Glacier Bay National Park and Preserve

Frontcountry Management Plan

Part II - Environmental Assessment

April 2019

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CHAPTER 1: PURPOSE AND NEED

This environmental assessment (EA) informs the National Park Service (NPS) decision to update the visitor experience and management vision for the frontcountry area (*see figure 16 from part I*) of Glacier Bay National Park (park). It fulfills National Environmental Policy Act (NEPA) requirements for an environmental assessment and provides the required content organized into the following four chapters:

> **Chapter 1. Introduction:** The planning area, purpose, and need are described along with an overview of the NPS proposed action and the EA scope of analysis (and its limitations).
>
> **Chapter 2. Alternatives:** The three NPS proposed alternatives are presented in full, along with implementing actions that can be meaningfully analyzed per the NEPA process.
>
> **Chapter 3. Affected Environment and Environmental Consequences.** Each alternative proposal is analyzed to disclose its environmental trade-offs in terms of site-specific changes and cumulative impacts to the affected human environment. Note that analysis findings are contingent on the NPS implementation of appendixes B and C (resource condition monitoring, visitor capacity guidelines, and project best management practices).
>
> **Chapter 4. Coordination and Consultation.** The extent of NPS coordination and consultation with federal and state agencies and associated tribes is described, including what is required during implementation prior to final construction and implementation.

The NEPA process enhances decision-making and transparency by providing the measurable environmental trade-offs of alternative proposals. Within the NEPA framework, environmental assessments analyze federal proposed actions where "no significant impact" to the human environment is anticipated. Adverse impacts have been minimized to the greatest extent practicable. The proposed action and alternatives are consistent with NPS *Management Policies 2006*, (1.4.3) and the 1916 NPS Organic Act (16 USC 1).

When the NEPA procedural requirements associated with this planning effort are met, the National Park Service may finalize a decision document for public release indicating the National Park Service's intent to implement the selected alternative with any amendments after considering substantive comments from the review.

PLANNING AREA

The environmental assessment evaluates actions associated with Glacier Bay's frontcountry (figure 16 from Part I). Located in a remote, Alaskan setting centered around Bartlett Cove, the 7,120-acre frontcountry area is the only developed area of the park where core visitor services and NPS administrative facilities are located and includes some of the Park's most biologically rich, culturally significant, and scenic coastal areas.

The 1984 Glacier Bay National Park and Preserve General Management Plan (GMP) zoned the area for intensive visitor use and development "to a high quality of design that harmonizes with

the Park's history and atmosphere to minimize impacts on visitors and resources." The NPS selected activities and actions in this frontcountry management plan are consistent with this management zoning.

PURPOSE OF THE PLAN

The National Park Service initiated planning in 2016 with the stated purpose to:

> "Set forth a long-term, comprehensive management direction for Bartlett Cove and adjacent frontcountry areas of Glacier Bay National Park. An updated plan would provide direction covering visitor opportunities for the area, facilities (including the Glacier Bay Lodge and Huna Tribal House), commercial services, resource management, and park operations. Planning actions are intended to enhance the protection of natural, cultural, and scenic resources and values, while providing visitors with opportunities to be inspired through personal connections with those resources."

The Glacier Bay National Park and Preserve Frontcountry Management Plan (plan) will update the general management plan and replace the 1998 Bartlett Cove Comprehensive Design Plan (CDP).

NEED FOR ACTION

At this time, the park needs updated direction to support and guide management direction in the frontcountry. The last plan was developed almost twenty years ago and is now at the end of its life cycle. Many of its main components have been implemented.

Recreational use patterns have changed since the last plan was completed, including the introduction of vehicle-transport and passenger ferry service to Gustavus and increased demand for access to Bartlett Cove water access resources (dock, mooring, launches). These changes have presented challenges both for visitors and for the management of park resources. Therefore, there is a need to address what opportunities and services will be available for visitors.

A recent unsuccessful attempt to attract bids on the Glacier Bay Lodge prospectus to support a viable operation has brought attention to the need to ensure that the lodge concession and other services are economically viable and serve the needs of park visitors. Therefore, there is a need to re-evaluate the range of visitor opportunities provided in the Glacier Bay National Park frontcountry.

There is also a need to evaluate conditions and facilities to create operational efficiencies. This includes addressing access and use of newly available facilities (e.g., Huna Tribal House) and options for addressing facilities that are nearing the end of their life cycle (e.g., park headquarters).

These considerations point to the need for a new plan for the frontcountry to ensure that Glacier Bay National Park and Preserve is relevant to and accessible by a diversity of people, while its natural and cultural resources and values remain well preserved for future generations.

THE NPS PROPOSED ACTION

Following extensive outreach and consultation (June – October 2016) the National Park Service prepared three alternative visions (summarized below) that each take a different approach to resolving the purpose and need. They include:

> **Alternative A** continues current frontcountry management directions. (No-Action Alternative)
>
> **Alternative B** changes the NPS management direction for this area from a concentrated visitor use and development zone to a minimalist gateway and launching point for excursions deeper into the Park, with limited visitor offerings and simplified operations. (Gateway Alternative)
>
> **Alternative C** continues historic NPS management directions for this area as a concentrated visitor use and development zone and expands offerings and operations so that the Frontcountry becomes a welcoming destination that strengthens visitors' connections to larger park purposes—whether or not they are able explore farther into the Park. (Destination Alternative)

Alternative C is the NPS proposed action and preferred alternative because it best addresses the totality of the stated purpose and need. The Planning Vision presented at the beginning of the document, together with alternative C, comprise the proposed frontcountry management plan.

SCOPE OF ANALYSIS

This environmental assessment evaluates the environmental trade-offs of three NPS conceptual visions for managing the frontcountry area of the Park. The analysis in the environmental assessment is limited to proposed actions that may be meaningfully analyzed at this time for any measurable environmental impacts that may result. The analysis also assumes stringent NPS guidelines have been applied (such as the monitoring and best management practices described in appendixes B and C) to protect resources and visitor experiences. Finally, the analysis assumes that prior to the construction of facilities, site-specific environmental analyses, permitting, and consultation will occur (as appropriate), as further feasibility and site design studies are completed.

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CHAPTER 2: MANAGEMENT ALTERNATIVES

INTRODUCTION

Three alternatives were considered by the National Park Service based on 2016 preplanning input around "a renewed vision for Bartlett Cove" (*see summary in appendix F*). Each alternative described in this chapter represents a different direction for managing the park frontcountry with varied approaches to serving park visitors in Bartlett Cove based on public, stakeholder, and tribal input gathered during extensive outreach (June to October 2016).

The environmental assessment evaluates alternative A (no action) as a continuation of the park's current management directions. Two NPS action alternatives, alternative B (gateway alternative) and alternative C (destination alternative), propose new and updated directions for managing the frontcountry. These alternatives (B and C) are organized by how they support or relate to the Huna Tlingit Homeland, the Glacier Bay Lodge, the park's visitor experience, and park operations. Alternative C (destination alternative) is the NPS proposed action and preferred alternative. *For a full description of the preferred alternative, please see the planning vision in part I of this plan*.

The implementation of both alternatives B and C will be guided by adaptive management strategies related to visitor capacity (as required by the 1978 National Parks and Recreation Act, using the Interagency Visitor Use Management Council framework). Visitor capacity is a component of visitor use management defined as the maximum amount and types of visitor use that an area can accommodate while sustaining desired resource conditions and visitor experiences (i.e., goals and objectives for this plan), consistent with the purpose for which the area was established. Implementing indicators, thresholds, visitor capacities and the associated adaptive strategies help the National Park Service protect resources, while also ensuring that visitors have the opportunity for a range of high-quality frontcountry experiences. Additional detail on these components can be found in appendix C.

The implementation of both alternatives B and C will also be contingent on resource mitigations to protect natural resources, cultural resources, and the quality of the visitor experience. These resource protection measures are outlined in appendix D to be implemented as part of both action alternatives with a strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. Prior to implementing proposed actions, the National Park Service will conduct Section 106 reviews as appropriate (*see "Appendix A: National Historic Preservation Act, Section 106 Considerations and Next Steps"*).

ALTERNATIVE A: NO ACTION

Under this "no-action alternative," Bartlett Cove would continue to be managed under its current direction as prescribed in the 1984 General Management Plan and the 1998 Comprehensive Design Plan. Many of the major actions identified in these plans have already been implemented, and the zoning and other management directions defined in those planning documents would continue to guide the future development and management of Bartlett Cove. Under this alternative, visitors would experience Bartlett Cove much as they do now. Commercial operations at the Glacier Bay Lodge would continue under current directions, with

the park retaining significant responsibility for maintaining and preserving the historic lodge structures and associated landscapes.

ALTERNATIVE B: BARTLETT COVE AS A "GATEWAY"

Actions and strategies in this alternative would purposely change the fundamental National Park Service management direction for the frontcountry area (from a concentrated visitor use and development zone). The frontcountry would instead be managed as a minimalist gateway and launching point for excursions deeper into the Park, with a focus on orienting and preparing visitors for meaningful backcountry experiences. Compared to the no-action alternative, the National Park Service would reorient Bartlett Cove to a minimalistic functionality, since frontcountry visitors would be primarily transiting through, en route to the backcountry. As such, the National Park Service would maintain existing infrastructure as-is and where-is, critically look at whether existing infrastructure is needed, and seek to shrink its footprint. The National Park Service would also refrain from incremental expansions in new visitor opportunities and park operations, and defer to other entities to support new or higher levels of service outside the park. At the Glacier Bay Lodge, the National Park Service would try converting some rooms to lower-cost, no-frills offerings (bunkhouse and budget boutique) while also upgrading a few to upscale luxury suites to see if broadening the visitor base would enhance the economic viability of the lodge. The National Park Service would continue to assume some responsibility for rehabilitating lodge structures and associated landscapes to a baseline standard.

Huna Tlingit Ancestral Homeland

The Huna Tribal House or *Xunaa Shuká Hít* (roughly translated as "Huna Ancestors' House") continues to serve as a gathering place where tribal members reconnect with their treasured homeland and visitors can learn about the Huna Tlingit ancestral homeland. Additional actions associated with the Tribal House include:

- Develop Architectural Barriers Act Accessibility Standard (ABAAS) access to the beach above high tide across the front meadow from the Huna Tribal House (~250 linear feet, Trail Class 5, tread 72" maximum). Incorporate a durable landing node for wheelchair turnaround and enhanced tribal house viewing.
- Directly in front of the Tribal House, between the Tlingit Trail and the beach, accommodate larger public gatherings by maintaining a native herbaceous species meadow with woody plants removed. Make limited site amendments to the existing natural terracing within a ~14,000 square foot area. Spot grade and strategically use naturalized stone and timber elements as needed. In nearshore waters and intertidal areas, make strategic spot rock movements to facilitate canoe arrivals.

- Build a retractable awning or permanent wooden covered shelter as a place to host cultural demonstrations and other gatherings in the disturbed footprint of the existing Tribal House or directly in front of its annex (up to 400 square feet). For this structure and any cultural activities that use temporary outdoor shelters, ensure that structures complement views of the Tribal House from the water, for pedestrians arriving via the Tlingit Trail, and are appropriate within a national park setting.

- Deter visitors from driving in front of the Tribal House by installing a gate at the top of its driveway.

Glacier Bay Lodge

Vegetation Management. Perform vegetation maintenance tasks as defined in the Vegetation Treatment and Preservation Maintenance Plan (NPS 2018a) for the lodge to:

- define viewscape intent and restore historic district viewsheds, and
- develop defensible space and maintenance standards for managing vegetation in the historic district to protect the integrity of historic buildings (mildew, hazard trees, fire wise).

At the Glacier Bay Lodge, the National Park Service would try converting some rooms to lower-cost, no-frills offerings (bunkhouse and budget boutique) while also upgrading a few to upscale luxury suites to see if broadening the visitor base would enhance the economic viability of the lodge.

Visitor Experience

Combine Visitor Center and Visitor Information Station activities to within a ~2,900 square foot, multi-story facility in the current VIS area, to include a 40-person capacity auditorium. The facility would serve as a hub to orient visitors and introduce park themes, in addition to supporting backcountry use, trip planning, and leave-no-trace principles. Parking efficiency enhancements would be included within existing disturbance and pavement footprints.

The existing frontcountry trail system would generally be maintained in its current condition and location (e.g., Forest Trail, Tlingit Trail, Beach Trail, and Bartlett River Trail). Discontinue maintenance on the four-mile trail connector between Bartlett River Trail and Bartlett Lake. Perform minimal vegetation rehabilitation and place some large rocks on portions to deter use.

A new ABAAS restroom(s) would be developed near park headquarters. This would be a remodel, addition, or up to 200-square-foot new structure within the previously disturbed area.

The main access road would be retrofitted by marking and signing existing shoulders to provide an on-grade bike lane. This would be done in connection with regular road resurfacing.

Phase-in a public mooring facility for both short-term and long-term use in Bartlett Cove on a cost-recovery fee basis. This system would address boat anchoring failures and sea-floor damage concerns, and would provide opportunities for more convenient, secure, and longer duration tie-ups that enable visitors to maximize time ashore. Over time, this may include up to 40 boat moorings with enough reserved for short-term private vessel permit holders, charter vessels, and other commercial users. Installation would include removable and relocatable conservation helical type moorings to include float, rode, and helical fixed anchors at the bottom. Moorings would be located within a five-acre area starting 300 feet from the Public Use Dock, at no less than a 10-foot minimum depth (at minus low tide). Install moorings in a grid pattern with extra spacing to account for vessels with different swinging characteristics due to currents and winds. Independent anchorage in Bartlett Cove would be prohibited for vessels

within the mooring-appropriate size class. Areas would be specified for larger boats to anchor, for float plane landings, and for transiting to the Public Use Dock.

Sediment would be removed and relocated to enhance the functional tidal range and usability of the public boat launch ramp. This may consist of a submersible diver-operated dredge that uses minimally invasive suction to relocate sediment to a nearby seafloor location below the intertidal zone (within a 3-acre total project area) while minimizing suspension in the water column. This action would be carried out in the winter when humpback whale populations are not present and primary and secondary biological productivity in the water is presumed to be lower to minimize acoustic underwater disturbance. Following the initial sediment removal, this activity may occur on a smaller scale every three years. Before implementing this activity, park staff would work with the Army Corps of Engineers and Alaska Department of Environmental Conservation to comply with any permitting requirements under the Clean Water Act. Park staff would also consult with the U.S. Fish & Wildlife Service (USFWS) and National Marine Fisheries Service to determine if additional mitigation measures would be necessary.

Frontcountry kayaking commercial operations are consolidated and shifted to outside the Glacier Bay Lodge Complex Historic District, into temporary/removable structures instead of permanent land assignments. This shift would be an opportunity to create convenient access for customers, improve operations, relieve congestion in the VIS area, and address trailer traffic congestion. A shared quarter-acre site would be prepared northeast of the fuel pier and southwest of the launch ramp for concessioner-provided storage buildings (kayak rental and day trip operations). In this area, a new 200 square foot rain shelter would be constructed to support orientations and equipment staging, marked by NPS typography signage and linked to the shoreline by a short hardened foot path extending approximately 30 feet to reduce shoreline vegetation impacts. Within the site, up to 1,000 square feet of tree clearing and ground hardening would enable access, circulation, and kayak trailer parking. A portion of the existing Beach Trail (up to 130 feet) would be upgraded, widened, and extended with graded gravel or paving to support the vehicular access required to install and retrieve removable structures seasonally, and to support through-foot traffic.

Park Operations

The current headquarters building would be remodeled to address issues (health, safety, ABAAS, utility/IT, and drainage).

Hazard and windthrow risk trees would be removed in a half-acre area above the cut bank south of employee housing and north of the park entrance road. This area would be actively managed for wind stability (e.g., forest health, age diversity) and as an attractive visual buffer.

ALTERNATIVE C: BARTLETT COVE AS A "DESTINATION" (NPS PREFERRED)

Actions and strategies in this alternative would continue historic National Park Service management directions for this area (under the general management plan as a concentrated visitor use and development zone, with periodic incremental investment and expansion) so that the frontcountry becomes a welcoming destination that strengthens visitors' connections to larger park purposes. Bartlett Cove would function more like a traditional national park frontcountry where visitors can "Find their Park" and be inspired by the features, processes, stories, and attributes associated with the national significance of Glacier Bay—whether or not they are able to explore farther into the backcountry. The National Park Service would continue to provide the foundational services to access the backcountry, but would further expand its facilities, operations, and programming to engage broader audiences in the frontcountry for longer periods and to offer more accessible and condensed experiences of park resources and values. To strengthen Bartlett Cove's appeal as a day-excursion destination and as a base for multi-day independent stays, the National Park Service would redesign and expand its frontcountry trail system and add new amenities that enable visitors to enjoy Bartlett Cove despite Southeast Alaska's challenging weather. These amenities would include restorations to the historic lodge and new visitor-oriented upgrades. The economic viability of the lodge would be addressed by broadening its range of accommodations and hospitality options and by strategic partnerships to strengthen occupancy. Finally, the National Park Service would seek to strengthen local tourism benefits and enhance visitor opportunities by defining the level of involvement and processes to collaborate with tribal, gateway community, private, and other entities.

This alternative includes *all* of the actions listed above under the gateway alternative, plus the following actions (unless otherwise noted).

Glacier Bay Lodge

Portions of the lodge building would be restored to its period of significance (1965-1975), and the following rehabilitation treatments proposed in the 2018 NPS Historic Structures Report would be implemented:

- Remove non-historic additions to the south side of the lodge building that are located west of the main drop-off and visitor entrance. The lodge would be restored to historic specifications by constructing a wrap-around deck with southern exposure and rain cover.
- Remove NPS exhibits from the second floor of the lodge and restore the architect's original design configuration above the dining area to achieve the desired catwalk effect with enhanced natural lighting and views.

Visitor Experience

Trail Construction and Rerouting. New trails would be designed or rerouted to achieve a premium and sustainable experiential trail network that connects frontcountry visitors with fundamental park resources and values, including designated Wilderness. *See figure 14 in part I for additional information on the locations and extents of these proposed trail-related actions.*

- **Bartlett River Trail:** Approximately 1.4 miles of new route would be built on the shoreline and along the tidal cut (some portions in designated Wilderness), as a narrower rustic boardwalk (up to 36" wide) on helical piers or other elevated structures that can be periodically shifted toward the water to maintain the shoreline experience as isostatic rebound occurs. This would include the minimum required site modifications (based on wilderness analysis during pre-design). The closed trail segment would no longer be maintained and about .75 miles would be spot revegetated to discourage public access. All inner lagoon kayak operations (racks and launching) would be consolidated to a site at the end of an expanded park headquarters parking area with a connecting path to the boardwalk that enables launching and consolidates foot traffic to reduce shoreline vegetation impacts.
- **Inner Lagoon Trail:** Develop an Alder Creek footbridge crossing (~150 linear feet), and construct a ~.25-mile elevated boardwalk on the shoreline spanning from the trail terminus east of Alder Creek to a scenic vista near the Inner Lagoon Dock. It would be built as a rustic boardwalk (up to 36" wide) on helical piers or other elevated structures that can be periodically shifted toward the water to maintain the shoreline experience as isostatic rebound occurs.
- **Forest Trail:** Up to 800 linear feet of the most steep and rough sections of the existing trail would be rerouted to improve opportunities for limited-mobility users. Rerouted sections would be constructed as 18" to 36" wide single track with soft tread featuring native material. Abandoned sections would be actively revegetated once trail construction is completed.
- **Cooper's Notch Trail.** The proposed trail route would be refined to meet resource and visitor objectives. Four miles of new trail would be created, with tread width ranging from 18" to 36," and including up to five hardened gathering and overlook points (up to 400 square feet each). Elevated boardwalk on helical piers would be used to provide wetland and riparian edge access and crossings (up to 1,800 linear feet). An at-grade road-crossing would be prepared on the park entrance road.
- **Point Gustavus Route:** Minimalist, fully naturalized modifications (i.e., rock placement and spot planking) would be provided to help users navigate tides, water crossings, and sensitive habitat along 5 miles of shoreline, including designated Wilderness. This would include minimum required modifications (based on analysis during pre-design) to the environment using native natural materials such as rock and logs.

Widen Access Road. Unlike the gateway alternative, this alternative proposes widening the entire park entrance road up to 60" and restriping it to support on-grade bike and pedestrian use on one side. The road would be constructed for year-round active transportation (bike, pedestrian, and ski).

Visitor Facilities. Unlike the gateway alternative, this alternative proposes developing a new ABAAS restroom(s) near park headquarters that supports public access as a 400-square-foot new structure located on the concrete pad of the existing headquarters building (after it is replaced). It would include multimodal hub and trail amenities (covered area, ABAAS restroom, and wayfinding).

A 30' x 30' day-use pavilion for NPS demonstrations and programs would be built on the beach and/or intertidal zone that could secondarily support casual visitor use and picnicking. The pavilion would be constructed as a park-appropriate, iconic landmark consistent with historic park architecture visible to arriving boats. It would connect to the Campground Trail and to

expanded day-use parking areas with a new Class 3 ABAAS accessible trail (up to 36" wide) of ~500 linear feet through the forest with tread appropriate to the anticipated regular use and with a short ramp segment at the pavilion.

A covered picnic area (up to 300 square feet) would be developed near the relocated park headquarters for day-use by visitors and staff. The area would be oriented for sun and scenic views and integrated with a covered walkway between NPS buildings.

Car Camping Loop: A small, drive-in campground would be developed that includes between four and six rustic, no-frills sites that could accommodate up to 30-foot-long RVs as well as other vehicles. The area could include picnic tables, fire pits, and tent sites. No utilities would be provided except a limited-service, small RV pump-out station and a nearby vermiculture composting toilet (that also serves pavilion and parking area users). A cost-recovery fee and/or a reservation system may be applicable. The campground would be located southwest of the expanded parking area within easy walking distance of the composting toilet, but offset with some vegetated buffers to enhance the camping experience. This area would be separated from existing walk-in campsites and the final Forest Trail route. Up to 18,000 square feet of forest would be cleared, with an expanded gravel pad and pavement installed for an entrance road, drop-off and pump station pull-outs, and sites that can accommodate up to 30-foot-long RVs..

Parking Expansion: Maximize use of the existing paved area and disturbed footprint near the generator building to support expanded and reconfigured public and staff parking. Relocate non-essential activities off-site. Up to 25,000 square feet of forest would be cleared with an expanded gravel pad and pavement installed to support up to 58 total parking spots and new ABAAS pedestrian connectors to the VIS and dock area (Class 3 ABAAS accessible trail, ~600 linear feet, up to 36" wide).

Visitor Shelters. Up to two public use huts (~260 square feet each) would be developed as a rustic, no-frills option for low-cost lodging in the frontcountry and a dry and warm option for outgoing and incoming kayakers. The huts would be connected to the existing campground group sites with a buffer separation, and the area would retain naturalized forest surrounds by minimizing the building pad clearing zone. A multiple-party use model with 12 bunks, a wood stove, plywood counters for cooking with a camp stove, and common rustic table/booth seating for gathering would be considered. Visitors would be required to carry in water. No utilities would be provided, but a bear-proof, vermiculture leach system for gray water disposal (cleaning dishes) would be incorporated. Use of the public use huts could include fees and reservations. Build another 30' x 30' day-use pavilion on the beach and/or intertidal zone near the campground dedicated to casual camper and visitor use, socializing, cooking and picnics, and to support gear staging and preparations for backcountry trips.

Park Operations

The 1958 park headquarters building would be replaced to address its deferred maintenance and substantial deficiencies. A replacement of up to 6,000 square feet would be constructed nearby within the historic disturbance footprint, while keeping with the original aesthetics and character/feel of the area.

The park headquarters road would be upgraded to address spot safety issues and enhance overall circulation. The upgrades may include paving and redesign to efficiently meet staff

parking demands, support alternative and active transportation, serve as a public trailhead, and implement environmental best practices that safeguard water quality and protect people's health. This may include such things as a settling basin to treat snow and stormwater runoff and pollution, and road paving to reduce airborne dust. Views of vehicles from the water would be buffered by retaining vegetation.

Develop additional housing and associated facilities in the seasonal housing area, off the existing service road (total area of development would not exceed 0.5 acres):

- New dormitory style housing or a bunkhouse (up to 2,000 square feet in size) southwest of the existing duplexes for seasonal employees, Student Conservation Association volunteers, Volunteers in Parks, and researchers. The new development may include additional parking for up to eight vehicles (up to 2,000 square feet in parking)
- Three RV pads with electrical and water hook ups (totaling up to 8,000 square feet) would be constructed at the end of the seasonal housing area service road to accommodate RVs brought by volunteers, visiting scientists, and/or seasonal staff.
- A new rain shelter would be developed in a central open area between the park entrance road and park employee housing. The site would be constructed to promote responsible socializing and gathering, and would be developed as a rustic, naturalized, outdoor area for employees to use during off hours. New parking would be included in the vicinity for up to six vehicles, with boardwalks extended to link to nearby housing (up to 150 linear feet). May include clearing up to 1,500 square feet of forest. Vegetative buffers would be retained so the shelter is not visible from the main road.

ACTIONS CONSIDERED AND DISMISSED

While developing each alternative, it became evident that certain alternative concepts or strategies were not appropriate to fully analyze in the environmental assessment. Below is a brief description of alternative strategies that were considered but dismissed from detailed analysis.

Alaska Marine Highway System (AMHS) Ferry Berthing in Bartlett Cove

Some scoping commenters have requested that the National Park Service provide a new docking facility for AMHS ferries. During emergencies, a standing agreement enables AMHS ferries to seek temporary shelter in Bartlett Cove. The National Park Service does not believe that these occurrences are frequent enough to warrant the capital improvements and ongoing maintenance that would be needed to support this kind of docking facility, especially as it would increase AMHS operating times and costs (compared with the state ferry dock at Gustavus). Therefore, this action was determined to be technically and economically infeasible and unnecessary.

Wilderness Trails Originating Outside the Park

Public commenters requested access into designated Wilderness originating from non-NPS lands (including the Bartlett Lake/Towers Trail and Falls Creek areas in Gustavus). Because these pose more complex jurisdictional, parking/vehicular access, and maintenance questions, the National Park Service decided to not include those actions in this plan and to wait to address them in the future wilderness stewardship/backcountry management plan. Additionally, actions related to the Park's backcountry are outside the scope of this plan.

RELATED ACTIONS

NEPA analysis considers direct localized actions proposed by a federal agency but also requires consideration of any other collectively significant, "past, present and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions" (40 CFR 1508.7). Thus, the following proposed projects in and outside the park are analyzed as part of the cumulative analysis of frontcountry environmental impacts.

Gustavus Community Center

A new Gustavus Community Center is planned to be completed by a local nonprofit in 2019. The goal of the Gustavus Community Center is to provide a warm, dry space to deliver programs throughout the year. The center will be one of the most prominent public buildings in Gustavus. This center will also serve as a focal point to provide orientation and community information to the 11,000 visitors who pass through the town. Alaska Geographic and the National Park Service have already recognized the potential for using space in the community center building once it is completed. (Analyzed in Socioeconomics and Visitor Use and Experience sections of chapter 3.)

Electrical Intertie to Falls Creek Hydroelectric

This is the culminating component of a 20-year Falls Creek Hydroelectric Project to provide local renewable energy. This project is funded for implementation by 2020. The project will bury an 8.5-mile electrical intertie cable underground, co-located with other utilities in existing rights-of-way/easements along the road shoulder. The design features a 15-kilovolt, three-phase electrical line plus a communication link between the Alaska Power and Telephone Company's Falls Creek hydroelectric plant and the Park's Bartlett Cove electrical grid.

The project would enhance energy independence by connecting the park to the local Falls Creek Hydroelectric and reduce use of nonrenewable, fossil fuels (diesel) to generate electricity. This project is anticipated to save approximately 70,000 gallons of diesel fuel annually, reduce greenhouse gas emissions by 222 metric tons carbon equivalent per year, reduce air pollutants by 46,428 pounds per year, reduce the opportunity for a catastrophic barge fuel spill, and reduce fuel purchases by 62% annually. Power distribution lines within the park exist and were extended 1.5 miles in 2000 in anticipation of the intertie project.

Bartlett Cove Discovery Center

Implementing the Discovery Center project from the 1998 Bartlett Cove Development Concept Plan is carried forward as a future action in the planning vision for the Glacier Bay National Park frontcountry (*see part I: visitor experience*). This project would potentially combine the visitor contact and service functions in a signature new facility (up to 20,000 square feet) with a new 80-person capacity auditorium on the southeast edge of the current VIS parking lot to maximize accessibility for visitors. This project will redefine parking, circulation, and access needs in a way that is sensitive to the existing scale of the frontcountry arrival experience and overall shoreline aesthetics. This facility would intentionally program to feature a strong research component that does justice to Glacier Bay as a living laboratory (as described in the Park's enabling legislation). This project is not analyzed in the proposed action of this environmental

assessment as it will require additional scoping and project development to further define the project before its ready for NEPA analysis, and it would only be carried forward for further consideration under the conditions of the preferred alternative described in this environmental assessment (*see "Destination Alternative" above and part I of the planning vision for more information on this future project)*.

CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

The "Affected Environment and Environmental Consequences" section describes the resources that could be affected as well as the potential environmental consequences of implementing any one of the alternatives being considered.

The topics presented are those related to the key issues that could inform the NPS decision on how to manage park frontcountry. The descriptions of the resources provided in this chapter serve as an account of the baseline conditions against which the potential effects of the proposed actions considered in this plan are compared.

GENERAL METHODOLOGY

This section is organized by resource topic and provides a comparison of the alternatives based on issues. In accordance with the NPS Council on Environmental Quality regulations, direct, indirect, and cumulative impacts are described, and the impacts are assessed in terms of context, intensity, and duration (40 CFR 1502.16).

SITKA SPRUCE/WESTERN HEMLOCK FOREST

Affected Environment

The majority of the project area lies in a mature Sitka spruce/western hemlock forest, described as roughly 220 years old, predominantly of Sitka spruce (*Picea sitchensis),* with some western hemlock (*Tsuga heterophylla*) and occasional black cottonwood (*Populus balsamifera* ssp. *trichocarpa*). Hemlock saplings, stunted spruce, and various shrubs form the subcanopy in this area. Many dominant spruce trees have been severely affected or killed by spruce bark beetle, and there are some standing dead trees within the project area. Sitka alder (*Alnus viridis* ssp. *sinuata*) occupy many openings and recently disturbed areas. Patches of devilsclub (*Oplopanax horridus*) often grow in wet areas of the forest. Routine clearing around buildings, roadside corridors, and trails has created non-natural thickets of alder, horsetail, and other plants, including invasive species. Sitka spruce and hemlock forests are widespread in the Park, covering over 300,000 acres of the Park's vegetated land (Boggs et al. 2008).

Environmental Consequences

No-Action Alternative. The no-action alternative would be the continuation of current management. The existing trails and facilities would continue to be used in their current state, with routine maintenance being performed as necessary and as time and funding allow. Continued use of the area's authorized trails would result in continued displacement of vegetation from existing paths where soil compaction might prevent grasses or understory vegetation that might otherwise establish. The reduction of vegetation along 8 miles of narrow linear corridors would continue to cause no noticeable alteration in the overall vegetative

communities at the sites. As such, there would be no new impacts to native plant species populations under the no-action alternative.

Gateway Alternative. Construction of a combined visitor information station and visitor center would include the removal of some potential hazard trees around the building. The loss of vegetation occurring under the gateway alternative would not notably affect plant species at a population level because Sitka spruce and hemlock forests are widespread in the Park, covering more than 300,000 acres of the Park's vegetated land.

Destination Alternative. In addition to the actions in the gateway alternative, the destination alternative calls for the construction of new trails and facilities that would involve additional vegetation clearing and ground disturbance. Estimated areas of impact are presented below; these numbers are approximate because the alternative alignment is not yet in the design stage of development and could change. Because of rounding, numbers presented may not add up precisely to the totals provided.

- Rerouting 800 to 1,000 linear feet of the Forest Trail would require clearing 36" to 60" of vegetation along the new sections (up to 0.1 acres).
- Constructing 2.3 to 2.5 miles of trail for the Cooper's Notch Trail would require clearing 36" to 60" of vegetation along the path (up to 1.5 acres). Construction of five overlook hardened gathering points, up to 400 square feet each, would involve clearing vegetation from between 2,000 and 2,500 square feet (less than 0.1 acres).
- Construction of a Class, 3 ABAAS accessible trail connecting the new day-use pavilion to the campground would require clearing up to 1,700 square feet of forest (less than 0.1 acres).
- Construction of a new six-site, drive-in campground would require clearing up to 18,000 square feet of forest (less than 0.5 acres).
- Expanding the parking lot near the generator building and constructing new ABAAS pedestrian connectors to the VIS and dock area would require clearing up to 25,000 square feet of forest (less than 0.6 acres).
- Construction of two public use huts would require clearing up to 600 square feet of forest (less than 0.1 acres).
- Construction of additional staff housing and associated facilities would require clearing up to 15,000 square feet of forest (less than 0.4 acres).

Negative effects from construction of new trails and facilities would include the loss of ground cover and understory species, as well as the removal of some trees. In total, between 3 and 4 acres of Sitka spruce/hemlock forest would be removed under the destination alternative because of vegetation clearing. However, the loss of up to 4 acres of Sitka spruce/hemlock forest would not notably affect plant populations because Sitka spruce and hemlock forests are widespread in the Park, covering more than 300,000 acres of the Park's vegetated land.

Cumulative Impacts

Past and ongoing actions in the Bartlett Cove developed area have resulted in a small incremental loss of vegetation in the respective project areas. Existing facilities in the Bartlett Cove area cover about 31 acres of land. Most projects (aside from projects on trails, for example) affecting vegetation in the Bartlett Cove vicinity have occurred (and most future projects would be expected to occur) within or adjacent to existing developed areas. Placement

of an 8.5-mile electrical intertie cable underground in existing rights-of-way/easements along the park entrance road shoulder would require the removal of a few trees, as well as ground disturbance of previously cleared areas. As previously described, there would be no new impacts under the no-action alternative, and therefore there would be no cumulative impacts to Sitka spruce/hemlock forests. The gateway and destination alternatives would contribute to the loss of forest vegetation occurring from other present and foreseeable future actions that involve new construction. Under the gateway alternative, some potential hazard trees around the new combined visitor information station and visitor center would be removed; under the destination alternative, up to 4 acres of vegetation would be cleared. When these effects are combined with other past, present, and reasonably foreseeable future impacts, the total cumulative impact on mature Sitka spruce/hemlock forest would continue to be adverse. The incremental impacts of the alternatives would contribute slightly to, but would not substantially change, the impacts that are already occurring.

Conclusion

Under the no-action alternative, current operation and maintenance and visitor use activities would continue unchanged. This continuation of current management would result in no notable changes to the Sitka spruce/hemlock forest. Under the gateway alternative, a combined visitor information station and visitor center would include the removal of some potential hazard trees around the building. In comparison, the destination alternative, which includes all actions in the gateway alternatives plus some others, entails the greatest number and widest scope of activities under consideration in the plan. In the destination alternative, up to 4 acres of Sitka spruce/hemlock forest would be removed due to development of new facilities. However, the actions proposed under the gateway and destination alternatives would not be expected to impact forest species at a population level because the disturbance would be localized to the construction sites, and the species affected are common throughout the 7,000-acre Bartlett Cove frontcountry area. The impacts would be even less noticeable parkwide, since at least 300,000 acres of Sitka spruce/hemlock forest would remain undisturbed.

COASTAL MEADOWS AND EARLY SUCCESSIONAL FORESTS

Affected Environment

Coastal meadows are a distinctive feature of the Glacier Bay region, where post-glacial isostatic rebound is causing the land to rise up out of the sea. As the land emerges, beach meadow vegetation creeps forward to claim flat terraces before most woody plants can establish. These biologically important meadows are often backed by a narrow band of alder and then the forest. Supratidal meadows are dominated by herbaceous vegetation and are located between the high tide line and the forest edge. Common herbaceous species present in the plant community include wild strawberry (*Fragaria sp.*), fireweed (*Chamerion angustifolium*), lupine (*Lupinus spp.*), cow parsnip (*Heracleum maximum*), dunegrass (*Leymus mollis ssp. mollis*), lady fern (*Athyrium filix-femina*), and yarrow (*Achillea sp.*). Sitka alder and a variety of shrubs, such as willows (*Salix spp.*), currants (*Ribes spp.*), devilsclub, and elderberry (*Sambucus racemosa*), occur as marginal bands. Behind the band of shrubs stands the spruce forest. Coastal meadows are common throughout lower Glacier Bay and the entire Park; more than 90% of the marine shoreline in the project area and more than 60% of the shoreline in Glacier Bay proper are backed by coastal meadows in some form (NPS staff, pers. comm., Dec. 12, 2018).

More than 40 species of exotic (nonnative) plant species have been observed in Bartlett Cove (NPS Exotic Plant Management Team 2015 [NPS 2015]), many of them occupying coastal meadows and early successional forests. Several species of lower concern, like common dandelion (*Taraxacum officinale*), common plantain (*Plantago major*), and common chickweed (*Cerastium fontanum*), are widespread throughout the developed area. Species of greater concern, like reed canarygrass (*Phalaris arundinacea*), Robert geranium (*Geranium robertianum*), and oxeye daisy (*Leucanthemum vulgare*), have established adjacent to some of the buildings and road corridors. Most of the invasive species found in the park occur in the Bartlett Cove developed area within one mile of all Bartlett Cove facilities; however, dandelions grow in beach meadows in backcountry areas (Dowlatshahi 2013). Additionally, the City of Gustavus has many other invasive plant species of concern not yet documented in the Park. These plants provide seed sources that could quickly colonize newly-disturbed ground if transported by people, vehicles, or natural processes and wildlife.

Environmental Consequences

No-Action Alternative. The no-action alternative would be the continuation of current management. Maintenance of roads, buildings, parking lots, and trails may disturb soils, which could promote the establishment or expansion of invasive exotic plants in coastal meadows and early successional forests if transported by people, wildlife, or other means. Established invasive exotic plant populations would continue to serve as sources for seeds to colonize newly disturbed ground, potentially resulting in continual adverse impact to native plants in coastal meadows and early successional forests.

Gateway Alternative. Construction of a Class 5 ABAAS trail from the Tribal House to the beach would require clearing approximately 1,500 to 2,000 square feet (less than 0.1 acres) of coastal meadow and early successional forest. The proposed actions represent an incremental addition to the existing development footprint and therefore are not expected to impact native plant species at a population level through habitat loss.

Destination Alternative. In addition to the actions in the gateway alternative, the destination alternative calls for the construction of new trails and facilities that would involve additional vegetation clearing and ground disturbance. Up to 2,000 square feet (less than 0.1 acres) of coastal meadow and forest would be cleared to construct two, day use pavilions. This ground disturbance, as well as the clearing of 3 up to 4 acres of Sitka spruce/hemlock forest (discussed previously), increases the potential for establishment of invasive exotic plants, which could then be transported into coastal meadows and early successional forests by people, vehicles, or wildlife. In addition, newly built trails could serve as vectors for the spread of invasive exotic plants into currently undisturbed areas of the Park. The implementation of mitigation measures (*see appendix D*) during and after construction activities would help reduce the establishment and spread of invasive species, thus reducing adverse impacts to native plant species in coastal meadows and early successional forests from the proposed actions. The proposed actions represent an incremental addition to the existing development footprint within coastal meadows and early successional forest and therefore are not expected to impact native plant species at a population level through habitat loss.

Cumulative Impacts

Past and ongoing actions in the Bartlett Cove developed area have resulted in ground disturbance and subsequent establishment of invasive exotic plants. Existing facilities in the Bartlett Cove area cover about 31 acres of land. Construction and maintenance of existing buildings, roads, and trails have created disturbed soil areas where invasive plant populations have become established. These plant populations continue to serve as sources of seed, causing persistent adverse impacts to native plants in coastal meadows and early successional forests. Reasonably foreseeable actions include constructing an electrical intertie between Bartlett Cove and Gustavus; while this action would not directly impact coastal meadows and forest edge, the ground disturbance could promote the establishment of invasive exotic plants that could spread into other areas of the Park. As previously described, there would be no new impacts under the no-action alternative, and therefore there would be no cumulative impacts to coastal meadows and early successional forest. The gateway alternative and the destination alternative would cause ground disturbance to up to 0.1 acres and 4 acres, respectively. When these effects are combined with other past, present, and reasonably foreseeable future impacts, the total cumulative impact on coastal meadows and early successional forests would continue to be adverse. The incremental impacts of the alternatives described in this plan would contribute slightly to, but would not substantially change, the impacts that are already occurring.

Conclusion

Under the no-action alternative, current operation and maintenance and visitor use activities would continue unchanged. This continuation of current management would result in no notable changes to the coastal meadow and early successional forest communities. Actions proposed under the gateway alternative would have considerably fewer impacts on these plant communities than under the destination alternative. The destination alternative would result in greater levels of ground disturbance and vegetation clearing, with a subsequent increase in the potential for establishment and expansion of invasive exotic plants in coastal meadows. Mitigation measures would be used to limit the encroachment of invasive plant species and minimize collateral soil loss.

WETLANDS

Affected Environment

Several site-specific wetland assessments and delineations have been conducted for infrastructure-related projects in the Park. However, detailed wetland mapping of the proposed project area is currently limited. National Wetlands Inventory mapping was completed by the US Fish and Wildlife Service and is available for the entire project area (USFWS 2018b). Additionally, the most recent park land-cover type classification (Boggs et al. 2007), which includes locations of vegetative cover types typical of wetlands in the project area, contributed to a preliminary assessment of wetland impacts. Wetlands in the project area have been previously impacted through placement of fill for development in the Bartlett Cove frontcountry area and construction of the park entrance road. Additionally, wetland conditions are still evolving because of isostatic rebound; as uplift occurs, some wetland areas are reorganizing into more developed stream systems (NPS staff, pers. comm., 3/1/19). Little information is available on the functions or values of the project area wetlands; however,

wetlands in general within the park provide important resting habitat for migratory waterfowl and ground-nesting birds. Wetlands also support unique plant species.

Three wetland types, described below, are expected to be present within the project area:

- Freshwater forested/shrub wetland. These wetlands are characterized by erect, rooted, herbaceous hydrophytic plants, excluding mosses and lichens. They may also include areas dominated by woody vegetation less than 20.1 feet (6 m) tall, including true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. In Boggs et al. (2008), it is commonly mapped as Sitka spruce woodland/wet herbaceous land cover. Plant species that dominate forested/shrub wetland in the park include sedges and forbs such as Sitka sedge (*Carex aquatilis* var. *dives*), Lyngbye's sedge (*Carex lyngbyei*), and water horsetail (*Equisetum fluviatile*).
- Freshwater emergent wetland. These wetlands are common on intertidal flats and beaches. In tidal marshes, the sites are flat and the soils are silt, sand and silt, or cobbles with sand. In Boggs et al. (2007), it is commonly mapped as halophytic herbaceous wet meadow. Vegetation is characterized by erect, rooted, herbaceous hydrophytes, such as Lyngbye's sedge (*Carex lyngbyei*), Bering's hairgrass (*Deschampsia beringensis*), and seaside sandplant (*Honckenya peploides* ssp. *major*).
- Estuarine intertidal wetland. In the project area, this consists of tidal wetlands that have open, partially obstructed, or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff by land. Vegetative cover is less than 30%, and salt and brackish water-tolerant species dominate this wetland, such as Lyngbye's sedge (*Carex lyngbyei*), Bering's hairgrass (*Deschampsia beringensis*), and Nootka alkaligrass (*Puccinellia nutkaensis*).

Environmental Consequences

No-Action Alternative. The no-action alternative would be the continuation of current management. There would be no new actions and therefore no new effects on wetlands under the no-action alternative.

Gateway Alternative. Construction of new facilities would primarily occur on well-drained glacial outwash. Before any construction occurs, a soil investigation would be conducted to confirm soil-bearing capacity and drainage characteristics. If such an investigation reveals soil conditions indicative of wetlands, alternative locations would be assessed. If no alternative non-wetland sites were located, then additional compliance (e.g., a Wetlands Statement of Findings) would be done to assess impacts to wetlands and ensure no net loss of wetland area.

The park would remove accumulated sediment from the public boat launch ramp by using a minimally invasive suction device to relocate sediment to a nearby seafloor location. The public boat launch ramp is located within wetlands classified as "estuarine, intertidal, unconsolidated shore, regularly flooded." No sediment would be removed from beyond the footprint of the boat ramp, and sediment would be relocated to subtidal habitat, which is not subject to NPS wetland protection procedures. Use of a submersible diver-operated dredge would minimize suspension in the water column. Therefore, overall functions of nearby wetlands are not likely to be noticeably altered.

Destination Alternative. In addition to the actions in the gateway alternative, the destination alternative calls for the construction of new trails and facilities that would involve additional vegetation clearing and ground disturbance. Wetlands would be minimally impacted through the placement of boardwalks with helical piers. Estimated areas of impact are presented below; these numbers are approximate because the alternative alignment is not yet in the design stage of development and could change. Because of rounding, numbers presented may not add up precisely to the totals provided.

- *Bartlett River Trail*—The new route would cross through between 3,250 and 3,580 linear feet of freshwater emergent wetland and between 7,280 and 8,020 feet of estuarine intertidal wetland. The use of helical piers to support the boardwalk would affect between 0.08 and 0.09 acres of soil. The total surface of the boardwalk would be approximately 0.80 acres.
- *Inner Lagoon Trail*—The trail would cross through approximately 780 linear feet of estuarine intertidal wetlands and 440 linear feet of freshwater forested/shrub wetland. The use of helical piers to support the boardwalk would affect between 428 to 470 square feet (0.01 acres) of soil. The total surface area of the boardwalk would be approximately 0.1 acres.
- *Cooper's Notch Trail*—The trail would cross through approximately 1,160 linear feet of freshwater forested/scrub wetland. The use of helical piers to support the boardwalk would affect approximately 410 to 450 square feet (0.01 acres) of soil. The total surface area of the boardwalk would be approximately 0.1 acres.

Construction of the boardwalks would result in permanent loss of wetland from removal of vegetation for the placement of helical piers for the boardwalk and potentially some larger vegetation (shrubs and trees) for placement of the boardwalks through forested wetlands. In addition, some continual adverse impacts to vegetation could result from shading caused by the boardwalks. Removal of trees of substantial size would be avoided to the extent possible to avoid impacts to natural resources and because the root systems make it difficult to drive the piers into the ground. Following construction of the boardwalks, disturbed areas would be allowed to recover naturally or revegetated with native plant species. However, overall functions of the wetlands are not likely to be noticeably altered because of the small area of ground disturbance in relation to the total acres of wetlands present in the project area; more than 800 acres of similar wetlands within the frontcountry area would remain undisturbed. Remaining adjacent wetlands would continue to filter and convey precipitation and provide an important complex of habitats. The impacts would be even less noticeable parkwide because at least 22,000 acres of wetlands would remain undisturbed.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions that have impacted wetlands in the project area include realignment of the park entrance road and rehabilitation of the Bartlett Cove Dock. For the park entrance road realignment, about 3.8 acres of wetland were permanently lost, while another 0.7 acres of wetland were converted from palustrine to open water ditches; approximately 0.3 acres of wetlands were adversely impacted by rehabilitation of the dock. As previously described, the no-action alternative would have no new impacts on wetlands, and therefore there would be no cumulative impacts. Under both action alternatives,

the use of a minimally invasive suction device to remove and relocate sediment from the public boat launch ramp to a nearby subtidal seafloor location would not noticeably alter the overall functions of adjacent estuarine wetlands. Under the destination alternative, up to 0.1 acres of wetlands soils and vegetation would be adversely impacted through the placement of helical piers to support boardwalks, while up to 1.7 acres of wetlands would be indirectly affected through shading by boardwalks. When these effects are combined with other past, present, and reasonably foreseeable future impacts, the total cumulative impacts on wetlands would continue to be adverse. The incremental impacts of the action alternatives would contribute slightly to, but would not substantially change, the impacts already occurring.

Conclusion

Under the no-action alternative, current operation and maintenance and visitor use activities would continue unchanged. This continuation of current management would result in no notable changes to wetlands. Construction of new facilities under the gateway alternative would primarily occur on well-drained glacial outwash; if a soil investigation reveals conditions indicative of wetlands, alternative locations would be assessed. Use of a submersible diver-operated dredge and hoses to relocate sediment from the public boat launch ramp to the subtidal zone would likely result in no noticeable alteration of nearby wetland function. Therefore, actions proposed under the gateway alternative would not be likely to result in notable changes to wetlands.

In comparison, the destination alternative, including actions in the gateway alternative, entails the greatest number and widest scope of activities under consideration in the plan. Overall, the destination alternative would have adverse impacts to wetlands for the foreseeable future because of the placement of helical piers to support boardwalks and shading of vegetation underneath boardwalks. However, overall functions of the wetlands are not likely to be noticeably altered because of the small combined area of ground disturbance in relation to the total acres of wetlands present. The impacts would be even less noticeable parkwide, since at least 22,000 acres of wetlands would remain undisturbed.

SALMON AND ANADROMOUS TROUT

Affected Environment

The word anadromous means “upward running” and refers to a relatively uncommon life history strategy used by approximately 100 of the more than 28,000 fish species. Anadromous fish are born in freshwater, spend some portion of their lives in the marine environment, and return to spawn in freshwater. Several anadromous fish species of special concern occur within the project area, including sockeye salmon (*Oncorhynchus nerka*), coho salmon (*Oncorhynchus kisutch*), steelhead trout (*Oncorhynchus mykiss*), and sea-run cutthroat trout (*Oncorhynchus clarki clarki*) (Nadeau et al. 2017). These species are of particular concern because they may have small populations in certain watersheds and/or are vulnerable to overharvest by recreational anglers. Anadromous fish populations are known to experience a high degree of natural variation in abundance, and species and populations can vary greatly in how they respond to environmental changes. Spawning populations of coho salmon in small creeks and headwater streams may be small, numbering in the tens or hundreds of individuals; however, coho salmon within the park and preserve are generally not a conservation concern because of their widespread spawning distribution and relatively undisturbed habitat (NPS 2018d).

Moreover, Bartlett River coho stock escapement is estimated to be in the thousands to tens of thousands (NPS unpublished data). In contrast, populations of steelhead trout are typically small, and recreational steelhead harvest limits are conservative compared with other Pacific salmon species (Harding and Coyle 2011; NPS 2018c). Southeast Alaska spawning cutthroat populations are also typically small; multiple cutthroat populations often overwinter together in lakes, and these aggregations rarely exceed 2,000 fish (Harding and Coyle 2011; NPS 2018b).

Recreational fishing for salmon and trout is a popular activity for many local residents and visitors to Glacier Bay National Park and Preserve, particularly along the Bartlett River. Recreational fishing results in the harvest and direct mortality of Bartlett River salmon and anadromous trout. Based on angler survey data provided by the Alaska Department of Fish and Game (ADFG), 2013 sport harvest in the Bartlett River accounted for 1,447 salmon removals (ADFG 2013). Sockeye and coho salmon were the species harvested in the greatest numbers between 1997 and 2013, with pink and chum salmon harvested in low numbers. The 2013 Bartlett River sport harvest was estimated at 135 sockeye salmon and 1,168 coho salmon, which was well above the 7-year (nonconsecutive) average. In addition, catch-and-release fishing results in a small amount of incidental mortality of fish over and above the reported harvest.

Sockeye and coho salmon are also commercially harvested, while steelhead and sea-run cutthroat trout are not commercially targeted species (Nadeau et al. 2017). Because commercial fishers target mixed salmon and trout populations in the ocean, it is not possible to quantify the effect on any one river's population.

Environmental Consequences

No-Action Alternative. The no-action alternative would be the continuation of current management. There would be no new actions and therefore no new effects on salmon and anadromous trout under the no-action alternative. Anglers would continue to access the Bartlett River for recreational fishing using the existing Bartlett River Trail, resulting in the harvest and mortality of Bartlett River salmon and anadromous trout.

Gateway Alternative. There would be no new impacts on salmon and anadromous trout from actions proposed as part of the gateway alternative. Ongoing impacts would remain the same as those under the no-action alternative.

Destination Alternative. Trail modifications may improve recreational anglers' ability to more easily reach fishing spots and could make it easier to retain a greater number of fish. Currently, access to the Bartlett River is provided by the Bartlett River Trail, which requires anglers without watercraft to hike 1.7 miles on a rough trail through temperate hemlock and spruce forest. By rerouting the Bartlett River Trail along the tidal cut to the Beardslees, the new trail would provide access to an additional segment of shoreline previously not typically used by recreational anglers. Salmon and trout migrating up the Bartlett River to spawn move through the tidal cut, and recreational anglers may be able to target fish along the tidal cut shoreline trail segment. The close proximity of the tidal cut to Bartlett Cove facilities could lead to an increase in both the number of recreational anglers and the number of fish harvested, as there would be a shorter hike required to reach fishing spots and to carry out fish. In addition, actions under the destination alternative may result in some visitors extending their stay in Bartlett Cove, which would also increase the potential for recreational harvest of fish. While some increase in harvest

and mortality of individual fish is expected, anglers would continue to be subject to State of Alaska daily recreational harvest limits. Furthermore, park staff would continue to periodically monitor recreational fishing harvest data. If there were a noticeable change in angler harvest and associated catch rates, which may be predictive of harvest concerns and population viability, park staff would consider implementing additional management strategies to reduce pressures on fish populations from recreational fishing, such as reducing daily bag limits, limiting gear types, or implementing temporary spatial or temporal closures. Therefore, the proposed actions under the destination alternative are not likely to have a significant effect on salmon and anadromous trout at a population level.

Cumulative Impacts

Past actions that have impacted salmon and anadromous trout include the construction of the existing Bartlett River Trail to provide access for recreational anglers; continuing impacts from these actions on fish populations are described as part of the Affected Environment section. There are no present or reasonably foreseeable future actions that would have noticeable adverse impacts on salmon and anadromous trout in the project area. As previously described, there would be no new impacts under the no-action alternative, and therefore there would be no cumulative impacts to salmon and anadromous trout. The destination alternative could cause adverse impacts to individual fish but would likely not impact species population viability. When these effects are combined with other past, present, and reasonably foreseeable future impacts, the cumulative impact on fish populations would continue to be adverse. The incremental impacts of the alternatives described in this plan would contribute slightly to, but would not substantially change, the impacts that are already occurring.

Conclusion

Under the no-action alternative, current operation and maintenance and visitor use activities would continue unchanged. This continuation of current management would result in no changes to salmon and anadromous trout populations beyond that occurring from incrementally increased visitation and angler activity. Actions proposed under the gateway alternative would result in some changes to park operation and maintenance and visitor use activities; however, these actions would also result in no changes to salmon and anadromous trout populations. In contrast, under the destination alternative, the Bartlett River Trail would be rerouted next to the tidal cut. This action has the potential to both increase recreational fishing opportunities closer to Bartlett Cove along the tidal cut and increase harvest along the Bartlett River due to easier trail travel conditions, potentially resulting in an increased harvest and mortality of salmon and anadromous trout.

SHOREBIRDS AND WATERFOWL

Affected Environment

Many species of shorebirds and waterfowl use beaches and nearshore marine waters in the Bartlett Cove area, particularly in areas protected from wind such as the inner lagoon. Bartlett Cove and the tidal cut contain approximately 8.8 linear miles (46,400 linear feet) of shoreline; the coastline of Glacier Bay proper, including all islands, is 760 miles (NPS 2016). Yellowlegs (*Tringa spp.*) are common along the shoreline of Bartlett Cove in the spring, summer, and fall, and other species of shorebirds, including Black-bellied Plover (*Pluvialis squatarola*) and Dunlin

(*Calidris alpine*) are especially abundant during migration. Black Oystercatchers (*Haematopus bachmani*) nest and raise young along the shoreline of Halibut Point. Black Oystercatchers have been identified as a species of high concern by federal and state agencies and conservation organizations in the U.S. and Canada. The total population is fewer than 11,000 birds, making it one of the rarest shorebirds in North America, and the status of the population is unknown. Other ground nesting shorebirds include Spotted Sandpiper (*Actitis macularius*) and Least Sandpiper (*Calidris minutilla*). Prevalent, year-round, waterfowl species include mallards (*Anas platyrhynchos*), goldeneye (*Bucephala sp.*) and merganser (*Mergus sp.*), as well as Canada geese (*Branta canadensis*). Trumpeter swans (*Cygnus buccinator*) may be present during winter and during spring and fall migrations.

Streveler et al. (1995) described known sensitivities for specific species that may be found in the Bartlett Cove frontcountry area. Certain species are more sensitive to human disturbance than are others. For example, greater yellowlegs (*Tringa melanoleuca*) has a low tolerance for disturbance while nesting; these birds use estuaries and marine beaches for feeding, both while nesting and, in greater numbers, during migration (Streveler et al. 1995). The shoreline area along Bartlett Cove is important to a variety of bird species, many of which have been displaced at least to a degree by development and visitor use. The more remote portions near the mouth of the Bartlett River remain heavy-use areas by wildlife (Streveler et al. 1995).

Environmental Consequences

No-Action Alternative. There would be no new actions and therefore no new effects on shorebirds and waterfowl under the no-action alternative. Routine park operations and visitor use activities would continue to affect shorebirds and waterfowl through habitat modification from maintenance activities as well as behavior modification because of visual and acoustic disturbances. As natural vegetation shifts continue, wildlife would respond, resulting in a dynamic ecosystem for the foreseeable future where some species thrive and others decline.

Gateway Alternative. Shorebirds and waterfowl could be affected temporarily through construction-related noise and visual disturbances and permanently through the loss of habitat as well as visual and acoustic disturbances from maintenance activities and increased human use of the area. The short-term impacts from construction activities common to all alternatives would be partially mitigated by working outside of the critical nesting/migration seasons. Habitat loss from ground disturbance and construction of new facilities would amount to less than 0.1 acres and would occur in close proximity to existing facilities. In addition, higher levels of noise and human activity around new facilities could displace shorebirds and waterfowl from using nearby areas. While this impact would be permanent, it would not be likely to impact avian species at population levels because the amount of habitat lost would be small relative to the total amount of similar habitat in the frontcountry. Nearly 8 miles of shoreline and more than 2,600 acres of similar Sitka spruce/hemlock forest would remain undisturbed.

Destination Alternative. The destination alternative calls for notably more trail and facility construction than what is proposed under the gateway alternative. Construction-related noises and visual disturbances may be notable for the short time they occur and may alter avian species use of the project area, particularly species that make use of shoreline habitats. The short-term impacts from construction activities would be partially mitigated by working outside of the

critical nesting/migration seasons. Vegetation clearing would not occur during nesting season, so it is unlikely that there would be any direct mortality of birds.

Vegetation clearing in Sitka spruce/western hemlock forest, coastal meadows, and early successional forests would total between 3 and 4 acres, resulting in some habitat loss and fragmentation. In addition, higher levels of noise and human activity could displace shorebirds and waterfowl from using nearby areas. However, this loss is not expected to impact any bird species at a population level because of the abundance of similar habitat nearby. In addition, new facilities proposed under the destination alternative would have long-term impacts on avian wildlife because of intermittent disturbances associated with maintenance activities and increased human presence. The proposed Inner Lagoon and rerouted Bartlett River trails go through important bird habitats. This increase in recreational use would likely cause disturbance and displacement from preferred habitat for several avian species and may result in habitat fragmentation. In addition, the suitability of the lagoon and tidal cut for shorebirds and waterfowl to feed and rest could decrease, especially during peak visitation but also during migration periods in May and August. There would also be an increased likelihood of disturbance and displacement to the adults, eggs, and chicks because of higher visitation to the park during the peak summer season. Disturbance effects may include energetically costly physiologic responses (i.e., frequent flushing of resting, feeding, and breeding birds and their young.

Ground nesting birds, such as the Black Oystercatcher, may be especially susceptible to visitor use of trails along beaches because of the potential for stepping on the camouflaged eggs, in addition to other forms of disturbance. Other beach-dependent, ground nesting shorebirds including plovers and yellowlegs would experience similar impacts. It is important to note that the lagoon is most important to birds during fall and spring migrations and in winter when visitation is lower; however, regular disturbance from human use during the off-season is likely although at lower volumes than in the summer season. Educational material and programs would inform visitors of sensitive species and habitats to reduce unintentional visitor-caused impacts.

In summary, the impacts of the destination alternative on shorebirds and waterfowl would be of two types: temporary (during construction) and lasting for the foreseeable future. In addition to permanent habitat loss/alteration, additional acoustic and visual disturbances from increased human presence may cause repeated wildlife disturbances and displacement. Unless properly managed, these activities can disturb and displace shorebirds and waterfowl and negatively affect their breeding, feeding, and migratory success. However, implementation of mitigation measures and best management practices such as clearing vegetation outside of nesting season and providing additional visitor education related to wildlife would help reduce adverse impacts.

Changes to trails and additional development will likely lead to some increased displacement of wildlife from the project area. Even though Bartlett Cove is considered high-quality habitat for these species, because there is other similar habitat nearby, survival rates, local population size, and long-term viability are unlikely to be affected. Bird species are not expected to be affected at population levels because approximately 4.6 miles of shoreline habitat in Bartlett Cove would remain undisturbed. The impacts would be even less noticeable parkwide, since more than 700 miles of shoreline in Glacier Bay proper would remain free of development. However, shoreline habitat in Glacier Bay varies in complexity and substrate type (Sharman et al. 2005) and habitat

used for nesting varies by species (Arimitsu et al. 2007); not all undisturbed shoreline throughout the park would provide suitable habitat for the species found in Bartlett Cove.

Cumulative Impacts

Previous actions in the Bartlett Cove frontcountry area may have resulted in the intermittent or permanent disturbance and/or displacement of shorebirds and waterfowl within the developed area's approximately 110-acre, noncontiguous development footprint. Past development in the Bartlett Cove area has removed about 31 acres of mature forest and nearshore upland habitats by converting it into building sites, roads, parking lots, and pedestrian walkways (NPS 2012). Shorebirds and waterfowl have been adversely affected by the removal of forest canopy during construction of the existing buildings and by recurring human disturbance during migration and nesting seasons. Increasing human use of the Bartlett Cove shoreline and adjacent Beach Trail may have altered wildlife use of this area, which is known to be an important area for wildlife foraging and use as a travel corridor (NPS 2011b). As previously described, there would be no new impacts under the no-action alternative, and therefore there would be no cumulative impacts. The direct and indirect impacts of the gateway and destination alternatives would result in intermittent or permanent disturbance and/or displacement of shorebirds and waterfowl from constructing new facilities, maintenance activities, and visitor use. When these effects are combined with other past, present, and reasonably foreseeable future impacts, the total cumulative impact on bird populations would continue to be adverse. The incremental impacts of these alternatives would contribute to, but would not substantially change, the impacts that are already occurring.

Conclusion

Under the no-action alternative, current operation and maintenance and visitor use activities would continue unchanged. This continuation of current management would result in no notable changes to natural resource conditions. Actions proposed under the gateway alternative would have considerably fewer impacts on shorebirds and waterfowl than under the destination alternative. The destination alternative entails the greatest number and widest scope of activities under consideration in the plan. These actions would result in vegetation removal/alteration, permanent habitat loss, and visual and acoustic disturbances to and displacement of shorebirds and waterfowl; some individuals may temporarily or permanently relocate to areas outside the project area. Mitigation measures (*see appendix D*) would be used to reduce impacts to the extent possible. Still, even though Bartlett Cove is considered high-quality habitat for these species, these actions would not be expected to have any long-term adverse effect on species population viability because of an abundance of similar habitat adjacent to the project area as described above.

The impacts would be even less noticeable parkwide, since more than 700 miles of shoreline in Glacier Bay proper would remain free of development. However, shoreline habitat in Glacier Bay varies in complexity and substrate type (Sharman et al. 2005) and habitat used for nesting varies by species (Arimitsu et al. 2007); not all undisturbed shoreline throughout the park would provide suitable habitat for the species found in Bartlett Cove.

HUNA TLINGIT ANCESTRAL HOMELAND

Affected Environment

Huna Tlingit clans occupied what is now Glacier Bay for many generations, subsisting on the rich abundance of the coastal waters and adjacent lands. Based on oral tradition, an important winter village site, Sand Hill Town (L'eiwshaa Shakee Aan), was located near present-day Bartlett Cove. The village contained several plank structures that housed the Chookaneidí, Kaagwaantaan, Wooshkeetaan, and T'akdeintaan clans. Today, clans are represented by the Hoonah Indian Association, the federally recognized tribal government of the Huna Tlingit. Sand Hill Town and other settlements were destroyed around AD 1735 by the sudden advance of a glacier. The Huna clans resettled in nearby protected areas but returned to the general area of their former settlements sometime in the 1800s following the glacial retreat. They established seasonal settlements, including a summer fishing camp on Lester Island called Gaatheení, and continued to hunt seals, fish, and harvest sea bird eggs and other coastal resources in what is now Glacier Bay well into the 20th century (NPS, Huna Tribal House EA, 2012).

Importantly, the Tlingit concept of "place" differs significantly from that of most western cultures. For Tlingit people, place is more than a geographically bounded area; it is a container that holds the actions, words, stories, songs, and agreements of those who passed there. Consequently, Huna Tlingit identity is inextricably connected to specific settlement sites, resource gathering areas, and places of historic import in Glacier Bay, including Bartlett Cove. Their deep connection to homeland is reflected in place-based oral histories, songs, stories, dances, crests, place and personal names, and artwork. The ability of clans and individuals to retain customary and meaningful interaction with ancestral places is vitally important to the perpetuation of Tlingit cultural identity.

Following a cultural landscape inventory of Bartlett Cove conducted in 2000, the National Park Service determined that Bartlett Cove represents an ethnographic landscape and a Traditional Cultural Property (a culturally associated site eligible for the National Register of Historic Places) in consideration of the area's continuing importance to the Huna Tlingit. The Alaska State Historic Preservation Officer concurred with the finding. The boundaries of the Bartlett Cove traditional cultural properties (TCP) encompass the entire Bartlett Cove vicinity, including the waters up to and including the mouth of the Bartlett River, across to the southern third of Lester Island, and inland to the south as far as one mile above the high tide line. Natural systems / features and cultural traditions contribute to the importance of the cultural landscape and traditional cultural properties. The Bartlett Cove Pilings (remnants of a pier suspected to have supported the transport of fresh water to a late 19th-century fish cannery and saltery on Lester Island) are also identified as resources contributing to the Bartlett Cove traditional cultural properties (NPS, Huna Tribal House EA, 2012).

The establishment of Glacier Bay National Monument in 1925 precluded permanent reoccupation of the area by the Huna Tlingit, and later NPS regulations curtailed many of the tribe's traditional food gathering activities in Glacier Bay. Huna Tlingit use of Glacier Bay was further diminished as tribal members entered into the western economy, enrolled their youth in school, and established a centralized village in Hoonah. Today, Huna Tlingit visit Glacier Bay and Bartlett Cove on an infrequent basis. The last generation of Huna Tlingit to have lived on the landscape in a traditional way is now elderly and passing on, threatening the loss and

perpetuation of traditional Tlingit knowledge, stories, songs, and lifeways (NPS, Huna Tribal House EA, 2012).

While the entirety of Glacier Bay is sacred to the Huna Tlingit, the Bartlett Cove area is of particular significance for many reasons. First, as noted above, it is revered as the site of the ancestral villages of L'eiwshaa Shakee Aan and Gaatheení. The area is replete with culturally modified trees thought to have been modified during the period of occupation following glacial retreat. Additionally, a dugout canoe, named Yúxwch' Yaakw, rests on what is now the Tlingit Trail adjacent to the Visitor Information Station. This canoe, carved by Huna residents in 1988, is a reminder of early efforts between the National Park Service and the tribe to collaborate. Bartlett Cove is also the site of a 1992 event, now known as the Peaceful Demonstration, in which Huna clans reaffirmed their claim to Glacier Bay homeland on the Ceremonial Beach due east of the boat ramp.

Importantly, the Huna Tribal House, completed in 2016, is the first permanent traditional structure at Glacier Bay since Tlingit villages were destroyed by an advancing glacier more than 250 years ago. *Xunaa Shuká Hít* (the Tribal House) is the culmination of about 20 years of collaborative planning between the Hoonah Indian Association and the National Park Service. It reflects traditional Tlingit design elements and symbolically anchors the Huna Tlingit in their ancestral homeland at Glacier Bay. The 2,500 square-foot structure on the shores of Bartlett Cove near NPS headquarters serves as a venue for tribal members to reconnect with their traditional homeland, lifeways, and ancestral knowledge. The Tribal House also serves as a place for NPS and tribal interpreters to convey the story of the Huna Tlingit, their traditional lifeways, and their evolving relationship with the National Park Service to the visiting public. Appropriate NPS administrative activities are also conducted there.

This assemblage of cultural features—the Ceremonial Beach, the dugout canoe, the Tribal House and associated totem poles, including a Healing Totem Pole, and a series of waysides conveying Tlingit culture and traditions—serve as "containers" that hold ancestral stories and traditions and maintain connection between the living culture and their traditional homeland. Importantly, these features also remind visitors of the deep and ongoing connection between a traditional people and their homeland.

Environmental Consequences

No-Action Alternative. Under the no-action alternative, the National Park Service would continue to consult and work with the Hoonah Indian Association to address tribal concerns and issues and ensure that the Huna Tribal House continues to meet tribal needs including appropriate access and functional requirements. All the cultural features arrayed in Bartlett Cove including the Ceremonial Beach, *Yúxch' Yaakw* (a Tlingit dugout canoe), the Healing Totem Pole, the Tribal House and associated totems, and culturally modified trees would be maintained to recognize and honor the Huna Tlingit's deep connection to homeland. Other resources contributing to the significance of the Bartlett Cove cultural landscape and traditional cultural property would continue to be protected and preserved. Interpretive programs would be developed to educate the public about the Tribal House and Tlingit culture, and an appropriate level of public access would be provided to broaden understanding and support for tribal culture. These actions and others that continue to support tribal connections and access to

places and resources of ongoing cultural importance would have beneficial impacts on perpetuating tribal traditions and identity.

Gateway Alternative. Under the gateway alternative, the National Park Service would continue to consult and work with the Huna Tlingit and the Hoonah Indian Association to strengthen relations and ensure that the Huna Tribal House and its immediate area appropriately address tribal needs (e.g., accessibility standards for beach access). All cultural features arrayed in Bartlett Cove, including the Ceremonial Beach, *Yúxch' Yaakw* (a Tlingit dugout canoe), the Healing Totem Pole, the Tribal House and associated totems, and culturally modified trees, would be maintained to recognize and honor the Huna Tlingit's deep connection to homeland. Other resources contributing to the significance of the Bartlett Cove cultural landscape and traditional cultural property would continue to be protected and preserved. These actions and others that continue to support tribal connections and access to places and resources of ongoing cultural importance would have beneficial impacts on perpetuating tribal traditions and identity.

Interpretive programs would be developed to educate the public about the Tribal House and Tlingit culture, and an appropriate level of public access would be provided to broaden understanding and support for tribal culture. Vegetation clearing and terracing in front of the Tribal House would enhance views and better accommodate larger public gatherings. These measures would have benefits on preserving and enhancing culturally important resources by ensuring that places, resources, and cultural connections having enduring importance to the Huna Tlingit and the Hoonah Indian Association are protected.

Through a variety of means, the park would work with the Hoonah Indian Association to recognize and demonstrate the park's significance as the Huna Tlingit ancestral homeland (e.g., interpreting Tlingit history and culture). New frontcountry facilities would be developed with appropriate sensitivity and consideration of tribal interests for protecting resource integrity and access to culturally important sites. Values and resources contributing to the Bartlett Cove cultural landscape and traditional cultural property would be protected. These measures would have benefits on preserving and enhancing resources and cultural connections having enduring importance to the Huna Tlingit and the Hoonah Indian Association.

Destination Alternative. Actions proposed under the gateway alternative are included in the destination alternative as well. Consequently, the beneficial impacts to resources of cultural importance to the Huna Tlingit would be similar. Additional programs and developments associated with this alternative would further efforts to perpetuate tribal heritage, support efforts to impart cultural knowledge, and expand opportunities to host cultural demonstrations and gatherings to improve cultural outreach. Traditional activities and life ways (e.g., carving, canoe paddling, art, plant and seafood gathering and processing) could be demonstrated to the public outside the Tribal House. In common with all alternatives, values and resources contributing to the Bartlett Cove cultural landscape and traditional cultural property would be protected. These measures would have benefits on broadening public support and understanding of Huna Tlingit culture and help to protect resources and perpetuate cultural connections of tribal importance.

Cumulative Impacts

Related actions considered for potential cumulative impacts in this environmental assessment include construction of a new Gustavus Community Center by a local non-profit organization,

planned for completion in 2019. The center is anticipated to become one of the most prominent public buildings in Gustavus, serving as a focal point to orient visitors and provide community information. Although no direct cumulative impacts were identified by construction of the community center with the objectives of the Huna Indian Association, Huna Tribal House, or the Bartlett Cove traditional cultural properties, there may be a potential for future collaboration in imparting information to visitors about Huna culture, events, and efforts to preserve cultural identity. Likewise, no direct cumulative impacts were identified by development of the Falls Creek Hydroelectric Project and the electrical intertie to the Bartlett Cove electrical grid. Beneficial impacts on the visual character of the Bartlett Cove cultural landscape would be expected from efforts to place the electrical intertie cable underground. All areas of ground disturbance would be surveyed and assessed to ensure the avoidance of sensitive archeological and other cultural resources. The beneficial impacts resulting from actions proposed by the "no-action," "gateway," and "destination" alternatives, together with the beneficial impacts resulting from development of the Gustavus Community Center and the electrical intertie project, would result in overall beneficial cumulative impacts on the Huna Tlingit Ancestral Homeland.

Conclusion

In the no-action alternative, beneficial impacts on resources contributing to the Huna Tlingit Ancestral Homeland would result from the continuation of actions that protect tribal access and connections to places and resources of cultural importance to the Huna Tlingit. Beneficial impacts would also result from interpretive programs developed to educate the public about the Tribal House and Tlingit culture and measures to provide an appropriate level of public access to broaden understanding and support for tribal culture. Resources contributing to the significance of the Bartlett Cove cultural landscape and traditional cultural property would continue to be protected and preserved.

Actions proposed under the gateway alternative and the destination alternative are essentially the same and would provide beneficial impacts on resources of cultural importance to the Huna Tlingit as a result of efforts to promote tribal access and cultural connections to the Bartlett Cove area, enhance public interpretation and education of Huna Tlingit culture, and strengthen NPS and tribal relations and partnerships. The National Park Service would continue to consult with the Huna Tlingit and the Hoonah Indian Association to ensure that the Tribal House and its immediate area appropriately address tribal needs. Resources contributing to the significance of the Bartlett Cove cultural landscape and traditional cultural property would continue to be protected and preserved.

GLACIER BAY LODGE AND HISTORIC DISTRICT

Affected Environment

The Glacier Bay Lodge Complex Historic District was built in two primary phases of construction (1965 and 1972/1973) as part of the National Park Service's systemwide program of planning, design, and construction known as "Mission 66." The mid-20th-century program was largely undertaken to modernize outdated facilities and improve visitor services. Designed by prominent Seattle-based architect John Morse of John Morse & Associates, the lodge and associated district reflect a Pacific Northwest regional approach to park service modern architectural design in conformance with Mission 66 principles. The district comprises a central lodge building flanked by guest and employee lodging. It was designed as a visitor accommodation, dining, and information facility. Additional visitor service functions were added to the lodge including an expanded guest registration and information area, retail space, auditorium, and interpretive exhibit area. Few alterations were made to significant exterior features of the lodge complex, and the distinguishing asymmetrical roofline, triangular dormers, and glass curtain wall on the northwest elevation of the main lodge remain virtually unchanged. The Glacier Bay Lodge Complex Historic District includes eighteen contributing buildings, two contributing structures and one noncontributing building (NPS, National Register nomination, draft).

The district retains historic integrity and is recognized as nationally significant as the only example of a Mission 66 lodge in the Alaska Region and the only federally funded, Mission 66 lodge in the nation. In 2011, the Alaska State Historic Preservation Office (SHPO) concurred that the lodge complex is eligible for listing on the National Register of Historic Places as a cultural landscape and a historic district. As a historic designed landscape associated with trends in the history of landscape architecture, the district exhibits environmentally sensitive modern and award-winning architectural design. It is an exemplary representation of the NPS Mission 66 program's objectives to modernize and increase the accessibility of the national parks. In 2003, the access road along the beach was decommissioned and the current inland access road was added. The original road, now the Tlingit Trail, along with the boardwalks and driveway, were determined contributing landscape features. The historic utility system, including water and sewer lines underlying the Tlingit Trail, is not listed as a contributing element of the historic district. A historic structure report (HSR) for the Glacier Bay Lodge Complex Historic District was completed in 2018 that presents a history of the lodge design and development as well as treatment recommendations. The historic structure report furthers understanding of the lodge by identifying the significance and integrity of its character-defining features. In keeping with the Secretary of the Interior's Standards for Treatment of Historic Properties, "rehabilitation" is the overall treatment recommended for the complex (NPS, National Register nomination, draft; Cultural Landscape Inventory, NPS 2011a; HSR, NPS 2018a).

Environmental Consequences

No-Action Alternative. Under the no-action alternative, the National Park Service would continue to preserve and maintain the Glacier Bay Lodge to the extent possible in accordance with NPS policies and the 2018 historic structure report. The backlog of deferred maintenance for the historic Mission 66 building would continue to present threats to its architectural and structural condition and integrity. Nonconforming alterations to the building (e.g., NPS visitor center and other interior changes that block natural light and views) would continue to

adversely impact its architectural character and the historic design intent. Other changes that have occurred over time that have altered the historic character of contributing elements of the district and associated cultural landscape (e.g., employee housing/cabins, parking and circulation, the historic viewshed of the lodge historic district) would continue to diminish the historical integrity of the district. Limited to moderately severe adverse impacts on the lodge and district could continue to occur but would not be expected to compromise the overall national register eligibility of the Glacier Bay Lodge Complex.

Gateway Alternative. Under the gateway Alternative, the National Park Service would undertake several measures to preserve the historical and architectural character of the Glacier Bay Lodge. As under the no-action alternative, increased documentation (e.g., completion of a national register nomination) and the recently completed historic structure report would help identify contributing architectural and historical features of the lodge and the lodge historic district and would guide appropriate preservation treatments. Efforts to expand public interpretation and promotion of the significance of the lodge would be expected to increase advocacy and broaden public support for its preservation. Completion of deferred maintenance with dedicated funding would help ensure preservation of the lodge by ensuring that important architectural features are protected from loss or deterioration. These measures would be expected to have beneficial impacts on the Glacier Bay Lodge and lodge historic district.

Restoration of historic district viewsheds and preservation of other contributing features of the district's cultural landscape (e.g., spatial organization, patterns of circulation, natural systems and features) would assist efforts to preserve the district's historic character and setting. Removal of hazardous or encroaching trees would help protect the integrity of the district's contributing buildings by abating the threats of structural damage resulting from falling trees and branches and by helping to preserve historic views. Through careful design, measures would be implemented to ensure that actions affecting the lodge and historic district would only minimally affect the scale and visual relationships among landscape features or circulation patterns and features. In addition, site topography and land use patterns would remain unaltered.

Upgrades to some lodge rooms and other functional/use alterations would be carried out in a manner that preserves character-defining architectural features. To the extent possible, proposed actions and alterations to the lodge and historic district would be undertaken in conformance with NPS policies and the Secretary of the Interior's Standards to minimize or avoid adverse impacts. However, there is a possibility that some actions (e.g., alteration of interior rooms and spaces to accommodate new or upgraded functional uses) may result in limited or moderately severe adverse impacts on the historic and architectural character of the lodge and district if these actions resulted in the loss or disturbance of historic fabric and contributing architectural elements. The National Park Service would therefore consult with the Alaska State Historic Preservation Office during project design development to assess the effects of project undertakings on historic properties in accordance with Section 106 of the National Historic Preservation Act. Any undertakings resulting in unavoidable adverse effects would require appropriate mitigation in consultation with the State Historic Preservation Office and other concerned parties.

Destination Alternative. The actions proposed under the gateway alternative are also included in the destination alternative; consequently, the impacts to historic structures under these alternatives are similar. Structural repairs and other measures to address deferred maintenance also would be carried out as under the no-action alternative. In addition to increased documentation of the lodge and efforts to expand public interpretation and promotion of its significance, the National Park Service would promote local sustainable tourism activities that would further build broad-based preservation advocacy for the lodge. Moreover, (as under the no-action alternative) documentation and information expanding understanding of the historical and architectural importance of the lodge complex (such as completed national register documentation) would provide the basis for future treatments and management of the complex. By helping to ensure that the management of the lodge is carried out for the foreseeable future in a fashion that preserves its historic character and ambience, visitors would be provided a more authentic lodge experience in keeping with its original design intent. These measures would have beneficial impacts on the lodge and historic district.

In addition to the impacts described under the gateway alternative, removal of NPS exhibits and restoration of the original architectural design above the dining area of the lodge would have beneficial impacts by returning the catwalk to its originally intended functional design and enhancing natural interior lighting and views. Other rehabilitation measures include removal of nonhistoric additions to the lodge (west of the main drop-off point and visitor entrance) and constructing a wrap-around deck with southern exposure and rain cover in keeping with the historic design intent. These above actions would have beneficial impacts on the integrity of the lodge by reestablishing important historic design elements.

To the extent possible, conversion/upgrades of lodge rooms and other proposed actions would be carried out in a manner that preserves character-defining architectural and cultural landscape features. Proposed actions and alterations to the lodge and historic district would be undertaken in conformance with NPS policies and the Secretary of the Interior's standards to minimize or avoid adverse impacts. However, there is a possibility that some actions (e.g., alteration of interior rooms and spaces to accommodate new or upgraded functional uses) may result in limited or moderately severe adverse impacts on the historic and architectural character of the lodge and district if these actions resulted in the loss or disturbance of historic fabric. The National Park Service would therefore consult with the Alaska State Historic Preservation Office during project design development to assess the effects of project undertakings on historic properties in accordance with Section 106 of the National Historic Preservation Act. Any undertakings resulting in unavoidable adverse effects would require appropriate mitigation in consultation with the state historic preservation office and other concerned parties.

Cumulative Impacts

Related actions considered for potential cumulative impacts in this environmental assessment include construction of a new Gustavus Community Center by a local non-profit organization, planned for completion in 2019. The center is anticipated to become one of the most prominent public buildings in Gustavus, serving as a focal point to orient visitors and provide community information. Although no direct cumulative impacts were identified by construction of the community center with the objectives or preservation of the Glacier Bay Lodge and Historic District, there may be a potential for future collaboration in imparting information to visitors about the history of the lodge and its promotion as an important visitor destination. These

efforts would have beneficial impacts on the preservation of the Glacier Bay Lodge by enhancing public awareness and support for the historic building. Likewise, no direct cumulative impacts were identified by development of the Falls Creek Hydroelectric Project and the electrical intertie to the Bartlett Cove electrical grid. Beneficial impacts on the visual character of the Bartlett Cove and Glacier Bay Lodge cultural landscapes would be expected from efforts to place the electrical intertie cable underground. All areas of ground disturbance would be surveyed and assessed to ensure the avoidance of sensitive archeological and other cultural resources. The beneficial impacts resulting from actions proposed by the "no-action," "gateway," and "destination" alternatives, together with the beneficial impacts resulting from development of the Gustavus Community Center and the electrical intertie project, would result in overall beneficial cumulative impacts on the Glacier Bay Lodge and Historic District.

Conclusion

In the no-action alternative, the Glacier Bay Lodge and associated resources contributing to the significance of the lodge historic district would continue to be at risk of loss of architectural and cultural landscape integrity primarily as a result of deferred maintenance and nonconforming alterations. Although the recently completed historic structure report would guide future treatments, limited to moderately severe adverse impacts on historic structures and associated resources would result from continued deferred maintenance and nonconforming building alterations.

Actions proposed in the gateway alternative would result in beneficial impacts to the Glacier Bay Lodge and lodge historic district through completion of documentation and treatment guidance for the historic lodge, contributing features of the district and associated cultural landscape. However, because some actions could result in limited or moderately severe adverse impacts, all proposed actions associated with the Glacier Bay Lodge would require project review and consultation with the Alaska State Historic Preservation Office during project design development to ensure avoidance or mitigation of potential adverse effects on historic properties.

Under the destination alternative, beneficial impacts to the Glacier Bay Lodge and lodge historic district would result from the completion of documentation and treatment guidance for the historic lodge, contributing features of the district, and associated cultural landscape. Actions that promote local sustainable tourism would further build broad-based preservation advocacy for the lodge. Actions affecting the lodge and district would be carried out in conformance with NPS policies and the Secretary of the Interior's standards to avoid or minimize adverse impacts on character-defining features. Some actions could result in limited or moderately severe adverse impacts depending on the extent to which character-defining architectural or cultural landscape elements are altered. All proposed actions would therefore require project review and consultation with the Alaska State Historic Preservation Office during project design development to ensure avoidance or mitigation of potential adverse effects on historic properties. Prior to implementing proposed actions, the National Park Service will conduct Section 106 reviews (*see "Appendix A: National Historic Preservation Act, Section 106 Considerations and Next Steps"*).

SOLITUDE AND UNCONFINED RECREATION IN WILDERNESS

Affected Environment

Glacier Bay has one of the largest wilderness areas in the country, containing 2.6 million acres of marine and terrestrial designated Wilderness environments, with excellent opportunities to experience solitude and primitive and unconfined recreation. The area is managed to protect the natural, untrammeled, undeveloped, scientific and cultural characteristics of wilderness, and preserve its specific qualities, as described in the Glacier Bay wilderness character narrative: https://www.nps.gov/glba/learn/management/upload/GLBA-Wilderness-Character-Narrative.pdf.

Roughly 1,300 acres of designated Wilderness are within the project area. This area includes 7.2 miles of trails in the project area. Although the majority of the project area is not within wilderness, signs of human activity can be seen and heard from adjacent designated Wilderness areas (i.e., Lester Island, some Beardslee Island locations) in the Park. The sights and sounds of administrative, commercial, and private vehicles, facilities, equipment, vessels, and aircraft collectively comprise the most perceptible and recurrent impact to a visitor's opportunity for solitude within the wilderness areas proximate to the frontcountry area. Because of the relative ease of access to the parts of the wilderness (when compared to the more remote wilderness areas of the Park), visitors have a different expectation of solitude here than they have in more remote backcountry areas. Encouraging visitor groups to participate in wilderness hikes in and around Bartlett Cove helps to protect a higher degree of solitude in the more remote wilderness areas of the Park.

Currently, visitors use the frontcountry area as a launching point for water-based trips into the designated Wilderness (both day trips and overnight) and to begin day hikes that cross into designated Wilderness areas (along the Bartlett River, to Bartlett Lake, and along the coast around Point Gustavus).

Environmental Consequences

The No-Action Alternative. Activities described previously in the affected environment section would continue under the no-action alternative. There would be no new activities or changes to the opportunities for solitude and unconfined recreation in wilderness under this alternative.

The Gateway Alternative. Actions in the gateway alternative would result in impacts to the opportunity for solitude and unconfined recreation in wilderness similar to those described in the no-action alternative. New facilities and activities would likely minimally increase the noise carrying into wilderness, further impacting the opportunities for solitude. However, there would be no new actions that would directly impact the opportunity for solitude or unconfined recreation in the Park's wilderness.

The Destination Alternative. The development of the proposed Point Gustavus Route and the reroute of the Bartlett River Trail would result in approximately 4.4 miles of new trail, trail improvements, and installations within designated Wilderness near the frontcountry and the removal of 4.0 miles of trail from wilderness (along the Bartlett River and leading to Bartlett Lake). However, the majority of these new trails are replacing existing trail segments that are proposed to be closed and restored under this plan. Therefore, the total trail mileage in wilderness as a result of the plan actions is negligible.

The presence of trails in wilderness detracts from the opportunity for unconfined recreation by potentially limiting self-exploration, self-determination, and reliance on personal skills. Wilderness visitors using trails do not need to have the same skill set as the visitor who is entering wilderness without a trail to explore on their own. In this way, new trails impact the opportunity for unconfined recreation by changing both the skill level the visitor is required to have to encounter wilderness as well as how the visitor interacts with wilderness.

As described in the affected environment section, sights and sounds from the frontcountry carry into designated Wilderness, detracting from the opportunity to experience wilderness without the sights and sounds of humans, otherwise referred to as solitude. New facilities would likely increase the noise carrying into the wilderness, further impacting the opportunities for solitude. Additionally, this alternative is expected to result in a moderate increase in the number of days in which frontcountry visitors stay in the Park. This increased use of the frontcountry areas, in combination with additional trail access, would likely lead to increased visitor encounters on trails in wilderness areas adjacent to the frontcountry. Trail alignment would use topography and natural vegetative screening to minimize visibility of the trails and their users to other users. However, this increased encounter rate would likely detract from opportunities for solitude in wilderness adjacent to the frontcountry. Therefore, the visitor seeking a wilderness experience or solitude would have to travel deeper into the Park's wilderness and away from this area to encounter solitude. Nonetheless, the wilderness trails proposed under the destination alternative plus the actions described in the gateway alternative would impact a very small fraction (less than 0.05%) of the greater Glacier Bay Wilderness and does not meaningfully impact the opportunities for solitude found within this wilderness area overall.

Cumulative Impacts

Past and present actions that impact solitude and unconfined recreation are the presence of existing trails in the wilderness areas proximate to the frontcountry (along the Bartlett River and leading to Bartlett Lake) and motorized vessels (along and around Point Gustavus). There are no reasonably foreseeable future actions that would impact solitude and unconfined recreation beyond the ongoing impact associated with the presence of trails.

Continuing to provide trail access to wilderness areas proximate to the frontcountry detracts from the opportunity for unconfined recreation by potentially limiting self-exploration, self-determination, and reliance on personal skills. The geographic scope of the impacts for unconfined recreation is along the current and proposed trail segments for the Bartlett River Trail. The temporal scope is for as long as the trails remain in place (likely 20+ years).

Allowing motor vessel access to Glacier Bay means that sights and sounds of motorized use will continue to carry into designated Wilderness, detracting from the opportunity to experience wilderness without the sights and sounds of humans, otherwise referred to as solitude along the proposed Point Gustavus Route. However, as vessels are required to navigate this segment of the bay at mid-channel and cannot approach closer than 1 nautical mile to the shoreline (because of critical wildlife habitat), the impacts to visitors are minimal. The geographic scope of the impacts for solitude along the section of trail is that within designated Wilderness. The temporal scope is for as long as motor vessel access is allowed for Bartlett Cove (likely 20+ years).

Conclusion

Under the no-action alternative and gateway alternative, current operation and maintenance and visitor use activities would continue unchanged. These actions would result in a reduced sense of solitude in nearby wilderness areas. Actions proposed under the no-action and gateway alternatives would result in considerably fewer impacts on wilderness character than under the destination alternative.

The destination alternative would result in fewer opportunities for solitude or a primitive and unconfined type of recreation in wilderness and a greater potential for visible development and human activity, as well as increased prevalence of man-made noise (e.g., sounds of development, machinery, vehicles, inhabitants, or other visitors) to be heard in adjacent wilderness areas.

VISITOR USE AND EXPERIENCE

Affected Environment

This section describes the aspects of visitor use and experience that may be affected by the frontcountry management plan alternatives. The following topics will be discussed:

- Frontcountry visitor use characteristics and levels
- Access and orientation
- Recreation opportunities in the frontcountry

Frontcountry Visitor Use Characteristics and Levels. Glacier Bay National Park and Preserve offers visitors limitless opportunities to experience adventure and inspiration. As the sole developed area in the park, Bartlett Cove offers visitors recreational activities including ranger-led activities and programs, interpretive trails and exhibits, and visitor facilities and amenities that are not available elsewhere in the Park. Visitors to Bartlett Cove also have opportunities to participate in self-directed experiences and have access to park lands in the frontcountry to explore the wild coastlines and temperate rainforest. The visitor experience in the frontcountry is heightened when it progresses from enjoyment of the natural resources to a deeper understanding of some of the principal reasons for the park's establishment, science and exploration, and the significance of its natural and cultural resources that are part of its rich history.

From public use statistics, between 2006 and 2017, visitation at Glacier Bay National Park and Preserve ranged between 413,400 and 551,350, and the majority of visitors made their trips between May and September. In 2016, 516,400 of the visitors came between May and September, accounting for 99.3% of the Park's total visitation for the year. These numbers

represent visitors to all park areas. For example, this number includes campers on the Outer Coast, private river runners, up bay private boats, and visitors on the day use boat, among others.

Many visitors arrive to the park via cruise ships; while some do visit Bartlett Cove, most do not. In 2016, 485,282 of the 520,771 total visitors arrived by cruise ship. In 2017, 508,705 of the 547,438 of the total visitors arrived by cruise ships.

Visitors come to the park for a variety of reasons and to participate in many different activities, including boating, kayaking, observing wildlife and birds, sport fishing, backpacking, and photography. Some visitors come to learn about and explore the Park's natural, cultural, and wilderness resources. Others seek restorative experiences such as relaxation, observing the scenic beauty, time for self-reflection, and spending time in a natural setting away from the distractions of modern civilization. Additionally, some visitors come to connect with cultural resources such as the Tlingit Ancestral Homeland.

In the summer of 2015, the National Park Service conducted a visitor study at the park (NPS 2015). Of the 572 visitors who returned survey cards, 210 of them were surveyed while visiting Bartlett Cove either at the Dock / Visitor Information Station or at the Visitor Center. Of those surveyed in Bartlett Cove, the average group size was two people, with 83% of those visiting Bartlett Cove traveling without children (NPS 2015). Most visitors surveyed in Bartlett Cove (95%) had not visited Glacier Bay National Park and Preserve in the past 12 months. Eighty-eight percent of those surveyed arrived by cruise ship, 80% by plane, 63% by car, and less than one percent arrived by RV (note that some respondents checked multiple forms of transportation) (NPS 2015). Thirty-five percent of the visitor groups spent one or two days at the park, and 33% spent less than a day. Of those groups that spent less than a day at the park, 84% spent seven or more hours in the park. Sixty-seven percent of visitors stayed overnight in the park or in the nearby area (the adjacent community of Gustavus). The majority (69%) of those visitors who stayed overnight stayed on a cruise ship (NPS 2015).

From all visitors surveyed (including those surveyed in Bartlett Cove), the most important reasons for visiting Glacier Bay National Park and Preserve included viewing wildlife or natural scenery (66%) and spending time with friends/family (9%). The majority of visitor groups (52%) reported that viewing wildlife, natural features, scenery, wildflowers, or other aspects of natural scenery was their primary activity.

Eighty percent of visitor groups surveyed were from the United States, the highest represented being from California (20%), Washington (9%), Maryland (8%), and Alaska (6%), for a total of 43 states. Twenty percent of visitors were from outside the United States, with most being from Canada and Australia, and smaller proportions from 18 other countries. According to the results of the Southeast Region and Communities Survey (McDowell 2016), of those surveyed, roughly half of visitors to Gustavus were from the western United States.

The results of a 2015 survey show the vast majority of visitor groups (95%) reported that their visit to Glacier Bay National Park and Preserve met their expectations (NPS 2016). In addition, the majority of visitor groups (86%) indicated that visiting Glacier Bay National Park and Preserve was one of several equally important destinations on their trip away from home.

Fourteen percent of visitor groups indicated that visiting Glacier Bay National Park and Preserve was the primary purpose of their trip.

The community of Gustavus is approximately 8 miles from park headquarters and provides amenities, lodging options, a ferry terminal, and an airport. In 2016, the City of Gustavus conducted a community survey (Sentenium 2017), in which 439 surveys were mailed out to the residents. Of the 186 surveys returned, 42% suggested it was very important to them that Gustavus is a Glacier Bay National Park and Preserve gateway community. Residents also reported clean air and water as their primary reasons for appreciating the community. Other important reasons included scenic beauty, outdoor recreational opportunity, and pristine environment. The survey also asked residents to identify important issues facing Gustavus, and respondents listed frequency of regional air service, ferry service, and number of local jobs as the top three items that positively impact the community.

Access and Orientation—The shortened visitor season, May to September, and remote location can make it logistically and financially challenging to visit the park. The majority of park visitors come on cruise ships that leave from the Pacific Northwest and Canadian ports. According to the Southeast Region and Communities Survey, more than 90% of those 111 people surveyed that visited Glacier Bay did so by cruise ship (McDowell Group 2016). In 2018, 243 cruise ships visited Glacier Bay for a total of 565,488 cruise ship passengers. In addition, 12,041 passengers came on tour boats—boats that are smaller than cruise ships and can dock in Bartlett Cove and this number excludes the Glacier Bay Lodge day boat and charter vessels.

Visitors entering the park from the City of Gustavus typically arrive at the park along the main road by vehicle, bicycle, or a taxi from town. In the summer months, some visitors arrive in Gustavus by the commercial flight from Alaska Airlines. Typically, Alaska Airlines visits Gustavus from June to August with one flight daily and has averaged 3,100 passengers a year. According to the 2016 Alaska Visitor Statistics Program, when compared to other visitors in Southeast Alaska, visitors to Gustavus and the Park were much more likely to travel to and from Alaska by air and between communities by ferry (McDowell Group 2016).

Visitors also arrive on an Alaska Marine Highway System ferry. The ferry is a twice-weekly day boat service to and from Juneau and it is offered for most of the year. This ferry service affords visitors an opportunity to arrive in Gustavus by ferry, with a vehicle and the ability to bring larger outdoor equipment to the park and community of Gustavus. Over the past five years, the average number of passengers disembarking has been 4,042 per year, and the average number of vehicles has been 1,437 per year. In 2015, between the months of May and September (the Park's primary visitation season) an average of 162 vehicles per month and 472 people per month disembarked in Gustavus, with 715 people disembarking in the month of July alone. In the winter, the ferry also visits the port of Gustavus but less frequently; in 2015, 709 passengers and 392 vehicles disembarked in Gustavus between January and May.

Most visitors who plan to visit the backcountry of the park depart from the Bartlett Cove area and kayak or boat to the backcountry. Water corridors are the primary access routes to the Park's major scenic, biological, and geological features. The number of vessels the Bartlett Cove dock can accommodate varies because of the size of the vessel. The front dock length is approximately 300 feet, so it can accommodate several large vessels or a number of smaller vessels, depending on the length of the vessel and has a 3-hour docking limit. There are several vessel slips that are reserved for NPS use only, and the rest are open to the public. There is a 3-

hour use limit for the entire dock (May 1 - Sept. 15 per the compendium). Otherwise, there is a 14-day use limit outside of this period.

From mooring records, in 2016, between the months of May and September, the total number of boats in Bartlett Cove averaged 11 boats per day. In 2016, four vessels on average were moored per day, six vessels anchored, and one at the dock. *See table 1 for average number of vessels moored, anchored, and at the dock for 2012-2016.*

Table 1. 2012-2016 Average Daily Number of Private and Commercial Vessels Moored, Anchored, and at the Dock (from mooring records)

Time frame	Avg. number of vessels moored	Avg. number of vessels anchored	Avg. total vessel number
2016: May – September	4	6	11
2015: May – September	6	6	13
2014: May – September	4	8	13
2013: May – September	5	8	14
2012: May – September	4	9	14

When visitors arrive by boat, plane, or vehicle, there are navigational signs to direct visitors around Bartlett Cove. These signs direct visitors to the visitor center located at Glacier Bay Lodge and also park headquarters. Directional signage from the town of Gustavus to the park is limited, making it challenging for new visitors to easily navigate to the Park. In addition, orientation information is limited for visitors that arrive via boat to Bartlett Cove.

Currently, the unmanned visitor center (in the Glacier Bay Lodge) is open (24 hours) from May to early September. An associated information desk and bookstore are staffed infrequently. The visitor information station is open from May through September; however, the hours change throughout the season. Current schedules for both the visitor center and the VIS are updated on the Park's website. A visitor who arrives by boat could receive orientation and safety information from the visitor information station.

Current interpretive programs in the frontcountry are largely focused on natural and geological resources and processes, history and cultural resources, and wildlife. Daytime and evening programs are offered regularly during the summer season, and they include a variety of natural and cultural history topics. Guided walks are offered several times each week, and other guided walks and interpretive talks are offered when staff are available.

In addition to interpretive programs, there is an interpretive exhibit at the visitor center located in the historic lodge that provides visitors relevant park information. There are also wayside exhibits that present aspects of the cultural and natural history of the area along the Tlingit Trail and Beach Trail. There is also an educational video about the park shown on the second floor of the lodge for visitors.

Current visitor facilities and attractions in Bartlett Cove include the visitor information station; the lodge and associated cabins, visitor center, and auditorium; public support and safety services, including a public dock serving tour boats, private vessels, float planes and charter vessels; a 35-site, walk-in campground; and hiking trails (NPS 2011). There is also the Huna Tribal House, which is a gathering place where tribal members can reconnect with their treasured homeland through ceremonies, workshops, camps, tribal meetings and other events. It also provides park visitors with opportunities to learn about Huna Tlingit history, culture, and life ways.

Recreation Opportunities—Glacier Bay National Park provides a wide variety of recreational opportunities in the frontcountry, including kayaking, observing wildlife, overnight lodging, sport fishing, hiking, biking, and photography. Many visitors to the frontcountry area use it as a launching point for deeper excursions into the Glacier Bay Wilderness. The 2015 socioeconomic monitoring visitor survey results suggest the most important reasons for visitors to visit Glacier Bay National Park and Preserve included viewing wildlife or natural scenery (66% of visitor groups surveyed) and spending time with friends/family (9% of visitor groups). The majority of visitor groups (52%) reported that viewing wildlife, natural features, scenery, wildflowers, or other aspects of natural scenery was their primary activity. Nine percent reported that the cruise or boat tour used to access the park was their primary activity.

In the 2015 visitor survey, 67% percent of visitors surveyed identified that they stayed overnight in the park or in the nearby area. According to the Southeast Region and Communities Survey, for 2016 visitors to the Southeast region of Alaska, the main lodging used was a cruise ship (57%), followed by hotel/motel (37%), lodge (15%), visiting friends and relatives (15%), campground/RV (6%), B&B (4%), wilderness camping (2%), and state ferry (1%).

Glacier Bay Lodge. The lodge has been operating since 1966 and is eligible as a National Historic District under the National Historic Preservation Act. The lodge offers the only hotel accommodations in the Park. It has 56 overnight guest rooms; however, eight are used for employee housing, so 48 rooms are currently available for visitors. There is a restaurant, a gift shop, and laundry and shower services available, as well as marine vessel fueling, and an NPS visitor center. Guest rooms are priced differently depending on the view. The rooms are accessed from the lodge lobby by boardwalks. The Lodge Operational Statistic Report noted that the average occupancy rate for the lodge from May 27, 2016, to September 6, 2016, was 66% with a total of 7,670 guests during that time and an average of 32 occupied rooms per night. Further, the occupancy rate was 75% in 2017 and 69% in 2018.

Water-based recreation. Many visitors take the once-daily tour boat that departs from Glacier Bay Lodge and explores the bay for a full day tour. Visitors are also able to charter a vessel to explore Glacier Bay. Kayaking is also a popular way to experience the bay and there are multiple kayak guide companies that provide tours as well as a concessioner that rents kayaks. The day boat also provides a camper and kayak drop-off and pick-up service. In addition, there are also

many private boaters who dock in Bartlett Cove to explore the frontcountry, seek shelter from inclement weather, or seek information from the Park.

Campgrounds. There is one primitive campground that has 35 sites and is only accessible by foot. There currently are no RV facilities or vehicle camping areas in the Park. Visitors are also not permitted to camp in parking areas or along the road. In the 2015 visitor survey, 10% of those surveyed in Bartlett Cove reported camping in the designated campground. In 2016, 908 campers used the frontcountry campground.

Recreational Fishing. Recreational fishing constitutes another type of visitor opportunity within the Park. The vast majority of anglers target Pacific halibut, salmon, rockfish and lingcod aboard guided charter or unguided private vessels in the marine environment. Fishing within Glacier Bay occurs primarily within the lower reaches of the bay with some small component of effort occurring in Bartlett Cove. Recreational freshwater fishing for salmon and trout, primarily sockeye and coho salmon, occurs seasonally from July to the end of October on the Bartlett River, among several areas within the Park. Anglers target various reach locations along the Bartlett River, which is accessed along a 1.7 mile long, 1+ hour hiking trail. A much smaller component of Bartlett River anglers access the river by kayak along the "Cut" waterway around high tide between Lester Island and the mainland. The 2015 visitor survey indicated that 4% of respondents participated in fishing activity during their visit. The National Park Service has documented that 1,460 to 2,100 hikers used the Bartlett River trail seasonally between June and September between 2013 and 2015 (Murdoch and Soiseth 2018).

Hiking trails. Hiking in the park provides visitors opportunities to visit its many environments. Hiking opportunities in the Bartlett Cove area consist of the Forest Trail, the Bartlett River Trail, the Bartlett Lake Trail, the Tlingit Trail, and the Beach Trail. The Forest Trail takes visitors on a 1-mile loop through the temperate rainforest. The Bartlett River Trail meanders through spruce/hemlock forest parallel to a lagoon and along a terminal moraine before emerging and ending at the Bartlett River estuary. There is a short segment of boardwalk after the trail intersects with the estuary and an unmaintained trail for quite some distance up the river. The Bartlett Lake Trail is less developed and offers visitors opportunities to see the dense understory of the temperate rainforest before reaching the shores of Bartlett Lake. The Tlingit Trail provides popular access to the lodge, the visitor information station, the dock, the kayak rentals, the Tlingit canoe shelter, the Tribal House, and the whale skeleton shelter. The recently opened Huna Tribal House is also along the Tlingit Trail. The Beach Trail provides access to the campground, and currently ends at the westernmost point of the campground, at Halibut Point. According to the 2015 NPS visitor survey, walking/hiking was the most frequently mentioned activity in which members of visitor groups had difficulty participating. Trail connectivity and diversity can be an issue in Bartlett Cove.

The results of the 2015 visitor survey suggest that of the visitors who were surveyed in Bartlett Cove, 69% participated in short hikes (less than 1 hour) and 41% said they had participated in day hikes (1 hour or more) on their visit to Glacier Bay.

According to the 2015 visitor survey, the vast majority of visitor groups (96%) indicated that no one in their group had a physical condition that made it difficult to access or participate in activities or services during their visit. Of those visitor groups that did have a group member with a physical condition, the most commonly reported physical condition was a mobility-

related condition (81%); 56% of visitors groups agreed that Glacier Bay National Park and Preserve is accessible to persons with physical disabilities. There is currently a ramp that will support increased access to the Glacier Bay Lodge and an elevator that takes visitors to the upstairs; however, visitors must go outside to access the elevator. Currently, few trails are ABAAS accessibility. There is an ABAAS parking spot at the Huna Tribal House and the ability to drive a visitor to the Huna Tribal House.

Environmental Consequences

No-Action Alternative. The no-action alternative would be the continuation of current management. Visitor use and characteristic trends, frontcountry access and orientation as well as recreation opportunities would also continue as described above in the affected environment. Under the no-action alternative, recreational opportunities would continue to be limited in the diversity and quality within the frontcountry. Visitors would have continued access to a variety of self-reliant activities and existing services and facilities throughout the Park.

Gateway Alternative. Under the gateway alternative, Bartlett Cove and the frontcountry would become a minimalistic gateway and launching point for excursions deeper into the Park. The focus of the frontcountry would be to provide facilities and services that prepare visitors for backcountry excursions, while also providing visitors opportunities to connect with the fundamental resources and values of the park in Bartlett Cove. Under this alternative, visitor characteristics including the number of visitors, purpose for visits, etc. as described in the Affected Environment section previously would likely remain the same since the frontcountry would remain rustic without notable changes to diversify visitor opportunities or accommodate ABAAS accessibility requirements.

Under this alternative, park visitors would have additional interpretive and learning opportunities through facility improvements such as the combined VIS/VC, new ABAASS bathroom, and a phased in public mooring facility. The park would become more accessible for different recreational users with the alternative and active transportation options, and the renovation of facilities for ABAAS accessibility and new overnight lodging opportunities. Under this alternative, visitors who are seeking a rustic experience that prepares the visitor for backcountry excursions may find the simplified operations sufficient and desirable. Others, who are seeking a destination atmosphere, with more amenities, services, and facilities may find the lack of those in the gateway alternative inadequate and undesirable. With fewer facilities and services than the destination alternative, the gateway alternative would also likely have fewer visitors and provide a more quiet experience with fewer light intrusions.

Overall, the gateway alternative provides fewer visitor opportunities than the destination alternative but highlights the frontcountry as a gateway and place to safely and effectively prepare for a trip to the backcountry. Overall, actions under the gateway alternative would have a beneficial impact on visitor use and experience.

Destination Alternative. Under the destination alternative, Bartlett Cove and the frontcountry would become a destination offering diverse experiences and new opportunities. The focus of the frontcountry would be to provide a cohesive, condensed experience within the development zone to support multi-day stays for frontcountry visitors and also for those visitors who are departing for deeper excursions into the backcountry. Under this alternative, the number of visitors and overnight stays are likely to increase. The types of activities in which visitors

participate and how visitors access and use the park will likely be more diverse than those described in the affected environment and continued under the no-action alternative.

Under the destination alternative, park visitors would have additional interpretive and learning opportunities through both facility improvements and park programs. The park would become more accessible for different recreational users with the addition of alternative transportation options, new trails, the renovation of facilities for ABAAS accessibility, and new overnight lodging opportunities as described under the destination alternative. The reroute of the Bartlett River Trail and the new Point Gustavus Route would cross into the Glacier Bay Wilderness and provide a unique opportunity for frontcountry visitors to experience a wilderness setting, also a fundamental resource and value of the park. Under the destination alternative, the 1.4 miles of new route would be built onto the Bartlett River; although the trail is longer (a potentially adverse impact for those who prefer shorter distances), access to the fishing locations may be easier as the trail would be maintained (a beneficial impact to visitors who struggle on the currently challenging trail).

In addition, under the destination alternative, a number of new facilities and improvements would shift the focus from a gateway location to a destination location. The proposed changes under this alternative would provide additional access and enhanced opportunities to connect visitors to the Park's fundamental resources and values through expanded educational, interpretation, hiking, wildlife viewing, and photography opportunities.

Some visitors may find the increased amenities, services, and opportunities within the frontcountry appealing and may extend their stay in Bartlett Cove. Other visitors may find that the increased amenities, services, and opportunities detract from the remote Alaskan setting. Visitors may be dispersed more widely throughout the Bartlett Cove area; therefore, visitors are more likely to encounter people in areas where they historically have found seclusion. The character of the existing campground, trails, and buildings will likely change from rustic and secluded to more developed and busy. Additional road access may expand how visitors may access the park, likely resulting in a change in how visitors access and use the park and how long they stay in the park. Overall, with more opportunities for overnight lodging, there would be more visitors visiting the park, and the more time each visitor spends in the frontcountry would result in more visitor hours in the park.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions that have impacted visitor use and experience include the Gustavus Community Center. This project is analyzed here because the project affects the frontcountry visitor use and experience. More development in town would impact the trip arrival and departure portion of the park experience as visitors have enhanced opportunities in the area. The geographic scope of the impacts for visitor use and experience is mostly access points to the park and the trip arrival and departure portion of the park experience. The temporal scope is the foreseeable future. Education opportunities and dissemination of safety and orientation information at the Gustavus Community Center could be related to the park and its fundamental resources and values.

The no-action alternative would continue to provide access to the Park's fundamental resources and values and opportunities in the frontcountry. The no-action alternative would not contribute to the changes that are already occurring.

The gateway alternative would provide some additional opportunities in the frontcountry beyond what is currently provided. When the effects of the gateway alternative are combined with other past, present, and reasonably foreseeable future impacts, visitors would have more opportunities in Gustavus as well as some additional opportunities in the frontcountry of the Park. The incremental impacts (as previously discussed) of the gateway alternative would contribute slightly to the changes that are already occurring.

Unique to the destination alternative, the past, present, and reasonably foreseeable future actions include the Discovery Center related action. The destination alternative would provide additional access and enhanced opportunities to connect visitors to the Park's fundamental resources and values through expanded educational, interpretation, hiking, wildlife viewing, and photography opportunities. When the effects of the destination alternative are combined with other past, present, and reasonably foreseeable future impacts, there would be many more opportunities for visitors to connect with the fundamental resources and values of the park in the frontcountry, and to some degree also within the gateway communities of Gustavus and Hoonah. The incremental impacts (as previously discussed) of the destination alternative would contribute to the changes that are already occurring, as there would be additional opportunities to draw visitors to the Bartlett Cove area and the area's gateway communities.

Conclusion

Under the no-action alternative, visitors would continue to have the same opportunities and access described in the affected environment. The frontcountry would remain rustic with limited amenities and a place where most visitors spend only a short time. The gateway alternative offers some expanded opportunities by offering additional education and interpretation opportunities and lodging options, but the characteristics and overall atmosphere of the frontcountry would remain the same. The frontcountry would not have the amenities to support a diversity of visitors and would be limited in activities supporting multi-day stays. Under the destination alternative, the purpose of the frontcountry would change. New opportunities and development would provide the activities and amenities needed to support multi-day stays. Visitors would have more opportunities to understand and experience the resources of Bartlett Cove, providing additional opportunities for the visitor to connect with these resources. For visitors seeking the rustic, secluded wilderness experience, visitors would still be able to access the 2.7 million acres of the Park's backcountry.

SOCIOECONOMICS

Affected Environment

Socioeconomics is the social science of how economic activity affects social processes. This section describes the aspects of socioeconomics that may be affected by the frontcountry management plan alternatives. The following topics will be discussed:

- Local Socioeconomics
- Economic Contributions of Glacier Bay National Park and Preserve

Local Socioeconomics. The area surrounding Glacier Bay National Park and Preserve is rural, with a number of relatively small villages, native communities, and larger towns that rely on tourism; federal, state, and local government; and the fishing, forest products, and mining industries as a basis for their economies. The nearest community to Glacier Bay National Park and Preserve is Gustavus. As a gateway community to the Park, its economy is highly dependent on tourism activities and employment at the Park.

Bordered on three sides by the Park, Gustavus is a small town of approximately 544 residents (AKDLWD 2017). The town's economy is largely driven by its proximity to the Park, which in the last decade has attracted 400,000 to 500,000 visitors to the area annually. According to the latest available census data from 2016, the per capita income of Gustavus is $36,746 and the median household income is $57,019. During this same period, the per capita income in the United States was reported as $26,829 and the median household income at $55,322. Approximately 5.5% of residents were estimated as living in poverty in 2016. The civilian labor force is estimated to be 286 with 249 persons employed, which represents a 12% unemployment rate (2012-2016 ACS 5-Year Estimates).

Gustavus has 90 businesses registered within the city limits that include long-term rentals and real estate sales, transportation, professional services, construction, auto repair, commercial fishing, lumber milling, independent artists, retail services, restaurants, health services, and the many tourist related businesses. As of fall of 2018, and not counting the Glacier Bay Lodge, Gustavus had 13 lodges, inns, and bed and breakfasts with approximately 70 lodging rooms in total and a 230-bed night capacity. Employment in this sector is seasonal and many of these jobs are filled by local residents. Construction projects also have more recently contributed to the local economy. Gustavus, with its large base of private land, has benefited substantially from real estate sales in recent years, and many summer homes help support local businesses and maintain a steady construction industry.

Economic Contributions of Glacier Bay National Park and Preserve—A study of the economic contributions of units of the national park system, based on visitor origin, length of stay, type of overnight accommodations, and typical spending of park visitors, estimated total annual visitor spending of $113,804 million associated with recreation visits to the Glacier Bay National Park and Preserve in 2017 (Cullinane, Koontz, and Cornachione 2018). Based on a 2015 socioeconomic study on the contributions associated with visitation at the Park, the bulk of visitor spending includes guides/tour fees, lodging, souvenirs, and specialty lodging (RSG 2016). The federal government is the largest employer in Gustavus, with the National Park Service employing 59 full time and 69 seasonal and term staff. Additionally, the Park's lodging concession operation supports 56 seasonal staff. The lodge currently has 48 lodging rooms available for visitors with a bed night capacity of 120. The walk-in Bartlett Campground contains 35 sites that can accommodate six-person groups and a group camping area for a total capacity of an estimated 210 visitors a night.

Visitor spending and jobs supported by park visitation are important to many of the businesses in Gustavus as well as to the concession operations and guides whose livelihoods are tied to the Park. Such services include kayak rentals, concession-managed lodge facilities, food and beverage sales, and souvenir/gift sales. The most recent economic study by the Alaska Department of Labor and Workforce Development (2014) suggests that the "[Glacier Bay] Lodge, along with the rest of Gustavus' inns, bed and breakfasts, restaurants, and travel and

transportation services, make up nearly two-thirds of private employment" in Gustavus and that nearly 75% of Gustavus jobs depend directly on tourism. The park recognizes the important contributions of recreational use in the park to the local economy, quality of life of residents, and to the attraction of the area to visitors.

Economic Impacts

No-Action Alternative. Analysis of economic impacts under the no-action alternative was based on projected visitation to the park as well as estimated one-time capital expenditures due to construction activities. Because the no-action alternative would maintain the status quo, visitor spending and associated park contributions are estimated to remain as they are today. Currently, there are limited recreation opportunities within the frontcountry and limited business opportunities for the in-park lodging and food services. Under the no-action alternative, the room and bed night capacity at Glacier Bay Lodge and Bartlett Cove Campground would remain as they are today.

Because no new services or opportunities would be explored, visitors would be limited in the diversity and quality of recreation opportunities. Moreover, because there would be no new capital expenditures in the Park, local employment impacts would remain unaffected because there would be no need to hire labor for construction activity. The local housing market would also remain unaffected because employment levels, the primary driver of residential construction, would remain the same. Total sales of goods and services in Gustavus, as a result of visitor spending, would remain unchanged under the no-action alternative.

Gateway Alternative. In the gateway alternative, the improved access and orientation and changes to the visitor lodging options offered at the lodge, and new on-grade bike lane via the main access road would support a small increase in visitor length of stay. However, these changes in recreational opportunities are insufficient to have any noticeable effect on visitor spending patterns.

Additionally, capital improvements at Glacier Bay Lodge would provide the opportunity to offer visitors two additional levels of service (economy and luxury) not currently available at the lodge. The remodeling of four existing rooms to bunk/hostel style that could accommodate up to six visitors each would increase the bed capacity at the lodge from 120 to 134. The remodeling of four to six existing rooms (8-12% of current rooms) to luxury suites would not change the number of rooms or increase bed night capacity at the lodge. These changes would attract a new segment of overnight guests and enhance the appeal, profitability, and economic viability of the lodging and food services operations within the Park. Expanding the lodging options within the park may encourage visitors to stay within the park before exploring options in Gustavus or nearby communities like Pelican. The additional 14-bed night capacity at Glacier Bay Lodge would represent a 4% increase in bed night capacity in the area, a marginal increase in bed night capacity and too small to be perceived in the local economy.

The limited construction and renovation activities in the park under this alternative would generate a small number of temporary construction jobs, which would provide some beneficial effects to the local economy. However, local employment and the local housing market would remain largely unaffected because of the minimal new financial expenditures associated with construction activities under this alternative.

Destination Alternative. The destination alternative would have similar impacts to the local economy as noted under the discussion of the gateway alternative in the above section. The focus of the impact analysis will be on the actions that are unique to the destination alternative.

The considerable capital improvements at Glacier Bay Lodge paired with the expanded frontcountry trail system and new camping opportunities would attract a new segment of day and overnight visitors thereby enhancing the enhance the appeal, profitability, and economic viability of the lodging and food services operations within the Park. The addition of two public use huts and increase capacity at the lodge for up to 30 new visitors would result in an approximately 15% increase in bed night capacity in the immediate vicinity of the Park. *Refer to appendix C for further details on visitor capacity*. Because of this, the number of visitors and average length of visit would be expected to increase. Although this alternative proposes a noticeable increase in lodging within the Park, the variety of visitor use and experiences and improved programming, services and facilities under this alternative are expected to support an increase number of visitors and extended average length of stay. As such, socioeconomic impacts would be long-term and beneficial. Local businesses as well as the in-park commercial operators that rely on tourism would be expected to receive long-term benefits from longer visits and increased number of visitors.

Construction and renovation activities in the park would generate temporary construction jobs, which would provide some beneficial effects to the local economy. The addition of temporary jobs could translate into greater demand for housing if the additional employees come from outside the local area. Because of the already tight housing market in Gustavus, this could create a discernible impact on the short-term housing market at the local level. These impacts would likely be concentrated in the summer when Gustavus is more accessible and construction activity can take place. However, the facility improvements proposed under the destination alternative are not large enough to create a long-term impact on the housing market at the city or regional level. Consequently, the long-term impacts related to housing would be localized and neutral. There would be some adverse effects to visitor use and experience during construction that in turn could affect visitor spending patterns, but these would be mitigated to prevent an undesirable visitor experience. Mitigation measures could include, but are not limited to, phasing construction, temporary closures, noise abatement, visual screening, providing information to visitors on the purpose and need for construction, and directional signage to help visitors avoid construction activities.

Cumulative Impacts. The construction of the Gustavus Community Center has a strong likelihood of inviting visitors to spend more time in the community and at the Park. An increase in local visitation would translate into greater visitor spending in the area, resulting in positive long-term gains for Gustavus in terms of employment, housing, and taxable annual sale. However, relative to the economy of the entire Hoonah-Angoon area, long-term economic impacts would likely be minimal. Combining the likely effects of implementing the no-action alternative with the effects of other past, present, and reasonably foreseeable actions described above, the cumulative socioeconomic impacts would be localized, long-term and beneficial due to new interpretation and education opportunities at the Gustavus Community Center as well as additional access and orientation information before entering the Park.

The actions under the gateway alternative (alternative B) when combined with the cumulative impacts scenario would result in small beneficial effects to the local and regional socioeconomic environment and would support visitation that aims to provide an authentic, intimate, and remote Alaskan experience. The actions of alternative B that could enhance resource conditions, improve access and recreational opportunities and facilities, combined with the ongoing local efforts including new interpretation and education opportunities at the Gustavus Community Center as well as additional access and orientation information before entering the park would cater to a niche section of the tourism market that would result in slight beneficial impact to the regional socioeconomic environment.

The actions under the destination alternative (alternative C) when combined with the cumulative impacts scenario ensure Bartlett Cove is a welcoming, compelling destination that connects visitors to the fundamental resources and values of the park through relevant opportunities and supports tourism activities and local employment. The actions of this alternative have the potential to improve the local and regional recreational and service-related sectors by ensuring a quality visitor experience and satisfaction, especially related to nature viewing and other resource-based recreational activities resulting in a long-term beneficial impact to the regional socioeconomic environment.

Conclusion

Because there would be no changes to visitor experience, spending, or construction activity within Gustavus under alternative A, impacts on the socioeconomic environment would remain the same. Local employment, housing, and sales would also remain constant. There would be some cumulative beneficial impacts because of increased additional visitor interpretation and education opportunities, orientation information, and programming provided at the Gustavus Community Center, which has the potential to increase a visitor's length of stay in the community and at the Park, which may result in higher visitor spending.

The gateway alternative (alternative B) would provide fewer visitor opportunities than the destination alternative and would highlight the frontcountry as a gateway to prepare for a trip to the backcountry. Overall, the quality and diversity of visitor access and opportunities afforded in the frontcountry would slightly improve under the gateway alternative, which would result in slight beneficial impacts to the local economy.

Actions under the destination alternative (alternative C) would provide beneficial impacts to the local economy because of the improved visitor services and amenities, and programming in the frontcountry would support increased length of stay and associated visitor spending. Broadening the appeal of Bartlett Cove as a day-excursion as well as a multiday destination would have long-term beneficial impacts on the economic viability of the Glacier Bay Lodge and associated food service from increased visitation and occupancy rate. There may be some temporary adverse effects to visitor use and experience during construction that could affect visitor spending and visit length, but mitigation measures during construction would be in effect.

IMPACTS CONSIDERED BUT NOT CARRIED FORWARD FOR FURTHER ANALYSIS

Some impact topics have been eliminated from further analysis because the resources do not occur within the project area, the topics are not an issue for this project, or because the anticipated impacts would have no effect or an inconsequential effect on the topic. The following impact topics were considered but were then dismissed from further analysis for the reasons outlined below.

Seafloor Resources

Benthic organisms in the nearshore subtidal habitat consist of sparse marine algae, bivalves, polychaete worms, chitons, shrimps, seastars, and Dungeness (*Cancer magister*), king (*Paralithodes camtschatica*) and Tanner (*Chionocetes bairdi*) crabs. Both action alternatives propose removing and relocating sediment from the lower portion of the public boat launch ramp, up to 1,875 square feet, every three years to enhance its functional tidal range and usability. Sediment relocation would impact benthic organisms present in the area where the sediment was relocated, as well as any phytoplankton present in the water. However, various studies of the effects of dredging benthic organisms found that recovery was relatively rapid, measured in months (Carter, Hague, and Floyd 2008; Rathod 2011; Wilber, Clarke, and Reese 2007). In addition, the installation of a mooring facility in Bartlett Cove would have some small temporary effects on the seafloor during construction because of the drilling required to place anchor points. However, this action would ultimately improve the protection of seafloor resources; disallowing independent anchorages for small boats would likely reduce the occurrence of poor anchoring and seafloor dragging. The installation of a mooring facility could also reduce the potential for introduction of invasive exotic species via use of anchor rodes from visiting boats, as boaters would instead tie onto mooring buoys. Because of the relatively minimal impacts the action alternatives would be anticipated to have on seafloor resources, this topic was not carried forward for detailed analysis.

Soils

Trail and facility construction under the gateway and destination alternatives would result in soil compaction, erosion, and disturbance across up to 4 acres of ground disturbance. Furthermore, the addition of impervious surfaces would increase runoff and the potential for localized soil erosion. However, implementation of construction best management practices would minimize erosion and soil loss during construction. Site-specific soil investigations would confirm soil-bearing capacity and drainage characteristics for any new facilities, and alternative sites would be selected if conditions were determined to be inappropriate for construction. Any impacts to geologic resources and soils from actions are expected to be minimal through implementation of mitigation measures and other best management practices. Therefore, this topic was not carried forward for detailed analysis.

Rare plant species

In the Alaska Center for Conservation Science / Alaska Natural Heritage Program rare vascular plant database, the program has identified several plants known or suspected to occur in the Bartlett Cove frontcountry area that are rare or uncommon globally or rare or uncommon in

Alaska (AKNHP 2018). The two areas where rare species are most likely to be encountered in Bartlett Cove are the wet fens near the park boundary and beachfront meadows, but that does not exclude the possibility in drier forest understory (NPS staff, pers. comm., 11/14/18). Should rare plants be discovered in an area where ground disturbance is proposed, park staff would implement the mitigation measures outlined in appendix D. With implementation of these mitigation measures, actions proposed in the plan are not expected to have impacts to rare plant species at a population level, and therefore this topic was not carried forward for further analysis.

Federally Listed Threatened and Endangered Species

There are no threatened or endangered species under USFWS jurisdiction that are present in the project area (USFWS 2018a).The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service identified two listed species present in the action area: the endangered western distinct population segment of the Steller sea lion (*Eumetopias jubatus*) and the threatened Mexico distinct population segment of humpback whale (*Megaptera novaeangliae*). In some years, humpback whales heavily use Bartlett Cove waters (Neilson et al. 2015). There have been few documented whale–vessel collisions in the project area. These collisions are infrequent and occur with kayaks, moving and anchored boats, and, once, the dock. Disturbance of whales by vessel traffic, including reduced ability to communicate in noisier underwater sound environments, have been documented in the park (Fournet et al. 2018; Gabriele et al. 2018). The park limits vessel traffic, prohibits vessels from approaching whales within ¼ nautical mile, and imposes speed limits to reduce these effects (36 CFR Part 13).

The gateway and destination alternatives both propose installing up to 40 boat moorings for both short-term and long-term use in Bartlett Cove (*see appendix C for management strategies regarding boat mooring*). Entanglement in fishing gear and marine debris can be dangerous for marine mammals like whales and sea lions, potentially causing decreased swimming ability, disruption in feeding, life-threatening injuries, or death. An important characterization of an entanglement event as defined here is that it typically involves one or more stationary sections of rope, line, or other linear structure such as a mooring or fishing gear. The last documented whale entanglement in the project area occurred in 2006 when a juvenile humpback whale became entangled with recreational crab pot line and gear.

From 2012 through 2016, an average of 10 to 13 boats were either anchored or moored in Bartlett Cove each day, and no entanglements related to moorings were observed. The plan would increase the number of moorings present in the bay; however, the moorings would be located in a consistent area over time, thus some animals may learn to avoid the area. Park staff would continue monitoring humpback whales and would document if whale or sea lion entanglements occurred at the mooring facility. If marine mammal entanglement were documented, park staff would consider additional mitigation measures, which could involve changing the number or spacing of moorings, using mooring systems with different properties, or experimenting with devices to alert whales to the presence of an obstacle.

Both action alternatives propose removing and relocating sediment from the lower portion of the public boat launch ramp every three years to enhance its functional tidal range and usability. Suctioning and relocating the marine sediment to a nearby seafloor location may damage any phytoplankton present in the water, with a minimal impact to the levels of prey available for

Steller sea lion and humpback whale. When the work occurs, any endangered or threatened individuals present in nearby marine waters may experience acoustic underwater disturbance, suspended sediment, and may interact with the diver and any submerged equipment such as hose lines. To reduce the expected level of disturbance to any endangered or threatened individuals present in nearby marine waters to a remote probability the park would:

- Use a submersible diver-operated dredge that uses minimally invasive suction and reduces the amount of sediment suspended in the water;
- Perform the work in the winter when humpback whale populations are not present and primary and secondary biological productivity in the water is presumed to be lower;
- Stop work if marine mammals enter the work area or are actively feeding nearby; and
- Locate the dredge power source (generator or hydraulic system) above water to reduce the overall underwater acoustic disturbance so that the main acoustic disturbance consists of the sound of the suction and the transport of materials through hoses (sediment, sand, small rock).

Therefore, the actions proposed under the gateway and destination alternatives may affect but are not likely to adversely affect humpback whales and Steller sea lions, and this topic was not carried forward for further analysis.

Wildlife

According to the NPS *Management Policies 2006* handbook, the National Park Service strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of animals (NPS 2006). Native wildlife in the project area includes many species of birds, mammals, and invertebrates. Common terrestrial mammals in the Bartlett Cove area include, but are not limited to, black bear (*Ursus americanus*), mink (*Mustela vison*), river otter (*Lutra canadensis*), porcupine (*Erethizon dorsatum*), red squirrel (*Tamiasciurus hudsonicus*), flying squirrel (*Glaucomys sabrinus*), voles (*Microtus spp. and Clethrionomys rutilus*), moose (*Alces alces*), and shrews (*Sorex spp.*) Forest, beach meadow, and tidal flats attract many bird species, particularly during migration, and more than 57 bird species have been identified in the Bartlett Cove area (NPS 1997). Western Toads (*Bufo boreas*) are the only amphibian in the area. The intertidal zone hosts a variety of invertebrates and fish species, and marine waters host multiple fish species and several marine mammal species. Shorebirds/waterfowl and salmon/anadromous fishes were carried forward as separate impact topics.

Construction noise and activity may alter wildlife use of the area if animals avoid the disturbed area. In particular, construction activities could alter use patterns associated with the nearshore travel corridor important to moose, bears, passerine birds, raptors, and resident species such as sooty grouse. Noise from construction and maintenance activities may adversely impact wildlife through impeding wildlife communication, courtship and mating, predation and predator avoidance, and effective use of habitat (Shannon et al. 2016). Vegetation clearing would be done outside the bird nesting season, so there would be minimal direct impacts to nesting birds; however, the loss of trees from site clearance would reduce the available nesting habitat.

Following construction, animals may return to the area depending on the level and frequency of human use of the new facilities. The permanent removal of between 3 and 4 acres of vegetation would reduce habitat available for species reliant on this type of environment. However, there is an abundance of similar habitat adjacent to the project area, so adverse impacts from habitat loss are not expected to affect wildlife population viability. Additionally, wildlife would be subject to long-term intermittent disturbance associated with increased human presence and activities in the project area.

The destination alternative, including actions in the gateway alternative, entails the greatest number and widest scope of activities under consideration in the plan. Increased human use in the area could reduce the suitability of adjacent habitat for wildlife and avian species. In particular, wildlife use of travel corridors along the tidal cut and other shoreline areas likely would be impacted by human presence on shoreline trails. Wildlife species that use the shoreline and lagoon regularly include, but are not limited to, black bears, porcupines, moose, and river otters. Some animals likely would temporarily or permanently relocate to areas outside the project area, but this would not be expected to have any long-term adverse effect upon local populations because of an abundance of similar habitat in the project area. Approximately 4.6 miles of shoreline in Bartlett Cove and more than 2,600 acres of similar Sitka spruce/hemlock forest would remain undisturbed from development. Although up to 6 miles of trails would be constructed or rerouted (as part of four different trails), this would not result in noticeable habitat fragmentation for most species. Therefore, the impact topic of wildlife was not carried forward for further analysis.

Air Quality

Glacier Bay National Park and Preserve is designated as a Class II air quality area under the Clean Air Act. The project area is not located within a nonattainment area, meaning that the air quality meets the National Ambient Air Quality Standards and does not require further progress to be made toward attainment of the standards per the Clean Air Act. Project construction would result in a localized increase of vehicle exhaust and dust throughout the construction period. Power equipment, especially diesel-powered heavy equipment, would cause increased emissions during construction and maintenance. The operation of any new buildings would cause emissions, whether from oil, propane, or (off-site from) electric heating where electricity is generated by the burning of fossil fuels. These actions would result in very minimal air quality impacts that would not constitute violations of state or federal air quality regulations, so this topic was not carried forward for further analysis.

Night Skies

The National Park Service recognizes the role that natural darkness plays in natural resource processes and visitor experiences, and it is NPS policy to preserve to the greatest extent possible the natural lightscapes of parks. Although Bartlett Cove is a developed area and 8 miles from the town of Gustavus, in spring, fall, and winter, there are opportunities to see the stars, moon, and planets of the night sky reasonably well on dark nights. Existing artificial light intrusion includes the lights of Gustavus and park facilities that may be directly or indirectly visible from some areas of the frontcountry, including campsites as well as from the bay. There is also a small amount of artificial light contributed by vehicles.

All actions and construction work proposed in this plan would occur during daylight hours. To prevent the loss of dark conditions and natural night skies, the park would minimize light that emanates from any new park facilities by designing and installing light sources that adhere to dark sky-conserving standard operating procedures and provide the minimum level of light sources needed for visitor and staff safety. None of the alternatives would be expected to have more than a negligible impact on the existing conditions of the natural lightscape of Bartlett Cove, so this topic was not carried forward for further analysis.

Acoustic Environment and Soundscapes

In accordance with NPS Director's Order (DO) 47-Sound Preservation and Noise Management, an important part of the NPS mission is to preserve natural soundscapes and natural quiet associated with national park units. Predominant existing sound sources in the Bartlett Cove area (both human-caused and natural) consist of vehicles on the park road system; humans participating in a variety of outdoor activities, park headquarters and staff residences; the Park's diesel electrical generators; construction and maintenance activities; boat traffic; water (e.g., streams, waves, rain); wind; and wildlife. Natural wildlife sounds include birdsong, coyotes howling, marine intertidal sounds, whale respirations, harbor seal growls, great blue heron croaks, seabird calls, ice cracking, and migrating sandhill cranes, to name a few.

Trail realignments and proposed construction activities associated with the action alternatives may cause localized, short-term increase in human-caused sounds. In addition, an increase in facilities would require additional maintenance activities, further contributing to human-generated noise. The destination alternative calls for notably more trail and facility construction, resulting in more adverse impacts to soundscapes than under other alternatives. In addition, actions proposed in the destination alternative would likely result in higher numbers of visitors because of additional overnight options, resulting in a long-term increase in human-caused noise. New trails would increase human presence in areas outside the developed zone; however, through monitoring efforts the park would observe trail conditions and ensure desired conditions are maintained (*see appendix C for indicators and thresholds*).

The park has also identified related mitigation measures to reduce visitor related impacts to the soundscape (*see appendix D for mitigation measures*). The majority of the actions proposed in the alternatives in this plan would occur within the development zone established in the 1984 general management plan, which states that within the Bartlett Cove developed area visitors will frequently experience the sights and sounds of facilities, other visitors, vehicles, floatplanes, etc. Long-term noise would not be uncharacteristic of existing human-caused noise in the area and would not deviate from the type of noise expected within the Park's developed zone. Implementation of mitigation measures, such as restricting hours and seasons for maintenance activities, would help reduce impacts to the acoustic environment and soundscapes. Therefore, this topic was not carried forward for detailed analysis. Impacts of noise on visitor experience (*see environmental consequences for visitor experience*) and wildlife (*see wildlife discussion in this section*) are discussed in the analyses for those topics.

Undeveloped Quality of Wilderness

The undeveloped quality of wilderness represents places where primeval character is retained and areas that are essentially without permanent improvements or modern human occupation. This plan includes proposals for new (Point Gustavus Trail) and rerouted trails (Bartlett River Trail) that would cross into designated Wilderness and would include sections of boardwalk or natural planking (which in this context would be considered an installation). The scale of this change to the undeveloped quality of wilderness is small (compared to the context of the Glacier Bay Wilderness) and all instillations will be designed to be movable or removable, which means these impacts to this character of wilderness may not be permanent (and could be removed at any time). Additionally, the majority of these trail actions that involve boardwalks are relocations, where existing trails and their associated instillations (mostly planks) are being removed from locations in wilderness where they have ongoing maintenance requirements.

Installations are prohibited under 4c of the Wilderness Act. Therefore, a minimum requirements analysis will need to be completed before a final decision is made on implementing this decision and included in the decision documentation.

Archeological Resources

Archeological resources are dismissed as an impact topic in this environmental assessment because no known sites are at risk of being adversely impacted by proposed ground disturbing construction. All areas of proposed construction disturbance would be archeologically pre-surveyed and assessed as necessary to ensure that significant sites are accurately documented. Should sites be identified during construction, they will be clearly identified for avoidance by project redesign or other protection / mitigation measures. The National Park Service would follow all standard protocols and mitigation measures for the treatment of identified sites, including stoppage of work in areas of discovery until resources are assessed in consultation with the state historic preservation office and tribal representatives. Appropriate site protection or mitigation would be carried out before construction would resume. In addition, because of the destructive action of past glaciers in the Bartlett Cove area that scoured the ground surface and the young age of the landforms in the vicinity of Bartlett Cove, it is unlikely that the area has the potential to yield archeological evidence of Huna Tlingit occupations that predate the last ice advance. Prior to implementing proposed actions, the National Park Service will conduct the appropriate Section 106 reviews (*see "Appendix A: National Historic Preservation Act, Section 106 Considerations and Next Steps"*).

Cultural Resources associated with Park Headquarters Building

Under alternative C, the park is evaluating the removal of the 1958 park headquarters building. This building was evaluated and determined ineligible for the National Register of Historic Places because of the of lack of integrity of the remaining Mission 66-era resources (NPS 2006) Therefore, impacts associated with removal of this building are not carried forward for additional analysis as a cultural resource.

CHAPTER 4: CONSULTATION AND COORDINATION

The National Park Service consulted with various agencies, tribes, organizations, and interested persons in preparing this document. The process of consultation and coordination is an important part of this project. This chapter summarizes the consultations related to this plan with federal and state agencies and tribes. Appendices F and G present additional details on the public engagement process and the organizations and agencies included in this planning process.

FEDERAL AGENCIES

A letter was sent to the USFWS Alaska field office and the NOAA Alaska field office in March 2019, notifying them of the project, requesting their concurrence on the federally listed threatened and endangered species that may occur in the Park, and requesting their insights on the planning effort and future steps in consultation.

The National Park Service will provide copies of this frontcountry management plan to the US Fish and Wildlife Service and National Oceanic and Atmospheric Administration to consult under Section 7 of Endangered Species Act regarding the content presented in this plan and environmental assessment. Actions in the plan that require additional compliance and consultations, including compliance with the Endangered Species Act, Marine Mammals Protection Act, and National Environmental Policy Act, will be conducted when park staff are ready to begin implementing site-specific projects.

STATE AGENCIES

The park provided the Alaska State Historic Preservation Officer with a copy of the frontcountry plan in March 2016 and invited participation in the planning process pursuant to section 106 as well as a broader consultation of the National Historic Preservation Act. The Alaska State Historic Preservation Office was provided copies of the documents and has been invited to attend public meetings or to meet with park staff regarding the plan.

Based on consultation with the Advisory Council on Historic Preservation and the Alaska State Historic Preservation Office per the National Historic Preservation Act, and with recommendations by the state historic preservation officer, this Frontcountry Management Plan, including the planning vision and environmental are currently not considered an undertaking under Section 106. As specific actions or locations are refined, the National Park Service will complete its efforts to identify and evaluate the potential effects to historic properties and consult with state historic preservation officer to avoid, minimize, or mitigate adverse effects prior to authorizing any final decisions. The Alaska State Historic Preservation Officer's recommendations have been incorporated into "Appendix A: National Historic Preservation Act, Section 106 Considerations and Next Steps."

The park will keep the Alaska State Historic Preservation Office informed as the frontcountry plan progresses and will provide them copies of the document during a 30-day public review for comment.

ASSOCIATED TRIBES

The park has notified tribal representatives of the Hoonah Indian Association regarding the frontcountry plan and has held periodic consultation meetings between 2016 and 2019 to inform them of the plan alternatives and actions that have particular bearing on issues and resources of tribal concern such as the Huna Tribal House. The park will continue to consult with the Hoonah Indian Association and other tribal representatives as the planning process proceeds to ensure that tribal perspectives and issues are adequately addressed. Copies of the document were provided for tribal review and comment in March 2019, prior to the 30-day public release.

FUTURE CONSULTATION AND COMPLIANCE

The National Park Service would continue to consult with agencies, tribes, partners, stakeholders, and the public as actions identified in the frontcountry plan advance toward more detailed design development and implementation stages. As site designs are refined and the specific requirements for site development and construction are prepared, the park would complete any additional compliance and permitting requirements, including compliance with section 106 of the National Historic Preservation Act for project specific undertakings.

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GLOSSARY AND ACRONYMS

GLOSSARY OF TERMS

Adaptive management: A process that allows the development of a plan when some degree of biological and socioeconomic uncertainty exists. It requires a continual learning process, a reiterative evaluation of goals and approaches, and redirection based on increased information and changing public expectations.

Affected environment: Existing biological, cultural, physical, social, and economic conditions of an area that are subject to change, both directly and indirectly, as a result of a proposed human action.

Alternatives: Sets of management elements that represent a range of options for how, or whether to proceed with a proposed project. An environmental assessment analyzes the potential environmental and social impacts of the range of alternatives presented.

Archeological resources: Historic and prehistoric deposits, sites, features, structure ruins, and anything of a cultural nature found within, or removed from, an archeological site.

Area of potential effect: The geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The area of potential effect is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking.

Best Management Practices: Effective, feasible (including technological, economic, and institutional considerations) conservation practices and land- and water-management measures that avoid or minimize adverse impacts to natural and cultural resources. BMPs may include schedules for activities, prohibitions, maintenance guidelines, and other management practices.

CEQ Regulations: The Council on Environmental Quality (CEQ) was established by the National Environmental Policy Act (*see NEPA*) and given the responsibility for developing federal environmental policy and overseeing the implementation of NEPA by federal agencies.

Cultural landscape: A geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. There are four general types of cultural landscapes, not mutually exclusive: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes.

Cumulative impact: An impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Desired condition: Statements of aspiration that describe resource conditions, visitor experiences and opportunities, and facilities and services that an agency strives to achieve and maintain in a particular area.

Environmental consequences: This section of an environmental assessment describes the impacts a proposed action will have on resources. Direct, indirect, and cumulative impacts, both beneficial and adverse, are analyzed. The context, duration, and intensity of impacts are defined and quantified as much as possible.

Environmental Assessment (EA): A public document required under the National Environmental Policy Act (NEPA) that identifies and analyzes activities that might affect the human and natural environment.

Historic district: A historic district is an area that possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development. To be eligible for the National Register of Historic Places, a district must be significant, as well as being an identifiable entity. It must be important for historical, architectural, archeological, engineering, or cultural values.

Historic property: A historic property is any prehistoric or historic building, site, district, structure, or object that is included in, or eligible for inclusion in, the National Register of Historic Places. Types of historic properties can include archeological sites, historic cultural landscapes, and traditional cultural properties.

Historic site: A historic site is the location of significant event, which can be prehistoric or historic in nature. It can represent activities or buildings (standing, ruined, or vanished). The location itself is of historical interest in a historic site, and it possesses cultural or archeological value regardless of the value of any structures that currently exist on the location. Examples of sites include shipwrecks, battlefields, campsites, natural features, and rock shelters.

Historic structure: For the purposes of the National Register of Historic Places, the term "structure" is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter. Examples of structures include bridges, gazebos, and highways.

Indicator: Indicators are specific resource or experiential attributes that can be measured to track changes in conditions so that progress toward achieving and maintaining desired conditions can be assessed.

Mitigation: Activities that will avoid, reduce the severity of, or eliminate an adverse environmental impact.

National Environmental Policy Act (NEPA): The federal act that requires the development of an environmental impact statement (EIS) for federal actions that might have substantial environmental, social, or other impacts.

National Historic Landmarks (NHL): Are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States.

National Historic Preservation Act (NHPA): In 1966, Congress established a program for the preservation of additional historic properties through the country. The NHPA requires federal agencies to evaluate the impact of all federally funded or permitted projects on historic properties through the *Section 106* process.

National Parks and Recreation Act: The 1978 law that establishes National Parks, Monuments, Recreation Areas and other recreation lands under the jurisdiction of the Department of the Interior. This law continues to be amended as new lands are acquired or boundaries of existing lands are changed.

National Register of Historic Places: As a result of the NHPA of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archeological resources.

No-Action Alternative: The alternative in a plan that proposes to continue current management direction. "No action" means the proposed activity would not take place, and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity or an alternative activity to go forward.

National Park Service Management Policies: A policy is a guiding principle or procedure that sets the framework and provides direction for management decisions. National Park Service (NPS) policies are guided by and consistent with the Constitution, public laws, Executive proclamations and orders, and regulations and directives from higher authorities. Policies translate these sources of guidance into cohesive directions. Policy direction may be general or specific. It may prescribe the process by which decisions are made, how an action is to be accomplished, or the results to be achieved. The primary source of National Park Service policy is the publication Management Policies 2006. The policies contained therein are applicable Service-wide. They reflect National Park Service management philosophy. Director's Orders supplement and may amend Management Policies. Unwritten or informal "policy" and people's various understandings of National Park Service traditional practices are never relied on as official policy.

Planning: A dynamic, interdisciplinary, process for developing short- and long-term goals for visitor experience, resource conditions and facility placement.

Preferred Alternative: The preferred alternative is the alternative within the range of alternatives presented in an environmental assessment (EA)that the agency believes would best fulfill the purpose and need of the proposed action. While the preferred alternative is a different concept from the environmentally preferable alternative, they may also be one and the same for some EISs. (The NEPA Handbook, NPS 2015a)

Pristine: Unaltered, unpolluted by humans.

Public scoping process: Scoping is a formalized process used by the National Park Service to gather the public's and other agencies' ideas and concerns on a proposed action or project. In addition, although not required by the National Environmental Policy Act (NEPA) nor the

Council on Environmental Quality (CEQ) NEPA Regulations, public scoping meetings may be held and integrated with any other early planning meetings relating to the proposed project.

Scoping: *See "Public Scoping Process"*

Superintendent's Compendium: Under the authority of 16 U.S.C., Section 3, and Title 36 Code of Federal Regulations, Chapter 1, Parts 1-7; the Compendium of Superintendent's Orders was established for Glacier Bay National Park and Preserve. Each park superintendent has discretionary authority to regulate or limit certain uses, and/or require permits for specific activities within the boundaries of a national park.

Threshold: Minimally acceptable conditions associated with each indicator

Traditional cultural resource: Any site, structure, object, landscape, or natural resource feature assigned traditional, legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it.

Traditional cultural property: Traditional cultural resource that is eligible for or listed on the National Register of Historic Places as a historic property.

Visitor capacity: A component of visitor use management. The maximum amounts and types of visitor use that an area can accommodate while achieving and maintaining desired resource conditions and visitor experiences consistent with the purposes for which the area was established.

User: Visitors and employees in the park.

Visitor experience: The perceptions, feelings, and reactions a park visitor has in relationship with the surrounding environment.

Visitor use: Refers to the types of recreation activities visitors participate in, numbers of people in an area, their behavior, the timing of use, and distribution of use within a given area.

Visitor use levels: Refers to the quantity or amount of use a specific area receives, or the amount of parkwide visitation on a daily, monthly or annual basis.

Wetland: Wetlands are defined by the U.S. Army Corps of Engineers (CFR, Section 328.3[b], 1986) as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

ACRONYMS AND ABBREVIATIONS

ABAAS	Architectural Barriers Act Accessibility Standards
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DCP	Development Concept Plan
DO	Director's Order
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
FONSI	Finding of No Significant Impact
FMP	Frontcountry Management Plan
GIS	Geographic information system(s)
GLBA	Glacier Bay National Park and Preserve
GMP	General Management Plan
HIA	Hoonah Indian Association
IVUMC	Interagency Visitor Use Management Council
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
PEPC	Planning, Environment, and Public Comment
SHPO	State Historic Preservation Office
USACE	U.S. Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
VC	Visitor Center
VIS	Visitor Information Station

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