic structures acquired by NPS since 2001		
Hospital	Foundation stabilized; interior false-work and new roofing	Slow deterioration, stabilized building will remain a cultural landscape feature
Transformer House	Re-roofing, new foundation; new windows	Stabilized building will remain a cultural landscape feature
Old Schoolhouse	Stabilization complete	Stabilized building will remain a cultural landscape feature. Introduction of non-historic features associated with conversion to a visitor contact station could result in an adverse impact to the cultural landscape.
Dairy Barn	Stabilization complete	Stabilized building will remain a cultural landscape feature
East Bunkhouse	Foundation replacement done; roof replacement scheduled	Stabilized building will remain a cultural landscape feature
Silk Stocking Cottages (2)	Stabilization complete	Being adaptively used as housing. Stabilized buildings will remain a cultural landscape feature.
Cottage 39C, Lot 88	Stabilization complete	Stabilized building will remain a cultural landscape feature.
Cottage 13C, Lot 80	No stabilization	Structure will deteriorate and/or collapse
Cottage 39B, Lot 87	Structure collapsed from heavy snowload in 2012.	Ruins will deteriorate.

Archeological Features: Wherever possible, archeological features would be preserved in place as part of the cultural landscape. Historic structure stabilization sometimes requires removal of archeological features while work is taking place. Archeological features documented in the 2001 Cultural Landscape Report will be replaced after stabilization. However, removal and replacement will result in the loss of some noncontributing features and the loss of material that is hard to handle, preserve, and replace, such as wood scatter.

Circulation systems: This alternative maintains circulation systems such as historic roads or trails. Boardwalk reconstruction is proposed in several locations and would highlight historic circulation patterns.

Small scale features: To enhance the interpretive environment, some small scale features would be preserved and/or reconstructed.

Fire risk: A water system is proposed to provide potable water and limited fire suppression to some historic structures. Installation of water lines anywhere within the NHL would disturb archeological

resources and would require pre-construction cultural surveys and monitoring during construction. Construction of a water holding tank would be an Adverse Effect to the landscape, through the introduction of a non-historic element. Fire detection and suppression systems associated with this system could result in early detection and suppression and lower the risk of the loss of historic structures to wildland fire or arson. Proposed vegetation clearing around historic structures further lowers the risk from wildland fire.

Because of the introduction of non-historic elements, some actions proposed in this alternative would result in an adverse effect to the cultural landscape. These would be long term, medium intensity impacts to an important park resource and would result in moderate impacts to cultural resources.

Actions Outside of the NHL: For actions outside of the NHL, cultural resource surveys would be conducted prior to any projects being implemented. Evaluation of potential impacts to cultural resources would occur consistent with NEPA and with section 106 of NHPA. This alternative proposes trail construction, development of a walk-in campground with minimal development, and land clearing and ground disturbance associated with housing and facilities construction at the recently acquired airport lot. Ground disturbance requiring cultural clearance would amount to less than five acres from all these projects combined.

Cumulative Effects: Same as described for cultural resources under Alternative 1.

Conclusion: Because of the introduction of non-historic elements, some actions proposed in this alternative would result in an adverse effect to the cultural landscape. Additionally, some archeological resources would be displaced from the landscape as a result of historic structure stabilization. These would be long term, medium intensity impacts to an important park resource and would result in moderate impacts to cultural resources. Combined with past, present, and reasonably foreseeable actions, impacts to cultural resources would be moderate.

4.5.4 Alternative 3, Management Concepts

Direct and Indirect Effects, Cultural Landscapes:

Under the Management Concepts alternative, historic structure treatments would emphasize interior stabilization and (where necessary) re-roofing, but would not include re-painting or window replacement. Wherever possible, archeological resources would be retained on the landscape. Vegetation clearing would be done only to maintain historical circulation routes. Table 4-1 summarizes the individual building treatments under Alternative 3 for NPS-owned historic structures and the anticipated effects of the treatment/non-treatment:

Table 4-3: Effects of Alternative 3 on historic structures

Historic Structure	Treatment	Effect
Concentration mill and tram terminus	Building stabilized through foundation and column and truss repairs. No reconstruction of upper tram deck and roof.	Stabilized building will remain a significant cultural landscape feature. Building deterioration would occur without reconstructed tram roof.
Leaching plant (north section)	Foundation replacement, repairs to floor and wall structure.	Stabilized building will remain a significant cultural landscape feature.
Leaching plant (south section)	interior false-work/rigging; no external work	Managed as a ruin; internally stabilized building will slowly deteriorate.
Power plant	Stabilization complete	Stabilized building will remain a significant cultural landscape feature
Machine shop	Stabilization complete on main	Stabilized building will remain a significant

	structure. No stabilization of service decks.	cultural landscape feature. Service decks will collapse.
Store and Warehouse	Stabilization complete; lack of water limits adaptive re-use.	Stabilized building will remain a significant cultural landscape feature.
Manager's Office	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
National Creek Bunkhouse	Re-roofing and interior reinforcement of building	Stabilized building will remain a significant cultural landscape feature.
West Bunkhouse	New foundation and stabilization complete; lack of water may limit future adaptive re-use.	Stabilized building will remain a significant cultural landscape feature.
Schoolhouse	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
Assay Office	Salvaged remains would be returned to their original location and interpreted as a ruin.	Salvaged remains will deteriorate over time.
Recreation Hall	Stabilization complete	Stabilized building will remain a significant cultural landscape feature
Depot	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
Refrigerator plant	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
Other historic structures acquired by NPS since 2001		
Hospital	Foundation stabilized; interior false-work and new roofing	Slow deterioration, stabilized building will remain a cultural landscape feature
Transformer House	Re-roofing, new foundation; new windows	Stabilized building will remain a cultural landscape feature
Old Schoolhouse	Stabilization complete	Stabilized building will remain a cultural landscape feature. Introduction of non-historic features associated with conversion to a visitor contact station could result in an adverse impact to the cultural landscape.
Dairy Barn	Stabilization complete	Stabilized building will remain a cultural landscape feature
East Bunkhouse	Foundation replacement done; roof replacement scheduled	Stabilized building will remain a cultural landscape feature
Silk Stocking Cottages (2)	Stabilization complete	Being adaptively used as housing. Stabilized buildings will remain a cultural landscape feature.
Cottage 39C, Lot 88	Stabilization complete	Stabilized building will remain a cultural landscape feature.
Cottage 13C, Lot 80	No stabilization	Structure will deteriorate and/or collapse
Cottage 39B, Lot 87	Structure collapsed from heavy snowload in 2012.	Ruins will deteriorate.

Archeological Features: Wherever possible, archeological features would be preserved in place as part of the cultural landscape. Historic structure stabilization sometimes requires removal of archeological features while work is taking place. Archeological features documented in the 2001 Cultural Landscape Report will be replaced after stabilization. However, removal and replacement will result in the loss of some noncontributing features and the loss of material that is hard to handle, preserve, and replace, such as wood scatter.

Circulation systems: This alternative does not maintain circulation systems such as historic roads or trails. No boardwalk reconstruction is proposed.

Small scale features: No reconstruction of small scale features is proposed.

Fire risk: No water system or vegetation clearing around historic structures is proposed under this alternative. The potential exists for loss of historic structures through arson or wildfire. However, there would be no disturbance of buried archeological resources associated with construction of water lines and no introduction of non-historical elements (water tank).

Because it results in the introduction of a non-historic element, the addition of a covered back porch on the Blackburn school would result in an adverse effect to the cultural landscape. Additionally, some archeological resources would be displaced from the landscape as a result of historic structure stabilization. These would be long term, low intensity impacts to an important park resource and would result in minor impacts to cultural resources.

Actions Outside of the NHL: For actions outside of the NHL, cultural resource surveys would be conducted prior to any projects being implemented. Evaluation of potential impacts to cultural resources would occur consistent with NEPA and with section 106 of NHPA. This alternative proposes trail construction (7.5 total miles, 1.97 acres ground disturbance; a walk-in campground with minimal development (less than 1 acre ground disturbance), and land clearing and ground disturbance associated with cabanas and facilities construction at the recently acquired airport lot (approximately 1 acre ground disturbance). Ground disturbance requiring cultural clearance would amount to approximately 4 acres from all these projects combined.

Cumulative Effects: Same as described for cultural resources under Alternative 1.

Conclusion: Actions associated with this alternative would result in long term, low intensity impacts to an important park resource and would result in minor impacts to cultural resources.

Combined with past, present, and reasonably foreseeable actions, impacts to cultural resources would be moderate.

4.5.5 Alternative 4, Restoration

Direct and Indirect Effects, Cultural Landscapes:

Under the Management Concepts alternative, historic structures within the Administrative Core zone would be restored or reconstructed to replicate 1938 conditions. In other zones, all structures would be stabilized and preserved and some would be rehabilitated to accommodate adaptive re-use. Preservation treatments would include painting and/or window replacement to provide weatherization in order to protect the public's investment and ensure that buildings are standing for generations to come. Table 4-1 summarizes the individual building treatments under Alternative 4 for NPS-owned historic structures and the anticipated effects of the treatment/non-treatment:

Table 4-4: Effects of Alternative 4 on historic structures

Historic Structure	Treatment	Effect
Concentration mill and tram terminus	Building stabilized through foundation and column and truss repairs. Reconstruction of upper tram deck and roof.	Stabilized building will remain a significant cultural landscape feature.
Leaching plant (north	Foundation replacement, repairs to	Stabilized building will remain a significant

section)	floor and wall structure.	cultural landscape feature.
Leaching plant (south section)	interior false-work/rigging; no external work	Managed as a ruin; internally stabilized building will slowly deteriorate.
Power plant	Stabilization complete	Stabilized building will remain a significant cultural landscape feature
Machine shop	Stabilization complete on main structure. Stabilization of service decks.	Stabilized building and service decks will remain a significant cultural landscape feature.
Store and Warehouse	Stabilization complete; adaptive re-use for exhibits and/or offices	Stabilized building will remain a significant cultural landscape feature.
Manager's Office	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
Staff house, Superintendent's house, and Stephen Birch house	These structures are gone. Reconstruct.	Reconstructed buildings will remain a significant cultural landscape feature.
National Creek Bunkhouse	Re-roofing and interior reinforcement of building	Stabilized building will remain a significant cultural landscape feature.
West Bunkhouse	New foundation and stabilization complete; consider adaptive re-use in partnership.	Stabilized building will remain a significant cultural landscape feature.
Schoolhouse	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
Assay Office	Reconstruction.	Reconstructed building will remain a significant landscape feature.
Sawmill and Carpenter's Shop	Reconstruct.	Reconstructed building will remain a significant landscape feature.
Recreation Hall	Stabilization complete	Stabilized building will remain a significant cultural landscape feature
Depot	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
Refrigerator plant	Stabilization complete	Stabilized building will remain a significant cultural landscape feature.
Other historic structures acquired by NPS since 2001		
Hospital	Foundation stabilized; interior false-work and new roofing	Slow deterioration, stabilized building will remain a cultural landscape feature
Transformer House	Re-roofing, new foundation; new windows	Stabilized building will remain a cultural landscape feature
Old Schoolhouse	Stabilization complete	Stabilized building will remain a cultural landscape feature. . Introduction of non-historic features associated with conversion to a visitor contact station could result in an adverse impact to the cultural landscape.
Dairy Barn	Stabilization complete	Stabilized building will remain a cultural landscape feature
East Bunkhouse	Foundation replacement done; roof replacement scheduled	Stabilized building will remain a cultural landscape feature
Silk Stocking Cottages (2)	Stabilization complete	Being adaptively used as housing. Stabilized buildings will remain a cultural landscape feature.
Cottage 39C, Lot 88	Stabilization complete	Stabilized building will remain a cultural landscape feature.
Cottage 13C, Lot 80	No stabilization	Structure will deteriorate and/or collapse
Cottage 39B, Lot 87	Structure collapsed from heavy snowload in 2012.	Ruins would deteriorate.

Archeological Features: Wherever possible, archeological features would be preserved in place as part of the cultural landscape. Historic structure stabilization sometimes requires removal of archeological features while work is taking place. Archeological features documented in the 2001 Cultural Landscape Report will be replaced after stabilization. However, removal and replacement will result in the loss of some noncontributing features and the loss of material that is hard to handle, preserve, and replace, such as wood scatter. Additionally, some of the proposed reconstructions would entail the complete destruction of some ruins and the context of the archeological resources they contain. Other proposed reconstructions (such as the Staff House) would require significant excavation of the archeological resources that are present where the buildings once stood.

Circulation systems: This alternative maintains circulation systems such as historic roads or trails. Extensive boardwalk reconstruction is proposed in the Administrative and Industrial Core zones to replicate 1938 conditions and highlight circulation patterns. This alternative proposes reconstruction of features such as utilidors that highlight historic circulation patterns.

Small scale features: Extensive reconstruction of small scale features is proposed.

Fire risk: A water system is proposed to provide potable water and limited fire suppression to some historic structures. Installation of water lines anywhere within the NHL would disturb archeological resources and would require pre-construction cultural surveys and monitoring during construction. Construction of a water holding tank would be an Adverse Effect to the landscape, through the introduction of a non-historic element. Fire detection and suppression systems associated with this system could result in early detection and suppression and lower the risk of the loss of historic structures to wildland fire or arson. Proposed vegetation clearing around historic structures further lowers the risk from wildland fire.

Because of the introduction of non-historic elements, some actions proposed in this alternative would result in an adverse effect to the cultural landscape. Additionally, archeological resources would be displaced from the landscape as a result of water line installations and historic structure stabilization and restoration. These would be long term, medium intensity impacts to an important park resource and would result in moderate impacts to cultural resources.

Actions Outside of the NHL: For actions outside of the NHL, cultural resource surveys would be conducted prior to any projects being implemented. Evaluation of potential impacts to cultural resources would occur consistent with NEPA and with section 106 of NHPA. This alternative proposes trail construction, a walk-in campground with minimal development, and land clearing and ground disturbance associated with housing and facilities construction at the recently acquired airport lot. Ground disturbance requiring cultural clearance would amount to less than five acres from all these projects combined.

Cumulative Effects: Same as described for cultural resources under Alternative 1.

Conclusion: Because of the introduction of non-historic elements, some actions proposed in this alternative would result in an adverse effect to the cultural landscape. Additionally, archeological resources would be displaced from the landscape as a result of water line installations and historic structure stabilization and restoration. These would be long term, medium intensity impacts to an important park resource and would result in moderate impacts to cultural resources.

Combined with past, present, and reasonably foreseeable actions, impacts to cultural resources would be moderate.

4.6 Wildlife

4.6.1 Alternative 1, No Action

Direct and Indirect Effects: Under the no action alternative, no new actions are planned that would negatively impact wildlife and wildlife habitat.

No invasive plant species control or monitoring would occur. Existing infestations of invasive plants would be expected to spread. At moderate to heavy levels of infestation, invasive plant species decrease native plant species cover and diversity and can change ecosystem processes (soil nutrient cycles, natural succession, frequency of wildfire). This could result in long-term and high-intensity impacts to area wildlife habitat and could ultimately cause local displacement of certain small mammal or bird species.

Cumulative Effects: Past actions described in section 4.2.1 of this document include vegetation removal and thinning associated with historic structure stabilization, development of visitor improvements, and wildland fire prevention. These have resulted in minor impacts to vegetation and wildlife habitat.

The following reasonably foreseeable actions could affect wildlife:

Continued occurrence of habituated and food-conditioned bears in the area associated with private residences and businesses: Garbage is a major attractant for bears in the Kennicott valley. Residents were 18 times more likely to be involved in conflicts with bears due to improper storage of garbage than were visitors (Wilder, 2003). The 2003 study suggested that the Kennicott valley may serve as a population sink for surrounding bear populations. A sink is a subpopulation in which deaths exceed births and immigration exceeds emigration. This assertion was based on the unusual sex ratios observed in the study, the high rates of human-caused bear mortality in the valley, the quality of its natural food resources, the widespread availability of human attractants, and basic bear ecology (Wilder, 2003). These conditions lead to a higher potential for human-bear conflicts and bear mortality. This is a long-term impact of medium intensity on an important park resource.

Private subdivision lots in the Kennecott millsite or on University of Alaska lands in the area: Private lots may change hands and currently undeveloped lots may be developed. Private development can impact wildlife in several ways: 1) Alteration of habitat; 2) long-term disturbance and displacement; 3) improper food and/or garbage storage creating bear conflicts; and 4) increase in hunting pressure. These would generally be long-term impacts of a low intensity.

Park visitation: NPS estimates approximately 12,000 visitors annually to the McCarthy/Kennecott area. Future trends are dependent on area transportation. Increased visitation can impact wildlife through increased contact/displacement, habitat impacts associated with social trails, and increased potential for bear encounters. These impacts would be temporary in nature and of a low intensity.

Together, these reasonably foreseeable actions would result in a moderate impact to wildlife and wildlife habitat.

Conclusion: Direct and indirect effects of Alternative 1 on wildlife would be moderate because of potential habitat changes and loss of diversity due to uncontrolled invasive species. Combined with past, present, and reasonably foreseeable actions, impacts to wildlife would be moderate.

4.6.2 Alternative 2, Preferred

Direct and Indirect Effects:

Vegetation clearing is proposed around historic structures in order to reduce fire hazard and some limited vegetation clearing is proposed to enhance viewsheds. Removal of spruce trees and all woody vegetation would decrease plant cover and alter plant composition within those areas. Herbaceous plant cover would

be left in place. If not repeated on a regular cycle, these actions will result in alder and willow re-sprouting into cleared areas. Proposed fire protection treatments would amount to 1.22 acres of vegetation impacted and proposed selective thinning (including vegetation clearing along the lower portion of the aerial tramway) would result in 1.1 acres impacted. These treatments could affect habitat for small mammals and birds. Delaying treatment until July 15 (consistent with guidelines under the Migratory Bird Treaty Act) would avoid any impacts to nesting birds. However, removal of vegetation could displace some individuals. Because of the availability of other similar habitats in the area, these impacts would be long-term in duration but low in intensity.

Proposed improvements (including housing, cabanas, and communications support) at the recently acquired airport lot would result in permanent removal of 2 – 3 acres of wildlife habitat. Delaying vegetation clearing until July 15 would avoid any impacts to nesting birds, but removal of vegetation could displace some individuals. Because of the availability of other similar habitats in the area, these impacts would be permanent in duration but low in intensity.

Invasive plant species management would be consistent with the 2010 Alaska Region Invasive Plant Management Plan. For the Kennecott/McCarthy area this would include monitoring and the use of physical control. If infestations are resistant to physical control, spot treatments of herbicides would be considered based on risk analysis considering factors such as proximity to vegetation harvested by humans; the likelihood of affecting sensitive fish or wildlife habitat; and the likelihood of affecting watershed drinking water. Herbicide use would be subject to mitigation measures identified in Appendix H of this EA. The effects analysis for wildlife described in the 2010 NPS Alaska Region Invasive Plant Management Plan and EA is incorporated into this EA by reference:

“The benefits of Alternative 2 to wildlife and habitat in Alaskan NPS units would be minor and localized in the near term but would prevent moderate to major and more widespread impacts in the longer term. The direct adverse impacts of Alternative 2 to wildlife and habitat in Alaskan NPS units would be no more than minor. The indirect effect of Alternative 2 should be beneficial to wildlife and habitat by more effectively curtailing the long term establishment of invasive plant species. The success of invasive plant management and beneficial effects to native plant communities under Alternative 2 would vary from park to park. In parks where early detection and immediate control are feasible and achievable, the manual and thermal methods available under Alternative 2 would be sufficient to prevent establishment and spread. Because spot treatment with herbicides is included under this Alternative, impacts to wildlife and habitats could be readily reduced or eliminated for most sites even when control is not feasible by manual and thermal methods. Managing invasive plants under Alternative 2 would help parks better achieve the desired condition of maintaining all wildlife habitats as part of the natural park ecosystems. This alternative would result in a minor beneficial effect to wildlife and habitat over the next decade because Alternative 2 methods would contain the majority of current or future invasive plant infestations” (NPS, 2008).

This alternative proposes a 3.5 mile pedestrian trail to the NHL from the footbridge over the east (dry) fork of Kennicott River. This trail would follow the glacial moraine and require minimal tread construction and vegetation clearing. Impacts to wildlife associated with these activities would be long-term in duration (because the trails would be maintained) but low in intensity. Development of a walk-in campground with designated tent sites, vault toilets, bear-proof trash receptacles, and a centralized food preparation and eating area would result in vegetation disturbance (trampling or removal) of approximately 0.25 acres (NPS, 2002). Impacts to vegetation would be long-term in duration but low in intensity. Of greater importance, from a wildlife impacts standpoint, is the potential for increased negative bear-human encounters with the development of these facilities. A 2003 thesis on quantifying bear populations and bear-human conflicts in the Kennicott valley concluded the following:

“The Kennicott valley will continue to be developed as the centerpiece of visitation within WRST for years to come. Human occupation and development of private lands within the valley will also continue apace. The fact that local residents are involved in a disproportionate share of the reported bear-human conflicts suggests that increasing development and human occupation of the valley may presage a dramatic increase in the occurrence of bear-human conflicts in the future. Unless WRST makes bear management a high-priority natural resource concern and devotes adequate personnel and resources to implement pro-active management strategies, bear populations in the park will continue to suffer and human safety will be compromised” (Wilder, 2003).

The study also points to the fact that glacier-edge, soapberry-dominated habitat is high-density bear habitat for the area: “Bears were sampled throughout the study area; distribution of captures was non-uniform with the greatest success occurring along the glacier edge in soapberry habitat that was relatively secure from human disturbance. The two areas of ‘high observed bear density’ are natural travel corridors with major game trails paralleling the glacier edge. Both areas contain good berry habitat and are relatively secure from human disturbance” (Wilder, 2003). NPS has implemented a program of bear education for visitors and residents alike, as well as enforcement of the use of bearproof food containers for visitors in the backcountry. These strategies have been effective in reducing bear-human conflicts. A walk-in campground would include bear-proof food containers, and a secured food-preparation area separate from campsites. Additionally, development and management of a campground with facilities designed to minimize potential for bear encounters would be an improvement over the existing condition, where visitors are camping at dispersed sites on their own with no facilities provided. However, the 2003 data suggest that there is a high density of bears in the Kennicott valley, that there is a high incidence of food-conditioned bears, and that the proposed campground and glacier trail would occur in high-density bear habitat. While impacts to wildlife from habitat loss would be minimal from these activities, the potential to increase bear-human conflicts exists.

Under this alternative, a water system would be designed and constructed to provide potable water for visitor use and for NPS facilities in Kennecott milltown. The water system would also provide limited fire suppression (sprinklers) in some historic structures. At this time, NPS is still exploring the potential for the use of groundwater. Once NPS has enough information to consider design alternatives, a project-specific EA will be done considering site-specific effects on water resources.

Installation of a vault toilet north of the NHL along the Root Glacier trail and relocation/reconstruction of the existing Jumbo Creek outhouse would require very little vegetation clearing and habitat loss.

All together, the activities described above would result in vegetation clearing or thinning on about 4.75 acres within the NHL and dispersal of recreational activities (hiking and camping) around the area. Loss of habitat associated with the vegetation clearing would result in a long-term but low intensity impact to a common park resource. Increased or dispersed recreational activities in the area would likely result in increased bear-human conflicts, and most likely increased mortality for area bears. This would be considered a temporary impact of medium intensity, occurring to an important park resource. These actions would result in a moderate impact to wildlife.

Cumulative Effects: Past, present, and reasonably foreseeable actions and impacts are the same as described for Alternative 1 and would result in moderate impacts to area wildlife.

Conclusion: Direct and indirect effects of Alternative 2 on wildlife would be moderate. Combined with past, present, and reasonably foreseeable actions, impacts to wildlife would be moderate.

4.6.3 Alternative 3, Management Concepts

Direct and Indirect Effects:

No vegetation clearing is proposed in order to reduce fire hazard or to enhance viewsheds.

Proposed improvements (including cabanas, and communications support) at the recently acquired airport lot would result in permanent removal of approximately 1 acre of wildlife habitat. Delaying vegetation clearing until July 15 would avoid any impacts to nesting birds, but removal of vegetation could displace some individuals. Because of the availability of other similar habitats in the area, these impacts would be permanent in duration but low in intensity.

The NHL would continue to be monitored for invasive plants and populations of such would be manually removed, with no use of herbicides. Physical control of existing invasive plant infestations in the area should result in control and containment of invasive plant species. If not, moderate to low densities of invasive species may facilitate establishment of exotic species and at high densities can reduce the cover and density of both exotic and native species. This could result in long-term and medium intensity impacts to area wildlife habitat.

This alternative proposes a 3.5 mile pedestrian trail to the NHL from the footbridge over the east (dry) fork of Kennicott River and development of a walk-in campground. Effects of these proposed developments are the same as discussed under Alternative 2. Additionally, this alternative proposes construction of 4 miles of additional pedestrian trails in the area. Impacts to wildlife habitat (an estimated 1.97 acres of vegetation removal) would be long-term and low intensity. However, these trails would increase the potential for bear-human conflicts in the area.

Installation of a vault toilet north of the NHL along the Root Glacier trail and relocation/reconstruction of the existing Jumbo Creek outhouse would require very little vegetation clearing and habitat loss.

All together, the activities described above would result in vegetation clearing or thinning on less than 5 acres within the NHL and dispersal of recreational activities (hiking and camping) around the area. Loss of habitat associated with the vegetation clearing would result in a long-term but low intensity impact to a common park resource. Increased or dispersed recreational activities in the area would likely result in increased bear-human conflicts, and most likely increased mortality for area bears. This would be considered a temporary impact of medium intensity, occurring to an important park resource. These actions would result in a moderate impact to wildlife.

Cumulative Effects: Past, present, and reasonably foreseeable actions and impacts are the same as described for Alternative 1 and would result in moderate impacts to area wildlife.

Conclusion: Direct and indirect effects of Alternative 3 on wildlife would be moderate. Combined with past, present, and reasonably foreseeable actions, impacts to wildlife would be moderate.

4.6.4 Alternative 4, Restoration**Direct and Indirect Effects:**

Extensive vegetation clearing is proposed in the Administrative, Commercial, and Industrial Zones of the NHL, in order to replicate 1938 conditions. Vegetation clearing on this scale would eliminate all shrubs and trees within NPS-owned portions of the Industrial and Administrative core zones. Herbaceous vegetation would be left to provide ground cover. This would result in a loss of 9.55 acres of habitat for some bird and small mammal species, and loss of hiding cover for some larger species. This would be a long-term and low intensity impact on wildlife.

All other direct and indirect effects to wildlife (from vegetation clearing around historic structures, thinning for viewshed improvement (including the lower portion of the aerial tramway), trail construction, walk-in campground, and airport lot development) would be the same as described under Alternative 2.

All together, the activities described above would result in vegetation clearing or thinning on about 15 acres within the NHL and dispersal of recreational activities (hiking and camping) around the area. Loss of habitat associated with the vegetation clearing would result in a long-term and medium intensity impact to a common park resource. Increased or dispersed recreational activities in the area would likely result in increased bear-human conflicts, and most likely increased mortality for area bears. This would be considered a temporary impact of medium intensity, occurring to an important park resource. These actions would result in a moderate impact to wildlife.

Cumulative Effects: Past, present, and reasonably foreseeable actions and impacts are the same as described for Alternative 1 and would result in moderate impacts to area wildlife.

Conclusion: Direct and indirect effects of Alternative 4 on wildlife would be moderate. Combined with past, present, and reasonably foreseeable actions, impacts to wildlife would be moderate.

4.7 Visual Resources

4.7.1 Alternative 1, No Action

Direct and Indirect Effects:

Outside the mill-town: This alternative does not propose any actions that would impact visual resources outside of the mill-town.

Within the mill-town: Within the mill town, visual resources relate primarily to the historic character of the mill town. No vegetation thinning would occur for improvement of historic views. Without these actions, historic views will continue to be obscured by vegetation. Under this alternative, stabilization of historic structures would stop and cyclic maintenance would occur. The “end result” visually would be a mix of external treatments: some historic structures freshly painted, some stabilized and unpainted, and some un-stabilized and deteriorating or collapsing. This alternative would be least effective in maintaining the historic character of the mill town, but most effective at managing the site for an “abandoned” or “ghost-town” feel. Because stabilization work would stop, this alternative would minimize the visual impacts of on-going work (cranes, heavy equipment, orange work vests, large material storage areas).

Cumulative Effects: Actions described in section 4.2.1 of this document that have impacted visual resources include construction, landscaping, painting, and “clean up” associated with historic structure stabilization, vegetation clearing and thinning, National Creek stream channelization, visitor improvements (such as the shuttle turnaround), and infrastructure associated with NPS activities (such as the Dairy Barn storage yard). These activities have resulted in long-term, medium-intensity impacts on an important park resource.

The following reasonably foreseeable actions could affect visual resources:

Private subdivision lots in the Kennecott millsite: Private lots may change hands and currently undeveloped lots may be developed. Private development can impact visual resources in several ways: 1) vegetation clearing to accommodate home construction or for fire protection; 2) construction of visually obtrusive structures; 3) introduction of linear features such as roads, trails, or pipelines that may or may not be visible. Covenants imposed on lot owners are designed to keep new structures compatible

with the historic landscape. These impacts are long-term and medium intensity on an important park resource.

Road improvements to the state right-of-way between McCarthy and Kennecott: Improvements would be accompanied by vegetation clearing and potential road widening. This has the visual effect of creating a more dominant linear feature on the landscape.

Taken together, the combination of past, present, and reasonably foreseeable actions has resulted in a moderate impact to visual resources.

Conclusion: The No Action alternative proposes fewer actions than any other alternative that could adversely impact visual resources. Cumulatively, it would result in a moderate impact to visual resources.

4.7.2 Alternative 2, Preferred

Direct and Indirect Effects

Outside the mill-town: Outside of the mill-town, the following actions could have an impact on visual resources:

Construction of a 3.5 mile pedestrian trail paralleling the Kennicott glacier would require very little vegetation clearing and tread construction. This trail will not be visible to people driving the McCarthy/Kennecott road and only small linear portions might be visible from the air.

Development of a walk-in campground would involve minimal vegetation removal. However, establishment of a central cooking/food storage area, outhouses, and dispersed campsites would be visible from the air. These facilities would not be visible to visitors driving the McCarthy/Kennecott road.

Development of the 5-acre airport lot to support housing and/or communication and storage facilities would require vegetation removal, gravel pads, and construction of structures. Because of the location, these developments would not be visible to most visitors arriving at Kennecott via ground transportation. It would be visible to those arriving by air or utilizing the airport.

These impacts amount to long-term, low intensity impacts on an important park resource.

Within the mill-town: Within the mill town, visual resources relate primarily to the historic character of the mill town. Vegetation thinning would occur for improvement of historic views and for fire protection around each historic structure. Vegetation clearing around each structure would improve the visibility of some structures to visitors but could detract from an “abandoned” feel. Vegetation clearing along the lower portion of the aerial tramway would create a visible linear feature, but it highlights an important element of the cultural landscape. Some re-vegetation would occur to restore historic non-invasive vegetation and native plants might be used to screen selective views.

Development of a water system would likely require a water storage tank and pipelines. Pipelines would likely utilize existing disturbances (roads, trails, or utilidors) but a storage tank on the hillside above town would introduce a new feature and would be a long-term, high intensity impact. Under this alternative, stabilization of historic structures would occur. The “end result” visually would be a mix of external treatments: most stabilized historic structures freshly painted, some stabilized and unpainted, and some un-stabilized and deteriorating or collapsing. Freshly painted buildings represent a visual change and can stand out among older, unpainted buildings. Painting is a temporary, medium intensity impact that is done to protect an important park resource. Visual impacts associated with on-going work (cranes, heavy equipment, orange work vests, large material storage areas) would continue for at least the next five years.

Cumulative Effects: Same as described for Alternative 1.

Conclusion: The preferred alternative proposes actions outside of the mill town that, because of their low intensity, would result in a minor impact to visual resources. Within the milltown, the direct and indirect effects resulting from water system development, vegetation clearing, historic structure stabilization, and painting of historic structures would result in a moderate impact to visual resources.

Combined with past, present, and reasonably foreseeable actions, the impacts to visual resources are moderate.

4.7.3 Alternative 3, Management Concepts

Outside the mill-town: Outside of the mill-town, the following actions could have an impact on visual resources:

Construction of a 3.5 mile pedestrian trail paralleling the Kennicott glacier would require very little vegetation clearing and tread construction. This trail will not be visible to people driving the McCarthy/Kennecott road and only small linear portions might be visible from the air. Construction of 4 additional miles of pedestrian trails in the area would require 1.97 acres of vegetation removal and some tread construction. These trails would not be visible to the average visitor arriving at McCarthy/Kennecott via ground transportation. From the air, portions of these trails might appear as linear features.

Development of a walk-in campground would involve minimal vegetation removal. However, establishment of a central cooking/food storage area, outhouses, and dispersed campsites would be visible from the air. These facilities would not be visible to visitors driving the McCarthy/Kennecott road.

Development of the 5-acre airport lot to support housing and/or communication and storage facilities would require vegetation removal, gravel pads, and construction of structures. Because of the location, these developments would not be visible to most visitors arriving at Kennecott via ground transportation. It would be visible to those arriving by air or utilizing the airport.

These impacts amount to long-term, low intensity impacts on an important park resource.

Within the mill-town: Within the mill town, visual resources relate primarily to the historic character of the mill town. No vegetation thinning would occur for improvement of historic views and for fire protection around each historic structure. Continued vegetation encroachment around historic structures and blocking historic views detracts from the cultural-historic setting but contributes to an “abandoned” feel. Under this alternative, stabilization of historic structures would occur. The “end result” visually would be a mix of external treatments: some stabilized historic structures freshly painted, some stabilized and unpainted, and some un-stabilized and deteriorating or collapsing. Visual impacts associated with on-going work (cranes, heavy equipment, orange work vests, large material storage areas) would continue for at least the next five years. Visual impacts occurring under this alternative within the mill-town would be considered temporary and of medium intensity on an important park resource.

Cumulative Effects: Same as described for Alternative 1.

Conclusion: This alternative proposes actions outside of the mill town that, because of their low intensity, would result in a minor impact to visual resources. Within the milltown, the direct and indirect effects resulting from loss of historic views and some painting of historic structures would result in a minor impact to visual resources.

Combined with past, present, and reasonably foreseeable actions, the impacts to visual resources are moderate.

4.7.3 Alternative 4, Restoration

Direct and Indirect Effects:

Outside the mill-town: For proposed actions outside of the mill-town, effects to visual resources would be the same as described under Alternative 2.

Within the mill-town: Within the mill town, visual resources relate primarily to the historic character of the mill town. This alternative attempts to restore the Industrial and Administrative zones to a 1938 condition. Extensive vegetation clearing to replicate 1938 conditions would highlight stabilized and restored historic structures and enhance historic setting but would result in a long-term, high intensity impact on visual resources. Development of a water system would likely require a water storage tank and pipelines. Pipelines would likely utilize existing disturbances (roads, trails, or utilidors) but a storage tank on the hillside above town would introduce a new feature and would be a long-term, high intensity impact. Under this alternative, stabilization and restoration of historic structures would occur. The “end result” visually would be a mix of external treatments, but dominated by stabilized, restored, and freshly painted structures and boardwalks. Freshly painted buildings represent a visual change and can stand out among older, unpainted buildings. Painting is a temporary, medium intensity impact that is done to protect an important park resource. Visual impacts associated with on-going work (cranes, heavy equipment, orange work vests, large material storage areas) would continue for at least the next ten years.

Cumulative Effects: Same as described for Alternative 1.

Conclusion: This alternative proposes actions outside of the mill town that, because of their low intensity, would result in a minor impact to visual resources. Within the milltown, the direct and indirect effects resulting from water system development, large-scale vegetation clearing, historic structure stabilization and restoration, and painting of historic structures would result in a major impact to visual resources.

Combined with past, present, and reasonably foreseeable actions, the impacts to visual resources are major.

4.8 Visitor Use and Experience

4.8.1 Introduction: This analysis assumes the adoption of the 2011 Interpretive Concept Plan for the Kennecott Mines NHL for all alternatives. This document, which was developed after a 3-day workshop during the summer of 2011, describes a strategy for improving visitor experience through the following:

- Providing for visiting options
- Providing a sense of arrival
- Providing a central exhibit in the Company store
- Describing a strategy for exterior interpretation
- Describing a strategy for interior interpretation
- Providing for guided tours
- Providing local pedestrian trail opportunities

This analysis rates the alternatives relative to their ability to carry out the action items identified in the 2011 Interpretive Concept Plan and thus improve visitor experience to the NHL.

4.8.2 Alternative 1, No Action

Direct and Indirect Effects: Under this alternative, no new water system would be installed. Without additional potable water, a sprinkler system, and additional improvements to the Company store, the Blackburn school could not be vacated as office space and converted into a visitor orientation station. No improvements would be made over the current situation to improve the visitors sense of arrival and orientation. Without a new water system, flush toilets would not be installed in the Company Store and visitors would continue to rely on the vault toilets currently provided. Without an enhanced water system, opportunities for adaptive re-use and partnership with the West Bunkhouse would be very limited.

Without additional improvements to the Company Store, there would be no opportunity to develop a central exhibit in the building. There would be no improvement to the visitor experience over the existing situation.

Without full stabilization of the concentration mill/tram terminus, the exterior and interior of the building would deteriorate over time. An unstabilized mill building would eventually pose an unacceptable risk for interior access, and mill tours would need to be stopped. This would minimize interpretive opportunities for the iconic structure in the NHL, detract from the visitor experience, and would be a loss of a guided tour opportunity. Under this alternative, stabilization efforts would cease and five of the historic structures identified in Table 4-2 would deteriorate and/or collapse. This represents a loss of opportunity for visitors to access or see the historic structures that are significant components of the cultural landscape of the site.

Historic circulation routes would not be maintained or enhanced. Continued vegetation encroachment would make these hard to identify for the average visitor, thus decreasing potential opportunities for visitors. No pedestrian trail would be developed on the east side of the Kennecott glacier and no walk-in campground would be developed. These are developments that could provide day-hiking opportunities and alternatives to the dispersed camping situation that currently exists.

With no effort at educating the visiting public regarding motorized access to the NHL, visitors arriving via off-road vehicles and/or motorcycles would increase. Increased motorized use on the state right-of-way between McCarthy and Kennecott, on area trails, and on millsite subdivision easements would result in user conflicts, safety issues, trespass, and would detract from the average visitor's experience. Continued non-management of parking in the NHL would result in haphazard parking throughout the site and would detract from the visitor experience.

Without an additional vault toilet at the start of the Root Glacier trail and re-location of the existing Jumbo creek outhouse, disposal of human waste on day hikes and at dispersed camping sites would continue to be a problem. This would detract from the visitor experience.

Lack of action under this alternative would result in long-term, medium intensity negative impacts, resulting in overall moderate impacts to visitor use and experience.

Cumulative Impacts:

The following reasonably foreseeable actions could affect visitor experience:

Private development in the Kennecott area: Private lots may change hands and currently undeveloped lots may be developed. Private development can impact visitor experience in several ways: 1) haphazard development not consistent with the cultural landscape of the NHL can detract from visitor experience; 2) the NHL is a mix of private and publicly owned lands, and "Kennecott Communities" has been identified as an interpretive theme for the NHL (NPS, 2011). The presence of private lots and development provide an opportunity for visitors to discuss and learn about what it takes to subsist and get

by in a harsh and remote Alaskan environment. Private development can also provide essential services to visitors.

Road improvements to the McCarthy road and the state right-of-way between McCarthy and Kennecott: Improvements have the potential to increase visitation. If not done consistent with past collaborative road corridor planning efforts, improvements to these roads have the potential to detract from visitors experience through visual impacts and/or loss of the feeling of traveling on a rustic historic railroad corridor.

Services provided by McCarthy/Kennecott businesses: Local businesses provide lodging, camping, parking, visitor orientation and education, food, transport to the NHL and to the backcountry, and guiding services. A good proportion of the visitor experience in accessing and experiencing the NHL and surrounding area is provided by private business.

These reasonably foreseeable actions are listed, not to try and quantify impacts to visitor experience, but rather to acknowledge the significance of the proportion of visitor experience that is provided through private business. This reinforces the need for NPS to continue to communicate and coordinate with the local community and local businesses in efforts to enhance visitor experience.

Conclusion: Lack of action under this alternative would result in long-term, medium intensity negative impacts, resulting in overall moderate impacts to visitor use and experience. This alternative does the least to accomplish the action items identified in the 2011 Interpretive Concept Plan.

4.8.3 Alternative 2, Preferred

Direct and Indirect Effects: Under this alternative, a water system would be installed providing potable water and limited fire suppression (sprinkler systems in occupied buildings). Proposed improvements to the Company store would facilitate the movement of office space from the Blackburn school and conversion to the Blackburn school to a visitor orientation site. The Company store would house a central exhibit, and proposed flush toilets would be available to the public. At the Blackburn school, the back porch would be extended to the south to provide a tie-in with the shuttle turnaround. This would provide a link between the existing shuttle turnaround and the Blackburn school and provide a visitor orientation site that would be obviously available to visitors departing the shuttle vans. A visitor orientation site that would provide visitors with information about the NHL and surrounding area (including opportunities provided by private businesses) would greatly enhance the visitor experience.

With full stabilization of the concentration mill/tram terminus, the exterior and interior of the building would be preserved over time. A stabilized mill building provides a guided tour opportunity and enhances the visitor experience. Under this alternative, stabilization efforts would continue and most of the historic structures identified in Table 4-2 would be stabilized and available for exterior or interior interpretation. This represents an opportunity for visitors to access or see the historic structures that are significant components of the cultural landscape of the site.

Historic circulation routes would be maintained or enhanced. These routes would serve as pedestrian trails and provide easy access around the core of the NHL and a sense to the visitor of the cultural landscape. A pedestrian trail would be developed on the east side of the Kennecott glacier and a walk-in campground would be developed. These are developments that would provide day-hiking opportunities and alternatives to the dispersed camping situation that currently exists. Vegetation clearing on the lower portion of the aerial tramway would highlight an important historical feature linking the mines to the concentration mill.

With a cooperative community/NPS effort at educating the visiting public regarding motorized access to the NHL, visitors arriving via off-road vehicles and/or motorcycles would decrease. Decreased motorized

use by visitors on the state right-of-way between McCarthy and Kennecott, on area trails, and on millsite subdivision easements would minimize user conflicts, safety issues, trespass, and would enhance from the average visitor's experience. Management of parking in the NHL (through limited designated sites and no parking in the easements) would minimize haphazard parking throughout the site and would have a positive impact on the visitor experience.

An additional vault toilet at the start of the Root Glacier trail and re-location of the existing Jumbo creek outhouse would result in less chance of a day hiker or dispersed camper encountering human waste and/or toilet paper.

Negative effects to visitor experience associated with this alternative include the noise and activity associated with construction and stabilization projects. These projects sometimes result in temporary closure of historic structures to the visiting public.

Overall, implementation of this alternative would result in an improvement to visitor use and experience.

Cumulative Impacts: Same as described for Alternative 1.

Conclusion: This alternative proposes actions that would have a positive effect on visitor experience. This alternative works towards and is consistent with accomplishing the action items identified in the 2011 Interpretive Concept Plan.

4.8.4 Alternative 3, Management Concepts

Direct and Indirect Effects: Under this alternative, no new water system would be installed. Without additional potable water, a sprinkler system, and additional improvements to the Company store, the Blackburn school could not be vacated as office space and converted into a visitor orientation station. No improvements would be made over the current situation to improve the visitor's sense of arrival and orientation. Without a new water system, flush toilets would not be installed in the Company Store and visitors would continue to rely on the vault toilets currently provided. Without an enhanced water system, opportunities for adaptive re-use and partnership with the West Bunkhouse would be very limited.

Without additional improvements to the Company Store, there would be no opportunity to develop a central exhibit in the building. There would be no improvement to the visitor experience over the existing situation.

With full stabilization of the concentration mill/tram terminus, the building would remain as the iconic historic structure in the NHL. This alternative does not propose exterior improvements such as window replacement and painting, so the exterior appearance of the building would remain unchanged. Stabilization and maintenance of this historic structure provides interpretive opportunities, enhances the visitor experience, and provides a guided tour opportunity. Under this alternative, interior and foundation stabilization efforts would continue and most historic structures would remain in place. Maintenance of these structures provides an opportunity for visitors to access or see the historic structures that are significant components of the cultural landscape of the site.

Historic circulation routes would not be maintained or enhanced. Continued vegetation encroachment would make these hard to identify for the average visitor, thus decreasing potential opportunities for visitors. A pedestrian trail would be developed on the east side of the Kennecott glacier and a walk-in campground would be developed. These are developments that would provide day-hiking opportunities and alternatives to the dispersed camping situation that currently exists. This alternative also proposes the construction of 4 miles of additional pedestrian trails in the area. The intent of these pedestrian trails is to minimize conflicts with existing local and visitor motorized use. These pedestrian trails would provide additional day-hiking opportunities for visitors and locals alike, and would enhance the visitor experience.

With a cooperative community/NPS effort at educating the visiting public regarding motorized access to the NHL, visitors arriving via off-road vehicles and/or motorcycles would decrease. Decreased motorized use by visitors on the state right-of-way between McCarthy and Kennecott, on area trails, and on millsite subdivision easements would minimize user conflicts, safety issues, trespass, and would enhance from the average visitor's experience. Management of parking in the NHL (through limited designated sites and no parking in the easements) would minimize haphazard parking throughout the site and would have a positive impact on the visitor experience.

An additional vault toilet at the start of the Root Glacier trail and re-location of the existing Jumbo creek outhouse would result in less chance of a day hiker or dispersed camper encountering human waste and/or toilet paper.

Cumulative Impacts: Same as described under Alternative 1.

Conclusion: The Management Concepts alternative proposes some actions that would result in a positive effect on visitor experience. This alternative is not consistent with accomplishing action items identified in the 2011 Interpretive Concept Plan.

4.8.5 Alternative 4, Restoration

Direct and Indirect Effects: Under this alternative, a water system would be installed providing potable water and limited fire suppression (sprinkler systems in occupied buildings). Proposed improvements to the Company store would facilitate the movement of office space from the Blackburn school and conversion to the Blackburn school to a visitor orientation site. The Company store would house a central exhibit, and proposed flush toilets would be available to the public. At the Blackburn school, the back porch would be extended to the south to provide a tie-in with the shuttle turnaround. This would provide a link between the existing shuttle turnaround and the Blackburn school and provide a visitor orientation site that would be obviously available to visitors departing the shuttle vans. A visitor orientation site that would provide visitors with information about the NHL and surrounding area (including opportunities provided by private businesses) would greatly enhance the visitor experience.

With full stabilization of the concentration mill/tram terminus, the exterior and interior of the building would be preserved over time. A stabilized mill building provides a guided tour opportunity and enhances the visitor experience. This alternative proposes full restoration of the Administrative Core and Industrial Core zones of the NHL, including full restoration of historic structures that no longer exist (Stephen Birch house, superintendent's house). Stabilization and restoration efforts would ensure that most of the historic structures identified in Table 4-4 would be available for exterior or interior interpretation and visitor access. This represents an enhanced opportunity for visitors to access or see the historic structures that are significant components of the cultural landscape of the site.

Extensive vegetation clearing would be done in the Industrial and Administrative Core zones, in order to replicate 1938 conditions. Clearing to this extent, while allowing the best opportunity for visitors to get a sense of the historic landscape, would negatively affect visitors sense of being at a place "carved out of the wilderness."

Historic circulation routes would be maintained, enhanced, or restored. These routes would serve as pedestrian trails and provide easy access around the core of the NHL and a sense to the visitor of the cultural landscape. A pedestrian trail would be developed on the east side of the Kennecott glacier and a walk-in campground would be developed. These are developments that would provide day-hiking opportunities and alternatives to the dispersed camping situation that currently exists. Vegetation clearing on the lower portion of the aerial tramway would highlight an important historical feature linking the mines to the concentration mill.

With a cooperative community/NPS effort at educating the visiting public regarding motorized access to the NHL, visitors arriving via off-road vehicles and/or motorcycles would decrease. Decreased motorized use by visitors on the state right-of-way between McCarthy and Kennecott, on area trails, and on millsite subdivision easements would minimize user conflicts, safety issues, trespass, and would enhance from the average visitor's experience. Management of parking in the NHL (through limited designated sites and no parking in the easements) would minimize haphazard parking throughout the site and would have a positive impact on the visitor experience.

An additional vault toilet at the start of the Root Glacier trail and re-location of the existing Jumbo creek outhouse would result in less chance of a day hiker or dispersed camper encountering human waste and/or toilet paper.

Cumulative Impacts: Same as described for Alternative 1.

Conclusion: This alternative proposes actions that would have a positive effect on visitor experience. This alternative works towards and is consistent with accomplishing the action items identified in the 2011 Interpretive Concept Plan.

4.9 Transportation and Access

4.9.1 Alternative 1, No Action

Direct and Indirect: This alternative does not propose any actions that would have an effect, positive or negative, on visitor or local access to the NHL.

Cumulative Effects: The following reasonably foreseeable actions could have an effect on transportation and access:

Change in operation of privately owned shuttle services: Local businesses currently provide van shuttles for visitors. If these local businesses stopped providing the service, a visitor's ability to access the NHL would be seriously compromised. A change in business operators of these van services could affect access to the site in terms of reliability or cost.

Privately-owned bridge across the Kennecott river: This bridge allows vehicle access at all times of the year, for a fee. Construction and operation of the bridge has had a major effect on transportation and access to McCarthy and Kennecott. It has had a major impact on the ability of local businesses to efficiently operate and on NPS to haul material for historic structure stabilization. If this bridge changed hands or washed out, it would be a major impact to area transportation and access.

Off Road Vehicle use on the Kennecott footbridge and the State ROW between McCarthy and Kennecott: As discussed in section 3.8.3 of this document (page 73), there are legal restrictions against ORV use on the Kennecott footbridge and the State ROW between McCarthy and Kennecott. These restrictions are not currently enforced. If an action occurred (such as an accident or community pressure) that prompted the state (Alaska State Troopers) to start enforcing these statutes, it would have a major impact on local access to McCarthy and Kennecott.

Road improvements: Improvements to the McCarthy Road and the state ROW between McCarthy and Kennecott have the potential to increase visitation to the area and to increase interest in purchase and development of private lots in the area.

The listed reasonably foreseeable actions have the potential to have a major impact on how visitors and local residents access McCarthy and/or Kennecott. Whether those impacts are positive or negative depends on an individual's perception.

Conclusion: Direct and indirect effects of this alternative would have a negligible effect on visitor and local resident access. Combined with reasonably foreseeable actions, there is the potential for a major impact on area access.

4.9.2 Alternative 2, Preferred Alternative

Direct and Indirect: This alternative proposes cooperative community/NPS educational efforts targeted at informing visitors that Kennecott is a non-motorized visitor destination, with limited parking. Visitor access will be affected through an informed choice on the part of the visitor and by the physical limitations to motorized travel that exist at McCarthy/Kennecott. Direct and indirect effects of this alternative on visitor access would be minor.

This alternative proposes that the NPS owned portion of the Kennecott Glacier road will be designated a park road, open to motorized use. Motorized travel on NPS lands off the designated road will only be allowed for federally qualified subsistence users engaged in subsistence activities. While this will result in some restriction of the wide-open scenario that currently exists, local residents will still be able to access the area in a reasonable fashion. Direct and indirect effects of this alternative on local access will be minor.

This alternative proposes to maintain existing circulation routes and to construct a 3.5 mile pedestrian trail along the east side of the Kennicott glacier. Maintaining and/or constructing these as pedestrian trails will enhance day-hiking opportunities and access in the area.

Cumulative Effects: Same as described for Alternative 1.

Conclusion: Direct and Indirect effects of Alternative 2 on visitor and local access would be minor. Cumulatively with reasonably foreseeable actions, impacts could be major.

4.9.3 Alternative 3, Management Concepts

Direct and Indirect: This alternative proposes cooperative community/NPS educational efforts targeted at informing visitors that Kennecott is a non-motorized visitor destination, with limited parking. Visitor access will be affected through an informed choice on the part of the visitor and by the physical limitations to motorized travel that exist at McCarthy/Kennecott. Direct and indirect effects of this alternative on visitor access would be minor.

This alternative proposes that the NPS owned portion of the Kennecott Glacier road will be designated a park road, open to motorized use. Motorized travel on NPS lands off the designated road will only be allowed for federally qualified subsistence users engaged in subsistence activities. While this will result in some restriction of the wide-open scenario that currently exists, local residents will still be able to access the area in a reasonable fashion. Direct and indirect effects of this alternative on local access will be minor.

This alternative proposes to maintain existing circulation routes and to construct a 3.5 mile pedestrian trail along the east side of the Kennicott glacier. This alternative would also include the construction of 4 miles of additional pedestrian trail in the area. Maintaining and/or constructing these as pedestrian trails would enhance day-hiking opportunities area and minimize motorized/pedestrian conflicts.

Cumulative Effects: Same as described for Alternative 1.

Conclusion: Direct and Indirect effects of Alternative 3 on visitor and local access would be minor. Cumulatively with reasonably foreseeable actions, impacts could be major.

4.9.4 Alternative 4, Restoration

Direct and Indirect, Cumulative, and Conclusion all the same as alternative 2.

4.10 Soundscape

4.10.1 Alternative 1, No Action

Direct and Indirect: Under this alternative, stabilization of historic structures would not continue. NPS maintenance crew would be minimized to conduct cyclic maintenance on stabilized or adaptive re-use historic structures. This would minimize noise associated with contracts and stabilization efforts (sounds identified as “construction”, “4-wheeler”, “heavy equipment”, “footsteps”, “truck/van”, and “voices” in section 3.9.3). This alternative proposes nothing to minimize maintenance crew commute noise, but this impact would be off-set by the fact that the maintenance crew would be much reduced in size.

Noises associated with visitor use (shuttle vans, 4-wheelers, motorcycles, voices, footsteps) would continue. This alternative does not take actions to educate visitors about coming to the NHL in a non-motorized fashion and it proposes nothing to address parking. Noise associated with individual visitors coming in a motorized fashion (on 4-wheelers or motorcycles) would be expected to increase. To local residents and visitors to the Kennecott mill town, these impacts would be temporary, high intensity to an important park resource. Outside of the Kennecott mill town, impacts would be negligible.

This alternative would have the least direct and indirect impact on natural soundscapes due to the cessation of stabilization work. Impacts described above would result in a minor impact to the soundscape within the Kennecott mill town.

Cumulative Impacts: The following reasonably foreseeable actions would have an impact on the natural soundscape:

Private lots in the Kennecott area: Private lots may change hands and currently undeveloped lots may be developed. Private development and existing homes/businesses can impact natural soundscape in several ways: 1) Motorized access; 2) construction activities associated with home or business construction or improvement; 3) generator noise; and 4) voices or barking dogs.

Increase in backcountry visitors/flightseers: Sounds associated with small planes (audible 5 – 30 % of the time, according to data presented in section 3.9.3) would be expected to increase.

These impacts vary from temporary to long-term and vary in intensity from low to medium. Impacts to the natural soundscape associated with these reasonably foreseeable actions would be moderate.

Conclusion: NPS stabilization efforts and visitor management occur amidst the communities of Kennecott and McCarthy. There are sounds associated with private homes and businesses that have a moderate impact on the natural soundscape and would occur regardless of NPS activities. This alternative, because of the cessation of stabilization efforts, would have the least direct and indirect impact on the natural soundscape and would result in a minor impact to soundscape within the Kennecott mill town.

4.10.2 Alternative 2, Preferred Alternative

Direct and Indirect: Under this alternative, stabilization of historic structures would continue. NPS maintenance crew and or contractors would continue major stabilization projects for the next five years. After that, work would taper off to the point of cyclic maintenance. Noise associated with contracts and stabilization efforts (sounds identified as “construction”, “4-wheeler”, “heavy equipment”, “footsteps”,

“truck/van”, and “voices” in section 3.9.3) would continue, an impact to the natural soundscape of temporary nature but high intensity.

This alternative proposes designated parking for NPS employees and contractors and a better employee shuttle system. This would minimize the noise associated with daily commutes, which is a contributor to existing non-natural noise levels (see section 3.9.3).

Noises associated with visitor use (shuttle vans, 4-wheelers, motorcycles, voices, footsteps) would continue. Actions would be taken to educate visitors about coming to the NHL in a non-motorized fashion and designation of limited visitor parking. Noise associated with individual visitors coming in a motorized fashion (on 4-wheelers or motorcycles) would be expected to decrease over time.

Because of the continued stabilization efforts over the next five years, this alternative would have more direct and indirect impact on natural soundscapes than alternatives 1 or 3. For visitors and local residents within the Kennecott mill town, these impacts would be long-term (5 – 10 years) and high intensity, resulting in a moderate impact to soundscapes within the milltown. Outside the milltown, backcountry visitors would experience negligible impacts to the natural soundscape.

Cumulative Impacts: Same as described for Alternative 1.

Conclusion: NPS stabilization efforts and visitor management occur amidst the communities of Kennecott and McCarthy. There are sounds associated with private homes and businesses that have a moderate impact on the natural soundscape and would occur regardless of NPS activities. This alternative, because of the continuation of stabilization efforts over the next five years, would have more direct and indirect impact on the natural soundscape than alternatives 1 or 3.

4.10.3 Alternative 3, Management Concepts

Direct and Indirect: Under this alternative, stabilization of historic structures would continue. The major difference between this alternative and alternative 2 is that there would be less exterior finish to stabilized buildings (painting, window replacement, siding replacement). Noise associated with contracts and stabilization efforts (sounds identified as “construction”, “4-wheeler”, “heavy equipment”, “footsteps”, “truck/van”, and “voices” in section 3.9.3) would continue, an impact to the natural soundscape of temporary nature but high intensity. These impacts would be at a level slightly lower than alternative 2.

This alternative proposes designated parking for NPS employees and contractors and a better employee shuttle system. This would minimize the noise associated with daily commutes, which is a contributor to existing non-natural noise levels (see section 3.9.3).

Noises associated with visitor use (shuttle vans, 4-wheelers, motorcycles, voices, footsteps) would continue. Actions would be taken to educate visitors about coming to the NHL in a non-motorized fashion and designation of limited visitor parking. Noise associated with individual visitors coming in a motorized fashion (on 4-wheelers or motorcycles) would be expected to decrease over time.

Because of the continued stabilization efforts over the next five years but less emphasis on exterior finish, this alternative would have more direct and indirect impact on natural soundscapes than alternatives 1, less than alternatives 2 or 4. To local residents and visitors to the Kennecott milltown, the impacts described above would be long-term (5 year) and high intensity, resulting in a moderate impact to soundscape within the Kennecott milltown. For backcountry visitors, impacts to the natural soundscape would be negligible.

Cumulative Impacts: Same as described for Alternative 1.

Conclusion: NPS stabilization efforts and visitor management occur amidst the communities of Kennecott and McCarthy. There are sounds associated with private homes and businesses that have a moderate impact on the natural soundscape and would occur regardless of NPS activities. This alternative, because of the continuation of stabilization efforts over the next five years but less emphasis on exterior finish and restoration of small scale features, would have less direct and indirect impact on the natural soundscape than alternatives 2 or 4.

4.10.4 Alternative 4, Restoration

Direct and Indirect: Under this alternative, stabilization of historic structures would continue and restoration of buildings that no longer exist would occur. Noise associated with contracts, stabilization efforts, restoration of structures, and extensive restoration of small scale features, would continue for the next ten years at least. These impacts to the natural soundscape would be temporary to long-term in nature and high intensity.

This alternative proposes extensive clearing of vegetation in order to replicate 1938 conditions. This would require extensive chain saw work and follow-up maintenance to maintain the appearance. This would be a temporary but high intensity impact on the natural soundscape.

This alternative proposes designated parking for NPS employees and contractors and a better employee shuttle system. This would minimize the noise associated with daily commutes, which is a contributor to existing non-natural noise levels (see section 3.9.3).

Noises associated with visitor use (shuttle vans, 4-wheelers, motorcycles, voices, footsteps) would continue. Actions would be taken to educate visitors about coming to the NHL in a non-motorized fashion and designation of limited visitor parking. Noise associated with individual visitors coming in a motorized fashion (on 4-wheelers or motorcycles) would be expected to decrease over time.

Because of the intensive stabilization and restoration efforts over the next ten years, this alternative would have more direct and indirect impact on natural soundscapes due than any other alternative. Local residents and Kennecott milltown visitors would experience long term (10 year), high intensity impacts that would result in a moderate impact to soundscape within the milltown. Backcountry visitors would experience negligible impacts to the natural soundscape.

Cumulative Impacts: Same as described for Alternative 1.

Conclusion: NPS stabilization efforts and visitor management occur amidst the communities of Kennecott and McCarthy. There are sounds associated with private homes and businesses that have a moderate impact on the natural soundscape and would occur regardless of NPS activities. Because of the intensive stabilization and restoration efforts over the next ten years, this alternative would have more direct and indirect impact on natural soundscapes due than any other alternative.

4.11 Socioeconomics

4.11.1 Alternative 1, No Action

Direct and Indirect: Under this alternative, stabilization of historic structures would not continue. NPS maintenance crew would be minimized to conduct cyclic maintenance on stabilized or adaptive re-use historic structures. This would represent a loss of 16 seasonal jobs or an annual loss of \$280,000 dollars in wages.

Without proposed stabilization work on the concentration mill, mill tours through the interior of the building would eventually be deemed unsafe and halted. This would represent a loss of economic

opportunity for a local business. Visitors have indicated that historic structure stabilization and improvement of visitor services would add to the quality of the visitor experience (NPS, 2005). Consequently, this alternative would do little to encourage repeat visitors. However, visitation to the area and related local economic benefits are also dependent on other factors in the area (see cumulative effects).

Because of the loss of seasonal wages that would occur, this alternative would have a moderate negative effect on area socioeconomics.

Cumulative Impacts: The following reasonably foreseeable actions would have an impact on socioeconomics:

Private lots and development in the Kennecott/McCarthy area: Private lots may change hands and currently undeveloped lots may be developed. An increase in seasonal homes in the area would result in an increase in use of local businesses, particularly construction, food and/or alcohol service, and groceries.

Changes in access to the area: Improvements to the McCarthy Road, changes in motorized access over the Kennecott river, and/or improvements to the road from McCarthy to Kennecott all have the potential to influence the trend in area visitation. These factors also have a major effect on the efficiencies, cost effectiveness, and profitability of local businesses. Changes to area access have the potential to have a major impact on area socioeconomics.

Conclusion: The loss of seasonal jobs in the area would result in a moderate negative effect on area socioeconomics. Cumulative impacts listed above have more potential to influence area socioeconomics than NPS actions.

4.11.2 Alternative 2, Preferred Alternative

Direct and Indirect: Under this alternative, stabilization of historic structures would continue. NPS maintenance crew and or contractors would continue major stabilization projects for the next five years. After that, work would taper off to the point of cyclic maintenance. Seasonal wages would continue at current levels for the next five years, then would be reduced to approximately 25% of current levels. This would represent a minor long-term negative impact to area socioeconomics.

With stabilized historic structures, NPS would continue with a concession town tour, featuring the mill building, leach plant, power plant, and other structures. This represents a continued economic opportunity for at least one local business. Stabilized historic structures and improved visitor services would encourage new and repeat visitors. NPS would expect an increasing trend in visitation to the NHL, with resulting benefits to local businesses.

Cumulative Impacts: Same as described for Alternative 1.

Conclusion: Long term loss of seasonal employment opportunities in the area would have a minor negative effect on area socioeconomics. Expected increase in visitor use would benefit local businesses. Cumulative impacts listed under Alternative 1 have more potential to influence area socioeconomics than NPS actions.

4.11.3 Alternative 3, Management Concepts

Direct and Indirect: Same as Alternative 2.

Cumulative Impacts: Same as described for Alternative 2.

Conclusion: Same as described for Alternative 2.

4.11.4 Alternative 4, Restoration

Direct and Indirect: Under this alternative, stabilization of historic structures would continue and restoration of buildings that no longer exist would occur. Major stabilization and restoration of historic structures would occur for at least the next 10 years. Seasonal employment opportunities and wages would be available at least at current levels. This would provide a continued benefit to area socioeconomics.

Intensive restoration efforts and improvement of visitor services proposed under this alternative would likely result in an upward trend in area visitation. This would provide a direct benefit to area businesses. A mill town tour concession would continue to provide an economic opportunity for at least one local business.

Cumulative Impacts: Same as described for Alternative 1.

Conclusion: Actions proposed under this alternative would have a minor beneficial effect to area socioeconomics. Cumulative impacts listed under Alternative 1 have more potential to influence area socioeconomics than NPS actions.

5.0 Consultation and Coordination

5.1 Public Involvement

Public involvement for the Kennecott Operations Plan began on September 8, 2010 with a public meeting in Kennecott. The general planning process and timelines were explained and public concerns and comments were noted.

On December 13, 2010, a scoping letter went out to 210 people and organizations. It formally announced the scoping period for the Kennecott Operations Plan, explained the purpose of the Plan, and invited comments. The park also posted the letter on the NPS Planning, Environment, and Public Comment (PEPC) website for public review and comment. The park asked for comments by January 31, 2012 and received comments from the McCarthy Area Council (MAC), National Parks Conservation Association, State of Alaska, Friends of Kennicott, Alaska Quiet Rights Coalition, and several individuals. Additionally, a public meeting was held in Anchorage on February 23, 2011. The meeting included a presentation by the NPS Regional Historical Architect and an explanation of the planning process. Questions, comments, and concerns were noted.

In March of 2011, the park Interdisciplinary Team (IDT) met for three days to review public comment and develop a proposed action package for the Kennecott Mines National Historic Landmark. Proposals included historic structure stabilization/preservation, interpretation, NPS utilities and infrastructure, transportation/access, vegetation management, and management of small scale features and archeological resources. The IDT also discussed a protocol for communications with the McCarthy/Kennecott community. The resulting proposed action package was made available to the McCarthy/Kennecott community and posted on the PEPC website for public review and comment in May, 2011. NPS asked for comments by August 31, 2011.

To facilitate review of the proposed action package, the McCarthy Area Council assigned a sub-committee to thoroughly review and comment on the document. Additionally, NPS held three public meetings in Kennecott/McCarthy during the course of the summer to answer any questions regarding the proposed action package. The community requested and was granted an extension on the comment period to September 15, 2011.

NPS received 31 written comment letters on the Proposed Action for Management of Kennecott Mines National Historic Landmark. These included a MAC subcommittee re-write, which was signed or otherwise endorsed by 43 individuals. Friends of Kennicott also submitted a comment letter, generally supporting and supplementing the MAC subcommittee re-write. Comments were received from several other organizations or agencies, including Alaska Quiet Rights Coalition, the State of Alaska, and National Parks Conservation Association.

The IDT met again in October 2011 to review the public comments and modify the proposed action package, based on public comment. The modified version of that proposed action package is the basis for the proposed action identified in this Environmental Assessment.

During the summer of 2012, two public workshops were held in Kennecott to facilitate public input into the planning process. The first was held in June, co-hosted with the Friends of Kennecott, and included discussions of the management concepts, NHPA process, and Secretary of the Interior's Standards for Treatment of Historic Properties. The second was a 4-night session held in July and included discussions on parking, the shuttle turnaround, and vehicle access to the Kennecott mill town. These sessions were well-attended by individuals and area businesses. Conclusions from both public sessions were incorporated into the preferred alternative of the Kennecott Operations Plan Environmental Assessment. This EA represents one of numerous opportunities for public involvement in the planning process.

5.2 List of Preparers and Contributors

The following is a list of preparers of this document and key contributors. These individuals and organizations assisted in identifying issues and developing alternatives.

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APPENDIX A
KENNECOTT OPERATIONS PLAN
DETERMINATION OF IMPAIRMENT

A determination of impairment is made for most of the resource impact topics carried forward and analyzed in the environmental assessment for the preferred alternative. The description of park significance in the *2009 Wrangell St. Elias National Park and Preserve Foundation Statement* 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 opportunities, transportation/access, or socioeconomics because impairment determinations relate back to park resources and values. These impact areas are not considered to be park resources or values.

Water Resources

Protection of fish habitat and protection of populations of fish are specifically identified as park purposes. Protected salmon habitat is identified as one of the significant resources that defines what is most important about the park's resources and values and is tied to the park purpose. Healthy fisheries are necessary to fulfill the purposes for which the park was established and are key to the natural integrity of the park. However, no fish have been inventoried in Bonanza, Jumbo, National Creeks and the Kennicott River. These are creeks that would most likely be impacted by actions described in the preferred alternative.

Under the preferred alternative, direct and indirect effects on water resources would be minor because of the temporary duration and low intensity of the impacts. These impacts would not result in impairment.

Vegetation

Management for vegetation is not specifically identified as a purpose in the establishing legislation of the park and vegetation is not specifically identified in the park's general management plan as being of significance.

Under the preferred alternative, vegetation thinning and removal would be done to facilitate improved viewsheds, protection from wildland fire, trail clearing and maintenance, and infrastructure development. This would result in 5 acres of vegetation clearing or thinning. Direct and indirect effects on vegetation would be moderate because impacts are generally long-term, low to medium intensity, and affect a common park resource. These impacts would not result in impairment.

Cultural Resources

Protection of cultural resources is not specifically identified as one of the park's purposes in the establishing legislation of the park (prior to the NPS acquisition of lands in the Kennecott Mines NHL). However, the Kennecott Mines NHL is specifically identified as a fundamental resource and value of the park in the *2009 Wrangell St. Elias National Park and Preserve Foundation Statement*. Proposed management of the NHL has been and will continue to be targeted at the stabilization and preservation of the cultural landscape associated with the Kennecott mines and mill town.

Because of the introduction of non-historic elements, some actions proposed in the preferred alternative would result in an adverse effect to the cultural landscape. Additionally, some archeological resources would be displaced from the landscape as a result of historic structure stabilization. These would be long term, medium intensity impacts to an important park resource and would result in moderate impacts to cultural resources. These effects would be off-set by the positive effect from the stabilization of historic structures and cultural landscape elements. Overall, the impacts to cultural resources from the implementation of the preferred alternative would not result in impairment of cultural resources.

Wildlife

Protection of habitat for, and populations of, wildlife including but not limited to caribou, brown/grizzly bears, Dall sheep, moose, wolves, trumpeter swans and other waterfowl, and marine mammals is specifically identified as a park purpose. Unimpacted wildlife, unfragmented habitat, and native species are all identified as significant resources that define what is most important about the park's resources and values and is tied to the park purpose. Healthy wildlife habitat and populations are necessary to fulfill the purposes for which the park was established and are key to the natural integrity.

Proposals considered in the preferred alternative would have a minor impact on wildlife habitat. Direct and indirect effects on wildlife would be moderate because of impacts on bear habitat and habituation associated with the campground and Kennicott glacier trail. Because these impacts would not impact the continued viability of wildlife populations in the area or in the park, these impacts would not result in impairment to wildlife habitat or populations.

Visual Resources

"To maintain unimpaired the scenic beauty and quality of high mountain peaks, foothills, glacial systems, lakes and streams, valleys, and coastal landscapes in their natural state" is identified as a park purpose. However, the management goal for the Kennecott Mines NHL, as stated in Chapter 1 of this EA, is to stabilize, preserve, and interpret the key patterns, relationships, and remaining structures and features that define the historic, cultural and natural character of the NHL.

Within the milltown, the direct and indirect effects resulting from water system development, vegetation clearing, historic structure stabilization, and painting of historic structures would result in a moderate impact to visual resources. These impacts may be perceived negatively to a local resident who sees them as a change; on the other hand they may be perceived positively by a park visitor who sees stabilized and preserved historic structures rather than dilapidated structures on the verge of collapse. Regardless, these impacts do not represent impairment to visual resources, particularly when viewed through the context of effects to the surrounding glacial wilderness.

Soundscape

Soundscape is not identified as a park purpose or as a significant park resource, either in ANILCA or in the general management plan for the park.

The preferred alternative, because of the continuation of stabilization efforts over the next five years, would have temporary, high intensity impacts on a soundscape that, within the Kennecott millsite, is far from natural. These moderate impacts would not result in impairment of the natural soundscape.

Summary

As described above, adverse impacts anticipated as a result of implementing the preferred alternative 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.

Appendix B

ANILCA SECTION 810(a)

SUMMARY EVALUATION AND FINDINGS

I. INTRODUCTION

Title VIII, Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA) requires Federal agencies having jurisdiction over lands in Alaska to evaluate the potential impacts of proposed actions on subsistence uses and needs. This analysis evaluates the potential restrictions to ANILCA Title VIII subsistence uses and needs that could result from the National Park Service (NPS) implementing alternatives within the Kennecott Operations Plan Environmental Assessment. The EA provides a detailed description of the proposed management alternatives for the Kennecott Mines National Historic Landmark (NHL) located within Wrangell-St. Elias National Park and Preserve (WRST).

II. THE EVALUATION PROCESS

Section 810(a) of ANILCA states:

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

(1) gives notice to the appropriate State agency and the appropriate local committees and regional councils established pursuant to section 805;

(2) gives notice of, and holds, a hearing in the vicinity of the area involved; and

(3) determines that (A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (B) the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions."

ANILCA created new units and additions to existing units of the national park system in Alaska. Wrangell-St. Elias National Park, containing approximately eight million one hundred and forty-

seven thousand acres of public lands, and Wrangell-St. Elias National Preserve containing approximately four million one hundred and seventeen thousand acres of public lands, was created by ANILCA, section 201(9), for the following purposes:

“To maintain unimpaired the scenic beauty and quality of high mountain peaks, foothills, glacial systems, lakes, and streams, valleys, and coastal landscapes in their natural state; to protect habitat for, and populations of, fish and wildlife including but not limited to caribou, brown/grizzly bears, Dall sheep, moose, wolves, trumpeter swans and other waterfowl, and marine mammals; and to provide continued opportunities including reasonable access for mountain climbing, mountaineering, and other wilderness recreational activities. Subsistence uses by local residents shall be permitted in the park, where such uses are traditional, in accordance with the provisions of Title VIII.”

The potential for significant restriction must be evaluated for the proposed action's effect upon "...subsistence uses and needs, the availability of other lands for the purposes sought to be achieved and other alternatives which would reduce or eliminate the use."

III. PROPOSED ACTION ON FEDERAL LANDS

The National Park Service is considering four alternatives for the management of the Kennecott Mines NHL. The focus for management of the landmark is to stabilize, preserve, and interpret the key patterns, relationships, and remaining structures and features that define the historic, cultural and natural character of the NHL. The NHL encompasses 14,231 acres of public and private lands. The proposed management activities in the plan focus on NPS-owned portions of the mill town and surrounding area; however, some components of management (such as access/transportation) affect the entire Kennecott/McCarthy area. This plan is intended to address only NPS-owned properties; participation by private property owners will be at the sole discretion of those owners.

The management strategy for NPS-owned portions of the NHL includes historic structure preservation and stabilization, interpretation, NPS utilities and infrastructure, access/transportation, and vegetation management. A full discussion of the proposed action and alternatives and their anticipated effects is included in the EA. Common to all alternatives are partnerships and communication with the Kennecott/McCarthy community, use of local hire authority, and clearing and thinning of vegetation around structures to protect structures from wildland fire. Customary and traditional subsistence uses on park and preserve lands would continue as authorized by federal law under each of the alternatives. The four alternatives are summarized briefly below.

Alternative 1 – No Action Alternative: Under this alternative, management actions in the NHL would be limited to maintaining the structures and landscape features as they exist today, with no additional treatment. Less than 1 acre of vegetation would be cleared.

Alternative 2 – Preferred Alternative: Under this alternative, historic structure stabilization and preservation would be based on past planning documents, including the Cultural Landscape

Report and the Interim Operations Plan. Vegetation clearing would be done around buildings for fire protection and in selected areas to improve viewsheds, impacting about 4.75 acres. NPS would work with the community to manage the NHL as a non-motorized visitor destination. Other developments would include a 3.5 mile pedestrian trail along the east side of the Kennicott Glacier, a walk-in campground (subject of a previous EA), a water system providing potable water and limited fire suppression capabilities, and a sanitary sewer system.

Alternative 3 -- Management Concepts Alternative: Under this alternative, historic structure stabilization and preservation would reflect the Management Concepts presented in the Interim Operations Plan and in Section 1.3.2 of the Kennecott Operations Plan EA. Vegetation clearing would be done only to maintain historical circulation routes. NPS would work with the community to manage the NHL as a non-motorized visitor destination. Other developments would include a 3.5 mile pedestrian trail along the east side of the Kennicott Glacier, a walk-in campground, and possibly additional non-motorized trails in the area. Including possible trail development, less than 5 acres would be cleared or thinned of vegetation over a widely spaced area.

Alternative 4 – Restoration Alternative: Under this alternative, historic structures within the Administrative Core zone would be restored or reconstructed to replicate 1938 conditions. In other zones, all structures would be stabilized and preserved, and some would be rehabilitated to accommodate adaptive re-use. Vegetation would be cleared around buildings for fire protection, and extensive clearing would occur within the Administrative Core, Commercial, and Industrial Core zones to replicate 1938 conditions and to improve viewsheds. Historic circulation routes will be maintained and enhanced. Other developments would include a 3.5 mile pedestrian trail along the east side of the Kennicott Glacier, a walk-in campground, and a water system providing potable water and fire suppression. In total, vegetation would be cleared or thinned on about 13 acres within the NHL, including nearly 10 acres in mill town to replicate 1938 conditions.

IV. AFFECTED ENVIRONMENT

A summary of the affected environment pertinent to subsistence use is presented here. The following documents contain additional descriptions of subsistence uses within Wrangell-St. Elias National Park and Preserve:

Bleakley, Geoffrey T. 2002. *Contested Ground, An Administrative History of Wrangell-St. Elias National Park and Preserve, Alaska, 1978-2001*, NPS Alaska Region.

Final Environmental Impact Statement, Wilderness Recommendation, NPS Alaska Region, 1988.

Haynes, Terry L., Martha Case, James A. Fall, Libby Halpin, and Michelle Robert. 1984. *The use of Copper River salmon and other wild resources by Upper Tanana communities, 1983-1984*. ADF&G Division of Subsistence, Technical Paper No. 115.

Kukkonen, Malla, and Garrett. Zimpelman. 2012. *Subsistence harvests and uses of wild resources in Chistochina, Alaska, 2009*. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 370.

Marcotte, James R. 1992. *Wild fish and game harvest and use by residents of five Upper Tanana communities, Alaska, 1987-88*. ADF&G Division of Subsistence, Technical Paper No. 168.

Norris, Frank. 2002. *Alaska Subsistence: A National Park Service Management History*, NPS Alaska Region.

NPS Alaska Region. 1986. *General Management Plan/Land Protection Plan, Wrangell-St. Elias National Park and Preserve*.

NPS Alaska Region. 1988. *Wrangell-St. Elias Subsistence Management Plan*. (Updated most recently in 2004.)

NPS Alaska Region. *Wrangell-St. Elias National Park and Preserve Subsistence Users Guide*. (Updated most recently in 2005.)

Stratton, Lee, and Susan Georgette. 1984. *Use of fish and game by communities in the Copper River Basin, Alaska: a report on a 1983 household survey*. ADF&G Division of Subsistence, Technical Paper No. 107.

Subsistence uses are allowed within Wrangell-St. Elias National Park and Preserve in accordance with Titles II and VIII of ANILCA. The national preserve is open to Federal subsistence uses and State authorized general (sport) hunting, trapping and fishing activities. NPS qualified subsistence users may engage in subsistence uses within the national park. The proposed action would take place within the national preserve.

Based on 2010 U.S. Census data, the National Park Service estimates that approximately 5,200 individuals are eligible to engage in federal subsistence uses in Wrangell-St. Elias National Park and Preserve. Most of these individuals live in communities along the road system, although there are a few scattered pockets of population off of the road system. Subsistence uses in WRST include hunting, trapping, fishing, berry picking, gathering mushrooms and other plant materials, collecting firewood, and harvesting timber for house construction. Most subsistence hunting within Wrangell-St. Elias occurs off the Nabesna and McCarthy roads and the trails that originate from them. The Copper, Nabesna, Chisana and Chitina rivers serve as popular riverine access routes for subsistence users. Most of the subsistence fishing takes place in the Copper River.

The 14,231 acre Kennecott Mines NHL is located within Game Management Unit 11 adjacent to the resident zone community of McCarthy. Resident zone status entitles the permanent residents of McCarthy to qualify for subsistence uses within the park. The Kennicott Valley provides important black and brown bear habitat in the form of soapberry patches. While moose are indigenous to the area, their numbers are not numerous. Dall sheep are present in the hills and mountains above the valleys. Most of the common furbearers are present. In addition to hunting

and trapping, subsistence activities in the general area of the NHL include berry picking, mushroom collection, and firewood harvest. There are no significant subsistence fish resources in the immediate vicinity of the NHL. Due to its relatively remote location and limited game numbers, most of the subsistence activities in the NHL area are by residents of McCarthy and Kennebecott.

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

V. SUBSISTENCE USES AND NEEDS EVALUATION

To determine the potential impact on existing subsistence activities, three evaluation criteria were analyzed relative to existing subsistence resources that could be impacted.

The evaluation criteria are as follows:

1. the potential to reduce important subsistence fish and wildlife populations by (a) reductions in numbers, (b) redistribution of subsistence resources, or (c) habitat losses;
2. what affect the action might have on subsistence fisher or hunter access; and
3. the potential for the action to increase fisher or hunter competition for subsistence resources.

The potential to reduce populations:

(a) Reduction in Numbers:

The proposed actions to implement various invasive plant control methods are not expected to cause a significant decline of wildlife species in the affected areas.

(b) Redistribution of Resources:

The proposed actions are not expected to cause a significant displacement of subsistence resources in the affected areas.

The effect on subsistence access:

The proposed actions are not expected to significantly restrict current subsistence use patterns. Access for Title VIII subsistence uses within NPS areas is permitted according to federal and state law and regulations.

The potential to increase competition:

The proposed actions are not expected to significantly restrict or increase competition for subsistence resources on federal public lands within the affected area.

VI. AVAILABILITY OF OTHER LANDS

The proposed actions are consistent with NPS mandates. There are no other lands available for this action because the NHL boundaries were established by Congress to achieve specific purposes.

VII. ALTERNATIVES CONSIDERED

No other alternatives were identified that would reduce or eliminate the use of NPS public lands needed for subsistence purposes.

VII. FINDINGS

This analysis concludes that none of the proposed actions will not result in a significant restriction of subsistence uses.

APPENDIX C

DECLARATION OF RESTRICTIONS

KENNECOTT SUBDIVISION

THIS DECLARATION made and dated this 15th DAY OF September 1976, by THE GREAT KENNICOTT LAND COMPANY, an Alaska Limited Partnership, hereinafter referred to as "Declarant".

WHEREAS, said Declarant is the owner of a certain tract of land situate in the State of Alaska described as follows:

KENNICOTT MILL SITE UNIT
KENNICOTT SUBDIVISION
PLAT # 76-12 CHITINA RECORDING DISTRICT
THIRD JUDICIAL DISTRICT, STATE OF ALASKA

AND, WHEREAS, said Declarant is about to convey said property, which it desires to subject to certain restrictions, conditions, covenants and agreements between itself and the grantees of said property, as hereinafter set forth:

NOW, THEREFORE, Declarant hereby declares that all of the properties described above shall be held, sold and conveyed subject to the following easements, restrictions, covenants and conditions, all of which are for the purpose of enhancing and protecting the value, desirability, and attractiveness of the real property. These easements, covenants, restrictions and conditions shall run with the real property and shall be binding on all parties having or acquiring any right, title or interest in the described properties and any part thereof, and shall inure to the benefit of each owner thereof.

1. Land Use and Building Type. No lot shall be used except for residential purposes unless otherwise approved by the Architectural Control Committee. No building shall be erected, altered, placed or permitted to remain on any lot other than one (1) detached single family dwelling not to exceed two (2) stories in height and a private garage for not more than two (2) cars. Storage buildings and warehouses not exceeding 1,000 square feet in size may also be constructed as long as the construction and appearance is in conformity with the residential structure. No building regardless of condition shall be removed or dismantled without the express written permission of the Architectural Control Committee.

2. Architectural Control. No building shall be erected, placed or altered on any lot until the construction plans and specifications and the plans showing the location

of this structure have been approved by the Architectural Control Committee as to quality of workmanship and materials, harmony of external design with existing structures, and as to location with respect to topography and finish grade elevations.

3. Building Locations. No building shall be located on any lot nearer than twenty (20) feet to the rear lot line and no building shall be located nearer than ten (10) feet to any interior lot line. No sewage disposal system shall be located nearer than one hundred (100) feet to any watercourse or at such greater distance as specified by any governmental authority. For the purposes of this covenant, eaves, steps, and open porches, shall not be considered a part of a building, provided, however, that this shall not be constructed to permit any portion of a building on a lot to encroach upon another lot.

4. Easements. Easements for installation and maintenance of utilities and drainage facilities are reserved as shown on the recorded plat and within all road easements. Within these easements, no structure, planting or other materials shall be placed or permitted which any damage or interfere with the installation and maintenance of utilities.

5. Lot Area and Width. The area of the lots shall not be reduced in size by resubdivision, except that the owners of three (3) contiguous lots may divide the inner or the middle lot, thus increasing the size of the two (2) remaining lots which shall then be treated for all purposes pertinent to these covenants as enlarged single lots. All resubdivisions shall be submitted to the Architectural Control Committee.

6. Oil and Mining Operations. No oil drilling, oil development operations, oil refining, quarrying or mining operations of any kind shall be permitted upon or in any lot, nor shall oil wells, tanks, tunnels, mineral excavations or shafts be permitted upon or in any lot. No derrick or other structure designed for use in boring for oil or natural gas shall be erected, maintained or permitted upon any lot.

7. Nuisances. No noxious or offensive activities shall be carried on within the lots, nor anything be done thereon which may be or may become an annoyance to the other lot owners. No owner shall permit or cause anything to be done or kept upon the lots which will obstruct or interfere with the rights of the owners, nor will any owner commit or permit any nuisance on the premises, or commit or cause any illegal act to be committed thereon. Each owner shall comply with all of the requirements of the local or state health authorities and with all other governmental authorities with respect to the occupancy use of the residence.

8. Vehicles: No vehicle which shall be in an inoperative condition shall be parked or left on the property. Recreational vehicles may be parked only on the lot of the owner.

9. Signs. No signs, posters, displays, or other advertising devices of any character shall be erected or maintained on, or shown or displayed from the residences or

lots without prior written approval having been obtained from the Architectural Control Committee; provided, however, that the restrictions of this paragraph shall not apply to any sign or notice of customary and reasonable dimension which states that the premises are for rent or sale. Address, identification signs and mailboxes may be maintained by the owner. The Architectural Control Committee may summarily cause all unauthorized signs to be removed and destroyed. This section shall not apply to any signs used by Declarant or its agents in sale of the property.

10. Pet Regulations. No animals, livestock, or poultry shall be kept on any lot except for domestic dogs, cats, or other household pets provided they are not kept, bred or raised therein for commercial purposes or in unreasonable quantities. As used in this Declaration, "unreasonable quantities" shall be deemed to limit the number of dogs, cats and domestic pets to three (3). The Architectural Control Committee shall have the right to prohibit maintenance of any animal which constitutes, in the opinion of the Architectural Control Committee, a nuisance to any other owner.

11. Temporary Structures. No Temporary structure, boat, truck, trailer, camper or recreational vehicle of any kind shall be used as a permanent living area; however, trailers or temporary structures for use incidental to the initial construction of the improvements on the property may be maintained thereon, but shall be removed within a reasonable time upon completion of construction of the project.

12. Rubbish Removal. Thrash, garbage, or other waste shall be disposed of only by depositing same, wrapped in a secure package, into designated trash containers. No portion of the property shall be used for the storage of building materials, refuse or any other materials other than in connection with approved construction and only until said construction is completed. There shall be no exterior fires whatsoever except those contained within receptacles therefor.

13. Sewage Disposal. No individual sewage disposal system shall be permitted on any lot unless such system is designed, located and constructed in accordance with the requirements, standards and regulations of the appropriate governmental authorities and the Architectural Control Committee.

14. Timber. No standing timber shall be cut except that which is necessary and reasonable for clearing for dwellings or other buildings or that which is necessary and reasonable to remove hazardous and dangerous timber or for the clearing of roadways on any lot.

15. Architectural Control Committee. The Architectural Control Committee shall initially be composed of three (3) persons as designated by Declarant. A majority of the committee may designate a representative to act for it. In the event of death or resignation of any member of the committee, the remaining members shall have the authority to designate a successor. Neither the members of the committee nor its designated representative shall be entitled to any compensation for the services performed pursuant to these covenants. Declarant shall retain the right to appoint or replace

members of the Architectural Control Committee until three (3) years after the date of the recording of this Declaration or when seventy-five percent (75%) of the lots in the subdivision have been conveyed by Declarant, whichever shall first occur, provided that Declarant may, or at its sole option, release this right by written notice thereof prior to the end of such period.

16. Approval and conformity of Plans. No building, fence, wall, or other structure shall be commenced, erected or maintained upon the property, nor shall any exterior addition to or change or alteration in any such structure be made:

a) Until there have been approved by the Architectural Control Committee plans and specifications showing the nature, kind, shape, height, materials, exterior color, appearance and locations of such structure. Before granting such approval, the Architectural Control Committee shall have, in its reasonable judgement, determined that the plans and specifications conform to such architectural standards, if any, as may from time to time be adopted by the Architectural Control Committee and provide for a structure which is in harmony as to external design and location with surrounding structures and topography; and

b) Which are not constructed in accordance with such approved plans and specifications.

Such plans and specifications are not approved for engineering design, and, by approving such plans and specifications, neither the Architectural Control Committee, the members thereof, nor Declarant assumes liability or reasonability therefor or for any defect in any structure constructed from such plans and specifications. In the event the Architectural Control Committee fails to approve or disapprove such plans and specifications within thirty (30) days after the same have been submitted to it, such plans and specifications will be deemed approved.

17. Term. All of the restrictions, conditions, covenants and agreements shall affect all of the lots as hereinabove set forth and are made for the direct and reciprocal benefit thereof, and in furtherance of a general plan for the improvement of said tract, and the convenience shall attach to and run with the land. Said restrictions, conditions and covenants shall be binding on all parties and all persons claiming under them for a period of twenty-five (25) years from the date hereof, after which time they shall be automatically extended for successive periods of ten (10) years unless an instrument signed by a majority of the then record owners of lots has been recorded, agreeing to change said covenants in whole or in part.

18. Enforcement. If any lot owner or their successors shall violate or attempt to violate any of the covenants herein during the period for which they are enforced, it shall be lawful for any person owning any real property subject thereto to prosecute any proceedings at law or in equity against the person or persons, violating or attempting to violate any such convenience, and prevent him or them from so doing or to recover damages for such violation.

19. Subordination. It is further provided that any breach of these conditions or any action or proceeding undertaken by reason thereof shall not defeat or render invalid the lien of any mortgage or deed of trust made in good faith and for value as to the said premises or any part thereof; provided, however, that these covenants and conditions shall be binding upon and effective against any owner of the said premises whose title thereto is acquired by foreclosure, trustee sale or otherwise.

20. Severability. Invalidation of any one or more of these covenants by judgement or court order shall in no wise affect any of the other provisions which shall remain in full force and effect.

Signed September 29, 1976

**PROGRAMMATIC AGREEMENT AMONG THE
NATIONAL PARK SERVICE
(U.S. DEPARTMENT OF THE INTERIOR),
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
AND THE NATIONAL CONFERENCE OF STATE HISTORIC
PRESERVATION OFFICERS FOR COMPLIANCE WITH SECTION 106
OF THE NATIONAL HISTORIC PRESERVATION ACT**

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WHEREAS, the National Park Service (NPS) plans for, operates, manages, and administers the National Park System (System) and is responsible for identifying, preserving, maintaining, and interpreting the historic properties of the System unimpaired for the enjoyment of future generations in accordance with the 1916 National Park Service Organic Act, the NPS Management Policies (2006), and applicable NPS Directors Orders; and

WHEREAS, the operation, management, and administration of the System entail undertakings that may affect historic properties (as defined in 36 CFR Part 800), which are therefore subject to review under Sections 106, 110(f) and 111(a) of the National Historic Preservation Act as amended (NHPA) (16 USC 470 *et seq.*) and the regulations of the Advisory Council on Historic Preservation (ACHP) (36 CFR Part 800); and

WHEREAS, the NPS has established management policies, director's orders, standards, and technical information designed for the identification, evaluation, documentation, and treatment of historic properties consistent with the spirit and intent of the NHPA; and

WHEREAS, the NPS has a qualified staff of cultural resource specialists to carry out programs for historic properties; and

WHEREAS, the purpose of this Programmatic Agreement (PA) is to establish a program for compliance with Section 106 of the NHPA and set forth a streamlined process when agreed upon criteria are met and procedures are followed; and

WHEREAS, signature and implementation of this PA does not invalidate park-, Region-, or project-specific memoranda of agreement (MOA) or programmatic agreements negotiated for Section 106 purposes prior to the effective date of this PA; and

WHEREAS, Federally recognized Indian Tribes are recognized by the U.S. government as sovereign nations in treaties and as unique political entities in a government-to-government relationship with the United States; and

WHEREAS, the NPS has conducted a series of "listening" meetings with Indian Tribes, has requested the input of a number of Native Advisors in the process of preparing this PA, and has held consultation meetings with Federally recognized Indian Tribes, Native Hawaiian organizations, and other parties on the content of the PA; and

WHEREAS, 36 CFR 800.2 (c)(2)(i)(A) and (B) provide for consultation with Indian Tribes on the same basis as the State Historic Preservation Officer (SHPO) when an undertaking will occur on or affect historic properties on tribal lands; and

WHEREAS, in accordance with 36 CFR 800.14(b)(2)(iii), a PA shall take effect on tribal lands only when the designated representative of the tribe is a signatory to the agreement; and

WHEREAS, for those parks located partly or wholly within tribal lands, the NPS has invited the applicable Tribal Historic Preservation Officer (THPO) or Indian Tribe to sign this PA as an Invited Signatory; and

WHEREAS, the NPS has consulted with the NCSHPO and the ACHP regarding ways to ensure that NPS operation, management, and administration of the Parks provide for management of the Parks' historic properties in accordance with the intent of NPS policies, director's orders and Sections 106, 110, 111, and 112 of the NHPA.

NOW, THEREFORE, the NPS, the NCSHPO, the ACHP, and the signatory tribes mutually agree that the NPS will carry out its Section 106 responsibilities with respect to operation, management, and administration of the Parks in accordance with the following stipulations.

PURPOSE AND NEED

NPS park operations, management, and administration require a large number of low-impact or repetitive activities on a daily basis that have the potential to affect properties listed in or determined eligible for the National Register of Historic Places and require consultation under Section 106. This PA provides an efficient process for compliance with Section 106 for daily NPS park operations, management, and administration activities. It establishes two processes for Section 106 review: a "streamlined" review process for designated undertakings that meet established criteria and a "standard" review process for all other undertakings. This PA also provides programmatic procedures and guidance for other activities related to the Section 106 compliance process, including identification of resources, consultation, and planning.

The NPS shall ensure the following measures are implemented.

I. RESPONSIBILITIES, QUALIFICATIONS, AND TRAINING

The following sections list the responsibilities and required qualifications for those individuals responsible for implementing this PA.

A. Responsibilities

1. Director, National Park Service

The Director has policy oversight responsibility for the agency's historic preservation program. The Director, through the Deputy Director for Operations, executes this PA for the NPS and provides policy level oversight within the NPS to ensure that stipulations of the PA are met.

2. Associate Director for Cultural Resources

The Associate Director for Cultural Resources (ADCR) provides national leadership for policy implementation through establishing standards and guidance for managing cultural resources within the Parks. The ADCR works with the NPS regions and parks to ensure and support compliance with the stipulations of this PA and provides accountability to the signatories of this PA with regard to its implementation. The ADCR is responsible for working with Regions and Parks to develop and fund training needs related to Section 106 and the implementation of the PA. The ADCR in cooperation with the regions and parks, is responsible for issuing a guidance document for this agreement within 12 months of its execution. At the time of execution of this PA, the ADCR also holds the title of Federal Preservation Officer (FPO).

3. Regional Directors

The Regional Director is the line manager for all Superintendents within his/her region. The Regional Director is responsible for policy oversight, strategic planning, and direction for parks and programs within the region and reports to the Director through the NPS Deputy Director for Operations. Review and support of Park and Superintendent implementation of this PA and training to achieve Section 106 compliance is the responsibility of the Regional Director.

4. Regional Section 106 Coordinators

The Regional Section 106 Coordinators work with parks and other NPS offices to provide support for Section 106 compliance and implementation of this PA. The Regional Section 106 Coordinators provide guidance materials and technical assistance for implementing the PA and assist the parks to meet the training, reporting, and consultation requirements of the PA.

5. Superintendents

Superintendents are the responsible agency officials as defined in 36 CFR 800.2(a) for purposes of Section 106 compliance and the implementation of this PA.

Each Superintendent shall do the following within his/her park:

- a. Designate a Park Section 106 Coordinator and a Cultural Resource Management (CRM) Team meeting the necessary qualifications;
- b. Develop and maintain relationships with Federally recognized Indian Tribal governments and Native Hawaiian organizations (if applicable);
- c. Develop and maintain relationships with SHPOs/THPOs;
- d. Ensure early coordination among the Section 106 Coordinator, the CRM Team, and other park and regional staff, concessioners, park partners, neighboring communities, groups affiliated with park resources, and others in the planning of projects and activities that may affect historic properties;
- e. Ensure that Section 106 consultation with the SHPO/THPO and other consulting parties is initiated early in the planning stages of any given undertaking, when the widest feasible range of alternatives is available for consideration;
- f. Ensure that the Park Section 106 Coordinator, CRM Team Members and the park cultural resources staff receives the NHPA training needed to carry out their responsibilities. Provide opportunities for other involved staff to receive NHPA training as funding and opportunities permit.

6. Park Section 106 Coordinator

The Park Section 106 coordinator provides day-to-day staff support for Section 106 activities and serves as liaison among park personnel, the NPS Regional Office, NPS Centers, and others involved in undertakings. The coordinator makes recommendations to the Superintendent regarding the appropriate course of action under this PA, including whether a project constitutes a Section 106 undertaking.

7. Cultural Resource Management (CRM) Team

The CRM Team shall provide expertise and technical advice to the Superintendent and the Park Section 106 Coordinator for purposes of Section 106 compliance and implementation of this PA.

B. Qualifications

1. Park Section 106 Coordinator

The Superintendent shall designate at least one (1) person to act as the park's Section 106 Coordinator, whose Section 106 responsibilities are specified, as appropriate. The designee may be chosen from the park staff, other NPS parks, NPS archeological and preservation centers, and the NPS Regional Office. The Park Section 106 Coordinator shall have an appropriate combination of professional training and/or experience to effectively carry out the responsibilities of the position.

2. Cultural Resource Management (CRM) Team

The Superintendent shall designate a CRM Team with expertise to fulfill and implement the requirements of this PA, whose Section 106 responsibilities are specified, as appropriate.

- a. Subject matter experts chosen must be appropriate to the resource types found in the park. Therefore, the number of individuals who comprise the CRM Team is not static and will be appropriate to include all necessary disciplines. Multi-disciplinary reviews of proposed undertakings are recommended.
- b. CRM Team members may be on the park staff or in other parks, or from NPS Regional Offices, NPS Centers, Federally recognized Indian Tribes, Native Hawaiian organizations, or elsewhere in the public or private sector.
- c. CRM Team members who are federal employees shall meet the qualifications for the applicable discipline as defined in Appendix E to NPS-28: Cultural Resource Management Guideline. CRM Team members who are representing Federally recognized Indian Tribes may be traditional cultural authorities, elders, and others experienced in the preservation of tribal culture. All other CRM team members, who are not federal employees or representing a Federally recognized Indian Tribe, must meet the Professional Qualification Standards in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.

C. Training

Periodic training on Section 106 compliance issues and the provisions of this PA is needed to maintain an understanding of the requirements of each. Such training may be accessed through the NPS, the ACHP, SHPOs/THPOs, Indian Tribes, Native Hawaiian organizations, other Federal or state agencies or private industry. Training may be in a classroom setting, electronic media, meetings, or other formats that allow for the conveyance of information. The NPS Washington Office, in consultation with the NPS parks, regions, and training centers, will work with the ACHP and NCSHPO to establish options for training in accordance with this PA, within 12 months from the time of execution of this PA.

1. All Superintendents and Section 106 coordinators will be notified of the opportunity to receive training on the provisions of this programmatic agreement once it has been made available by the NPS Washington Office. The NPS ADCR will work with the Regional 106 coordinators to accomplish this training throughout the Regions and parks within 12 months of its availability.
2. Superintendents will report on Section 106 training received by Superintendents and park staff as part of the biennial report (Section VIII.B of this agreement).

II. CONSULTATION

A. Consultation with Federally Recognized Indian Tribes and, THPOs, and Native Hawaiian Organizations

Government-to-government consultation with Federally recognized Indian Tribes and consultation with Native Hawaiian organizations shall occur at the Superintendent level and be initiated during planning and prior to undertaking an activity, program or project that may affect historic properties of significance to Federally recognized Indian tribes or Native Hawaiian organizations. Maintaining an on-going consultative relationship with THPOs and/or staff of Federally recognized Indian Tribes and Native Hawaiian organizations is essential.

1. Consultation on Undertakings off Tribal Lands

Superintendents shall identify, compile a list of, and consult with Federally recognized Indian Tribes, THPOs and Native Hawaiians that are known to have aboriginal lands within the park boundaries, assert an interest in historic properties within the park boundaries, or have lands or interest in lands adjacent to the park.

- a. Such consultation will be in accordance with 36 CFR 800.2(c)(2)(ii), NPS Director's Order 75A: Public Engagement and Public Involvement, and with Sections III and IV of this PA.
- b. Each Superintendent, with the assistance of park and Regional Office ethnographers, will be responsible for identifying aboriginal lands within the park boundary, working cooperatively with the appropriate Federally recognized Indian Tribes and Native Hawaiian organizations.
- c. Superintendents, in consultation with the Park Section 106 Coordinator and the CRM Team, shall establish a process and develop consultation agreements, where appropriate, that provide for early coordination between the park and Federally recognized Indian tribes, THPOs, and/or Native Hawaiian organizations in identification and evaluation of historic properties and the planning of projects and activities that may affect historic properties.
- d. Identification and evaluation of historic properties on aboriginal lands must be based upon consultation with the appropriate traditionally associated communities.

2. Consultation on Undertakings on Tribal Lands

For those undertakings that either occur on tribal lands or will otherwise have the potential to affect historic properties on tribal lands, including cumulative impacts from collectively significant actions taking place over a period of time, the Superintendent shall consult with that tribe on the same basis as he or she consults with the SHPO.

- a. Where the Tribe has assumed the SHPO's responsibility for Section 106 pursuant to Section 101(d)(2) of the NHPA, the Superintendent shall consult with the THPO in lieu of the SHPO, except as provided for in Section 101(d)(2)(D)(iii).
- b. Where the Tribe has not assumed the SHPO's responsibility for Section 106, the Superintendent shall consult with the Tribe's designated representatives in addition to and on the same basis as the SHPO. The Tribe shall have the same rights of consultation and concurrence as the SHPO.

3. **Applicability of this PA on Tribal Lands**

When a park is located partly or wholly within the boundaries of tribal lands, and the tribe has not signed this PA as an Invited Signatory, any undertaking that may occur on those tribal lands shall require consultation with the Tribe and/or THPO in accordance with 36 CFR Part 800, and the provisions of this PA are not applicable.

A tribe may sign this PA by written notification to the Director of such intent, signed by the THPO, Indian tribe, or a designated representative of the tribe. Once such a written and signed notification is received by the Director, the provisions of this PA will be applicable to undertakings occurring on those lands where a park is located partly or wholly within the boundaries of that particular tribe's tribal lands.

4. **Development of Agreements to Facilitate Government-to-Government Consultation with Federally recognized Indian Tribes and Consultation with Native Hawaiian Organizations**

Development of consultation protocols, memoranda of agreement and programmatic agreements is encouraged. Such agreements may be negotiated between Superintendents and Federally recognized Indian Tribes, THPOs, or Native Hawaiian organizations and may be independent of or supplement this PA. For example, such agreements may be specific to a project, plan, or park activity, or may set forth specific consultation protocols between the park and a specific tribe or group of Native peoples. Superintendents will provide an informational copy of all agreements to the Regional Section 106 Coordinator and to the ACHP and appropriate SHPO/THPO in accordance with 36 CFR 800.2(c)(2)(ii)(E).

B. Consultation with SHPOs

Consultation with SHPOs on projects reviewed in accordance with the Standard Review Process will occur in accordance with the procedures set forth in Section IV of this PA. Consultation with SHPOs on implementation of this PA will occur biennially in accordance with Section VIII of this PA.

C. Consultation with Local Governments and Applicants for Federal Assistance, Licenses, Permits, and Other Approvals

Where appropriate, the Superintendent shall actively seek the views and comments of local governments and certified local governments. Those seeking Federal assistance, licenses, permits, or other approvals are entitled to participate as a consulting party as defined in 36 CFR 800.2(c)(4) and will be consulted, as applicable.

D. Consultation with the Public

Superintendents will consult with interested members of the public.

E. General Consultation Provisions

1. Section 110 Inventory of Historic Properties

The parks implement a program to identify, evaluate, and, when appropriate, nominate historic properties to the National Register of Historic Places in accordance with Section 110(a)(2)(d) of the NHPA. Research and testing of all types of historic properties for purposes of identification and evaluation must be limited to the minimum necessary to obtain the required inventory and evaluative information. Early coordination on the identification and evaluation of historic properties should be undertaken with Federally recognized Indian Tribes or Native Hawaiian organizations, as appropriate, utilizing tribal knowledge and expertise wherever applicable. Knowledge and data from appropriate sources of expertise should be utilized, including SHPOs, local governments, Indian Tribes, Pacific Islanders, and national and local professional and scientific organizations. Inventory records should be periodically reviewed and updated, as necessary, to ensure data on historic properties, including condition information, is current, and any previous evaluations of significance remain accurate.

2. Information Sharing: Historic Property Inventories

Parks, NPS Regional Offices, NPS Centers, and SHPOs will share information with each other regarding inventories of historic properties and historic contexts developed, as well as other reports and research results related to historic properties in the parks, whenever such studies become available. In addition, parks, NPS Regional Offices, and NPS Centers will make such information available to interested Federally recognized Indian Tribes, THPOs, and Native Hawaiian organizations. Federally recognized Indian Tribes who are signatories to this PA will, likewise, make such information available to NPS parks and Regional Offices, as appropriate. Information will be shared with the understanding that sensitive information will be withheld by the recipient of the information from public disclosure pursuant to Section 304 of NHPA and other applicable laws. Procedures for information sharing and format for information (i.e. electronic, hard copy, etc.) should be agreed upon between the parties.

3. Notification of Park Section 106 Coordinator

The National Park Service will provide contact information on Section 106 coordinators to Indian Tribes, SHPOs/THPOs, and Native Hawaiian organizations for each park through the Regional Office from the Regional 106 Coordinator within six months of this PA and updated biennially.

4. Review and comment on guidance and training documents

The ADCR will consult with the ACHP and NCSHPO in the development of training materials and guidance for this PA.

F. Development of Agreements to Facilitate Consultation

Development of consultation protocols, memoranda of agreement, and programmatic agreements is encouraged. Such agreements may be negotiated between Superintendents and organizations or governments and may be independent of or supplement this PA. For example, such agreements may be specific to a project, plan, or park activity, or may set forth specific consultation protocols between the park and a specific group, state, or local government. Superintendents will provide an informational copy of all agreements to the Regional Section 106 Coordinator and to the ACHP and appropriate SHPO/THPO in accordance with 36 CFR 800.2(c)(2)(ii)(E).

III. STREAMLINED REVIEW PROCESS

Where the Park Section 106 Coordinator determines the following criteria are met for a proposed undertaking, no further consultation is required unless otherwise specifically requested by the SHPO/THPO, Federally recognized Indian Tribe(s) or Native Hawaiian organization(s), or the ACHP.

A. Criteria for Using the Streamlined Review Process

All of the following criteria must be met in order to use the Streamlined Review Process:

1. The proposed undertaking must be an activity eligible for streamlined review, listed in Section III.C of this PA. These undertakings shall be known as "streamlined activities" for purposes of reference and replace the term "nationwide programmatic exclusions" set forth in the 1995 Programmatic Agreement between the NPS, the ACHP, and the NCSHPO; and
2. Identification and evaluation of all types of historic properties within the project area of potential effect (APE) must have been previously undertaken, sufficient to assess effects on those resources (with the exception of V.C (16)). Identification and evaluation of historic properties of religious and cultural significance to Indian tribes and Native Hawaiian organizations must be based upon consultation

with those entities. All properties within the APE must have previously been evaluated for eligibility to the National Register of Historic Places and the SHPO/THPO must have concurred with the eligibility determination. Inventory records should be periodically reviewed and updated, as necessary, to ensure data on historic properties, including condition information, is current, and any previous evaluations of significance remain accurate; and

3. The Section 106 Coordinator, in consultation with appropriate members of the CRM Team must have reviewed the project and certified that the effects of the proposed undertaking on historic properties on or eligible for the National Register will ***not be adverse*** based on criteria in 36 CFR 800.5, including consideration of direct, indirect, and cumulative effects. The Effect Finding must be "No Historic Properties Affected" or "No Adverse Effect".

B. Streamlined Review Process

1. *Evaluate Whether the Proposed Undertaking is Eligible for Streamlined Review:* The Park Section 106 Coordinator, in consultation with appropriate members of the CRM Team, determines whether the proposed undertaking is an activity listed as an undertaking eligible for streamlined review in Section III.C of this PA. If not, compliance for the undertaking must be accomplished through the Standard Review Process, outlined in Section IV of this PA.
2. *Identify the Undertaking's Area of Potential Effect (APE):* The Park Section 106 Coordinator, in consultation with members of the CRM Team with expertise in the appropriate discipline(s), determines the project's APE, taking into account direct, indirect, and cumulative effects.
3. *Identify Historic Properties within APE:* The Park Section 106 Coordinator, in consultation with members of the CRM Team with expertise in the appropriate discipline(s), identifies the location, number, and significance of historic properties within the APE. If properties are located within the APE that have not yet been documented or evaluated for eligibility for the National Register of Historic Places, or if the SHPO/THPO has not yet concurred with the eligibility determination, compliance for the undertaking must be accomplished through the Standard Review Process, outlined in Section IV of this PA.
4. *Evaluate Effect of Undertaking on Historic Properties in APE:* The Park Section 106 Coordinator, in consultation with members of the CRM Team with expertise in the appropriate discipline(s), evaluates the effect of the proposed undertaking and cumulative effects on historic properties, applying the Criteria of Adverse Effect set forth in 36 CFR 800.5(a)(1)
5. *Document Streamlined Review Process:* If, after following steps one through four (1-4) listed above, the Park Section 106 Coordinator determines no historic properties are within the APE, or the proposed undertaking would result in a

determination of "no historic properties affected" or "no adverse effect", no further consultation is required. The Park Section 106 Coordinator shall document the determination as follows:

- a. The Streamlined Review process will be documented using the NPS "Assessment of Actions Having an Effect on Cultural Resources" form, or another appropriate format. Parks are encouraged to use Servicewide automated project planning and tracking systems, such as the NPS Planning, Environment and Public Comment (PEPC) system, to track and document Section 106 compliance activities.
- b. Documentation will include the comments of each member of the CRM Team involved in the review process and the signature of the Superintendent. Electronic signatures are acceptable.
- c. Documentation will be permanently retained by the Park Section 106 Coordinator for review by consulting parties and to facilitate the preparation of the Annual Report.
- d. Annual Report: An annual report of all undertakings reviewed using the Streamlined Review process will be prepared by the Park Section 106 Coordinator, using existing and readily available data sources and reporting systems such as the NPS Planning, Environment and Public Comment (PEPC) system, for transmittal to the SHPO/THPO.

C. Undertakings Eligible for Streamlined Review

1. **Preservation Maintenance and Repair of Historic Properties:** The Streamlined Review Process is intended to be used for:

- Mitigation of wear and deterioration of a historic property to protect its condition without altering its historic character;
- Repairing when its condition warrants with the least degree of intervention including limited replacement in-kind;
- Replacing an entire feature in-kind when the level of deterioration or damage of materials precludes repair; and
- Stabilization to protect damaged materials or features from additional damage.

Use of the Streamlined Review Process is limited to actions for retaining and preserving, protecting and maintaining, and repairing and replacing in-kind, as necessary, materials and features, consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (Standards) and the accompanying guidelines.

Emergency stabilization, including limited replacement of irreparably damaged features or materials and temporary measures that prevent further loss of historic

material or that correct unsafe conditions until permanent repairs can be accomplished, may use the Streamlined Review Process. For archeological sites and cultural landscapes, the Streamlined Review Process may also be used for work to moderate, prevent, or arrest erosion.

If the project activities include ground disturbance, archeological monitoring may be appropriate throughout the ground disturbing activities, in accordance with any recommendation of the CRM Team. When monitoring is recommended, members of any appropriate Federally recognized Indian Tribes or Native Hawaiian organizations may be invited to participate in monitoring.

The Streamlined Review Process may be used for routine repairs necessary to continue use of a historic property, but it is not intended to apply to situations where there is a change in use or where a series of individual projects cumulatively results in the complete rehabilitation or restoration of a historic property. If an approved treatment plan exists for a given historic property (such as a historic structure report, cultural landscape report, or preservation maintenance plan), the proposed undertaking needs to be in accordance with that plan. This streamlined activity includes the following undertakings, as well as others that are comparable in scope, scale, and impact:

- a. Removal of non-historic debris from an abandoned building.
- b. Cleaning and stabilizing of historic structures, features, fences, stone walls, plaques, and cannons using treatment methods that do not alter or cause damage to historic materials.
- c. Repainting in the same color as existing, or in similar colors or historic colors based upon an approved historic structure report, cultural landscape report, or a historic paint color analysis.
- d. Removal of non-historic, exotic species according to Integrated Pest Management principles when the species threatens cultural landscapes, archeological sites, or historic or prehistoric structures.
- e. Energy improvements limited to insulation in the attic or basement, and installation of weather stripping and caulking.
- f. In-kind repair and replacement of deteriorated pavement, including, but not limited to, asphalt, concrete, masonry unit pavers, brick, and stone on historic roads, paths, trails, parking areas, pullouts, etc.
- g. Repair or limited in-kind replacement of rotting floorboards, roof material, or siding. Limited in-kind replacement refers to the replacement of only those elements of the feature that are too deteriorated to enable repair, consistent with the Standards.
- h. In-kind replacement of existing gutters, broken or missing glass panes, retaining walls, and fences.

2. Rehabilitation and/or Minor Relocation of Existing Trails, Walks, Paths, and Sidewalks: The Streamlined Review Process may be used for undertakings proposed on existing non-historic trails, walks, paths, and/or sidewalks that are

located within previously disturbed areas and do not exceed the depth of the previous disturbance. The Streamlined Review Process may also be used for undertakings proposed on existing historic trails, walks, paths, and/or sidewalks, provided that the proposed undertaking is conducted in accordance with an approved treatment plan (such as a historic structure report, cultural landscape report, or preservation maintenance plan).

If the project activities include ground disturbance, archeological monitoring may be appropriate throughout the ground disturbing activities, in accordance with any recommendation of the CRM Team. When monitoring is recommended, members of any appropriate Federally recognized Indian Tribes or Native Hawaiian organizations may be invited to participate in monitoring.

This streamlined activity includes the following undertakings, as well as others that are comparable in scope, scale, and impact:

- a. In-kind regrading, graveling, repaving, or other maintenance treatments of all existing trails, walks and paths within existing disturbed alignments.
- b. Minor realignment of trails, walks, and paths where the ground is previously disturbed as determined by a qualified archeologist.
- c. Changing the material or color of existing surfaces using materials that are recommended in an approved treatment plan or in keeping with the cultural landscape.
- d. Construction of water bars following the recommendations of an approved treatment plan or in keeping with the cultural landscape.

3. Repair/Resurfacing/Removal of Existing Roads, Trails, and Parking Areas:

The Streamlined Review Process may be used as follows:

- a. Existing roads, trails, parking areas, and associated features that have been determined not eligible for the National Register in consultation with the SHPO/THPO, may be repaired or resurfaced in-kind or in similar materials as long as the extent of the project, including staging areas, is contained within the existing surfaced areas. The repair or resurfacing cannot exceed the area of the existing road surface and cannot exceed the depth of existing disturbance.
- b. Existing roads, trails, parking areas, and associated features, that have been determined eligible for the National Register in consultation with the SHPO/THPO, may be repaired or resurfaced in-kind. The project, including staging areas, cannot exceed the area of the existing surface and cannot exceed the depth of existing disturbance.
- c. Existing surfaced areas may be expanded or new surfaces constructed if the extent of new surfacing can be demonstrated to occur on land that has been disturbed by prior excavation or construction and has been shown not to contain buried historic properties. New or expanded surface may not be

an addition to, or continuation of, existing surfaces that are listed in or eligible for the National Register and all project activities, including staging areas, must be located in non-historic areas to be eligible for streamlined review.

- d. Existing surfaced areas may be removed if the surfaced area is not a historic property, it is not located within a historic property and all project activities, including staging areas, will occur on land that has been disturbed by prior excavation or construction and has been shown not to contain buried historic properties.

- 4. Health and Safety Activities: The Streamlined Review Process may be used for health and safety activities that do not require the removal of original historic elements or alteration of the visual character of the property or area.

If the project activities include ground disturbance, archeological monitoring may be appropriate throughout the ground disturbing activities, in accordance with any recommendation of the CRM Team. When monitoring is recommended, members of any appropriate Federally recognized Indian Tribes or Native Hawaiian organizations may be invited to participate in monitoring.

This streamlined activity includes the following undertakings, as well as others that are comparable in scope, scale, and impact:

- a. Sampling/testing historic fabric to determine hazardous content, e.g. lead paint, asbestos, radon.
- b. Limited activities to mitigate health and safety problems that can be handled without removal of historic fabric, surface treatments, or features that are character-defining elements, or features within previously disturbed areas or areas inventoried and found not to contain historic properties.
- c. Testing of soil and removal of soil adjacent to buried tanks, provided the project does not exceed the area of existing disturbance and does not exceed the depth of existing disturbance, as determined by a qualified archeologist.
- d. Removal of oil or septic tanks within previously disturbed areas or areas inventoried and found not to contain historic properties.
- e. Removal of HAZMAT materials within previously disturbed areas or areas inventoried and found not to contain historic properties.
- f. Safety activities related to black powder regulations.
- g. Replacement of septic tanks and systems in previously disturbed areas, or areas inventoried and found not to contain historic properties.
- h. Common pesticide treatments.
- i. Removal of both natural and anthropogenic surface debris following volcanic activity, tropical storms, hurricanes, tornados, or similar major weather events, provided removal methods do not include ground disturbance or otherwise cause damage to historic properties.

5. Routine Grounds Maintenance: The Streamlined Review Process may be used for routine grounds maintenance activities. If an approved treatment plan exists for a given historic property (such as a historic structure report, cultural landscape report, or preservation maintenance plan), the proposed undertaking needs to be in accordance with that plan.

If the project activities include ground disturbance, archeological monitoring may be appropriate throughout the ground disturbing activities, in accordance with any recommendation of the CRM Team. When monitoring is recommended, members of any appropriate Federally recognized Indian Tribes or Native Hawaiian organizations may be invited to participate in monitoring.

This streamlined activity includes the following undertakings, as well as others that are comparable in scope, scale, and impact:

- a. Grass replanting in same locations with approved species.
- b. Woodland and woodlot management (including tree trimming, hazard tree removal, thinning, routine removal of exotic species that are not a significant component of a cultural landscape, stump grinding).
- c. Maintaining existing vegetation on earthworks, trimming trees adjacent to roadways and other historic roads and trails.
- d. Routine maintenance of gardens and vegetation within cultural landscapes with no changes in layout or design.
- e. Routine grass maintenance of cemeteries and tombstones with no tools that will damage the surfaces of stones (i.e. weed whips).
- f. Trimming of major specimen trees needed for tree health or to address critical health/safety conditions.
- g. Routine roadside and trail maintenance and cleanup with no ground disturbance.
- h. Planting of non-invasive plant species in non-historic areas.
- i. Removal of dead and downed vegetation using equipment and methods that do not introduce ground disturbance.
- j. Replacement of dead, downed, overgrown, or hazard trees, shrubs, or other vegetation with specimens of the same species.
- k. Replacement of invasive or exotic landscape plantings with similar non-invasive plants.
- l. Routine lawn mowing, leaf removal, watering, and fertilizing.
- m. Routine orchard maintenance and pruning.

6. Battlefield Preservation and Management: The Streamlined Review Process *may be used only if* the park has approved planning documents (General Management Plan, cultural landscape report, treatment plan) that specify preservation and management protocols for the subject battlefield.

If the project activities include ground disturbance, archeological monitoring may be appropriate throughout the ground disturbing activities, in accordance with any recommendation of the CRM Team. When monitoring is recommended, members of any appropriate Federally recognized Indian Tribes or Native Hawaiian organizations may be invited to participate in monitoring.

Consistent with that plan(s), activities include:

- a. Maintenance and preservation work limited to retaining, protecting, repairing, and replacing in-kind materials and features that contribute to the National Register significance of the battlefield landscape.
- b. Earthworks maintenance to prevent erosion and ensure preservation of existing profile, based on current and accepted practices identified in "Sustainable Military Earthworks Management" found on the NPS Cultural Landscape Currents website.
- c. Removal of hazard trees with no ground disturbance and with use of stump grinding provided the grinding is limited to the diameter of the stump and a depth of no greater than 6 inches.
- d. Repairing eroded or damaged sections of earthworks in-kind following archeological documentation and recordation in appropriate NPS inventory and management databases resulting in complete, accurate, and reliable records for those properties.
- e. Maintaining a healthy and sustainable vegetative cover.

7. **Hazardous Fuel and Fire Management:** The Streamlined Review Process *may be used only if* the park has an approved fire management plan or forest management plan.

If the project activities include ground disturbance, archeological monitoring may be appropriate throughout the ground disturbing activities, in accordance with any recommendation of the CRM Team. When monitoring is recommended, members of any appropriate Federally recognized Indian Tribes or Native Hawaiian organizations may be invited to participate in monitoring.

Following completion of activities under this section, post-burn inspection and monitoring should be conducted by a qualified archeologist to ensure no archeological sites were impacted or previously unknown sites revealed.

Consistent with the approved fire management plan or forest management plan, this streamlined activity includes the following undertakings, as well as others that are comparable in scope, scale, and impact:

- a. Removal of dead and downed vegetation, outside of historic districts, cultural landscapes, and archeological sites, using equipment and methods that do not introduce ground disturbance beyond documented natural or historic disturbance.

- b. Removal of dead and downed vegetation, as well as trees and brush located within historic properties, if the vegetation does not contribute to the significance of the historic property and equipment and methods are used that do not introduce ground disturbance beyond documented natural or historic disturbance.
 - c. Forest management practices, including thinning of tree stands, outside of historic districts, cultural landscapes, and archeological sites, using equipment and methods that do not introduce ground disturbance beyond documented natural or historic disturbance.
 - d. Restoration of existing fire line disturbances, such as hand lines, bulldozer lines, safety areas, helispots, and other operational areas.
 - e. Slope stabilization, to include reseeding with native seeds, replanting with native plants and/or grasses, placement of straw bales, wattles, and felling of dead trees when the root ball is left intact and in situ.
8. Installation of Environmental Monitoring Units: The Streamlined Review Process may be used for the placement of small-scale, temporary or permanent monitoring units, such as weather stations, termite bait stations, water quality, air quality, or wildlife stations, in previously disturbed areas, as determined by a qualified archeologist, or areas inventoried and found not to contain historic properties. Borings must be limited to pipes less than 2 inches in diameter and surface samples to less than 12 inches in size and minimal in number.
9. Maintenance or Replacement of Non-Historic Utility Lines, Transmission Lines, and Fences: If the project activities include ground disturbance, archeological monitoring may be appropriate throughout the ground disturbing activities, in accordance with any recommendation of the CRM Team. When monitoring is recommended, members of any appropriate Federally recognized Indian Tribes or Native Hawaiian organizations may be invited to participate in monitoring.

This streamlined activity includes the following undertakings, as well as others that are comparable in scope, scale, and impact:

- a. Maintenance or replacement of buried linear infrastructure in previously disturbed areas. The area of previous disturbance must be documented by a qualified archeologist and must coincide with the route of the infrastructure in its entirety.
- b. Replacement of non-historic materials, provided the undertaking will not impact adjacent or nearby historic properties and is not located in a historic property, or visible from an above-ground historic property.
- c. Maintenance or replacement of infrastructure, such as old water distribution systems, that has been determined to be not eligible for the National Register, in consultation with the SHPO/THPO.
- d. Maintenance of above-ground infrastructure.

- e. Replacement of above-ground infrastructure provided the undertaking is not located in a historic property or visible from an above-ground historic property.
 - f. Enhancement of a wireless telecommunications facility, including the updating of mechanical equipment, provided the activities do not involve excavation nor any increase to the size of the existing facility.
10. Erection of Signs, Wayside Exhibits, and Memorial Plaques: If an approved treatment plan exists for a given historic property (such as a historic structure report, cultural landscape report, or preservation maintenance plan), the proposed undertaking needs to be in accordance with that plan. If the project activities include ground disturbance, archeological monitoring may be appropriate throughout the ground disturbing activities, in accordance with any recommendation of the CRM Team. When monitoring is recommended, members of any appropriate Federally recognized Indian Tribes or Native Hawaiian organizations may be invited to participate in monitoring.

This streamlined activity includes the following undertakings, as well as others that are comparable in scope, scale, and impact:

- a. Replacement of existing signage in the same location with similar style, scale and materials.
 - b. New signs that meet NPS standards, e.g. at entrance to the park or related to the park's interpretive mission, provided the sign is not physically attached to a historic building, structure, or object (including trees) and the sign is to be located in previously disturbed areas or areas inventoried and found not to contain historic properties.
 - c. Replacement of interpretive messages on existing signs, wayside exhibits, or memorial plaques.
 - d. Small developments such as paved pads, benches, and other features for universal access to signs, wayside exhibits, and memorial plaques in previously disturbed areas or areas inventoried and found not to contain historic properties.
 - e. Temporary signage for closures, repairs, detours, safety, hazards, etc. in previously disturbed areas or areas inventoried and found not to contain historic properties.
 - f. Memorial plaques placed within established zones that allow for such placement.
11. Culvert Replacement: The Streamlined Review Process may be used when culvert replacement will occur within existing cut and fill profiles, and:
- a. The existing culvert and/or associated road, rail bed, or cultural landscape has been determined not eligible for the National Register, either individually or as a contributing element to a historic district or cultural landscape, in consultation with the SHPO/THPO; or

- b. The existing culvert is less than 50 years old.

12. Reburial of Human Remains and Other Cultural Items Subject to the Native American Graves Protection and Repatriation Act (NAGPRA): The Streamlined Review Process may be used for the reburial of human remains and other cultural items subject to NAGPRA. The Streamlined Review Process may only be used when:

- a. The reburial is in previously disturbed areas and does not introduce ground disturbance beyond documented disturbance; or
- b. The reburial is in previously inventoried areas found to not contain historic properties.

Any reburial in NPS-administered areas must be in conformance with NPS policies on cemeteries and burials including cultural resource policies.

13. Meeting Accessibility Standards in Historic Structures and Cultural Landscapes: The Streamlined Review Process may only be used for the following undertakings intended to meet accessibility standards:

- a. Reconstruction or repair of existing wheel chair ramps and sloped walkways provided the undertaking does not exceed the width or depth of the area of previous disturbance.
- b. Upgrading restroom interiors in historic structures within existing room floor area to achieve accessibility, unless the historic features and/or fabric of the restroom contribute to the historic significance of the structure.

14. Mechanical, Electrical and Plumbing Systems: The Streamlined Review Process may be used as follows for activities related to mechanical, electrical, and plumbing systems. Such systems may include HVAC systems, fire detection and suppression systems, surveillance systems, and other required system upgrades to keep park lands and properties functional and protected.

- a. Park areas, landscapes, buildings, and structures that have been determined not eligible for the National Register in consultation with the SHPO/THPO, may undergo installation of new systems or repair/upgrading of existing systems in accordance with the Streamlined Review Process.
- b. Properties that have been determined eligible for the National Register in consultation with the SHPO/THPO may undergo limited upgrading of mechanical, electrical, and plumbing systems. However, the Streamlined Review Process may not be used for the installation of new systems or complete replacement of these systems. If proposed activities include the removal of original historic elements or alter the visual character or the property's character-defining materials, features, and spaces, then the Streamlined Review Process may not be used.

- c. If the project activities include ground disturbance, archeological monitoring may be appropriate throughout the ground disturbing activities, in accordance with any recommendation of the CRM Team. When monitoring is recommended, members of any appropriate Federally recognized Indian Tribes or Native Hawaiian organizations may be invited to participate in monitoring.
15. Acquisition of Lands for Park Purposes: The Streamlined Review Process may be used for the acquisition of land for park purposes, including additions to existing parks. The second criterion for use of the Streamlined Review Process (identification and evaluation of all types of historic properties within the project APE; see Section III.A.2) does not apply to this activity, provided the acquisition does not include any further treatment or alteration of properties, since access to land for inventory and evaluation prior to NPS acquisition may be limited. Any known or potential historic properties on the land acquired should be protected from demolition by neglect. Pursuant to 36 CFR 800.5(a)(2)(vi), demolition by neglect constitutes an adverse effect. If any undertakings are proposed in conjunction with the acquisition that have the potential to affect historic properties, the Streamlined Review Process may not be used.
16. Leasing of Historic Properties: The Streamlined Review Process may be used provided all treatment of historic properties proposed in relation to the leasing action is consistent with undertakings eligible for Streamlined Review, set forth in Section III.C of this PA. The Streamlined Review Process may not be used where there is a change of use or where a series of individual projects cumulatively results in the complete rehabilitation or restoration of a historic property.

D. Adding to List of Undertakings Eligible for Streamlined Review

Any proposed additions or revisions to the list of undertakings eligible for streamlined review must be developed through a region-, state- or park-specific Programmatic Agreement and pursuant to 36 CFR 800.14(b). The Regional Director or Superintendent, as appropriate, will develop such agreements with SHPOs/THPOs, in consultation with Federally recognized Indian Tribes and the ACHP or others, as appropriate. If such an agreement is developed by the Superintendent, s/he will notify the Regional Director. Regional Directors will report the development of supplemental, region-, state-, or park-specific programmatic agreements to the Director on an annual basis. The NPS FPO will maintain records on supplemental agreements and provide annual notification of any such agreements to all signatories to this agreement.

IV. STANDARD REVIEW PROCESS

All undertakings that do not qualify for streamlined review as described in Section III above, will be reviewed in accordance with 36 CFR Part 800. Superintendents are responsible for compliance with these regulations. Compliance may also be accomplished through park- and/or project-specific programmatic agreements. Specific activities required will be undertaken by the

Park Section 106 Coordinator, in consultation with appropriate members of the CRM Team. Parks are encouraged to use Servicewide automated project planning and tracking systems, such as the NPS Planning, Environment and Public Comment (PEPC) system, to track and document Section 106 compliance activities and to make such automated systems accessible to compliance partners, including SHPOs/THPOs, Federally recognized Indian Tribes, Native Hawaiian organizations, and/or the ACHP. If a park executes a MOA or PA with consulting parties to resolve adverse effects, the Superintendent will provide an informational copy of the agreement to the Regional Section 106 Coordinator.

V. NATIONAL HISTORIC LANDMARKS

The NHPA provides heightened protection for designated National Historic Landmarks (NHLs) through Section 110(f) and the NHPA's implementing regulations (36 CFR 800.10). Specifically, the NHPA requires that Federal agencies shall, to the maximum extent possible, undertake planning and actions necessary to minimize harm to any NHL that may be directly and adversely affected by an undertaking.

Where the other criteria as listed in Section III.A are met, proposed undertakings that may affect a designated NHL may follow the Streamlined Review Process. Where preliminary planning activities indicate that a proposed undertaking has the potential to have an adverse effect on an NHL, prior to initiating a formal consultation process, the Superintendent will initiate an internal review process in accordance with NPS Management Policies to determine alternatives to avoid or minimize the adverse effects and to assess the possibility of impairment.

VI. INADVERTENT DISCOVERIES

In the event that historic properties are inadvertently encountered during an undertaking for which review has been previously conducted and completed under Section III or Section IV of this PA, or through other events such as erosion or animal activity, the Superintendent will notify the SHPO/THPO, Federally Recognized Indian Tribe(s), and or Native Hawaiian organization, as appropriate, within 48 hours, or as soon as reasonably possible. The Superintendent in consultation with the Section 106 Coordinator and the appropriate members of the CRM Team, will make reasonable efforts to avoid, minimize, or mitigate adverse effects on those historic properties in consultation with the SHPO/THPO, Federally recognized Indian Tribe (s), and/or Native Hawaiian organization (s), as appropriate. If human remains or other cultural material that may fall under the provisions of NAGPRA are present, the Superintendent will comply with NAGPRA and ARPA. The Superintendent will ensure that any human remains are left in situ, are not exposed, and remain protected while compliance with NAGPRA, ARPA, or other applicable federal, state, and/or local laws and procedures is undertaken.

VII. EMERGENCY ACTIONS

Emergencies are those actions deemed necessary by the Superintendent as an essential and immediate response to a disaster or emergency declared by the President, a tribal government, or the Governor of a State, or another immediate threat to life or property. Emergency actions are only those actions required to resolve the emergency at that time and they are limited to undertakings that will be started within thirty (30) days after the emergency has been declared. Such emergency actions will be consistent with the NPS Environmental Safeguards Plan for All-Hazards Emergencies and any other approved servicewide emergency response plans. The Superintendent will notify the SHPO/THPO within 24 hours of the declared emergency or as soon as conditions permit.

VIII. REVIEW AND MONITORING OF PA IMPLEMENTATION

The purpose of the PA review and monitoring process is to ensure NPS protection of historic properties in its stewardship. This is accomplished through the review of undertakings that were completed during the reporting period, review of programmed undertakings, review of implementation of the PA, and review of completion of training requirements.

A. Superintendents Biennial Review and Monitoring Meeting

In order to foster cooperative relations, each Superintendent will, at a minimum, invite consulting parties to a review meeting every two years (biennial), with the first meeting initiated within six months of the signing of this PA by all parties. If all parties agree that such a meeting is not necessary at that time, the meeting may be waived. However, Superintendents shall remain responsible for initiating biennial meetings in subsequent years. More frequent meetings may be appropriate based on specific park circumstances and therefore an alternative meeting schedule may be established, if mutually agreed upon by the parties.

1. Meetings may be conducted in any mutually agreeable location and/or format, including in- person, video conferencing or teleconferencing.
2. The primary invitees to each park's biennial review and monitoring meeting will include the applicable SHPO/THPO, Federally recognized Indian Tribes, and Native Hawaiian organizations with an interest in that park's properties. Superintendents may also consider inviting other interested parties, including Pacific Islanders, concessioners, lessees, friends groups, historic societies, or gateway communities, as appropriate.
3. Superintendents may instead choose to meet individually with some parties, particularly those that have strong interest in specific historic properties.
4. Attendance and meeting minutes will be recorded and distributed to all invited parties after the conclusion of the meeting.

5. Specific discussion items may include the following:
 - a. Any documentation pursuant to this PA.
 - b. Any inventories of historic properties developed in the previous two years, or opportunities for future inventory and research, as well as other reports and research results related to historic properties.
 - c. Programmed undertakings that are scheduled, or are likely to be scheduled, for the next two fiscal years.
 - d. Provisions of this PA as well as any project- or program-specific Memoranda of Agreement or Programmatic Agreements.
 - e. Training received by park staff during the reporting period and opportunities for cooperative training arrangements.
 - f. Names of and contact information for the Park Section 106 Coordinator and the CRM Team Members.

B. Superintendents Reporting to NPS Regional Directors

In order to inform park program review and potential ACHP evaluation of PA implementation, Superintendents will report biennially to Regional Directors on implementation of the PA. The Biennial Report shall include the streamlined review data prescribed in Section III B of this PA, training completed and basic data demonstrating compliance with the provisions of this PA as outlined in the guidance document for this agreement (Section I.A.2). ACHP, SHPOs, or THPOs may request hard copies of biennial reports.

C. Park Section 106 Program Review by NPS Regional Directors, SHPOs, THPOs, and the ACHP

1. The Regional Director may, at his/her discretion, initiate a review of a park's implementation of this PA. The ACHP, either at its own discretion, or upon request of a Federally recognized Indian Tribe, SHPO/THPO, or Native Hawaiian organization, may at any time raise with the appropriate Regional Director any programmatic or project matters where they wish the Regional Director to review a Park Superintendent's Section 106 decisions. The Regional Director will consult with the ACHP, and the Regional Director shall provide a written response to the ACHP, and where applicable, the SHPO or THPO, that documents the outcome of the consultation and the resolution. The Regional Director has the option to suspend a park's use of this PA, and subsequently reinstate it as appropriate.
2. Documentation of NPS Section 106 reviews not already provided to SHPOs, THPOs, and the ACHP will be available for review by the ACHP and the appropriate SHPO/THPO upon request. Individual SHPOs/THPOs who wish to review this documentation are responsible for specifying scheduling, frequency, and types of undertakings of concern to them.

D. NPS Regional Directors Reporting to the Director of the NPS

Regional Directors will report biennially to the Director on implementation of this PA within his/her region. Each Regional Biennial Report will be submitted within six (6) months following receipt of Park Biennial Reports by the Regional Director as required in Section VIII.B of this PA. A hardcopy of the biennial reports will be sent to the ACHP and upon request from a SHPO or THPO.

IX. SUBSEQUENT AGREEMENTS

A. Upon execution of this PA, Superintendents are encouraged to evaluate their park's programs and discuss with SHPOs/THPOs, Federally recognized Indian Tribes, Native Hawaiian organizations, and/or the ACHP ways to develop supplemental programmatic agreements for park undertakings that would otherwise require numerous individual requests for comments.

B. Development of programmatic agreements specific to a project, plan, or park may be negotiated between Superintendents and SHPOs/THPOs, Federally recognized Indian Tribes, Native Hawaiian organizations, the ACHP, and/or other consulting parties where appropriate, pursuant to 36 CFR 800.14(b), and may be independent of or supplement this PA. Superintendents will provide an informational copy of all agreements to the Regional Section 106 Coordinator.

C. Memoranda of agreement developed to resolve adverse effects for specific projects shall be negotiated between Superintendents and SHPOs/THPOs, Federally recognized Indian Tribes, Native Hawaiian organizations, and/or the ACHP, pursuant to 36 CFR 800.6(c), and shall be independent of this PA. Superintendents will provide an informational copy of all agreements to the Regional Section 106 Coordinator.

X. DISPUTE RESOLUTION

A. Should disputes arise, the Superintendent, SHPO/THPO, and/or the ACHP will consult with the objecting parties to resolve the objection. All work that is the subject of the dispute will stop until the dispute is resolved in accordance with the procedures in this section. If the dispute cannot be resolved, all documentation relevant to the dispute will be forwarded to the parties named above. If the SHPO/THPO objects to a Park Superintendent's decision, the information will be forwarded to the Regional Director. If the National Park Service objects to the SHPO/THPO's opinion, the information will be forwarded to the ACHP. If the Regional Director cannot resolve a SHPO/THPO objection, the Regional Director will forward to the ACHP relevant documentation not previously furnished to the ACHP and notify the Director of the dispute. Within thirty (30) days after receipt of all pertinent documentation, the ACHP will either:

1. Provide the Regional Director with a recommendation, with an information copy provided to the Director, which the Regional Director will take into account in reaching a final decision regarding the dispute; or
2. Notify the Regional Director that it will comment to the Director pursuant to the provisions of 36 CFR 800.7 and proceed to comment. Any ACHP comment provided in response to such a request will be taken into account by the NPS with reference to the subject of the dispute.

B. In the event the ACHP does not respond within thirty (30) days of receipt of all pertinent documentation, the Regional Director may proceed with his or her recommended resolution.

C. At the request of any individual, agency, or organization, the ACHP may provide the NPS with an advisory opinion regarding the substance of any finding, determination, or decision made in accordance with this PA or regarding the adequacy of the NPS' compliance with Section 106 and this PA.

XI. MONITORING AND TERMINATION

A. The NPS will convene a meeting of the signatories to this PA within two (2) years of execution of the PA and as needed thereafter, to review implementation of the terms of this PA and determine whether revisions or amendments are needed. Meetings may be conducted in any mutually agreeable location and/or format, including in-person, video conferencing, or teleconferencing. If revisions or amendments are needed, the parties will consult in accordance with 36 CFR 800.14.

B. This PA may be amended when such an amendment is agreed to in writing by all signatories. When major revisions are proposed to NPS policies that will affect the manner in which the NPS carries out its Section 106 responsibilities, the signatories shall consult to determine whether an amendment to this PA is needed. Any amendments will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

C. Any party to this PA may terminate it by providing ninety (90) days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. Termination by any Federally recognized Indian Tribe signatory will be limited to termination of this PA on the tribal lands of the subject tribe. In the event of termination, the NPS will comply with 36 CFR Part 800 with regard to individual undertakings otherwise covered by this PA.

XII. SEVERABILITY

A. If any section, subsection, paragraph, sentence, clause, or phrase in this PA is, for any reason, held to be unconstitutional or invalid or ineffective, such decision shall not affect the validity or effectiveness of the remaining portions of this PA.

B. If any section, subsection, paragraph, sentence, clause, or phrase in this PA is, for any reason, held to be unconstitutional or invalid or ineffective, the signatories shall consult to determine whether an amendment to this PA is needed.

XIII. ANTI-DEFICIENCY ACT STATEMENT

The stipulations of this Agreement are subject to the provisions of the Anti-Deficiency Act (31 U.S.C. 1341 (1998)). If compliance with the Anti-Deficiency Act alters or impairs NPS ability to implement the stipulations of this Agreement, NPS will consult in accordance with the dispute resolution, amendment or termination stipulations as specified in Sections X and XI of this PA.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY: 
CHAIRMAN

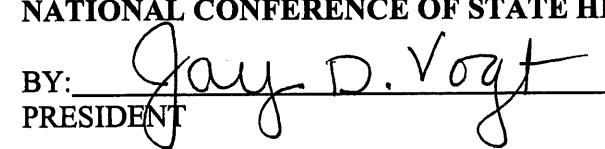
DATE: 11/14/08

NATIONAL PARK SERVICE

BY: 
DIRECTOR

DATE: 11/14/08

NATIONAL CONFERENCE OF STATE HISTORIC PRESERVATION OFFICERS

BY: 
PRESIDENT

DATE: 11-14-2008

STATE OF ALASKA

SEAN PARNELL, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES


DIVISION OF PARKS & OUTDOOR RECREATION OFFICE OF HISTORY AND ARCHAEOLOGY

550 WEST 7TH AVENUE, SUITE 1310
ANCHORAGE, ALASKA 99501-3565

PHONE: (907) 269-8721
FAX: (907) 269-8908

March 16, 2010

File No.: 3480 NPS Kennecott

Meg Jensen 
Superintendent
Wrangell-St. Elias National Park & Preserve
PO Box 439
Copper Center, AK 99573-0439

Subject: Signed Kennecott Programmatic Agreement

Dear Ms. Jensen:

This office received your letter on March 3, 2010 requesting my signature on the Programmatic Agreement between Wrangell-St. Elias National Park and Preserve. The document is acceptable and the signed original is enclosed with this letter. We retained a copy for our records. We appreciate the hard work and dedication given to Kennecott National Historic Landmark. The continued building restoration is truly creating a uniquely Alaskan destination.

Please contact Doug Gasek at 269-8726 if you have any questions or need further assistance.

Sincerely,



Judith E. Bittner
State Historic Preservation Officer

JEB:dfg

PROGRAMMATIC AGREEMENT
AMONG WRANGELL-ST. ELIAS NATIONAL PARK AND
PRESERVE
(U. S. DEPARTMENT OF THE INTERIOR)

AND

THE ALASKA STATE HISTORIC PRESERVATION OFFICER,

REGARDING STABILIZATION, REHABILITATION,
RECONSTRUCTION, AND MAINTENANCE OF STRUCTURES AT
KENNECOTT MINES NATIONAL HISTORIC LANDMARK

WHEREAS, Wrangell-St. Elias National Park and Preserve (WRST) acquired Kennecott Mines National Historic Landmark (NHL) on June 16, 1998 and proposes to conduct ongoing stabilization and maintenance of historic structures for the preservation of those structures; and

WHEREAS, WRST has determined that stabilization and maintenance of historic structures has the potential to affect historic properties as defined at Section 301(5) of the National Historic Preservation Act as amended (16 U. S. C. 470w-5); and

WHEREAS, because WRST 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) to streamline review of routine maintenance and consistent stabilization activities, WRST has elected to comply with Section 106 of the National Historic Preservation Act (16 U. S. C. 470f); hereinafter Section 106 through execution and implementation of a Programmatic Agreement (PA) pursuant to 36 CFR § 800.14 and Stipulation IX(B) of the NPA; and

WHEREAS, the purpose of this PA is to formalize the relationship between WRST and the Alaska State Historic Preservation Officer (SHPO) in the review of actions related to stabilization and maintenance at Kennecott Mines NHL; and

WHEREAS, WRST 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, pursuant to 36 CFR § 800.14, WRST and the ACHP have invited the Alaska SHPO to participate in the consultation and to sign this PA; and

WHEREAS, WRST has consulted with the Cheesh'na Tribal Council, the Chitina Traditional Indian Village Council, the Dot Lake Village Council, Gulkana Village Council, the Healy Lake Traditional Council, the Mentasta Traditional Council, the Gakona Village Council, the Native Village of Kluti-Kaah, the Northway Traditional Village Council, the Tanacross Village Council, the Tazlina Village Council, the Tetlin Tribal Council, and the Yakutat Tlingit Tribe; and

WHEREAS, WRST has consulted with Friends of Kennecott and the McCarthy Area Council; and

NOW, THEREFORE, WRST and the SHPO agree that upon the WRST decision to proceed with the stabilization, rehabilitation, reconstruction and maintenance of historic structures at Kennecott Mines NHL, WRST shall ensure that the following stipulations are implemented in order to take into account the effects of its undertakings on historic properties.

STIPULATIONS

A. Undertakings associated with stabilization, rehabilitation, reconstruction, adaptive reuse, and ongoing maintenance of historic structures listed here will be reviewed for Section 106 purposes within WRST without further review by the SHPO or ACHP provided:

1. that these undertakings are based upon information adequate to identify and evaluate affected cultural resources;
2. that WRST finds that their effects on cultural resource in the NHL will not be adverse based on criteria in 36 CFR § 800.6;
3. that stabilization, rehabilitation, reconstruction and maintenance is compatible with the historic and architectural qualities of Kennecott Mines NHL in terms of scale, massing, color, and materials, and applicable policies, guidelines, and standards as identified in the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings*, and the Department of the Interior's *Guidelines for Rehabilitating Historic Buildings*, and are documented by using the form for *Assessment of Actions Having an Effect on Cultural Resources*.
4. In order to assure that all undertakings meet the *Secretary of the Interior's Standards for Archeology and Historic Preservation*, an archeologist will be present during ground disturbing or other activities that may threaten archeological resources. Should the on-site archeologist determine that work goes beyond monitoring, WRST will develop a plan of action and requisite research design in consultation with the SHPO.

B. The following kinds of undertakings may be reviewed in accordance with Stipulation A of this PA:

1. temporary, reversible measures required to stabilize structures, including roofing, wall braces, and foundations;
2. rehabilitation efforts that include replacement of original materials in kind;
3. activities that involve ground disturbance but do not have the potential to effect archeological resources;
4. rehabilitation and maintenance of existing or historic roads, trails, paths and rights-of-way within previously disturbed areas or areas known to not contain archeological resources using equipment and methods that do not introduce ground disturbance beyond documented natural or historic disturbance;
5. use of tailings located immediately south of the mill building as a gravel source for projects within the NHL;
6. removal or replacement of vegetation around structures to reduce fire hazards, restore historic landscape setting and to preserve structures, using equipment and methods that do not introduce ground disturbance beyond documented natural or historic disturbance and if the vegetation does not contribute to the significance of the historic property or landscape;
7. painting of all structures replicating original color;
8. repair or replacement in kind of windows replicating original color, size, shape and material;
9. repair or replacement in kind of doors replicating original size, color, shape and material;
10. re-establishing roofing to represent previous roofing as designated on the Kennecott Copper Corporation Fire Insurance Map of 1936;
11. investigative research necessary to determine condition of original materials with the intent of reestablishing previous conditions;
12. temporary security measures necessary to protect buildings, artifacts and visitors;
13. installation of fire detection systems and security alarm systems in a manner that minimizes their visibility and intrusive nature and that are reversible;
14. health and safety activities such as removal of asbestos, lead paint, oil, and transformers;
15. removal and disposal of materials associated with stabilization, rehabilitation and ongoing maintenance, including lead-based paint chips, broken glass, and wood debris that cannot be reused or that is contaminated by lead paint;
16. meeting accessibility standards only if the reconstruction or repair of existing wheel chair ramps and sloped walkways do not exceed the width or depth of the areas of previous disturbance and upgrading historic restroom interiors to achieve accessibility only if the historic features or fabric do not contribute to the historic significance of the structure (All other ADA projects will require full Section 106 Review);
17. responding to emergency situations in accordance with 36 CFR § 800.12 and NPA VII;
18. designing, fabricating, and installing interpretative signs and panels in accordance with approved sign guidelines and interpretative plan. Signs will not be physically

- attached to a historic building, structures, or objects. Outside, signs are to be located in previously disturbed areas or areas inventoried and found not to contain historic properties;
19. installation of Environmental Monitoring Units for water monitoring Routine grounds maintenance of cemeteries and tombstones with no tools that will damage the surfaces of stones or wood;
 20. acquisitions of property;
 21. placement, maintenance, or replacement of utility and/or transmission lines within previously disturbed areas or in areas known to not contain archeological resources;
 23. reconstructing historic elements, features and minor structures (such as 6' x 6' historic fire hose houses), provided they are in keeping with the Secretary of Interior Standards for Reconstruction and the themes and recommendations outlined in the *Kennecott Mill Town Cultural Landscape Report*. Any major structural reconstruction does not qualify for streamlined review.
 24. Cyclic maintenance of rehabilitated historic structures, features, and elements including painting, repairs to windows, doors, walls, roofing, and mechanical systems in accordance with the Secretary of the Interior Standards.

ANNUAL REPORTING REQUIREMENT

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

ANNUAL MEETING REQUIREMENT

WRST will convene an annual meeting of the signatories to this Agreement at the end of each calendar year to review implementation of the terms of this Agreement and determine whether revisions or amendments are needed. If revisions or amendments are needed, the signatories will consult in accordance with 36 CFR § 800.14.

AMENDMENT

Any signatory to this PA may propose to WRST that the PA be amended, whereupon WRST shall consult with other signatories to this PA to consider such an amendment. 36 CFR § 800.6(c) (7) shall govern the execution of any such amendment.

RESOLVING OBJECTIONS

- A. 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, WRST shall consult with the objecting party and other signatories.
 1. If after initiating such consultation WRST determines that the objection cannot be resolved through consultation, it shall forward all documentation relevant to the objection to the ACHP, including WRST'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 WRST that the ACHP concurs in WRST's proposed response to the objection, whereupon WRST will respond to the objection accordingly.
 - b. Provide WRST with recommendations, which WRST shall take into account in reaching a final decision regarding its response to the objection.
 - c. Notify WRST 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. WRST 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, WRST may assume the Council's concurrence in its proposed response to the objections.

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. WRST 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, WRST 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.

ANTI-DEFICIENCY ACT

All requirements set forth in this PA requiring the expenditure of WRST 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 WRST under the terms of this PA will require or be interpreted to require a commitment to expend funds not obligated for a particular purpose.

- A. If WRST 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.
- B. In the event that any obligation under the PA cannot be performed due to the unavailability of funds, WRST 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.

DURATION

This PA shall become effective upon execution by the signatories to this PA and shall

remain in effect until terminated or 5 years after it becomes effective. If WRST 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.

EXECUTION AND IMPLEMENTATION

Execution and implementation of this PA evidences that WRST has satisfied its Section 106 and Section 110 responsibilities for all undertakings in this program.

SIGNATORIES:

WRANGELL-ST. ELIAS NATIONAL PARK AND PRESERVE

By: Meg Jensen Date Mar 1, 2010
(Meg Jensen, Superintendent)

ALASKA STATE HISTORIC PRESERVATION OFFICER

By: Judith Bittner Date March 16, 2010
(Judith Bittner, Alaska SHPO)