Forest Service

U.S. DEPARTMENT OF AGRICULTURE

Tongass National Forest | R10-MB-840e | December 2023

Mendenhall Glacier Visitor Facility Improvements Project

Record of Decision

Cover photo: Mendenhall Glacier Visitor Center, Juneau, AK.
(USDA Forest Service photo by A. Sherwin)

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Mendenhall Glacier Visitor Facility Improvements Project

Record of Decision

United States Department of Agriculture
Forest Service Alaska Region

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Abstract:

The Responsible Official has selected a combination of project components from the alternatives analyzed in the Mendenhall Glacier Visitor Facility Improvements Project Final Environmental Impact Statement (EIS) to be authorized in the Record of Decision (ROD). The ROD authorizes a suite of facility construction and management activities to support visitors at the Mendenhall Glacier Recreation Area, including improved parking lots and plaza space, historic visitor center improvements, fish habitat improvements, new welcome center construction, additions to the non-motorized trail system, and use of an adaptive management plan to manage increases in visitor use.

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Acronyms and Abbreviations

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AEP	Annual Exceedance Probability
AS	Alaska Statute
BMP	Best management practice
CBJ	City and Borough of Juneau
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulation
Corps	United States Army Corps of Engineers
CWA	Clean Water Act
DOT& PF	Alaska Department of Transportation and Public Facilities
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EO	Executive Order
FEMA	Federal Emergency Management Agency
Forest Plan	Tongass Land and Resource Management Plan
Forest Service	USDA Forest Service
FSM	Forest Service Manual
FSH	Forest Service Handbook
GHG	Greenhouse gas
LEED	Leadership in Energy and Environmental Design
MGRA	Mendenhall Glacier Recreation Area
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NFS	National Forest System
NHPA	National Historic Preservation Act
NOAA	National Oceanographic and Atmospheric Administration
NOAA Fisheries	National Marine Fisheries Service
NRHP	National Register of Historic Places
PA	Programmatic Agreement
R10	Region 10
RMA	Riparian Management Area
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
TSS	Total suspended solids
U.S.	United States
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WOTUS	Waters of the United States

Mendenhall Glacier Visitor Facility Improvements Project

Record of Decision

Introduction

This Record of Decision (ROD) documents the Responsible Official's final decision for the Mendenhall Glacier Visitor Facility Improvements Project. The ROD contains a full description of the decision (including improved parking lots and plaza space, historic visitor center improvements, fish habitat improvements, new welcome center construction, additions to the non-motorized trail system, and use of an adaptive management plan to manage increases in visitor use), a summary of the environmental analysis for the project, and the findings required by law. This ROD also explains the results of the pre-decisional administrative review of the project conducted under Title 36 Code of Federal Regulations [CFR] 218, Subparts A and B.

The Final Environmental Impact Statement (EIS) for the Mendenhall Glacier Visitor Facility Improvements Project considers and discloses the direct, indirect, and cumulative impacts resulting from several alternative suites of facility construction and management activities at the Mendenhall Glacier Recreation Area (MGRA). The MGRA is located on the Tongass National Forest, Juneau Ranger District, in Juneau, Alaska.

Background

The MGRA is located approximately 12 miles north of downtown Juneau, Alaska, at the head of the Mendenhall Valley. The land upon which the MGRA is situated is part of the traditional home of Tlingit clan *Aak'w Kwaan*, who inhabited several villages in the Auke Bay area north of the Mendenhall Valley. The Mendenhall Glacier, known in Tlingit as *Aak'wtaaksit* (the Glacier Behind the Little Lake), carved out the Mendenhall Valley and left behind a network of rivers, kettle ponds, and moraines. Mendenhall Glacier is located between Mount McGinnis to the west and Mount Bullard to the east, which each rise almost 4,000 feet above the surrounding landscape (Figure 1 and Figure 2).

In 1907, the Tongass National Forest was established, encompassing much of the Juneau Icefield, Mendenhall Glacier, and the surrounding landscape. In 1935, the Forest Service designated the MGRA as the Mendenhall Lake Recreation Area, and in 1962 the Mendenhall Glacier Visitor Center was constructed to accommodate 23,000 visitors annually and dedicated to furtherance of "understanding and enjoyment of glacial phenomena."

In 2022, an estimated 443,000 people visited the Mendenhall Glacier Visitor Center between May and September using permitted outfitter, guide, or transportation services. Other people visited additional parts of the MGRA across the Visitor Center, Dredge Lakes, and West Glacier management units. Full counts for 2023 are still being compiled. In recent years, an estimated 85 percent of visitors to the MGRA

arrive with commercial service providers (cruise ships and tour companies) and the remaining 15 percent arrive independently (locals and independent visitors). The MGRA offers opportunities for hiking, biking, canoeing and kayaking, Nordic skiing, snowshoeing, wildlife viewing, and camping, and is an important recreation area for Juneau residents as well as visitors from around the country and around the world.

The MGRA encompasses roughly 5,800 acres in a variety of stream, wetland, and upland habitats. It supports five species of salmon, brown and black bears, wolves, mountain goats, goshawk, and shorebirds and seabirds including Arctic terns. The MGRA is upstream of and provides source water to the Mendenhall River, which is now bound on both sides by neighborhoods that house 40 percent of Juneau residents.

In 2016, the Forest Service initiated a master planning effort to identify existing conditions, current uses, and issues at the MGRA. The outcome of the effort was the Mendenhall Glacier Master Plan (Master Plan; USDA Forest Service 2019), which presents a vision and mission for the MGRA over the next 10, 20, and 50 years. Elements from the Master Plan, including proposed changes to facilities and trails, were refined and described as the proposed action in the Final EIS. Several alternatives to the proposed action were developed and analyzed as part of the Mendenhall Glacier Visitor Facility Improvements Project.

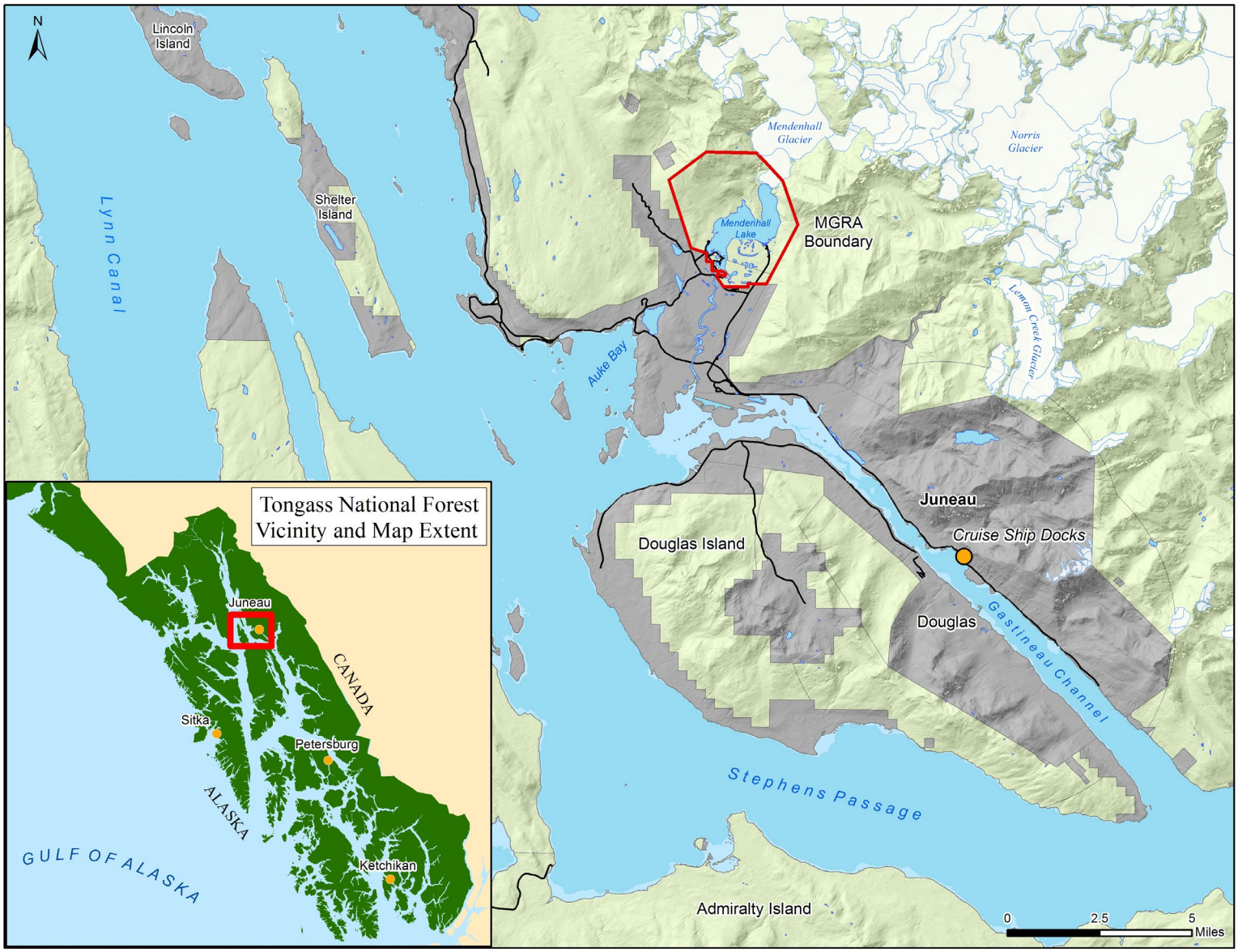

Figure 1. Mendenhall Glacier Visitor Facility Improvements Project Location and Vicinity Map

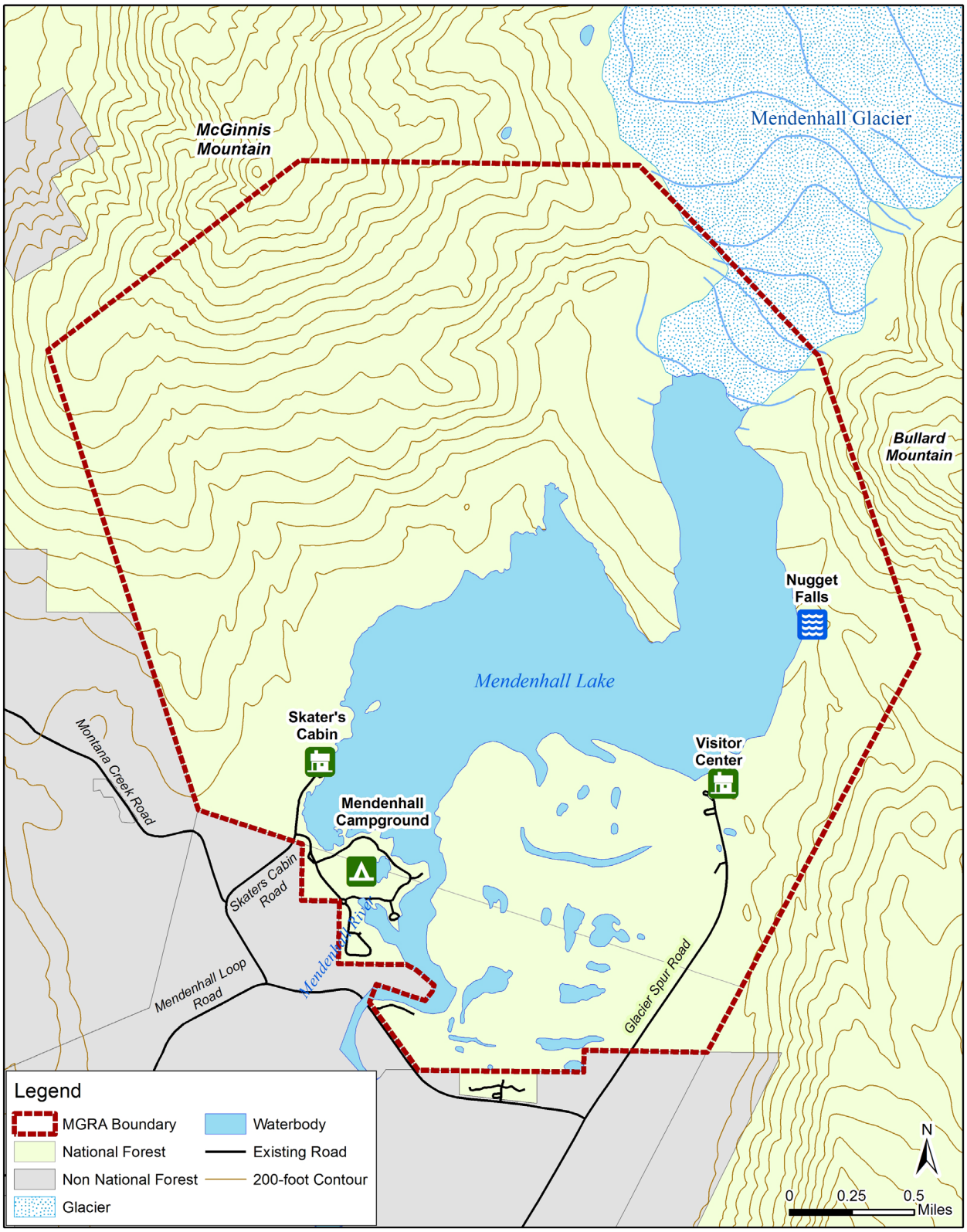

Figure 2. Mendenhall Glacier Visitor Facility Improvements Project Area Map

Decision

This ROD documents my decision to implement a combination of project components from the alternatives analyzed in the Final EIS (Chapter 2 Section 2.3; Alternatives 1 through 7).

In making this decision I considered:

- whether to implement facility improvements as described in one of the six action alternatives or a combination of alternatives;
- whether to implement management actions as described in one of the six action alternatives or a combination of alternatives, including actions related to management unit boundaries, capacity, and commercial use;
- whether to adopt mitigation measures and monitoring requirements, including those associated with an adaptive management plan; and
- whether to take no action related to all or some project components.

This decision approves new facilities and facility improvements, including parking lots and access expansion; construction of a new welcome center and visitor plazas; improvements to the historic Visitor Center; Steep Creek habitat restoration; construction, improvement, or designation of the Lakeshore, Nugget Falls, Steep Creek, and West Glacier Spur trails and the Dredge Lake and West Glacier unit multi-use trails; construction of Glacier Spur Road trailheads; and construction of public use cabins. In addition to those specific facility improvements, this decision also includes installation of culverts or other required drainage structures, grading, removal of outdated infrastructure and materials, vegetation management to preserve views, revegetation, and other maintenance of facilities and trails (Figure 3 through Figure 6).

This decision approves management actions including changes to visitor capacity and commercial use management, management unit boundaries (Figure 7), forest orders, and the interpretive plan.

Finally, this decision includes an implementation process, including application of the Programmatic Agreement with the State Historic Preservation Office, the Integrated Resource Design and Implementation Plan, and the Adaptive Management Plan.

The decision does not allow for development of boat docks and related support facilities, motorized boat use on the lake, or a remote glacier visitor area. The existing non-motorized boat launch areas north of the Welcome Center Complex and near Skater's Cabin will remain. No development will occur on the north side of the lake except for the West Glacier Trail and the West Glacier Spur Trail. This decision does not make any changes to travel management or motor vehicle use maps, and does not allow for electric bike (e-bike) use on non-motorized trails in the MGRA, including the new Lakeshore Trail.

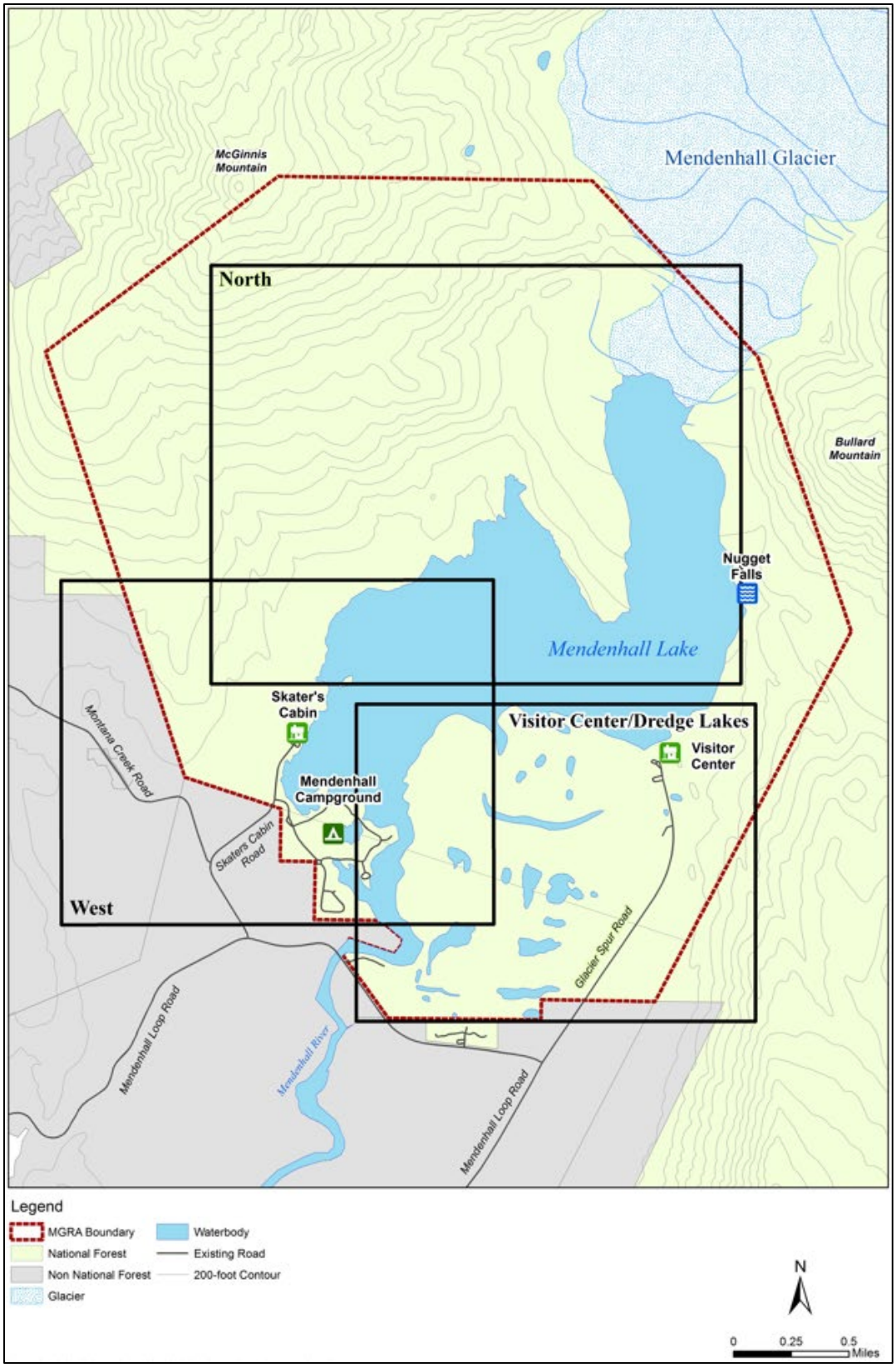

Figure 3. Map extents for figures 4, 5, and 6.

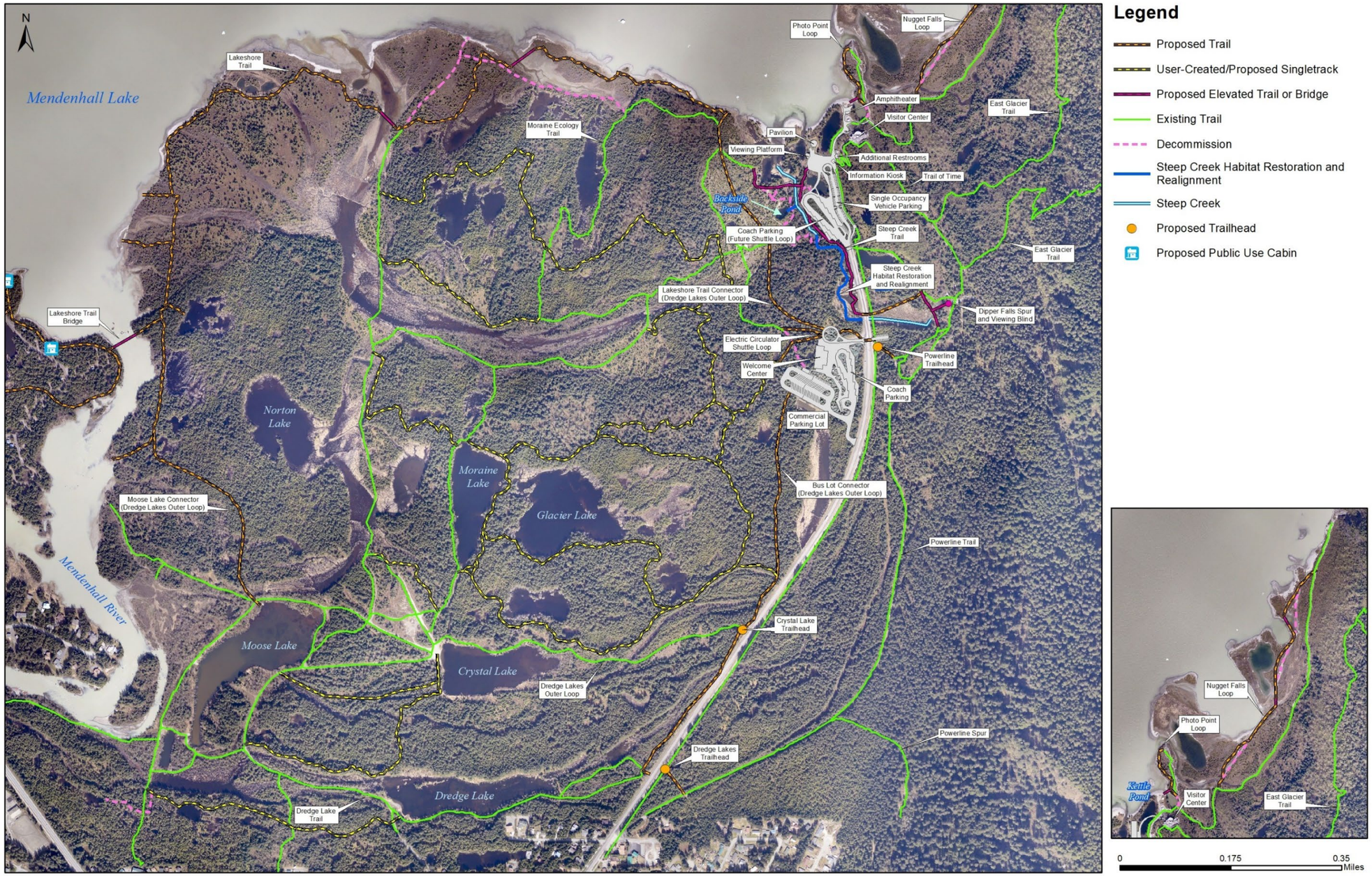

Figure 4. Visitor Center/Dredge Lakes. Existing and new infrastructure in the Visitor Center and Dredge Lakes units.

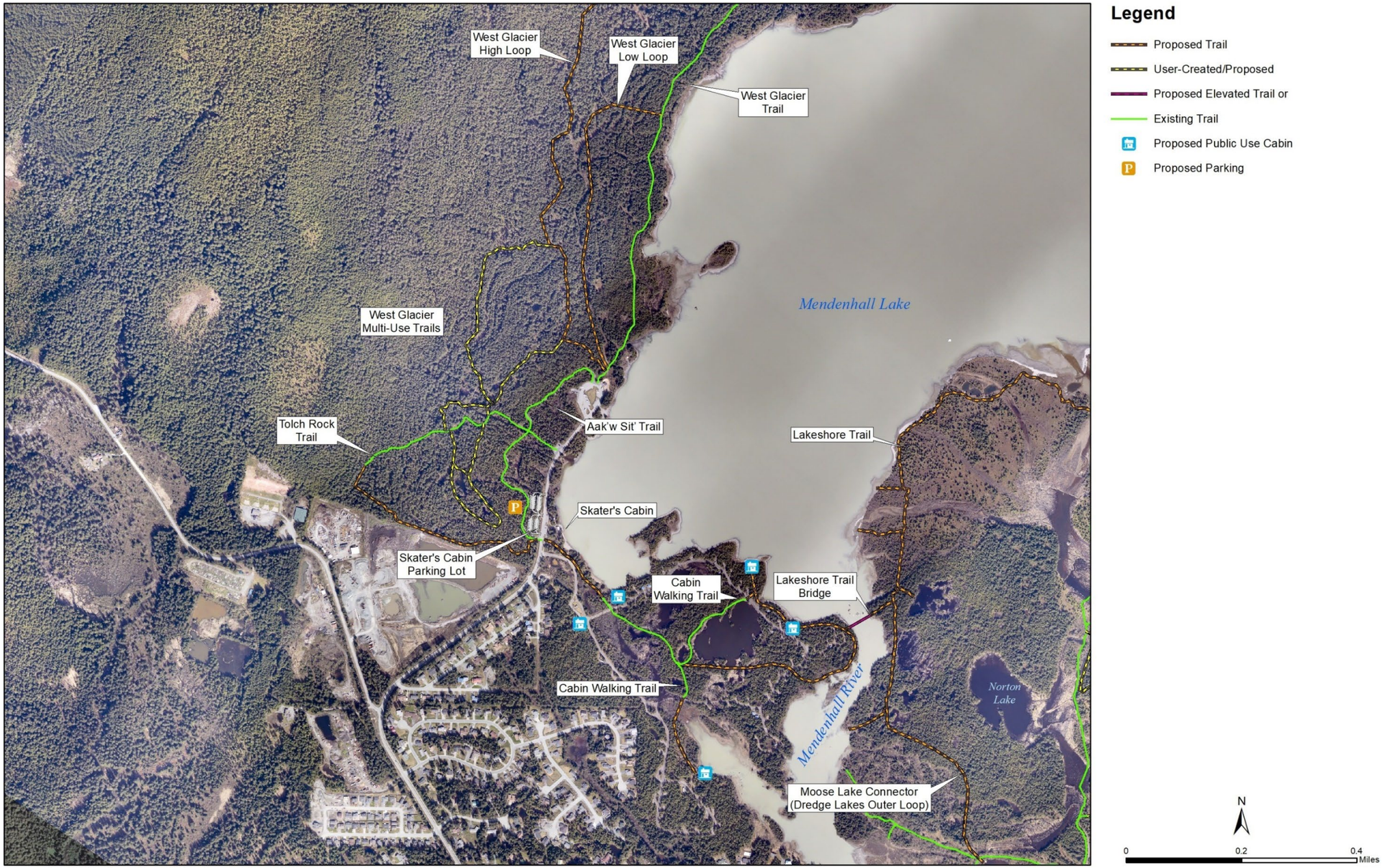

Figure 5. West. Existing and new infrastructure in the West Glacier unit.

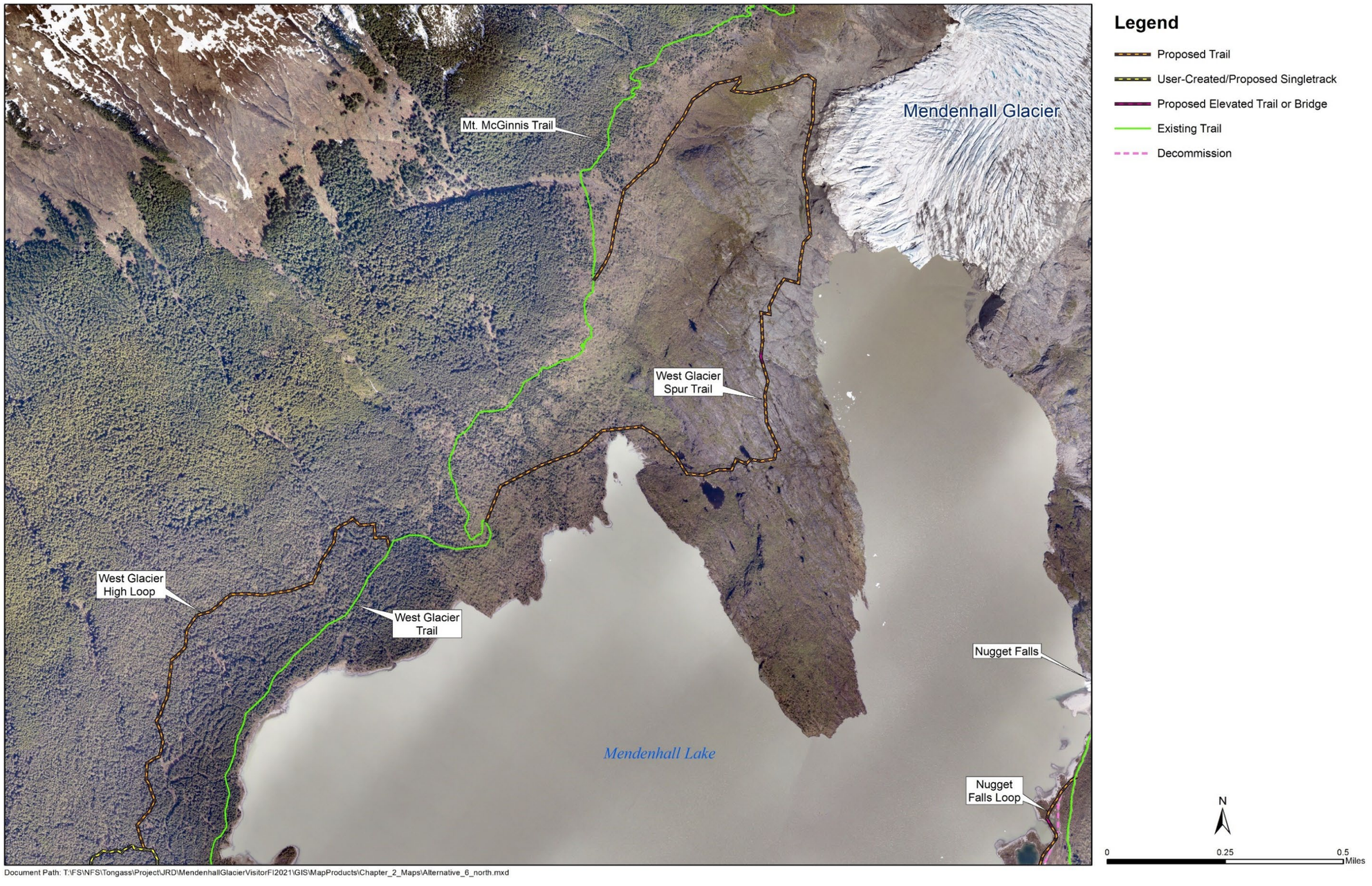

Figure 6. North. Existing and new infrastructure at the north end of the West Glacier unit.

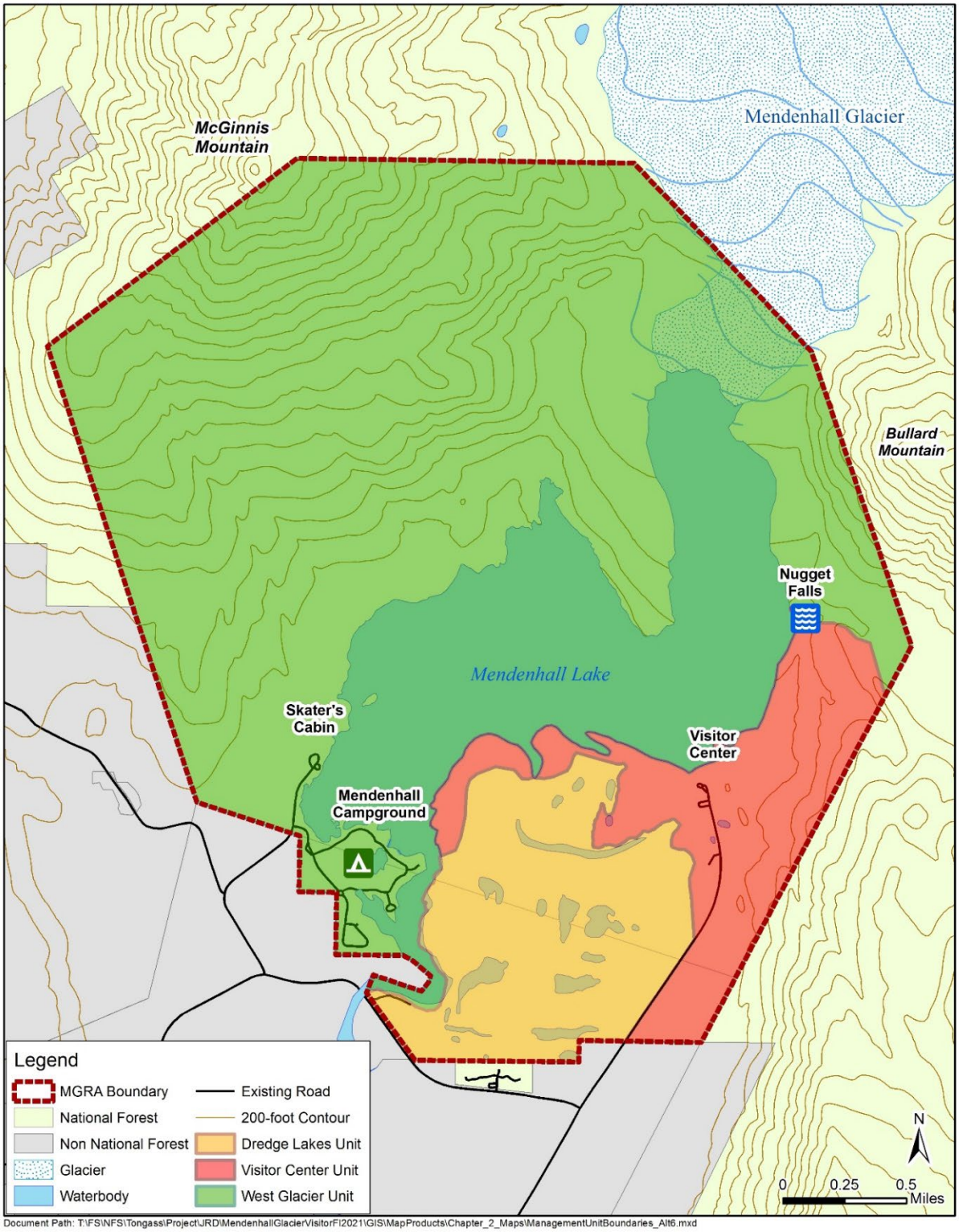

Figure 7. Updated management unit boundaries. The Lakeshore Trail will allow commercial use and is incorporated into the Visitor Center Unit.

Facility Improvements

Main Parking Lots

The main parking lots located closest to the lakeshore will be expanded and reconfigured to accommodate near-term and long-term access needs. The main parking lots will expand upon the two existing parking areas near the lakeshore and historic Visitor Center to create a 121,000-square foot (sq ft; 2.8-acres) parking area. In the near-term, this area will accommodate private vehicle parking to the east and commercial vehicle parking to the west (as described in Alternative 5 in the Final EIS). In the long-term, this area will accommodate private vehicle parking and shuttle drop off within the same footprint (Figure 8). The private vehicle parking area will offer 71 passenger vehicle parking spaces with a loop at the north end of the lot to allow for convenient pick-up and drop-off of passengers; the commercial parking area will offer six for-hire/taxi/rideshare spaces and 12 coach bus drop-off/pick-up spaces. Zig Zag Pond is located between the two main parking lots; up to 6,000 sq ft of the 20,000 sq ft pond may be filled as part of parking lot construction. A 240-foot-long, 14- to 20-foot-wide elevated boardwalk will connect the coach bus/shuttle drop-off/pick-up area on the south side of Zig Zag Pond to the plaza area on the north side of Zig Zag Pond.

Pavilion, Lakeshore Plaza Area, and Interpretive Plaza

Adjacent to the main parking areas, an up-to 20,000-sq ft arrival and wayfinding plaza area will be constructed to help orient visitors. The existing pavilion overlooking Mendenhall Lake will be retained (Figure 9). A larger, covered information kiosk will be constructed to serve as reception for visitors. Additional bathroom stalls will be added to the existing restroom facility, doubling the number of bathroom fixtures in that location from 12 to 24. A deck overlook will be added near the beaver pond. Wayfinding and interpretive signs will be installed throughout the area as guided by the interpretive plan (AldrichPears Associates 2022).

A 5,000-sq ft interpretive plaza area with an upper area and lower area will be constructed to the north of the historic Visitor Center. The existing underground storage area will be decommissioned and replaced by a 50-person amphitheater that will be partially sheltered by a grassy roof and recessed into the existing topography to limit the views of the structure from the Visitor Center. Interpretive elements constructed from natural materials, including wood and glacial erratics (large rocks transported by the glacier and left behind when it retreated), will be located at the perimeter of this plaza.

Figure 8. Schematic design for Visitor Center parking lots.

Figure 9. Visual rendering, end of Glacier Spur Road for Alternative 7 in the Final EIS. This decision will have less parking and more plaza visible in this viewshed compared to Alternative 7.

Welcome Center and Plaza Area

A new Welcome Center will be constructed at the site of the existing commercial overflow parking lot, along with associated plazas, parking, and access areas, as described in Alternative 7 of the Final EIS. The Welcome Center will be sited and designed to accommodate a visitor information center, offices, interpretive exhibits, restrooms, and retail space, and may include food service. The Welcome Center will be constructed within the footprint of impacts disclosed in Alternative 7 of the Final EIS and will be approximately 11,000 to 14,000 sq ft in size. The building will be designed to meet U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Silver certification. LEED certification is based on sustainable design choices for new building elements such as lighting, heating and ventilation, materials, and construction site management.

A small plaza area will be constructed adjacent to the Welcome Center and will include benches, interpretive signs, and a covered shelter(s) to accommodate visitors near the bus and electric shuttle pick-up/drop-off areas and the Welcome Center.

Two options are under consideration for sewer service for the proposed Welcome Center depending on final design and siting: a 6-inch diameter gravity sewer service extending to an existing lift station or a 6-inch diameter gravity sewer service extending from the building to a new lift station. Use of the existing lift station would depend on there being suitable slope from the proposed Welcome Center to the existing lift station. Either sanitary sewer option would result in a wastewater system in the Visitor Center Unit that would be able to accommodate anticipated visitation over the duration of the project.

Commercial Parking Lots and Electric Circulator Shuttle Service

Upon construction of the Welcome Center, commercial vehicle parking and staging will be shifted to the south in an area large enough to accommodate around 40 bus staging spaces, 20 guide van spaces, six for-hire/rideshare spaces, three standard spaces, and one ADA-accessible space (123,000

sq ft). A teardrop will be constructed for tour bus pick-up/drop-off at the front of the Welcome Center, with five drop-off and seven pick-up spaces (168,000 sq ft). An electric shuttle will load and unload near the Welcome Center and drop off visitors near Zig Zag Pond. It is not anticipated that all visitors arriving at the Welcome Center will use the electric shuttle; many may choose to walk to the Visitor Center and lakeshore area via the expanded Steep Creek Trail.

A maintenance building will be constructed at the staging area and will include bus driver restrooms. CBJ's unpaved snow storage area will be maintained but will be shifted west to accommodate the new expanded commercial lot. While the existing remote-control airstrip area will be altered by paving, use of the lot by aeromodellers will be accommodated within the newly paved area, subject to terms and conditions in their special use permit with the Forest Service. Trailhead kiosks and wayfinding signs would be added at various locations, and some existing trails would be realigned and connections updated to improve flow.

Visitor Center Improvements

Visitor Center Improvements will be completed as described in Alternatives 5, 6, and 7 in the Final EIS. An exterior wall of the lower floor of the Visitor Center will be moved out to increase the interior space by about 200 sq ft under the existing roof overhang and within the current building footprint to increase the Forest Service office area interior space. The area will receive interior renovations to better support Forest Service staff.

The upper floor of the Visitor Center will be renovated to provide an updated interpretive experience (AldrichPears Associates 2022). Hands-on exhibits will be added and the theater space will be redesigned. Renovations to the original observatory portion of the upper floor will help return the experience of the space to the Visitor Center's 1960s character. Additional improvements will be made to the outside railing and trail surface leading up to the Visitor Center to match the new plaza areas and to provide a safer route for visitors. A new covered area outside the main upper doors will provide shelter from the weather upon entry and exit. To address an existing safety hazard, a snowmelt system will be installed for the outside staircase and two emergency exits. Visitor Center maintenance items will be performed including: 1) heating and ventilation system renovation; 2) envelope improvements to reduce heat loss such as insulation and air sealing upgrades; 3) improvements to the visitor space such as door repair, flooring replacement, plumbing upgrades, interior and exterior painting, lighting replacement, ceiling leak repair, stone masonry repointing, and fire protection upgrades.

Steep Creek Habitat Restoration

Steep Creek Habitat Restoration work will be completed as described in Alternatives 5, 6, and 7 of the Final EIS. About 1,500 feet of the Steep Creek stream channel located downstream (west) of the Glacier Spur Road will be realigned, regraded, and restored to improve salmon habitat and develop an appropriate floodplain with a balanced movement of creek substrates. The channel will be relocated 30 to 200 feet west of its current location and regraded to a low gradient of just over 1 percent to facilitate fish movement. Channel features including pools, riffles, and meanders will be created. The existing stream channel and ponded area downstream of the road crossing will be abandoned and filled with natural material obtained from excavation of the new stream channel to facilitate proper hydraulic function of the proposed channel. The channel width and depth will be designed to meet optimal natural conditions for Steep Creek. Banks will be constructed to mimic the natural stream bank using native earthen material, rocks, logs, woody vegetation, and vegetative

mats. Revegetation of the relocated floodplain will be designed to generally match existing floodplain characteristics using native vegetation.

Steep Creek habitat restoration work is included in the Integrated Resource Design and Implementation Plan to ensure that agency fisheries biologists, wildlife biologists, and hydrologists have an opportunity to participate in development and review of intermediate and final designs and provide local expertise prior to implementation.

Steep Creek Culvert Replacement

The two perched culverts at the Steep Creek crossing with Glacier Spur Road will be replaced with either a vehicular bridge or a bottomless arch culvert to improve aquatic organism and allow wildlife passage under the road, as described in the action alternatives. Both options for culvert replacement have been analyzed to understand and disclose environmental impacts; final determination of the most appropriate crossing will be coordinated with final design of parking lot improvements and Steep Creek restoration work. The resulting roadway would be approximately 50 feet wide to accommodate two driving lanes, shoulders, and a 10-foot separated walkway on the east side of the road. Because Glacier Spur Road is currently owned and managed by Alaska Department of Transportation and Public Facilities (DOT&PF), close coordination on final design and permitting of any road construction will be required prior to implementation.

If a bridge is constructed, side slopes of Glacier Spur Road would need to be widened north and south of the bridge to achieve the needed bridge height and width. The bridge would be approximately 80 feet long, sized to accommodate creek bank full width of 18 feet, modeled 100-year flood flows plus debris and bed load. As currently designed, the bridge would not include any piers, and any abutments would be set above the creek's ordinary high-water mark. If a bottomless arch culvert is constructed, the side slopes of Glacier Spur Road may need to be widened north and south of the culvert to achieve the needed height, width, and depth of coverage for the culvert. The culvert would be approximately 60 feet long and 50 feet wide, sized to accommodate creek bank full width of 18 feet, modeled 100-year flood flows, plus debris and bed load.

The Steep Creek culvert replacement will be included in the Integrated Resource Design and Implementation Plan to ensure that agency fisheries biologists, wildlife biologists, and hydrologists have an opportunity to participate in development and review of intermediate and final designs and provide local expertise prior to implementation.

Backside Pond Improvements

Improvements to Backside Pond will be completed as described in Alternatives 5, 6, and 7 of the Final EIS. Backside Pond will be connected to Steep Creek to provide additional anadromous fish habitat. Backside Pond will be enlarged and a 30-foot-long, 4-foot-wide stream channel will be constructed to create a seasonal connection between the pond and Steep Creek and provide new salmon over-wintering and rearing habitat. The connection profile will be graded to a level set to flow when either the pond and/or Steep Creek water surfaces are elevated. Banks will be constructed to mimic the natural stream bank using native earthen material, rocks, logs, woody vegetation, and vegetative mats.

Backside Pond improvements are included in the Integrated Resource Design and Implementation Plan to ensure that agency fisheries biologists, wildlife biologists, and hydrologists have an opportunity to participate in development and review of intermediate and final designs and provide local expertise prior to implementation. The review will include information from dissolved oxygen

measurements collected in partnership with Alaska State Fish and Game. Backside pond improvements may be used to mitigate for impacts to fish habitat and wetlands from other project components.

Steep Creek Trail Expansion

The Steep Creek Trail will be realigned and extended. Beginning at the plaza near the existing pavilion, the Steep Creek boardwalk trail will connect to the commercial drop off/pick up area south of Zig Zag Pond and continue up the creek to end at the intersection with Glacier Spur Road. A primary spur trail will branch off near Zig Zag Pond to cross the beaver pond and connect with the Lakeshore Trail. Up to 11 fish and wildlife viewing overlooks will be added along the length of the boardwalk trail. The overlooks will extend a few feet over the creek at some locations, but most will be located at the edge of the streambank and about 3 feet above the creek. Measuring about 700 sq ft each, the overlooks will accommodate around 60 people without interrupting circulation. A signed and marked pedestrian crosswalk will be established for the trail to cross over Glacier Spur Road and connect to the existing Dike Trail on the east side of the road.

The Steep Creek Trail is included in the Integrated Resource Design and Implementation Plan to ensure that agency fisheries biologists, wildlife biologists, and hydrologists have an opportunity to participate in development and review of intermediate and final designs and provide local expertise prior to implementation.

Dipper Falls Viewing Area

An elevated spur trail and cleared viewing area will be constructed off the Trail of Time near the intersection with the Dike Trail to provide an improved fish and wildlife viewing opportunity. Approximately 300 feet of the Trail of Time would be rebuilt as elevated trail to improve wildlife passage and mitigate existing erosion and steep embankment challenges. An observation platform with a 500-sq ft wildlife viewing blind will be constructed near the creek to allow observation and photography.

The Dipper Falls viewing area is included in the Integrated Resource Design and Implementation Plan to ensure that agency fisheries biologists, wildlife biologists, and hydrologists have an opportunity to participate in development and review of intermediate and final designs and provide local expertise prior to implementation.

Photo Point Trail Expansion

Photo Point Trail will be lengthened to form a loop back to the Interpretive Plaza, consisting of at-grade and elevated segments along the lakeshore, as described for Alternatives 5, 6, and 7 in the Final EIS. Access to the loop will begin and end at the lower plaza area to lessen impacts and development where bears move through the area. The existing intersection with Nugget Falls Trail and Photo Point Trail will be decommissioned.

Nugget Falls Trail Expansion

The main Nugget Falls Trail and the existing user-created trail along the lakeshore will be connected to form a loop trail, as described in all action alternatives in the Final EIS (Figure 4). The user-created portion of the trail will be designated as a National Forest System trail and improved to be 10 feet wide and about 2,400 feet long. Lower sections of the trail near the lakeshore will be 12 inches above existing grade and constructed to withstand periodic flooding. Two elevated sections,

approximately 70 and 100 feet long, will be constructed where the trail crosses sections of Mendenhall Lake.

The Nugget Falls Trail is included in the Integrated Resource Design and Implementation Plan to ensure that agency fisheries biologists, wildlife biologists, and hydrologists have an opportunity to participate in development and review of intermediate and final designs and provide local expertise prior to implementation. Final design should keep people on the trail and out of nesting areas, and include interpretative features to reduce impacts to nesting birds and colonies.

Lakeshore Trail and Lakeshore Trail Bridge

A new Lakeshore Trail will be constructed along the south shore of Mendenhall Lake, as described in Alternatives 5, 6, and 7 of the Final EIS. The 2.6-mile-long trail will be 12 feet wide with 2-foot-wide vegetated shoulders. It will start at the Steep Creek Trail near the main parking lots, then meander along the lakeshore and through the forest, across Mendenhall River, and through the Mendenhall Campground to end at the Skater's Cabin parking lot.

Along the lakeshore, the trail will cross through areas that experience flooding and a number of unnamed drainages that flow into Mendenhall Lake. It is expected that about 1,800 feet of the trail will be elevated up to 8 feet above grade on 18-inch-diameter piles spaced approximately 20 feet apart where flooding is expected or where drainages are more than about 50 feet wide.

A pedestrian bridge will connect the western end of the trail across Mendenhall River near the outlet of the lake and the campground to provide a connection between the MGRA's eastern and western trail systems. The single-span bridge will be about 14 feet wide by about 340 feet long and supported by concrete piers (Figure 5). The bridge will be designed to accommodate the Federal Emergency Management Agency (FEMA) 100-year flood elevation and glacial outburst flood events to avoid or minimize obstructions to stream flow, including floating debris and bedload. Although not subject to Section 10 of the Rivers and Harbors Act, the bridge will be designed in compliance with navigability requirements to ensure safety of operators and recreationists.

Smaller (6-foot-wide) at-grade gravel spur trails totaling about 1,800 linear feet will branch off the main trail at four locations to access scenic locations at the lakeshore, inland lakes, Mendenhall River, or to connect to other trails. These gravel spur trails will be an average of 12 inches above grade. On the west side of Mendenhall River, the trail will continue through Mendenhall Campground and the width will be reduced to 8 feet wide at grade. The west end of the trail will terminate at the Skater's Cabin parking lot.

The Lakeshore Trail is expected to receive commercial, non-motorized use and is included in the capacity and commercial use allocation decisions for this project. The MGRA Management Plan will be updated to include the Lakeshore Trail, east of the Mendenhall River pedestrian bridge, in the Visitor Center unit. This change in management unit removes the lakeshore area from the Dredge Lakes unit, where there is no commercial use, and adds the lakeshore area to the Visitor Center unit, where there is commercial use.

Glacier Spur Road Trailheads

Three new paved trailheads (Figure 4) will be added alongside Glacier Spur Road to increase safety for pedestrians accessing the Dredge Lakes, Crystal Lake, and Powerline trails, as described in Alternatives 5, 6, and 7 in the Final EIS. Trailheads will include parking for 12 to 20 vehicles and

trailhead kiosks. Minor trail reroutes and grading may be necessary to connect trails to the new parking areas. Details regarding the parking lots include:

- **Dredge Lakes Trailhead** (east side of Glacier Spur Road near where Dredge Lakes Trail approaches the road): approximately 12,000 sq ft with 20 parking spaces.
- **Crystal Lake Trailhead** (west side of Glacier Spur Road near where Crystal Lakes Trail intersects the road): approximately 7,000 sq ft with 12 parking spaces.
- **Powerline Trailhead** (east side of Glacier Spur Road where Powerline Trail meets the road): approximately 10,000 sq ft with 20 parking spaces.

Dredge Lakes Outer Loop

A complete recreational loop trail around the Dredge Lakes unit will be created using extensions and realignments to existing trails and connections with the Lakeshore Trail. The Dredge Lakes Outer Loop will include:

- Moose Lake Connector (12 feet wide, gravel): A trail running north-south along the east side of Mendenhall River will be constructed between Lakeshore Trail and Moose Lake. It will be partially located in the FEMA-designated floodplain. The entire trail will be designed to accommodate flooding and full immersion.
- River Trail to Crystal Lake Trail (existing): The loop will follow existing trails across the north of Moose Lake and Crystal Lake on Crystal Lake Trail.
- Bus Lot Connector (8 feet wide, gravel): A new trail paralleling Glacier Spur Road will be constructed to connect the commercial parking lot, Crystal Lake Trailhead, and Dredge Lakes Trailhead. This trail is also described as part of the Dredge Lakes Multi-Use Trails (see the *Dredge Lakes Multi-Use Trails* section below).
- Lakeshore Trail Connector (12 feet wide, gravel): A new trail will be constructed to connect the commercial overflow parking lot to the Lakeshore Trail.

Only portions of the Dredge Lakes Outer Loop located within the Visitor Center unit will have commercial use, including: Lakeshore Trail, Lakeshore Trail Connector, and Bus Lot Connector.

Dredge Lakes Multi-Use Trails

Approximately 32,000 linear feet (6 miles) of existing user-created primitive trails will be improved and added to the network of National Forest System (NFS) multi-use trails in the Dredge Lakes Unit (Figure 4). Generally, trail improvements will involve minimal vegetation removal and maintenance such as minor widening, drainage improvements, and replacement of existing bridges to create trails between 2 and 4 feet wide that could be used for a variety of year-round uses, while still maintaining their current character. A small number of existing user-created trails on the western portion of the management unit will be decommissioned due to drainage and flooding issues, and areas will be restored to a more natural and stable condition in degraded locations. Additionally, around 33,000 linear feet (6.25 miles) of existing NFS trails in the Dredge Lakes Unit will undergo general maintenance.

A new trail connection will be constructed between the Glacier Spur Road Trailheads and the commercial overflow parking lot (also described above as part of the Dredge Lakes Outer Loop). Short trail segments will be added to connect the Dredge Lakes trail network with trails on the east side of Glacier Spur Road.

Maintenance will be performed on the Crystal Lake Trail from the Glacier Spur Road parking to the juncture of the other trails on the west end of the lake to make this section suitable to groom a

classic Nordic ski track, including brushing, opening up the canopy in spots, and increasing the trail width to 8 feet. Maintenance will be performed consistent with implementation requirements for this project and will result in only minor vegetation and habitat impacts.

Some trail segments near Dredge Lake and Crystal Lake that were described in the Final EIS and Draft ROD are not included in this decision as designated multi-use trails due to their proximity to known goshawk nests.

West Glacier Spur Trail

The existing user-created trail from the West Glacier Trail to the glacier will be added to the NFS multi-use trail network and upgraded and realigned to allow safer access to the glacier by foot and create a loop option, as described in all action alternatives in the Final EIS. All sections of the trail, except for a new 50-foot-long bridge, will be constructed at grade. Portions of the trail will require rock work (including potential blasting in places).

West Glacier Multi-Use Trails

A new 9,000-foot-long (1.7 mile) trail will be constructed to create multi-use West Glacier High and Low loop trails in combination with the first portion of the West Glacier Trail. These trails are intended to be groomed in winter for Nordic skiing as conditions allow. Additionally, some existing user-created mountain bike and hiking trails in the West Glacier Unit will receive improvements to achieve Forest Service trail standards and will be designated as NFS trails (Figure 5).

Some trail segments near Tolsch Rock that were described in the Final EIS and Draft ROD are not included in this decision as designated multi-use trails due to their proximity to known goshawk nests.

Skater's Cabin Parking Area and Access Trails

The parking lot across the road from Skater's Cabin will be expanded to accommodate an additional 46 vehicles (14 existing; total of 60 spaces) to allow access to the west end of the Lakeshore Trail and to provide parking on high visitation days. An existing trail will be upgraded and extended from the Lakeshore Trail pedestrian bridge through the campground to connect to Skater's Cabin parking areas. A trail will also be added for winter access to the public use cabins to segregate walkers from Nordic skiers in the campground. Approximately six existing campsites will be removed to accommodate the Lakeshore Trail pedestrian bridge abutments or new trails.

Mendenhall Campground Public Use Cabins

Five new public use cabins between 600 and 840 sq ft will be built in the Mendenhall Campground to create a more accessible camping activity for both local and out of town visitors, as described in Alternatives 2, 3, and 4 (Figure 5). These dry (i.e., no water or sewer at the site or in the cabin) Forest Service cabins will be of similar size and design to other high-use cabins on the Tongass and Chugach National Forests, based on standard cabin designs including lofts and porches. They will include electric heat, a wood stove for supplemental heat, bed platforms, and a small counter and table. While the primary source of heat for the cabins is electricity, wood stoves offer users a supplemental heat source. Wood stove use would be prohibited during air emergencies or other periods declared by CBJ during which air quality is negatively affected. Fuel wood is available for sale at local retail stores and would need to be transported to the site by cabin users.

The introduction of public use cabins will represent the first time the campground will be available for use during winter months, beyond trail use. Access will be drive-up while the campground is open, and walk-up only while the campground is closed for the winter (including skiing or snowshoeing). Cabins will be constructed as funding becomes available, and funding priorities will be set with consideration of other cabin projects in the Forest Service Alaska Region. The Forest Service expects one cabin to be funded for construction immediately. Cabin sites were selected based on site size, views, access, and professional recommendations from Forest Service recreation specialists. Vegetation clearing and ground leveling will be required for construction of all cabins. Cabins B, C, D, and E are expected to be within 200 feet of Mendenhall Lake or Mendenhall River, depending on final placement. The planned sites are as follows:

- Cabin A will be placed at existing campsite 70 (host site) near the campground entrance and information board. This will make it possible to have hosts with or without an RV. There will be a reception area in front to greet visitors. The cabin could be used as a public use cabin during the winter months (October through April).
- Cabin B will augment or replace existing campsite 2.
- Cabin C will augment or replace existing campsite 15.
- Cabin D will augment or replace existing campsite 21.
- Cabin E will be a new campsite located near the information board, parking, and restrooms in the RV loop.

Management Actions

MGRA Management Plan

This decision will require updates to the 1996 MGRA Management Plan, which was last revised in 2015. The MGRA Management Plan provides management direction for the recreation area and is reviewed and updated periodically (supported by National Environmental Policy Act [NEPA] analysis) as changes in recreation use volumes or patterns arise. An updated version of the MGRA Management Plan will be finalized following this decision and may be updated multiple times as the different project elements are implemented into the future. Updates to the plan will include listings of current and approved facilities and recreation opportunities, new management unit boundaries and ROS designations, new visitor capacities and commercial allocations, forest orders, and the interpretive plan.

Management Unit Boundaries and Recreation Opportunity Spectrum Designations

The Visitor Center Unit will be expanded to include the Lakeshore Trail, and the Lakeshore Trail will be assigned a ROS designation of “Roaded Natural.”

All existing trails with commercial use will maintain current ROS designations; the East Glacier Trail, Powerline Trail, Moraine Ecology Trail, and Trail of Time will all maintain a ROS of “Roaded Natural.”

The 1996 (revised in 2015) MGRA Management Plan will be updated to incorporate new management unit boundaries and ROS designations.

Visitor Capacity and Commercial Use Allocations (Transporter, Outfitter, and Guide)

Visitor capacity estimates and commercial use allocations will be updated to allow for increased visitation following facility improvements and management actions. The Visitor Center Unit has a capacity of 999,000 people; 87 percent of that capacity may be allocated for commercial use as 869,130 service days (Table 1). At full implementation, an estimated 178,460 service days would be available for trails outfitter and guide permits and an estimated 690,670 service days would be available for transportation permits. Management unit boundaries have been redrawn so the new Lakeshore Trail will be within the Visitor Center unit (Figure 7). The Dredge Lakes unit is not allocated any commercial use and has not been given a capacity estimate. The West Glacier Unit has a capacity of 287,000 people; 42 percent of that capacity may be allocated for commercial use as 120,170 service days (Table 1). The primary use season will be lengthened from the current 153 days to span 214 days, from April 1 through October 31.

Service days made available to transportation, outfitter, and guide permittees will increase from present day numbers up to the allocation in this decision through use of an Adaptive Management Plan that requires monitoring and application of thresholds and responses (Attachment C). Application of the Adaptive Management Plan is required as part of this decision.

The 1996 (revised in 2015) MGRA Management Plan will be updated to incorporate new information regarding visitor capacity and commercial allocations.

Table 1. Visitor capacity and commercial allocation (service days) by management unit.

Management Unit	Visitor Capacity[a]	Designated Commercial Use (Percentage of Capacity)	Number of Service Days Allocated to Commercial Use
Visitor Center Unit	999,000	87%	869,130
Dredge Lakes Unit	N/A	0%	0
West Glacier Unit	287,000	42%	120,170

[a] The Forest Plan defines recreation capacity as "the number of people that can take advantage of the supply of a recreation opportunity during an established use period without substantially diminishing the quality of the recreation experience or the resources" (USDA Forest Service 2016, p. 7-47).

Forest Orders

Forest Orders (36 CFR 261 Subpart B) describe prohibitions that close or restrict entry or use of specific areas of the forest for safety or resource protection. Forest Orders that will be included in the updates to the MGRA Management Plan include:

- Prohibition of all dogs, except service animals, from April 15 to October 15 on Steep Creek Trail boardwalk to further reduce conflicts between bears, humans, and pets. This order will increase security in a high use area for bears.
- Prohibition of food consumption or open beverage containers in parking lots, sidewalks, and certain trails in the Visitor Center Unit (Photo Point Loop, Moraine Ecology, Trail of Time, and Steep Creek). In the Visitor Center Unit, food and beverages other than water will only be allowed in the pavilion, the Welcome Center, and the Visitor Center.
- Prohibition of riding wheeled devices such as bikes, electric bikes, skateboards, and roller skates on sidewalks and plazas in the Visitor Center Unit and on the Steep Creek boardwalk,

from April 1 to October 31 each year to minimize disturbance to wildlife and conflict among users. Wheeled devices can be walked in these areas.

- Closure of all MGRA recreation areas including the Skater's Cabin from 12 a.m. (midnight) to 6 a.m. each day, except for visitors using the overnight areas of the Mendenhall Campground. This special closure will extend the default closure of Forest Service recreation areas from 10 p.m. to 12 a.m. (midnight).
- Prohibition of smoking in any area within the Visitor Center Unit except for designated smoking areas. Designated smoking areas are adjacent to each major parking lot.

MGRA Interpretive Plan

The MGRA Interpretive Plan (AldrichPears Associates. 2022) will be implemented and used to guide interpretation and education opportunities at the MGRA. The plan includes updated educational exhibits, wayfinding signage, benches, covered shelters, and discovery "nodes" geared towards children's education to be located throughout the MGRA. Some interpretive elements have been developed as mitigation for impacts to heritage resources.

Implementation Requirements

The facility improvements and management actions described in this decision will be implemented as funding is secured and final designs become available. There are three documents that must be adhered to during the implementation process: the Programmatic Agreement with the State Historic Preservation Office (Attachment A), the Integrated Resource Design and Implementation Plan (Attachment B), and the Adaptive Management Plan (Attachment C). In addition, mitigation measures identified here, including timing windows for construction, are required as part of implementation.

Programmatic Agreement with State Historic Preservation Office

The programmatic agreement for this project lays out how the Forest Service will meet the requirements for Section 106 of the National Historic Preservation Act (NHPA). Section 106 requires Federal agencies to take into account the effects of their actions on historic and traditional cultural properties. The programmatic agreement provides specific direction that allows the Forest Service to survey for, consult on, and mitigate impacts to cultural resources in phases as the project is implemented.

Phasing Section 106 requirements through use of a programmatic agreement adjusts the timeline so that Section 106 may be completed after the NEPA review and prior to project implementation (36 CFR 800.4(b)(2)). Each undertaking, when identified on the ground, will require a Forest Service Heritage Specialist to apply criteria from the programmatic agreement to determine whether a streamlined approach to Section 106 or other stipulation of the programmatic agreement is appropriate for that undertaking. Areas not covered under previous cultural resource inventory could require additional fieldwork. Additionally, a project area may require additional survey if a past survey does not meet current professional standards. All effects to cultural resources will be avoided or minimized to the extent possible, as agreed upon in the programmatic agreement. In cases where there may be an adverse effect on historic properties, the requirements specific to the undertaking would be used to mitigate those effects.

Forest Service staff developing contracts for construction of any facility or doing ground-disturbing work in association with this project must ensure that the Section 106 process, as described in the

programmatic agreement, is complete before construction or ground-disturbing work begins. This minimizes the likelihood of unexpected discovery or damage to cultural resources in the project area.

Application of the Programmatic Agreement is required as part of this decision; it is included by reference in Attachment A.

Integrated Resource Design and Implementation Plan

In most cases, facilities will need to have full architectural and engineering designs developed before construction begins. In some cases, design or construction of multiple project components will need to happen at once or in sequence. Adjustments are expected during final engineering design for the purpose of improving boundaries or project facility locations and to better meet on-site resource management objectives. These adjustments are not expected to represent substantial changes to environmental concerns or require additional NEPA analysis. However, changes made during implementation will be reviewed, documented, and approved in accordance with direction found in the Forest Service Handbook (FSH) 1909.15 Chapter 18.

As part of the objection review and resolution process, the reviewing officer and I determined that an Integrated Resource Design and Implementation Plan is needed to ensure that facility-related resource impacts are fully considered and mitigated to the extent possible through final design. The Integrated Resource Design and Implementation Plan requires review of all project components during design and implementation, with specific resource specialist review required for Steep Creek Restoration, Glacier Spur Road Culvert Replacement, Dipper Falls Viewing Area, and Nugget Falls Trail. It also requires specialists to confirm following final design that the extent and nature of construction-related impacts to wetlands, vegetation, soils, and aesthetics are within the anticipated impacts disclosed in the Final EIS.

Application of the Integrated Resource Design and Implementation Plan is required as part of this decision; it is available as Attachment B.

Monitoring and Adaptative Management

The Adaptive Management Plan included as Attachment C will be used to monitor resource conditions and determine when to increase or decrease the number of permitted service days at the MGRA, including for transportation and outfitter and guide permits. Any increases in service days must be informed by and based upon the Adaptive Management Plan.

Application of the Adaptive Management Plan is required as part of this decision; it is available as Attachment C.

Project Design Elements and Mitigation

Project design elements and mitigation, including best management practices, are incorporated into this decision to minimize, mitigate, or avoid anticipated impacts. This decision avoids many of the resource impacts described in the Final EIS, and the design elements and mitigation measures minimize most remaining impacts. Where impacts remain (e.g., impacts to wetlands), compensatory mitigation will be considered during the permitting process with the Army Corps of Engineers. The project design elements and mitigation measures constitute all practicable means to avoid or minimize environmental harm from this project decision.

Application of best management practices (BMPs) and approved project design elements and mitigation is required as part of this decision.

BMPs are methods, measures, or practices to protect natural resources and abate or mitigate adverse impacts to those resources while meeting other resource goals and objectives. BMPs for recreation management, watershed management, wildlife and fisheries management, access and transportation management, and other forest management activities are described in FSH 2509.22, Region 10 Soil and Water Conservation Handbook. They are the result of collaboration between the Forest Service and the State of Alaska to identify practices to minimize soil erosion and protect aquatic habitat to meet the requirements of the Clean Water Act (CWA). The invasive plant BMPs provided in the 2019 Guidance for Invasive Plan Management Program Tongass National Forest (Krosse 2019) also apply to this project. In addition to the State-approved BMPs, the Forest Service implements and monitors for National Core BMPs (USDA Forest Service 2012).

Resource-specific project design elements and mitigation measures are also required as part of this decision (Table 2).

Table 2. Resource-specific design elements and mitigation measures.

Resource	Mitigation Measures
Wildlife and Vegetation	• A seasonal closure from March 15 to August 15 will be enforced on activities within 600 feet of an active goshawk nest that create "continuous disturbance likely to result in nest abandonment" (USDA Forest Service 2016, p 4-96). • If a Bald Eagle nest is discovered, the Forest Service will follow the USFWS National Bald Eagle Management Plan and avoid habitat alterations and disturbance (including repeated human activity) within 330 to 660 feet (depending on activity) of all Bald Eagle nests (USFWS 2007). • For additional migratory bird nesting areas, the project will follow USFWS guidance for Southeast Alaska and will avoid land disturbance and tree cutting/clearing during the following periods for bird nesting areas (USFWS 2021): o April 15 to July 15 within forested and woodland areas, o May 1 to July 15 for shrub and open areas, o May 1 to September 5 for known seabird colonies, and o March 1 to August 31 for goshawk and eagle nesting habitat. • All commercial uses on the lake surface will comply with restrictions near gull colonies and tern nesting areas. • Construction work occurring directly within mountain goat winter habitat will not take place between November 1 to April 30. • Glass treatments will be installed on the Welcome Center windows to reduce incidental bird strikes. • Bear management guidelines will be revised at the time of project implementation. • Beaver management practices will be revised at the time of project implementation. • A survey for undocumented sensitive plant populations will be completed in the vicinity of all project components before construction. • All project actions will be implemented and operated in compliance with measures outlined in the associated Invasive Species Risk Assessment and Guidance for Invasive Plant Management Program Tongass National Forest. • Shoe cleaning stations with interpretive signage about invasive species will be placed at trailheads.

Resource	Mitigation Measures
Recreation	• New and redesigned facilities will meet accessibility standards as outlined for outdoor recreation areas in the USDA publication, Accessibility Guidebook for Outdoor Recreation and Trails (USDA Forest Service 2012a) and the Forest Service Outdoor Recreation Accessibility Guidelines. • Information regarding access to planned closures of facilities and trails will be posted at impacted areas (trailheads, parking lots, etc.) starting one month before facility or trail is closed and throughout construction activities. • Increases in commercial use will be phased in through use of the Adaptive Management Plan (ROD Attachment C).
Watersheds, Wetlands, and Aquatic Habitat	• Ground disturbing activities will be avoided along the lakeshore from April 1 to May 31 (outmigration of salmon fry). • Instream work in Steep Creek will be conducted from June 1 through July 15 (period between outmigration of salmon fry and return of adult Sockeye Salmon). • The Forest Service will coordinate with ADF&G Habitat Section biologists to strategize removing and excluding fish if practicable during in-water work in Steep Creek. • To mitigate for impacts to Zig Zag Pond and other EFH, Backside Pond will be enlarged and connected to Steep Creek, if best available information continues to indicate positive results. • Culverts and other drainage features will be constructed to facilitate the natural movement of water. • Where feasible, bridges will be prioritized over culverts for fish-bearing streams. • All project actions will be implemented and operated in compliance with measures outlined in the associated EFH Assessment. • Stormwater discharges will be monitored to ensure that installed controls are functioning properly. • The Forest Service will pursue development of a water quality monitoring program with ADEC to ensure that installed stormwater runoff control structures are working effectively and that water quality in Steep Creek is not impacted.
Heritage	• All project actions will be implemented and operated in compliance with the measures outlined in the PA developed for this project with SHPO. • If a previously unidentified archaeological or historic site(s) is encountered, the contractor will discontinue work in the general area of the site(s) and notify the contracting officer immediately. The contracting officer will notify a Forest Service archeologist to determine further action. • An interpretive plan will be implemented to serve as a guide for visitor education at the MGRA and present traditional *Aak'w Kwaan* ecological knowledge and stories alongside western science. • The Welcome Center will be constructed with exterior and interior features consistent with the Visitor Center and the architectural style with which it was built in the 1960s.

Resource	Mitigation Measures
Air Quality	• Bus engine idling will be prohibited while buses are parked, or when waiting to load passengers for longer than five minutes. • Construction site BMPs will be used to control fugitive dust in the project area and along access roads during construction in accordance with Alaska air quality regulations at 18 Alaska Administrative Code (AAC) 50.045(d) as well as Federal and local requirements. • Excavation, grading, and blasting activities will be suspended during air quality emergencies in the Mendenhall Valley, or when high winds or visible dust are present. • If open burning is chosen as the preferred method of disposal of organic debris during construction, the CBJ Fire Department will first be contacted to obtain a burn permit and the contractors will employ reasonable procedures to minimize adverse air quality impacts and limit the amount of smoke generated.
Climate Change	• All proposed buildings will meet Forest Service sustainability requirements, including LEED Silver certification (representing sustainable design choices for new building elements such as lighting, heating and ventilation, materials, and construction site management) for the new Welcome Center.
Socioeconomics	• Public service announcements and other public outreach will occur prior to construction activities.

Permitting Requirements from Objection Review

In addition, the following implementation tasks are required. These tasks were identified as instructions resulting from the objection review process:

- Adjust the administration of transportation permits at the MGRA to address timing and crowding issues during the primary use season. Options for administration may include use of shoulder season permits or daily/weekly/monthly maximum use.
- Require permittees to report their use monthly, or more frequently, so that permit administrators can monitor use and hold the permittees to the number of service days that they are allocated in their permit.
- Consider if it is appropriate to allow an increase in service days for 2024 based on the extended primary use season. Add service days in 2024 commensurate with additional days with cruise ships in port, only if deemed appropriate and only if done in concert with adjustments to permittee reporting and changes to permit administration for shoulder seasons, weeks, or months.

Rationale for the Decision

My rationale for this decision is based on the project-specific environmental analysis in the Mendenhall Glacier Visitor Facility Improvements Project Final EIS and appendices, including comments received during the development of the project, and project record. I considered the purpose and need for the project and the issues that arose during scoping, public meetings, and the draft EIS and supplemental draft EIS comment periods both in support and opposition to this project and its various components. I considered the many different alternatives developed in response to those issues, including the three additional alternatives analyzed in the supplemental draft EIS (see Final EIS Section 3.6 through 3.12).

I evaluated the beneficial and adverse environmental effects of the alternatives as documented in the environmental analyses and considered Forest Plan and MGRA Management Plan direction relevant to this project and the interests and values expressed by the public. In addition, I reviewed comments from agencies, including the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries), U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (USFWS), the State of Alaska, CBJ, and Central Council of the Tlingit & Haida Indian Tribes of Alaska prior to making my decision. I considered all viewpoints and incorporated them where feasible and consistent with the purpose and need for the project.

The decision documented here is different than that published in the Draft ROD in May 2023. This final decision was influenced by the objection process, through which 17 objectors were able to identify and discuss concerns with the objection reviewing officer, the Regional Forester. The Regional Forester and I agreed upon the final decision as described above. Notably, this final decision is responsive to concerns expressed during the planning process regarding infrastructure development on the lakeshore, motorized boat operations on Mendenhall Lake, and the Remote Glacier Visitor Area.

The MGRA is a unique public recreation area that is an invaluable local resource as a central outdoor recreation space for the Juneau community, and it is one of the most visited tourist attractions in Alaska. Balancing year-round use by Juneau residents with the seasonal use by hundreds of thousands of visitors during the primary use season requires tradeoffs so that this public resource can continue to best serve all users. I have determined that this decision provides the most balanced approach to meet the project's purpose and need and to responsibly serve the diverse user groups who enjoy the MGRA.

How the Decision Meets the Purpose and Need

I have determined that this decision best meets the purpose and need for the project. My rationale related to the purpose and need and issues raised by planning participants is described in the following sections.

Purpose: To update infrastructure and create recreation opportunities at the MGRA that can accommodate projected future visitor use while protecting the unique characteristics and outstanding beauty of the area.

The purpose of this project is to update infrastructure and create recreation opportunities at the MGRA that can accommodate projected future visitor use while protecting the unique characteristics and outstanding beauty of the area (Final EIS p. 1-8). The Mendenhall Glacier has been a local, national, and international destination since the 1920s, and many changes in facilities and management of the MGRA have occurred over the years. Visitor use has increased dramatically from an estimated 23,000 visitors in 1962 to almost 560,000 in 2019 (Final EIS p. 1-2, 3-62). The vast majority of visitors to the MGRA arrive by cruise ship to Juneau. The Juneau Ranger District manages commercial visitation through special use permitting for outfitter, guide, and transportation services, but does not limit entry for those visitors arriving independently.

After a decrease in visitation due to the Covid-19 pandemic between 2020 and 2022, an estimated 1.6 million people visited Juneau on cruise ships in 2023, the busiest summer season on record. Some days had six large ships in port, and many of the ships were booked close to full capacity, a change from prior years (Kuhn 2023). Demand to visit the MGRA remained high, and many

permitted transportation providers used their annual allocation of service days early in the season and ran out of service days by the end of the season (Associated Press 2023). Many visitors without charter bus service from the cruise ship docks chose to ride the city bus out to the Glacier Spur Road and walk over a mile to and from the bus stop, causing crowding on city buses and displacing local residents (Garret 2023). At the MGRA, known problems persist: bus loading and unloading causes crowded and confusing conditions for visitors; bus drop off near the lakeshore creates air and noise impacts in the locations where visitors most want to enjoy views of the glacier, and infrastructure and interpretive opportunities are inadequate or outdated to provide the recreation and interpretive opportunities that could be possible at the recreation area.

To be responsive to these existing conditions and the purpose of the project, the Forest Service had to analyze how to accommodate projected future visitor use. The number of visitors to the MGRA is projected to continue to increase over the next 30 years as the cruise industry continues to grow in the region and the tourism season expands. The Final EIS relied on a tourism growth rate for the MGRA of 2% annually, an average rate that reflects times of higher growth (e.g., 14% increase from 2018 to 2019) mediated by times of lower or negative growth (e.g., 11% decrease from 2009 to 2010) (Final EIS p. A-3). The 2% annual growth is only an estimate since there is inherent uncertainty with long-term planning horizons. However, it is consistent with tourism projections for the City and Borough of Juneau based on tourism and cruise ship trends, the cruise industry adding earlier- and later-season sailings thereby extending Juneau's tourist season, the projected growth of the tourism industry, projected size of cruise ships, and number of cruise ship berths available in Juneau (FIES p. 1-8, A-3). The 2% growth rate was used to estimate the 15-, 20- and 30-year visitation projections analyzed in action alternatives (Final EIS p. A-3).

To address the projected future visitor use at the MGRA, and the infrastructure needed to accommodate use, Forest Service staff worked with independent contractors to consider infrastructure needs for 15-, 20-, and 30-year projections. The team of architects, landscape architects, engineers, and natural resource specialists found that because facilities must be designed to accommodate visitation during peak hours and peak days (generally defined as days when more than four large cruise ships are in port and more than 10,000 visitors arrive in Juneau), the infrastructure required to accommodate the 15-, 20-, and 30-year projections was largely similar.

I determined the most beneficial approach for the visiting public, local residents, Forest Service staff, and permittees is to approve the maximum capacity and commercial allocations analyzed for this project and require use of an adaptive management plan. This approach allows phased increases in commercial service days based on facility improvements, monitoring information, and demand. My decision to approve the greatest capacity based on 30-year projections (capacities of 999,000 visitors at the Visitor Center Unit and 525,000 visitors at the West Glacier Unit), is responsive to the purpose of the project because it maximizes the investment of this project, provides flexibility to accommodate projected growth or changing conditions, and requires use of the Adaptive Management Plan to promote desired conditions related to positive visitor experiences, conservation of biological and physical resources, and opportunities for local residents. My selection of the higher capacity and commercial use allocations will allow for more management flexibility than other alternatives. For example, visitation may increase at a rate faster than 2% due to increased cruise ship sailings to Juneau, increased capacity of cruise ships arriving in Juneau, a higher proportion of cruise ship passengers choosing to visit the MGRA, or an increase in independent travelers. My decision includes appropriate infrastructure to accommodate this amount of use and positions the Forest Service to be more responsive to visitor demand if components of the adaptive management

plan are met. It also reduces the risk of needing a new analysis to accommodate increases in use in the near future.

My decision will move the MGRA toward desired conditions of having quality opportunities for local and nonlocal visitors to enjoy the recreation area, having new recreation and interpretive experiences available, and maintaining the outstanding resources of the MGRA including scenery, wildlife, and a diversity of habitats. Responsiveness to the purposes of updating infrastructure, creating recreation opportunities, and protecting the unique characteristics and outstanding beauty of the area is included in the Needs sections below.

Need: To continue to provide quality opportunities for all visitors to enjoy the recreation area.

The opportunity for both nonlocal and local visitors to enjoy the MGRA starts with a positive arrival and confidence that basic needs will be met. Currently, there are problems for both types of visitors. For nonlocal visitors, arrivals are loud and congested. Buses drop off visitors at a convenient location, but the location is crowded with others waiting for their departure buses or offloading from the next bus in queue. People worry about how they will find their bus when it's time to depart, and signage and information resources are scarce. When emergencies happen, long lines of buses extending from the drop off point down the Glacier Spur Road make emergency access difficult, slow, and unsafe. For locals, these crowded conditions in the parking lot make access to private vehicle parking and drop-off frustrating and make arrivals by foot or bike unpleasant. After arrival, many of the most popular areas for both nonlocal and local visitors, such as Steep Creek, Photo Point, and Nugget Falls are crowded or hard to access. Crowding is also a concern at some of the best views and at restroom facilities.

My decision addresses the need to continue to provide quality opportunities for all visitors to enjoy the recreation area by addressing many of these persistent problems. First, the decision addresses near-term parking and drop off issues by separating commercial bus drop off from private vehicle parking and drop off areas, and moves the bus drop off location away from the primary viewing areas near the lakeshore. This near-term parking solution will reduce crowding at bus drop off, simplify finding buses for departure, improve emergency access, and reduce frustration for those looking for private vehicle parking. The decision will also improve the opportunities at the arrival space, where a new information kiosk will be available, the number of restrooms will be doubled from 12 to 24, and new wayfinding and interpretive signs will be installed throughout the area as guided by the interpretive plan. New trailheads along the Glacier Spur Road will allow easy access to many popular trails in the Visitor Center and Dredge Lakes units without having to enter the busy main parking lots, improving the opportunities for locals to enjoy these areas.

A new Welcome Center will be constructed at the site of the existing commercial overflow parking lot, along with associated plazas, parking, and access areas. This solution, expected to be implemented as a second phase to infrastructure improvements, will improve the parking and drop off experience by further separating commercial buses from both the primary viewing areas near the lakeshore and private vehicle arrivals. The Welcome Center will provide a boost of interior space with additional restrooms, visitor information, interpretive exhibits, retail space, and offices, and may include food service.

Many of the most popular existing opportunities to enjoy the MGRA will be improved with this decision, benefitting local and nonlocal visitors. The Photo Point trail will be extended into a loop trail to reduce crowding, and a new access point will be established from the lower plaza north of

the historic Visitor Center to minimize bear interactions and crowding at the intersection with Nugget Falls trail. The Nugget Falls trail will also be extended into a loop trail to reduce crowding, improve safety, regulate visitor flow, and better accommodate high levels of use. The Steep Creek trail will be redesigned and extended to provide a new opportunity that will allow arriving visitors to enjoy a stroll along the Creek to the lakeshore. Visitors with limited mobility will have several accessible trails available and an electric shuttle available between the Welcome Center and Zig Zag Pond. The Steep Creek trail will no longer need to be closed during parts of the season, keeping this opportunity available to all throughout the summer including during sockeye salmon spawning.

I considered many options for parking, Welcome Center location, and the opportunities presented to visitors upon arrival. All of the alternatives for these project components presented trade-offs, as described in the Final EIS. My decision best meets the need by balancing the long-term demands of a high number of visitors with the benefits of maintaining the natural character of the MGRA near the lakeshore, minimizing impacts to natural resources, and providing a more immersive visitor experience.

Need: To provide new recreation and interpretation experiences that emphasize the area's outstanding scenery and wildlife resources even as the glacier recedes out of view of the existing Visitor Center.

New recreation and interpretation experiences at the MGRA will keep the area relevant and exciting. Although Mendenhall Glacier is what most visitors come to see, the MGRA offers other outstanding scenery and wildlife viewing opportunities. As the glacier recedes out of view, other aspects of the MGRA are expected to contribute more to recreation experiences. My decision takes a moderate approach to provide new experiences, with an emphasis on trails and interpretation.

I considered many options for additional recreation experiences, as described in the alternatives in the Final EIS. Even more options were considered during the Master Planning effort. These options included aerial trams to the top of the glacier, a remote glacier visitor area near the base of the glacier, and motorized boat tours taking visitors from the Visitor Center out to the glacier. All of these possibilities would have provided improved access as the glacier recedes and could have been unique experiences for those that took advantage of them, but also presented trade-offs with infrastructure development and impacts to natural resources. I determined that at this time, it is most important to address crowding, drop off, restroom availability, and necessary improvements to existing infrastructure. My decision acknowledges the changing conditions as the glacier continues to recede and allows the Forest Service to observe how well a smaller increase in infrastructure will accommodate visitation before taking on more impactful infrastructure projects.

Improvements to the historic Visitor Center are needed to update and improve interpretive exhibits, better accommodate crowds, and efficiently use staff space. My decision will allow exciting renovations to the historic Visitor Center; create a modern experience for those that visit; improve Forest Service staff ability to educate visitors from around the world about glaciers, glacial retreat, and implications of climate change; and upgrade the utilities and energy efficiency of the building.

I discussed improved opportunities at Photo Point, Nugget Falls, and Steep Creek above. My decision also creates many new recreational opportunities at the MGRA for both locals and nonlocals, including additional access to hiking, Nordic skiing, mountain biking, and camping.

The Lakeshore trail creates a new walking and biking opportunity that connects the east and west sides of the MGRA. This beautiful route will be available for commercial use (e.g., nonmotorized

bike tours) and creates a safe new connection for Juneau locals and families. The Lakeshore Trail, as well as the West Glacier High and Low Loop trails, will enhance Nordic ski opportunities, adding significant distance to the popular groomed trail system that will be of particular value during seasons when Mendenhall Lake doesn't freeze adequately for skiing. The West Glacier Spur trail will create a long loop opportunity for hikers and improve safety along a currently unimproved trail that provides the only trail access to the base of the glacier. Additional parking across from Skater's cabin will provide improved opportunities to enjoy the MGRA, especially on sunny days or during Nordic ski season, when parking in the West Glacier unit is in high demand by locals. Public use cabins at the Mendenhall Campground will offer year-round opportunities to get outside. Multi-use trails in the Dredge Lakes and West Glacier Units will provide a more diverse trail network that will appeal to locals and independent visitors.

My decision for new recreation and interpretive experiences best meets the need by improving current infrastructure resources, adding new experiences, and allowing time to observe the positive and negative impacts of those projects before pursuing additional infrastructure.

Need: To meet the demand of the visitor industry and support the economy of Southeast Alaska.

The MGRA currently lacks both the infrastructure to support visitor industry demand and the permitting capacity to authorize use. This decision addresses both components by developing new infrastructure to accommodate visitors and by increasing commercial use allocations with an adaptive management approach. I reviewed the capacity analysis as well as the analysis of recreation and visitor experience to determine how the infrastructure approved in this decision would allow for projected increases in visitation.

As described above under "Purpose," infrastructure proposals for alternatives developed to meet 15, 20, and 30-year visitor growth projections were largely similar because of the requirements for peak visitation hours and days. While peak hours and peak days are not expected to change substantially from the current condition, more peak hours and more peak days are expected to occur in future years (Final EIS p. A-4) based on projected cruise ship trends and growth of the tourism industry. All the infrastructure at the MGRA contributes to visitor capacity: this includes parking lots, bathrooms, covered structures, trailheads and trails, the historic Visitor Center, and the new Welcome Center. However, those alternatives that included a 30-year growth projection in the Final EIS all included capacity provided by boat tours and the Remote Glacier Visitor Area (Final EIS p. A-4). Because this decision adopts the visitor capacity and commercial allocations for 30-year growth projections but does not include the Remote Glacier Visitor Area, I reviewed the recreation and visitor experience analysis and consulted with the project design and architecture team to determine if the approved infrastructure would be adequate to support demand.

The analysis of recreation and visitor experience describes the unique opportunity that the Remote Glacier Area would have provided and that this area would have spread visitors out from concentrated use near the historic Visitor Center. However, it also describes the estimated time those visitors would spend at the MGRA. Visitors are currently estimated to spend about 2 hours visiting the MGRA, but use of a motorized boat service and the Remote Glacier Area would have extended the estimated visit length to closer to 4 hours. Boat service would bring more visitors to trails and facilities in the West Glacier Unit, but because access to those boat services would be via the Visitor Center Unit, those visitors would still use Visitor Center unit facilities, including parking, bathrooms, trails, the historic Visitor Center, and the new Welcome Center (Final EIS p. 3-80). With regard to overall capacity in these alternatives, the benefit of spreading people out to the Remote

Glacier Area would largely be offset by those visitors extending the duration of their stay at the MGRA. Further consultation with the architecture and design team revealed that much of the infrastructure capacity needed at the MGRA would be achieved through parking improvements and restroom availability. Thus, my decision not to pursue the Remote Glacier Area and motorized boat service is not expected to impact the infrastructure necessary to meet visitor capacity and commercial allocations based on 30-year growth projections.

Infrastructure improvements to support visitor capacity and commercial allocations for this decision will be achieved through the existing historic Visitor Center, additional parking, additional restrooms at the Lakeshore plaza, improved trails, and restrooms and other amenities in the Welcome Center (Final EIS p. A-4). Use of the Adaptive Management Plan, including monitoring of visitor experience, impacts to biological and physical resources, and local use, will provide data to assess the functionality of infrastructure in relation to number of visitors and to inform decisionmaking about if and when to increase permitted service days.

My decision best meets this need by estimating high demand for visitor services in the future, building facilities to accommodate projected use, and managing use through the Adaptive Management Plan. The decision will allow increased service days for outfitter, guide, and transportation permits, thus benefitting private business owners and supporting the economy of southeast Alaska. My decision will also enable continued collaboration with CBJ to seek community solutions for the benefits and challenges of tourism management. As part of Implementation Requirements, administration of special use permits must be adjusted to address timing and crowding issues during the primary use season, and permittees must be required to report their use monthly, or more frequently, so that permit administrators can monitor use. With these adjustments, I will consider if it is appropriate to allow an increase in service days for 2024 based on the extended primary use season.

Need: To protect the area from environmental impacts associated with increased visitation.

Environmental impacts associated with increased visitation were analyzed as seven different issues in the Final EIS. My rationale associated with this need and the seven issues is provided in the sections below.

How Issues Were Considered and Addressed

Issues were considered and analyzed in detail in the Final EIS Chapter 3, Section 3.6 to 3.12. For detailed considerations of how the project would impact these resources, please refer to the Final EIS.

Issue 1: Wildlife and Vegetation

The Final EIS provides a full analysis of impacts to sensitive wildlife species, migratory birds, black bears, and other wildlife (Final EIS p. 3-27 to 3-46).

Issue Statement: Proposed facility developments, increased visitor use, and changes in visitor distribution could adversely impact wildlife (particularly bears and migratory birds), reduce or alter habitat, and increase the potential for wildlife-human interactions.

This decision balances the need to reduce impacts on black bears in the MGRA while maintaining the visitor experience in the area, resulting in moderate effects to bears (Final EIS p. 3-42). New facilities and trails will cause localized habitat fragmentation within high value areas, and more visitors each year will increase bear-human interactions in the MGRA. However, I made decisions on some project components specifically to benefit bears, and included forest orders and mitigation measures in the decision. The lakeshore area along Mendenhall Lake between Photo Point and the Lakeshore Trail, including the outlet of Steep Creek, will remain mostly undeveloped specifically to allow bear movement. (The section of Steep Creek trail located closest to the lakeshore in the Draft ROD has been dropped.) The Photo Point trailhead will be moved to the lower plaza to eliminate the existing intersection with Nugget Falls Trail, where bear encounters are common. Steep Creek Trail expansion will move the full trail and boardwalk to the east side of Steep Creek, providing bears more space for fishing and foraging on the west side of the creek and reducing or eliminating the need for seasonal trail closures. The Steep Creek crossing under Glacier Spur Road will be for wildlife only to provide additional areas for bears to traverse along the creek unencumbered. “No food” areas will continue to be enforced in the Visitor Center unit, and existing bear management guidelines will be updated to reflect new facilities and changes to operational management (see Project Design Elements and Mitigation). Monitoring of bear-human interactions is included in the Adaptive Management Plan.

The Final EIS discloses that this project will have minor to moderate impacts to migratory birds including raptors, seabirds, and shorebirds, primarily as a result of facility construction, trail expansion, and increased visitor use. Although there will be some impacts to birds, I made several decisions on project components specifically to reduce and minimize those impacts. My decision to not include boats, boat docks, and associated infrastructure greatly reduces impacts to shoreline habitat near the visitor center, at the West Glacier area, and at the proposed remote glacier area, where Arctic terns are known to nest. My decision to have the Lakeshore Trail alignment weave in and out of shoreline and forested habitat reduces impacts to nesting shorebirds, seabirds, and waterbirds, and preserves some parts of the shoreline for birdwatching. While my decision to locate the Welcome Center at the commercial overflow parking lot will impact forested and wetland habitats, it greatly reduces impacts to shoreline habitat near the historic Visitor Center, an area that I have decided to maintain in a more natural condition. A viewing blind, included in the Dipper Falls Viewing Area, will reduce impacts from increased visitation on Steep Creek Trail to land birds that forage at Dipper Falls.

Photo Point Loop, Nugget Falls Loop, and West Glacier Spur Trail all come within 820 feet (250 meters) of seabird colonies and shorebird nesting areas. The Forest Plan includes guidelines to regulate human use to maintain a 250-meter, no-disturbance distance from seabird colonies on upland habitats (Forest Plan p. 4-89) and to locate facilities and concentrated human activities as far from known waterfowl and shorebird concentration and nesting areas as feasible. These trails and trail extensions will be designed to keep visitors on trail and away from nesting areas and will have signage to educate and inform visitors about threats to nesting birds. All three of these trails already exist as formal trails or well-used footpaths. Although use will increase in the future, trail improvements and interpretive signs will do a better job of keeping people from wandering off trail toward nesting areas compared to no action. Impacts to nesting shorebirds and seabirds will be

monitored as part of the Adaptive Management Plan. If humans or dogs are causing harm to nesting areas, then seasonal closures, improved barriers, increased education and signage, or greater enforcement of leash regulations and closure orders may be necessary.

The Queen Charlotte goshawk is the only wildlife species on the Region 10 Regional Forester's sensitive species list expected in the project area. The Final EIS discloses minor effects to Queen Charlotte goshawk due to direct and intermittent habitat disturbance primarily from increased trail use in the West Glacier and Dredge Lakes units. Although this decision includes an expanded multi-use trail system in the West Glacier and Dredge Lakes units, I have decided not to designate user-created trails in close proximity to goshawk nests as Forest Service trails, and I have chosen not to allow new commercial use in the West Glacier and Dredge Lakes units where goshawks are known to nest.

Issue Statement: Proposed activities could introduce or spread invasive species such as reed canarygrass, impacting native plants and watershed condition, particularly within riparian areas and around the Dredge Lakes Unit.

This decision is expected to have moderate impacts related to introduction or spread of invasive species. Short-term vegetation disturbances from construction and anticipated visitor use could cause existing invasive species infestations to expand and new infestations to emerge within the MGRA (Final EIS p. 3-47). To minimize the risk of spreading invasive species, Forest Service best management practices (BMPs) as outlined in the Guidance for Invasive Plant Management Program on the Tongass National Forest are required during implementation of this decision (see Project Design Elements and Mitigation). These include treating noxious weeds and priority invasive plants along access routes prior to initiating construction activities and monitoring treatment areas for potential spread or establishment of invasive species. Invasive species monitoring is included in the Adaptive Management Plan.

Issue Statement: The proposed improvements could damage successional plant life near the glacier, thereby reducing diversity and slowing the natural succession pathways.

There will be minor impacts to successional plant life and sensitive plant habitat as a result new facility development (Final EIS p. 3-49). The decision not to include motorized boats and the Remote Glacier Visitor Area greatly reduces impacts to plant life near the glacier; and the final Lakeshore Trail alignment also reduces impacts on the south shore of Mendenhall Lake, compared to the proposed action.

Issue 2: Recreation and Visitor Experience

The Final EIS provides a full analysis of impacts to recreation and visitor experience, including social encounters, visual impacts, and noise impacts (Final EIS p. 3-53 to 3-100).

Issue Statement: Proposed increases in visitor capacity and commercial use, changes in management unit boundaries, and the addition of motorized boats on Mendenhall Lake could adversely impact visitor experience by creating increasing encounters between groups and causing visual and noise impacts.

Encounters

My decision to increase visitor capacity and commercial use will cause an increase in social encounters in some areas, but is intended to improve the overall visitor experience and reduce crowding. Omitting the motorized boats, docks, and the Remote Glacier Visitor Area from the decision greatly reduces impacts from social encounters near the glacier in the West Glacier Unit and at the proposed Visitor Center dock location. Parking lot improvements and changes to bus drop-off locations will reduce crowing during off-loading and boarding of buses, improving the visitor experience both in parking lots and by the lakeshore. The Welcome Center located at the commercial overflow bus lot will draw people to a new area and spread visitors out over a larger area. Glacier Spur Road trailheads will offer a separate parking opportunity for those that don't need to enter the main lot, creating a less crowded experience for trail users. The area surrounding the Lakeshore Trail is currently in the Dredge Lakes Unit and will be changed to become part of the Visitor Center Unit. This trail is expected to have commercial use for non-motorized biking tours; limiting commercial tours to this area rather than allowing commercial use of the Dredge Lakes Outer Loop will maintain a noncommercial area in the heart of Dredge Lakes. The pedestrian bridge over Mendenhall River and the Lakeshore Trail will introduce more people, including commercial tours, to an area that is currently undeveloped, but will allow visitors to connect to trails throughout the MGRA regardless of the point of access.

As part of the Adaptive Management Plan, crowding will be monitored at bathrooms and at the Photo Point viewing area, one of the most popular scenic view locations. If monitoring exceeds thresholds identified in the Adaptive Management Plan or if results yield concerns related to crowding, concerns must be addressed before increasing commercial service days. Encounters monitoring will also continue on the East Glacier, Powerline, Moraine Ecology, Trail of Time, and Lakeshore Trails. If monitoring data show that encounter levels for the existing ROS class, "Roaded Natural" are being exceeded, the Forest will take appropriate action to either restrict use or change the ROS class for the affected trail(s) at that time.

Changes to the Nugget Falls Trails are designed to accommodate the current high level of use on this trail and improve the experience for hikers. The Nugget Falls Trail, on non-crowded days, is a calm walk in the woods, and the intent is to provide that experience to users even on high-use days. By adding it to the NFS trail system and improving the existing footpath along the lakeshore adjacent to Nugget Falls Trail, users will be able to experience both the walk in the woods and the lakeshore walk without excessive crowding. While the footpath currently provides a nice opportunity for those that want a less crowded experience and is often used by locals, the unimproved trail and small stream crossings present hazards to many visitors, especially those who are unprepared to walk on uneven terrain and across rock stepping stones. Trips, falls, and associated injuries are common in this area. Improvements to the lakeshore footpath will clearly identify and widen the tread and provide a smoother walking surface and safer crossings over streams. Consideration was given to expanding the width of the existing Nugget Falls trail to eliminate the need to for the lakeshore side of the loop; however, this was not carried forward for full analysis because of the need for blasting through pinch points; the wide, road-like trail that would result; and the continued presence of the unimproved lakeshore side of the loop that invites unprepared visitors.

Visual Impacts

In the Mendenhall project analysis, scenic resources were evaluated from the priority travel routes and use areas identified in the Forest Plan, as well as from key viewpoints in the MGRA. These include locations with views of the lake, mountains, and glacier from Glacier Spur Road, the Visitor Center, Skaters' Cabin, Photo Point Trail, Moraine Ecology Trail, Nugget Falls Trail, Nugget Falls, East Glacier Trail, West Glacier Trail, and points along the shore of Mendenhall Lake. Most views from these viewpoints are of middleground and background views of the lake and glacier, for which a Scenic Integrity Objective of "high" applies. In contrast, the developed recreation portions of the MGRA (primarily within the Visitor Center Unit), when viewed from the Nugget Falls Trail or West Glacier Trail, are in the foreground, middleground, or background, for which a Scenic Integrity Objective of "low" or "moderate" applies. Visual impacts from each of the project components were evaluated from these key viewpoints. Appendix C to the FEIS, the Visual Impact Assessment, describes the causes of major visual impacts for each alternative. None of the project components that would have caused a major effect to scenic integrity are included in this decision. Those components that would have had major effects were:

- Parking and Access Expansion would have a major effect under Alternative 2 as viewed from the Steep Creek Trail because this alternative has a significantly larger parking lot presence and fills Zig Zag Pond completely. This major effect does not occur in other alternatives or in this decision.
- The Welcome Center Complex would have a major effect under Alternative 2 as viewed from the Steep Creek Trail because this alternative fills Zig Zag Pond completely. This major effect does not occur in other alternatives or in this decision.
- The Lakeshore Trail would have a major effect under Alternative 2 as viewed from the Steep Creek Trail. In this alternative, the Lakeshore Trail extends in front of and past the proposed Welcome Center, and would be highly visible in views toward the glacier across beaver ponds. This major effect does not occur in other alternatives or in this decision.
- Boat docks would have a major effect under Alternative 2 as viewed from the West Glacier Trail, Nugget Falls Trail, Photo Point Trail, and Moraine Ecology Trail. Boat docks would have a major effect under Alternative 3 as viewed from the Historic Visitor Center, Skaters' Cabin, Nugget Falls Trail, Photo Point Trail, and Moraine Ecology Trail. These major effects do not occur in alternatives without boats or in this decision.
- Motorized boats would have a major effect under Alternatives 2, 3, 5, and 7 as viewed from the Historic Visitors Center and Photo Point Trail (FEIS p. 3-83). These major effects do not occur in alternatives without boats or in this decision.

This decision will not change scenic integrity objectives in the MGRA and is consistent with Forest Plan direction for scenery.

Noise Impacts

Since idling buses are a prominent source of noise in the Visitor Center Unit, this decision includes more efficient routing patterns to decrease the amount of time buses remain waiting in a line to pick up or drop off passengers and more dedicated bus parking spaces available to further reduce idling while buses wait to reach the designated location for loading and unloading. Drivers would park and shut down engines while waiting to reduce idling noise and parking spots are oriented to minimize reversing alarms, additionally minimizing noise. An increased number of available parking spaces and parking area design separation of private cars and rideshares from bus arrivals also limit the

time buses and cars need to queue up along Glacier Spur Road and the time private cars drive around seeking a parking spot. Once the bus drop off area is moved to the new Welcome Center complex at the commercial overflow low, noise will be even less of an impact along the lakeshore and at popular viewing areas.

Daily background noise may gradually increase in the high traffic areas of the MGRA as visitation and commercial use allocations increase, but this increase is expected to be less noticeable in areas that already experience noise during the commercial use season. Facilities selected for construction will help disperse visitors and keep conversational or crowd noise lower than would be anticipated if no additional facilities were constructed. Some new facilities to improve visitor experiences in the decision (e.g., Lakeshore Trail and West Glacier Multi-Use Trails) could introduce noise to these traditionally quieter spaces that do not experience much noise from human sources.

Noise impacts from this decision are expected to be minor: the decision does not allow motorized boats and does not increase or change helicopter tours or operations over the MGRA. The cumulative effects analysis area for noise impacts did not extend outside the MGRA, but the cumulative effects analysis acknowledges that if helicopter tours increase in number or routes change, there could be an increase in cumulative operational noise at the MGRA (Final EIS page 3-100). Although analyzed to estimate traffic flow and impacts to resident quality of life, traffic volumes are expected to increase significantly on busy days at full commercial capacity (Final EIS page 3-201); this indicates that noise impacts are also likely outside of the MGRA.

Issue 3: Watersheds, Wetlands, and Aquatic Habitat

The Final EIS provides a full analysis of impacts to watersheds, wetlands, and aquatic habitat (Final EIS p. 3-101 to 3-139).

Issue Statement: Proposed developments including parking lot expansion, trail expansion and construction, bridge construction, Steep Creek realignment and restoration, and the addition of docks on Mendenhall Lake could impact wetlands, aquatic habitat, and water quality.

Wetlands and Waterbodies

Since the MGRA contains an extensive network of non-tidal wetlands, including lakes and ponds, providing visitor infrastructure to meet anticipated visitor demand will impact some wetlands (Figure 10, Table 3). Project components impact riverine, palustrine, emergent, scrub-shrub, forested, and lacustrine wetlands throughout various parts of the MGRA to some extent. The expanded parking area was designed to minimize placement of fill in Zig Zag Pond which is seasonally connected to Steep Creek and provides fish rearing habitat. To expand visitor facilities in the Visitor Center Unit, there are some permanent impacts to wetlands near Mendenhall Lake and the mouth of Steep Creek as well as to forested wetlands near the commercial overflow bus lot.

Some aspects of the Selected Alternative are beneficial for wetlands. Steep Creek Habitat Restoration restores important fish habitat and fish passage within Steep Creek, in addition to providing connection to and enlargement of Backside Pond. Trail proposals and expanded trailhead parking impact wetlands, but in the long term, expanding designated trails could help to retain wetland integrity by decreasing incidences of user-created trails within the MGRA.

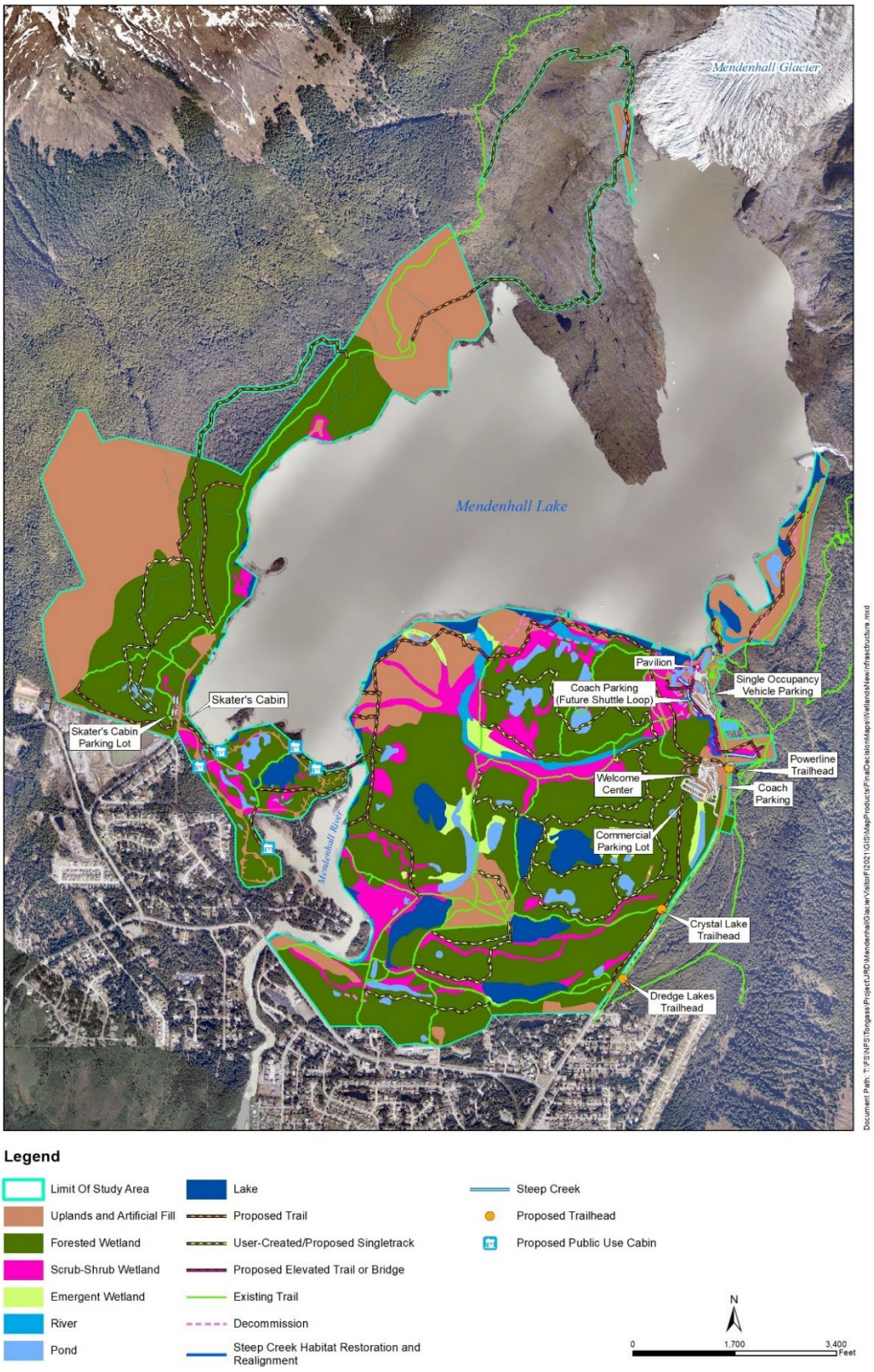

Figure 10. Infrastructure overlay with MGRA vegetation and wetland types.

Table 3. Area of wetlands and waters impacts by type, square feet (acres).

Project Component	Rivers	Ponds	Emergent	Scrub-Shrub	Forested	Lake	Total [b] Sq ft (acres)
Visitor Center Area	4,650	6,000	0	0	7,650	0	18,300 (0.42)
Commercial Overflow Area	0	3,280	3,600	0	69,250	0	76,130 (1.75)
Visitor Center Improvements	0	0	0	0	0	0	0
Glacier Spur Road Trailheads	0	0	2,000	0	26,000	0	28,000 (0.64)
Lakeshore Trail	380	720	1,720	30,650	22,960	8,080	64,520 (1.48)
Campground Changes	0	0	0	8,300	41,490	200	49,990 (1.15)
Dredge Lakes Outer Loop	100	2,150	810	15,950	87,120	0	106,140 (2.44)
Public Use Cabins	0	0	0	0	4,250	0	4,250 (0.10)
Nugget Falls Trail Expansion	530.00	0	0	0	0	2,300	2,830 (0.06)
Steep Creek Habitat Restoration	0c	0	0	3,500.0	25,000	0	28,500 (0.65)
Steep Creek Trail	700	40	0	650	0	0	1,390 (0.03)
Dredge Lakes Multi-Use Trails	20	20	0	1,860	25,430	0	27,340 (0.63)
West Glacier Unit Trails	2,600	2,000	0	500	160,890	0	165,990 (3.81)
Total[b] sq ft (acres)	8,980 (0.21)	14,200 (0.33)	8,140 (0.19)	61,420 (0.41)	470,050 (10.79)	10,580 (0.24)	573,377 (13.16)

[a] Source: ABR 2021a: wetlands types included in categories: Rivers (R2UBH, R3UBH, R2USC); Ponds (PUBH, PUBHb); Emergent (PEM1F, PEM2E, PEM1E); Scrub-Shrub (PEM1/SS1E, PSS1E, PSS1C, PSS1B); Forested (PFO4B); Lake (L1UBH, L2USC2C).

[b] Totals may not add up because of independent rounding.

[c] Steep Creek impacts to the river wetlands type are essentially null since the creek is being relocated, not removed.

Essential Fish Habitat

Potential effects to essential fish habitat (EFH) associated with the project were considered by NOAA Fisheries as required by Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act. NOAA Fisheries is also a cooperating agency on this project and provided input on project design and analysis that was incorporated at various stages of the project.

Under the Selected Alternative, EFH and EFH-managed species have the potential to be affected by construction activities occurring within aquatic environments, such as pile driving, dredging, and discharging fill, and by certain project components themselves, such as overwater structures from bridges and trails. Omitting motorized boats and docks from the Selected Alternative reduces the potential impacts to EFH and EFH-managed species.

The Forest Service has determined that the Mendenhall Glacier Visitor Facility Improvements Project may cause permanent and adverse effects to EFH, and NOAA Fisheries agrees with this determination (Solstice 2022; see Appendix F of the Final EIS). Adverse effects are minimized through implementation of BMPs and conservation measures and/or compensated appropriately during the permitting process. If applicable, mitigation for any in-water and wetlands fill will involve concurrence with ADF&G and the Army Corps of Engineers (Corps).

Riparian Management Areas and Stream Crossings

Developing additional visitor infrastructure in the MGRA, as outlined in the Selected Alternative, will incur some localized direct impacts to RMAs and result in additional stream crossings. Detailed impacts to RMAs are provided by RMA stream class and stream crossings are quantified by stream class in Appendix E of the Final EIS.

Water Quality

Within the MGRA, vehicle traffic and impervious surfaces pose the most prominent risk to water quality under the Selected Alternative. Water quality conditions suitable for salmon in Steep Creek will be maintained under the Selected Alternative with a stormwater management system for the Welcome Center Plaza and parking area, including vegetated swales, bioretention areas, and oil-grit separators designed to achieve an 80 percent reduction in average annual total suspended solids (TSS) prior to discharge, as required by Alaska Department of Environmental Conservation (ADEC). Additionally, the Forest Service will develop a water quality monitoring program with ADEC to ensure that installed stormwater runoff control structures are working effectively and that water quality in Steep Creek is not impacted.

Existing vegetated buffers will be maintained to the extent feasible along pervious surfaces associated with trails and other parking areas outside of the Welcome Center Plaza and main parking lot to protect wetland and water quality and reduce impacts from sediment or contaminant runoff from impervious surfaces. Omitting motorized boats, docks, and the Remote Glacier Visitor Area reduces impacts to water quality in Mendenhall Lake that would have been incurred during dock construction and during project operation if there had been any incidents involving hazardous materials (i.e., battery acid, fuel, and sewage).

Flood Events and Floodplains

Parts of the MGRA are within mapped and modelled 1-percent Annual Exceedance Probability (AEP) areas, and some components of the Selected Alternative are placed within these areas. A 400-foot section of the Moose Lake Connector Trail (part of Dredge Lakes Outer Loop) falls within the 1-percent AEP mapped by the FEMA and will require a CBJ flood hazard development permit and associated analysis to demonstrate that the trail would not cause a rise in the published base flood elevation. Trails within modeled 1-percent AEP areas, such as parts of the Lakeshore Trail, will be designed to withstand flood conditions with drainage culverts and other design features. Bridges will also be designed to withstand flood conditions. Additionally, the improved crossing at Glacier Spur Road will increase the hydrologic capacity of the creek enabling the expanded parking areas to be located outside of the modeled Steep Creek 1-percent AEP floodplain.

Flooding in the MGRA can also occur from beaver activity. For all trails, especially those in the Dredge Lakes Unit where beavers are most active, the Forest Service will continue to mitigate beaver dam development, including incorporation of revised beaver management guidelines at the time of project implementation, to reduce the risk of flooding or destroying proposed facilities (see Project Design Elements and Mitigation section).

Issue 4: Heritage Resources

The Final EIS provides a full analysis of impacts to heritage resources (Final EIS p. 3-140 to 3-153).

Issue Statement: Proposed developments could impact the MGRA's potentially eligible historic resources, including the historic Visitor Center and historic trails, and an Alaska Native tribe's culturally important glacier.

There are numerous heritage resources at the MGRA, including sites listed under the Alaska Heritage Resource Survey and eligible for listing on the National Register of Historic Places (NRHP) as well as the Mendenhall Glacier as a longstanding defining feature of the cultural landscape of the *Aak'w Kwaan*. Historic sites are vulnerable to visitor-induced damage as well as visual and setting impacts as a result of increased capacity, visitation, and accessibility, particularly in the Visitor Center Unit, where the increased visitation would be the most notable (Final EIS p. 3-148 to 3-152). Visual and setting impacts are greatly reduced in this decision compared to the proposed action since motorized boats, boat docks, and the Remote Glacier Visitor Area will not be present, and the Welcome Center will be located away from any known cultural sites. As part of the project-specific programmatic agreement with the Alaska State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation the Forest Service is required to ensure adequate survey for heritage resources and consult with the SHPO before any project implementation or ground-disturbing activity. The programmatic agreement also requires the Forest Service to evaluate the MGRA as a cultural landscape and to consult with Tribes on this determination (see Implementation Requirements and Attachment A).

Issue 5: Air Quality

The Final EIS provides a full analysis of impacts to air quality (Final EIS p. 3-154 to 3-168).

Issue Statement: Proposed increase in number of tour buses and the addition of motorized boats at the MGRA could contribute to periods of poor air quality in the Mendenhall Valley.

Increasing commercial visitor capacity allocations and special use permit service days, specifically those that allow gas and diesel-powered transportation vehicles into the MGRA, will have minor effects on air quality (Final EIS p. 3-161). Although overall contributions to particulate matter will increase with visitation if buses continue to run on gas and diesel fuel, parking area design improvements are expected to reduce the actual and perceived local air quality impacts from vehicle exhaust. Improved parking area design focuses on improving traffic flow and decreasing delays caused by a full parking area combined with visitors getting on and off tour buses. Buses will be able to park in designated spaces and shut off engines while loading and unloading passengers, rather than lining up on the roadway. More available parking along Glacier Spur Road, the pedestrian bridge over Mendenhall River, and expanded parking at Skater's Cabin will greatly decrease traffic congestion at the main parking lots and the potential for vehicle delays or backups along Glacier Spur Road. The MGRA is expected to maintain a "good" air quality index even on the busiest days.

Issue 6: Climate Change and Greenhouse Gas Emissions

The Final EIS provides a full analysis of impacts to climate change and greenhouse gas emissions (Final EIS p. 3-169 to 3-192).

Issue Statement: Projected changes in climate and continued retreat of the Mendenhall Glacier may have effects on the proposed project and the MGRA.

Local effects of climate change at the MGRA include an increased rate of glacial recession, extreme precipitation events, landslides, and glacial lake outbursts (Final EIS p. 3-712). My decision acknowledges the changing conditions as the glacier continues to recede, and allows the Forest Service to observe how well a smaller increase in infrastructure will accommodate visitation before taking on more impactful infrastructure projects. A requirement to confirm that design specifications include impacts from glacial-outburst flood events is included in the Integrated Resource Design and Implementation Plan.

Issue Statement: Greenhouse gas emissions from a greater number of tour buses and the addition of gas-powered boats on the lake could hasten the effects of climate change.

Greenhouse gas emissions were considered during alternative development and decisionmaking. I decided not to allow gas-powered boats on the lake, but in the coming years, increased visitation and a greater number of tour buses are expected to increase greenhouse gas emissions at the MGRA. The increase in transportation services is expected to increase transportation CO_2, for example, by approximately 85 percent (FIES p. 3-176).

Although I have chosen not to require electric vehicles in permitting commercial service days, aspects of my decision incentivize increased electric vehicle traffic. Vehicle chargers will be provided on both sides of the main parking lot and in the commercial overflow lot. If CBJ implemented an electric circulator shuttle system from downtown Juneau, my decision would be compatible with implementing a circulator drop-off at either Zig Zag Pond or the remote Welcome Center Plaza. The Adaptive Management Plan further incentivizes electric vehicles by giving preference to commercial service providers that use electric vehicles to transport clients (Attachment C). Additionally, MGRA facilities are powered by hydropower provided by the local utility which has minimal greenhouse gas emissions. The Welcome Center and renovations to the historic Visitor Center are being designed to achieve Leadership in Energy and Environmental Design (LEED) Silver Certification. Currently, the buildings are heated by heating oil; however, the Welcome Center will use a ground source heat pump system to further reduce greenhouse gas emissions.

Issue 7: Socioeconomics and Environmental Justice

The Final EIS provides a full analysis of socioeconomics and environmental justice (Final EIS p. 3-193 to 3-206).

Issue Statement: Proposed developments could impact minority and/or low-income populations at a higher level than the general public.

This decision will not incur any disproportionately high and adverse human health or environmental effects to minority or low-income populations. As addressed in Section 3.12.6 of the Final EIS, there are no existing populations in the vicinity of the project area identified where either (a) the minority population of the area exceeds 50 percent or is otherwise meaningfully greater than the percentage in Juneau or the State of Alaska; or (b) a significant portion of the population in the study area is identified as low income.

Issue Statement: Proposed activities may impede local traffic flows and impact resident quality of life.

As facility improvements are completed at the MGRA; independent travel continues to grow; and additional service days are allotted to commercial outfitter, guide, and transportation providers, there will be increases in traffic volume to the MGRA. Traffic increases will be felt most acutely by residents in the Thunder Mountain area directly adjacent to Glacier Spur Road. I considered the trade-offs among alternatives that limit visitation and traffic flow to the MGRA to varying degrees, recognizing the interactions this decision will have with other aspects of tourism management in Juneau. I have decided to increase commercial visitation according to the Adaptive Management Plan, which will allow time between increases to monitor and adjust but will maintain the MGRA as an important destination for Juneau visitors and residents.

Issue Statement: The Forest Service has a duty to help people share and enjoy the forest that it might not be meeting at the MGRA due to crowded conditions and limited infrastructure.

This decision is intended to address crowded conditions and resulting challenges from limited infrastructure to improve the experience of both local and out of town visitors to the MGRA. Although there are some impacts to local use and resident quality of life expected from the decision, various project components benefit local users. Locals who generally avoid the MGRA during the summer due to crowds may start to visit because of added amenities that will improve their experience, like improved parking, additional restroom facilities, an upgraded trail network, Glacier Spur Road Trailheads, and improved traffic flow. The improved trail network, overall connectivity, and expanded parking at prominent local user areas (e.g., Skater's Cabin parking and Glacier Spur Road Trailheads) benefit the Juneau community year-round. This decision will improve mountain bike trails during the summer months and expand Nordic skiing opportunities in the winter. Year-round public use cabins added to the existing Mendenhall Campground provide additional recreation opportunities without noticeably increasing traffic.

New and improved trails create more opportunities for additional guided hiking and biking tours, which could support additional jobs and local revenue and lead to more varied guiding opportunities and associated fees. The addition of commercial outfitting and guiding opportunities responds to the need to meet the demand of the visitor industry in Southeast Alaska and the primary purpose of the MGRA, while still providing opportunities for public study, use, and enjoyment that are suitable to, and do not compromise, the MGRA's characteristics and its draw as a tourism destination.

Alternatives

Environmentally Preferred Alternative

I have identified the No Action Alternative as the environmentally preferable alternative (based on definition at 36 CFR 220.3). Under the No Action Alternative, the Forest Service would not complete any construction at the MGRA or increase commercial allocations through special use permits. Some environmental impacts would be incurred under the No Action Alternative because the existing visitor facilities do not meet needs of current visitor numbers. For example, vegetation and water resources are affected by visitors venturing off designated trails. The No Action Alternative would result in minimal additional project-related environmental disturbance as compared to other action alternatives and is therefore the environmentally preferable alternative. See Chapter 3 of the Final EIS for analysis of resource impacts from the No Action Alternative.

Alternatives Considered in Detail

Alternative 1 is the No Action alternative. Alternative 2 represents the proposed action presented to the public during project scoping. Alternatives 3 and 4 were developed in response to issues identified during scoping and were presented in the Draft EIS. Alternatives 5,6, and 7 were developed in response to comments on the Draft EIS and were presented in the Supplemental Draft EIS.

Alternative 1

Under Alternative 1, none of the activities proposed in the Final EIS would be constructed or implemented. The No Action Alternative is defined as a continuation of current operation and maintenance activities. Under the No Action Alternative, there would be no new infrastructure or improvements to existing infrastructure, no new recreation or wildlife opportunities offered at the MGRA, and no changes to capacity or commercial use management actions.

Alternative 2

Alternative 2 was presented as the proposed action during scoping. It includes expansion of the two main parking areas nearest the existing Visitor Center, requiring fill of Zig Zag pond; reconfiguration and paving of the commercial bus parking lot and addition of a maintenance building; replacement of a covered outdoor pavilion and parking area shelter with a new 14,000 square-foot Welcome Center, outdoor plaza with amphitheater, interpretive and wayfinding signs, and waiting shelters; renovations to the historic Visitor Center; improvements to the existing Steep Creek, Nugget Falls, and Photo Point Trails; installation of three new paved trailheads along the Glacier Spur Road; creation of a new 2.2 mile paved Lakeshore Trail along the south shore of Mendenhall Lake from the Welcome Center Complex to the Mendenhall Campground with a bridge across the Mendenhall River; creation of a new day use area at the Mendenhall Campground; construction of up to five new public use rental cabins at the Mendenhall Campground; realignment and restoration of about 1,500 feet of Steep Creek and replacement of perched culverts with a bridge at the Glacier Spur Road; addition of multi-use trails in the Dredge Lakes and West Glacier areas; construction of three boat docks and support facilities and addition of ferry service with 49-passenger motorized boats from the Welcome Center area to the proposed Remote Glacier Visitor Area; creation of a Remote Glacier Visitor Area with seasonal structures, restroom facilities, and trails; increases to visitor capacity and commercial use management allocations to accommodate 30-year use projections; and changes to recreation area unit boundaries and recreation opportunity spectrum designations.

Alternative 3

Alternative 3 differs from Alternative 2 in that the expanded parking areas do not require filling Zig Zag Pond; Welcome Center outdoor plazas are smaller; Lakeshore Trail is routed inland before crossing Mendenhall River to the campground; configurations for the Steep Creek Trail and crossing at Glacier Spur Road are different; configurations for docks at the Welcome Center and West Glacier areas are different and the Remote Glacier Visitor Area requires only a landing beach; 35-passenger electric motorized boats with drop-bow would be used for ferry service; and changes to visitor capacity and commercial use management allocations would accommodate 20-year projections.

Alternative 4

Alternative 4 differs from Alternative 2 in that the expanded parking areas do not require completely filling Zig Zag Pond; Welcome Center outdoor plaza area is smaller, with no lower plaza or amphitheater; Lakeshore Trail is 1-mile long and does not include a bridge to Mendenhall Campground; configurations for the Steep Creek Trail and crossing at Glacier Spur Road are

different; there are no boat docks, ferry service, or Remote Glacier Visitor Area; and changes to visitor capacity and commercial use management allocations would accommodate 15-year projections. All three action alternatives included the same proposed design and location for the proposed Welcome Center.

Alternative 5

Alternative 5 includes a revised design and slightly modified location for the Welcome Center, still near the location of the existing pavilion near the lakeshore. Alternative 5 also refines many of the other proposals included in Alternative 2, including refined parking lot configurations; refined Lakeshore Trail alignment; a new proposal for parking expansion at the Skater's Cabin area rather than within the Mendenhall Campground; refinement of the proposal for the Glacier Spur Road crossing of Steep Creek using a bottomless arch for wildlife crossing only; and allowance of 49-passenger electric motorized boats for ferry service to a modified Remote Glacier Visitor Area.

Alternative 6

Alternative 6 includes a Welcome Center set in the rocks near the historic Visitor Center and away from the Lakeshore; remote bus drop off with electric shuttle service to the Welcome Center; an alternative proposal for the Glacier Spur Road crossing of Steep Creek using a bottomless arch for wildlife crossing and a separate human underpass; no boat docks, ferry service, or Remote Glacier Visitor Area; and other refinements are the same as Alternative 5.

Alternative 7

Alternative 7 includes a Welcome Center and expanded bus parking located away from Mendenhall Lake at the commercial overflow parking lot with electric shuttle service to the Visitor Center, and other refinements are the same as Alternative 5.

Alternatives Considered but Eliminated from Detailed Analysis

Parking and Access Expansion – Circulator Shuttle System from Downtown Juneau

This alternative was dismissed from consideration because it does not meet the need to provide quality opportunities for all visitors to enjoy the recreation area because it faces considerable technical, design, and economic challenges, requiring the Forest Service to dictate operations to private companies. It is considered outside the scope of the proposal. The Forest Service currently permits independent tour companies to provide shuttle service from downtown to the MGRA.

If CBJ implemented a circulator shuttle service from the cruise ship docks in downtown Juneau to the MGRA and other Juneau attractions, it is likely that commercial bus service would continue to bring visitors to the MGRA, in addition to the CBJ shuttle. The Forest Service supports development of an electric circulator shuttle from downtown and will give preference to commercial service providers that use electric vehicles to transport clients when allocating additional service days, as described in the Adaptive Management Plan (Attachment C). A shuttle system may be revisited or could arise independently of a Forest Service action.

At the time of writing this ROD, CBJ is still researching the feasibility of this service. If the CBJ implemented a shuttle service after the ROD is issued for this project, the Forest Service would review the changed circumstance in a supplemental information report (consistent with Forest Service Handbook 1909.15, Section 18) to determine if a change to the decision would be necessary and if further environmental analysis would be needed.

Steep Creek Trail – Steep Creek Fish Viewing Window

Although a fish viewing window meets the need to provide quality opportunities for all visitors to enjoy the recreation area and to provide new recreation and interpretation experiences that emphasize the area's outstanding scenery and wildlife resources even as the glacier recedes out of view, public comments were received indicating this type of experience is available elsewhere in Juneau and that the facility would cause impacts to fish and lead to increased encroachment into bear habitat. After consideration of the design feasibility, high level of maintenance needed, potential for wildlife impacts, and practicality, this alternative was dismissed.

Dredge Lakes Multi-Use Trails – Dredge Lakes Area Nordic Ski Loop

A 14-foot wide Nordic ski loop appropriate for classic and skate skiing within the Dredge Lakes Unit was not included in the proposed trail improvements because trail widening to accommodate grooming equipment would disrupt the intent for the trails to be walking interpretive trails. The Forest Service aims to keep these trails with as much vegetative screen and forest canopy cover as possible, contributing to the natural, secluded feeling of the trail even near the parking area and other trails. The Nordic ski club will continue to groom trails in the Dredge Lakes unit consistent with their special use permit, and some trails including the Crystal Lake Trail will receive maintenance to allow grooming to 8-feet wide.

Boat Docks and Related Support Facilities Alternatives – Additional Docks on Mendenhall Lake

Upon further investigation and study into lake bathymetry, two additional dock locations at Nugget Falls and one on the south shore between the Welcome Center dock and Mendenhall River do not have the required water depth for docks without significant dredging. The three docks analyzed in the Final EIS satisfy the purpose and need with fewer environmental impacts.

East Side Development Only

This alternative was excluded from consideration because it does not meet the purpose and need to provide quality opportunities for all visitors to enjoy the recreation area and to provide new recreation and interpretation experiences that emphasize the area's outstanding scenery and wildlife resources even as the glacier recedes out of view of the existing Visitor Center. Crowding in the Visitor Center area is expected to increase. Even with added facilities, this concept would impact all users' experience if visitors cannot disperse over the MGRA. In addition, limiting facility improvements to the east side only would not enhance the recreational experiences on the west side for other user groups, including local mountain bike and Nordic ski groups, since no improvements would be made to the west side.

Furthermore, with the anticipated increase in visitation over the next 10 to 20 years and the likelihood that the glacier will not be visible from the Visitor Center in 30 years, unintentional visitor-created environmental impacts (erosion due to users stepping off trails, disturbances to bears and nesting birds) would likely increase. Spreading visitors out to designated locations over a greater area of the MGRA will allow greater control of these and other overflow impacts.

No Capacity Increase

This alternative was dismissed from further consideration because it does not meet the stated purpose and need for the project to meet the demand of the visitor industry and support the economy of Southeast Alaska.

Public Involvement

Public involvement activities have been ongoing for the project since initiation of the master planning effort in 2016 (see Final EIS Chapter 1, Section 1.8.2). Following the master planning effort, public involvement opportunities have been offered during public scoping, the draft EIS formal public comment period, and supplemental draft EIS formal public comment period.

Public Scoping

Public scoping is a process used to openly share information, invite public participation, and identify issues related to a proposal early in an environmental analysis process. In addition to public involvement activities held during development of the Master Plan from 2016-2019, two public scoping periods were held to initiate this environmental analysis.

On February 18, 2020, a 30-day scoping comment period was initiated for this project anticipating an environmental assessment (EA) as the level of environmental analysis. The comment period was announced via a letter distributed to recipients on the Forest Service's email list for subscribers of Mendenhall Glacier Visitor Facility Improvements Project, announced on the Tongass National Forest Facebook page, and posted to the project website at https://www.fs.usda.gov/project/?project=53780. An open house was held on Thursday, February 20, 2020, at the Mendenhall Glacier Visitor Center in Juneau, Alaska. During the EA scoping comment period, a total of 136 responses were received from individuals, groups, and agencies. The 136 comment letters were further separated into approximately 800 discrete comments.

A notice of intent to prepare an EIS was published in the Federal Register on December 16, 2020, and served as the official start of the EIS process (Vol. 85, No. 242). The notice of intent requested public comment on the proposal from December 16, 2020, to January 15, 2021. The availability of the notice of intent and comment period timing was announced via a letter distributed to recipients on the Forest Service's email list for subscribers of Mendenhall Glacier Visitor Facility Improvements Project, announced on both the Tongass National Forest and the Mendenhall Glacier Visitor Center Facebook pages, and posted to the project website. During the EIS notice of intent comment period, the Forest Service held informational meetings with elected State officials and interested groups within the Juneau community to answer questions about the planned improvements. About 1,800 discrete comments were identified from a total of 195 responses received.

The Forest Service generated a scoping report including public outreach and comments received during both comment periods. This report and individual comment letters are available on the project website. All public comments are available to view and download on the project reading room at https://cara.fs2c.usda.gov/Public//ReadingRoom?Project=53780.

Comments from individuals, organizations, and other agencies identified issues to be addressed through development of action alternatives. These issues were analyzed in the draft EIS and carried forward in this Final EIS (Section 1.5).

Draft EIS Comment Period

A notice of availability for the draft EIS was published in the Federal Register on March 4, 2022, with a 45-day public comment period and amended on April 15, 2022, to allow for a 60-day public comment period. During that time, the Forest Service held two informational public meetings. An

open house was held on March 15, 2022, from 11:45 a.m. until 8:00 p.m. at the Visitor Center, and a public webinar was held on March 31, 2022, from 5:30 p.m. to 7:30 p.m.

During the public comment period for the notice of availability of the draft EIS, a total of 377 responses were received from individuals, organizations, and agencies, which were further broken down into about 4,500 discrete comments. Comments received on the draft EIS requested analysis of additional alternatives, many related to the siting of the proposed Welcome Center and parking areas. Suggestions from the public drove the development of new alternatives with additional Welcome Center and parking lot locations and designs.

Supplemental Draft EIS Comment Period

A notice of availability for the supplemental draft EIS was published in the Federal Register on January 6, 2023, initiating another 45-day public comment period. During that time, the Forest Service held two additional informational public meetings. An open house was held on January 24, 2023, from 5:00 p.m. until 7:30 p.m. at the Visitor Center, and a public webinar was held on January 26, 2023, from 5:30 p.m. to 7:30 p.m. During the public comment period for the notice of availability of the supplemental draft EIS, a total of 188 responses were received from individuals, organizations, and agencies. All comments were carefully reviewed, and responses were developed; these responses can be found in Appendix F of the Final EIS.

Final EIS, Draft ROD and Objection Period

On May 12, 2023, a notice of availability for the Final EIS was published in the Federal Register, and on May 13, 2023, a legal notice was published announcing the Draft ROD for the project and initiating a 45-day objection filing period. The Draft ROD described the "Selected Alternative," which included elements from different alternatives considered in the Final EIS (Draft ROD, pp. 11-21). Notably, the "Selected Alternative" from the Draft ROD did not include the boat docks or remote glacier visitor area that had been considered in most of the action alternatives.

During the 45-day objection period 17 objections were received. On August 1, 2023, the Objection Reviewing Officer and I convened an objection resolution meeting and met with 12 of the objectors who were available to meet to discuss and clarify some of the issues raised in the objections. The objectors were given an opportunity to speak on the issues raised in their objections, which helped clarify our understanding of those issues. In addition to the objectors' overview of their issues, the Objection Reviewing Officer was able to ask questions relating to the objections, which furthered our understanding of the objections and the underlying concerns. Based on the discussion at the resolution meeting and our further review of the objections, the Reviewing Officer required the following changes from the "Selected Alternative" described in the Draft ROD. These changes are described throughout this Final ROD:

1. The Welcome Center will be moved back to the location at the commercial overflow parking lot as analyzed in Alternative 7. The Welcome Center, plaza areas, commercial drop off, and overflow parking areas will fit within the footprint anticipated for those project elements in Alternative 7. This change is described on page 13 of this ROD.
2. The upper parking lots (two lots closest to the Visitor Center) will be modified to accommodate electric circulator shuttle drop off and private vehicle parking and will be designed within the footprint analyzed in Alternative 5. The existing pavilion will remain and the small parking lot closest to the lakeshore will be removed and replaced with a visitor plaza with interpretive and wayfinding areas. Parking lots will be designed to

accommodate an interim parking solution for the timeframe between the final decision and construction of the Welcome Center. The interim parking solution will have private vehicle parking along the road and current drop off loop, and commercial bus parking and drop off south of Zig Zag Pond, as described in Alternative 5. When the Welcome Center is constructed, these parking lots will be repurposed to accommodate the electric circulator shuttle and remove commercial parking and drop off. As discussed below in Item 8 of these changes, appropriate resource specialists, including a landscape architect and heritage resource specialist, will be involved in a review during final design and implementation of all project elements. This change is described on page 11 of this ROD.

3. The front section of the new Steep Creek loop trail (the portion of the loop at the creek outlet) will be dropped, with the remaining trail being a horseshoe continuing from the existing Steep Creek elevated boardwalk trail to the west and then turning toward the shore of the lake. This change is described on page 16 of this ROD and displayed in Figure 4 on page 7.

4. The designated Recreation Opportunity Spectrum (ROS) class for the East Glacier, Powerline, Moraine Ecology, and Trail of Time trails will remain Roaded Natural. The Adaptive Management Plan will incorporate data collection for social encounters on these trails to determine if there are exceedances of existing ROS class (Roaded Natural). The management unit boundary change to the northern area of the Dredge Lakes Unit to accommodate the Lakeshore Trail will remain (it will become part of the Visitor Center Unit), but the ROS class for that trail will stay the same as it was in the Dredge Lakes Unit (Roaded Natural). If monitoring data show that encounter levels for the existing ROS class are being exceeded, the Forest will take appropriate action to either restrict use or change the ROS class for the affected trail(s) at that time. This change is described on page 20 of this ROD.

5. The Nugget Falls Loop Trail will remain, but the Forest Supervisor will clarify the rationale for the loop in the Final ROD. This change is described on page 16 and rationale is on page 34.

6. Segments of trails in the West Glacier and Dredge Lakes Units which have known goshawk nests will be dropped from the Selected Alternative in the Final ROD. These changes are described on page 19, and displayed in Figures 4 and 5 on pages 7 and 8.

7. The Crystal Lake Trail from the Glacier Spur Road parking to the juncture of the other trails on the west end of the lake will be upgraded to make this section suitable to groom a classic Nordic ski track, including brushing, opening up the canopy in spots, and increasing the trail width to 8 feet. This change is described on page 18.

8. The Responsible Official will develop an Integrated Resource Design and Implementation Plan, to include interdisciplinary review during important aspects of project design and implementation to ensure resource concerns are addressed as elements of the project go through final design and are constructed and to verify impacts are within the range of impacts disclosed in the Final EIS and anticipated in the Final ROD. At a minimum, the Design and Implementation Plan should include review of the Steep Creek reroute and associated project elements, the Dipper Falls and Steep Creek trails and viewing platforms, and the Lakeshore and Nugget Falls trails by water, fish, and wildlife specialists. It should also include review of facility designs by landscape architect and heritage resource specialists. This change is described on page 23, and the Integrated Resource Design and Implementation Plan is included as Attachment B.

In addition to these changes to the decision, the Reviewing Officer also required several corrections and clarifications be made in this record of decision and as errata to the Final EIS. The full response to objections is included in the project record and is available on the project web site.

Consistency with the Forest Plan and other Applicable Laws and Regulations

Findings Required by Law and Regulation

Bald and Golden Eagle Protection Act of 1940 (as amended)

The Bald and Golden Eagle Protection Act provides for the protection of the Bald Eagle and the Golden Eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds. Although Bald Eagle nests are not common within the project area, should an active nest be found adjacent to any proposed activity, appropriate nest site buffers and timing restrictions will be implemented. The project would be in conformance with the Bald and Golden Eagle Protection Act of 1940, as amended.

Clean Water Act of 1977 (as amended)

Section 404 of the Clean Water Act (33 United States Code [USC] 1344) established a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. The Forest Service will acquire a permit from the Corps before conducting any applicable activities associated with the Selected Alternative. Additionally, an applicant must obtain a water quality certification from the appropriate State agency or the EPA certifying that the proposed dredging or filling activity complies with the State's water quality standards and criteria under Section 401 of the CWA (33 USC 1341). ADEC is responsible for maintaining the Alaska Water Quality Standards (18 AAC 70) and implementing the Alaska Pollutant Discharge Elimination System Program in the State of Alaska. Through the use of BMPs outlined in the Soil and Water Conservation Handbook, the Selected Alternative will be designed and implemented in compliance with the Clean Water Act (see ROD Mitigation Section and Final EIS Chapter 2, Section 2.4).

Magnuson-Stevens Fishery Conservation and Management Act of 1996

The Magnuson-Stevens Fishery and Conservation and Management Act (Magnuson-Stevens Act; 16 USC 1801) established a program to promote the protection, conservation, and enhancement of EFH for those species regulated under a Federal fisheries management plan.

Compliant with Section 305(b)(2) of the Magnuson-Stevens Act, the Forest Service consulted with NOAA Fisheries on all action alternatives that "may adversely affect" EFH (Solstice 2022). The Forest Service has determined that the Mendenhall Glacier Visitor Facility Improvements Project may cause permanent and adverse effects to EFH and NOAA Fisheries agrees with this determination (see Appendix F of the Final EIS). Adverse effects are minimized through BMPs and conservation measure implementation and/or will be compensated appropriately during the permitting process (see Project Design Elements and Mitigation).

Migratory Bird Treaty Act

Pursuant to the Migratory Bird Treaty Act, impacts to migratory birds are analyzed in Section 3.6.6 of the Final EIS. Additionally, the project will follow US Fish and Wildlife Service guidance for Southeast Alaska and will avoid land disturbance and tree cutting/clearing during certain periods as described in Project Design Elements and Mitigation.

National Forest Management Act of 1976 (as amended)

In accordance with the National Forest Management Act of 1976, the EIS evaluates the proposed project in terms of its conformity with the Forest Plan and its potential effects on the various resources contributing to the multiple uses for which NFS land is managed (see Section 1.1.2 of the Final EIS). The Mendenhall Glacier Visitor Facility Improvements Project is consistent with Forest-wide standards and guidelines and direction for Special Interest Areas.

National Historic Preservation Act of 1966 (NHPA)

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their actions on historic and traditional cultural properties. The process involves identifying the area of potential effect, determining what cultural resources exist within the area of potential effect, and evaluating them for eligibility for inclusion on the National Register of Historic Places.

The Forest Service has developed a programmatic agreement with the State Historic Preservation Office and the Advisory Council on Historic Preservation, with input from Tribal entities, to address all aspects of cultural resource management associated with all project components, including compliance with Section 106. It is included in this ROD by reference in Attachment A.

Clean Air Act of 1979 (as amended) and National Ambient Air Quality Standards

Under the Clean Air Act, the EPA is tasked with setting limits on certain air pollutants (criteria air pollutants) that have potential to harm the environment and public health. The EPA sets acceptable levels, known as the National Ambient Air Quality Standards (NAAQS), for six criteria air pollutants. The proposed project would be compliant with the Clean Air Act of 1979, as amended, because emissions of criteria pollutants would be below the NAAQS (see Section 3.10.6 of the Final EIS).

The ADEC Division of Air Quality establishes regulations (18 AAC 50), work practice standards, permit requirements, and strategies to minimize emissions of the six criteria pollutants. Additionally, there are extra control measures and strategies for identified nonattainment areas. Since Mendenhall Valley was previously a nonattainment area and currently a “maintenance” area, the Forest Service completed an applicability analysis to ensure the project complies with the General Conformity rule (see Section 3.10.6.3 of the Final EIS).

Applicable Executive Orders

Executive Order 13112 National Invasive Species Management Plan

Compliant with Executive Order (EO) 13112, the Forest Service has completed an analysis of an Invasive Plant Risk Assessment (Turner 2022). Additionally, an analysis of impacts from invasive species associated with the project is provided in Section 3.6.6 of the Final EIS.

EO 13186 Responsibilities of Federal Agencies to Protect Migratory Birds

Pursuant to EO 13186, the potential effects of the proposed project on migratory birds are evaluated in Section 3.6.6.4 and Appendix D of the Final EIS. Design features have been developed to avoid impacting nesting migratory birds during construction (see Project Design Elements and Mitigation).

EO 11990 Protection of Wetlands

Wetlands and riparian systems are protected under official policy of the Federal government under EO 11990. Under the order, all Federal agencies must consider wetland protection and actively

minimize destruction, loss, or degradation of wetlands when carrying out the agency's responsibilities. Federal agencies are also tasked with preserving and enhancing natural and beneficial values of wetlands. Compliant with EO 11990, aspects of this decision were made to minimize potential for impacts to wetlands on NFS land, and any unavoidable wetlands impacts will be addressed through the permitting process (see the Federal and State Permits Section below).

EO 11988 Floodplain Management

EO 11988 protects floodplains by requiring acting agencies to consider alternatives to avoid adverse effects and incompatible development within floodplains to the extent practicable. Any unavoidable adverse impacts to floodplains require appropriate permitting and mitigation and will be completed as necessary. The Forest Service conducted floodplain modeling beyond the areas currently mapped by FEMA as part of analyzing the project.

EO 14057, Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability

Pursuant with EO 14057 which directs the Federal government to transition to 100-percent renewable energy sources by 2035, the Selected Alternative incorporates ground-source heat pumps and LEED Silver Certification for the Welcome Center, among other energy innovations. The Welcome Center is the largest facility requiring power associated with the decision.

EO 13990 – Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis

Compliant with Executive Order 13990, CEQ rescinded its 2019 Draft NEPA Guidance on Consideration of Greenhouse Gas Emissions. On January 9th, 2023, the Council on Environmental Quality published the National Environmental Policy Act Guidance on Consideration of Greenhouse Gas (GHG) Emissions and Climate Change. In the document, CEQ provides direction on when to apply the social cost of GHG emission guidance to EISs. It states that "agencies should exercise judgment when considering whether to apply this guidance to the extent practicable to an on-going NEPA process… Agencies should consider applying this guidance to actions in the EIS or EA preparation stage if this would inform the consideration of alternatives or help address comments raised through the public comment process." Because the analysis for this project was already underway, climate change and greenhouse gas analyses follows the 2016 Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews (CEQ 2016). Pursuant to this guidance, the Forest Service has completed an analysis of GHG emissions attributable to the project (see Section 3.11.6 of the Final EIS).

EO 14008 – Tackling the Climate Crisis at Home and Abroad

Similar to EO 14057, EO 14008 builds upon the requirement that the Federal government transitions to 100-percent renewable energy sources by 2035. The Selected Alternative is responsive to this direction by incorporating various energy innovations as addressed above.

EO 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

EO 12898 directs Federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations. In accordance with EO 12898, the Forest Service completed an analysis of environmental justice for this project (see Section 3.12.6.2 of the Final EIS).

Federal, State, and Local Permits

Prior to implementation of the project, the Forest Service would obtain all necessary permits or authorizations from other Federal and State agencies. These may include the following:

1. Army Corps of Engineers:
   - Approval of discharge of dredged or fill material into Waters of the United States, including wetland fill, under Section 404 of the Clean Water Act
2. NOAA Fisheries:
   - Concurrence on the effects of the action on EFH (Section 305 of the Magnuson-Stevens Fishery Conservation and Management Act)
3. State of Alaska, ADEC:
   - Air quality applicability analysis (18 AAC 50)
   - Certification of Compliance with Alaska Water Quality Standards (401 Certification) Chapter 20
   - Construction General Permit/Storm Water Pollution Prevention Plan (Section 402 of CWA)
   - Spill Prevention Control and Countermeasure Plan
   - Solid Waste Disposal Permit
4. State of Alaska, ADF&G:
   - Fish Habitat Concurrence for construction activities in fish-bearing water bodies (Title 16/Alaska Fish Conservation)
5. State of Alaska, Alaska Department of Natural Resources, Office of History and Archaeology
   - Concurrence with a Finding of Effect (Section 106 of NHPA)
6. State of Alaska, DOT&PF:
   - Driveway or approach road permit (17 AAC 10.020)
7. City and Borough of Juneau
   - Commercial building permits for construction and utility modifications

Administrative Review Opportunities

This decision was subject to the project-level pre-decisional administrative review process pursuant to Title 36 CFR Part 218, subparts A and B. The review process was completed in September 2023, as described above under “Final EIS, Draft ROD, and Objection Period”. There are no further opportunities for administrative review or appeal.

Implementation Date

Project implementation may begin immediately. Refer to Implementation Requirements listed as part of this Decision before implementation.

Contact Person and Signature

For additional information concerning this decision, contact Monique Nelson, Director, Ecosystem Planning and Information Management, Forest Service Alaska Region, 907-209-409 and monique.nelson@usda.gov.

FRANCIS SHERMAN

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Date: 2023.12.13 22:40:02 -09'00'

FRANCIS SHERMAN
Forest Supervisor
Tongass National Forest

[DATE]

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Map Disclaimer

The USDA Forest Service makes no warranty, expressed or implied, including the warranties of merchantability and fitness for a particular purpose, nor assumes any legal liability or responsibility for the accuracy, reliability, completeness or utility of these geospatial data, or for the improper or incorrect use of these geospatial data. These geospatial data and related maps or graphics are not legal documents and are not intended to be used as such. The data and maps may not be used to determine title, ownership, legal descriptions or boundaries, legal jurisdiction, or restrictions that may be in place on either public or private land. Natural hazards may or may not be depicted on the data and maps, and land users should exercise due caution. The data are dynamic and may change over time. The user is responsible to verify the limitations of the geospatial data and to use the data accordingly and use constraints information.

Attachment A: Use Programmatic Agreement

Application of the **Programmatic Agreement among the U.S.D.A. Forest Service Tongass National Forest, Alaska State Historic Preservation Officer and the Advisory Council on Historic Preservation Regarding Compliance with the National Historic Preservation Act on the Mendenhall Glacier Recreation Visitor Facilities Improvements Project** is required as part of this decision.

The final Programmatic Agreement can be found on the project website at: https://www.fs.usda.gov/project/?project=53780.

Attachment B: Integrated Resource Design and Implementation Plan

This Plan is required as part of implementation of the Mendenhall Glacier Visitor Facility Improvements Project to ensure that facility-related resource impacts are fully considered and mitigated to the extent possible through final design.

In most cases, facilities will need to have full architectural and engineering designs developed before construction begins. In some cases, design or construction of multiple project components will need to happen at once or in sequence (e.g., Glacier Spur Road culvert replacement, Steep Creek restoration, and Steep Creek boardwalk). Adjustments are expected during final engineering design for the purpose of improving boundaries or project facility locations and to better meet on-site resource management objectives. These adjustments are not expected to represent substantial changes to environmental concerns or require additional NEPA analysis. However, changes made during implementation will be reviewed, documented, and approved in accordance with FSH 1909.15 Chapter 18.

Application of this Integrated Resource Design and Implementation Plan is required as part of the Mendenhall Glacier Visitor Facility Improvements Project ROD.

Table B-1. Project components for which consultation with resource specialists is required, with specialists, topics, and a description of consultation needs.

Project Component	Required to Consult	Topics to Consult	Description
All Facility Projects	District or Forest Archaeologist	Completion of Section 106 Process	Survey and consultation for cultural resources must be complete before construction contracts are awarded or ground-disturbing work begins.
All Facility Projects	Contracting Lead, Resource Specialists	Phasing or Coordination of Project Components	Consult with District and Forest staff while developing design and construction contracts to ensure that project design and construction dependencies and interactions are identified and that all design or construction work for related facilities are coordinated. Observation and data collection between actions should inform the subsequent actions.
All Facility Projects	Contracting lead, resource specialists, including a landscape architect	Final design and implementation review	Provide review during final design and implementation of all project elements.

Project Component	Required to Consult	Topics to Consult	Description
	and heritage resource specialist		
All Facility Projects	Contracting Lead, Resource Specialists	Level of Effect	Confirm that design specifications include impacts from glacial-outburst flood events.
All Facility Projects and All New or Revised Special Use Permits	Contracting or Permitting Lead, Resource Specialists	Project Mitigation Measures	Read through the list of required mitigation measures and ensure that all are met as part of implementation. In particular, check for timing windows to include in permits, agreements, and contracts.
All Facility Projects	Contracting Lead, Resource Specialists	Level of Effect	Confirm that the extent and nature of construction-related impacts to wetlands, vegetation, soils, and aesthetics are within the anticipated impacts disclosed in the Final EIS.
Visitor Center Improvements	District or Forest Archaeologist	NRHP Eligibility	When submitting the Visitor Center nomination for the National Register of Historic Places, the responsible archaeologist should confirm that adequate attention has been given to Criterion C. Refer to past consultation documents with SHPO concurrence from April and December 2021.
Steep Creek Restoration	District, Forest, and/or Regional Fisheries Biologists, Wildlife Biologists, and Hydrologists	Restoration design	Ensure a thorough watershed assessment is completed to verify Final EIS assumptions about the effects of the realignment. This should include quantitative biological information on fish utilization throughout the reach, geomorphic information on the extent and nature of degradation, and, if necessary, alternative final relocation options to address these impairments to ensure that there are no unintended consequences of sedimentation on downstream spawning habitat. Refer to Schneider 2012 and 2016 fish use,

Project Component	Required to Consult	Topics to Consult	Description
			pebble count, and flow data to provide supporting information for final stream channel restoration design options. Ensure the final design and implementation consider impacts on the behavior of bears and spawning salmon and that these impacts are adequately addressed and mitigated.
Backside Pond Enhancement	District, Forest, and/or Regional Fisheries Biologists, Wildlife Biologists, and Hydrologists	Enhancement design and effects	Refer to dissolved oxygen measurements from ADF&G and acquire additional measurements before final design and construction. Consult with fish biologists on final design.
Steep Creek Trail	District, Forest, and/or Regional Fisheries Biologists, Wildlife Biologists, and Hydrologists, Recreation Specialist	Trail/boardwalk design including viewing platforms	In design and construction of the Steep Creek Trail, consider Steep Creek's location after restoration, bear movements and security areas, human safety, and platform specifications and design (such as considering a stemmed design that pops in to view the creek). Ensure final design and implementation consider impacts of people on the boardwalk on the behavior of bears and spawning salmon and that these impacts are adequately addressed and mitigated.
Steep Creek Culvert Replacement (Glacier Spur Road Crossing)	District, Forest, and/or Regional Fisheries Biologists, Wildlife Biologists, and Hydrologists, Recreation Specialist	Fish and wildlife passage	Final design should consider bear preferences and options that may increase the successful use of the underpass by bears;
Dipper Falls Spur Trail and	District, Forest, and/or Regional	Viewing platform design and	Final design of the trail should minimize impacts to riparian areas

Project Component	Required to Consult	Topics to Consult	Description
Viewing Platform	Fisheries Biologists, Wildlife Biologists, and Hydrologists, Recreation Specialist	impacts to birds and fish	and keep people on the trail; the viewing blind or platform should be a reasonable distance back from the falls, somewhat concealed to reduce disturbance to wildlife and fish, and smaller for a more private viewing experience. Ensure the final design and implementation consider impacts of people on the viewing platform on the behavior of bears and spawning salmon and that these impacts are adequately addressed and mitigated.
Nugget Falls Trail	District, Forest, and/or Regional Fisheries Biologists, Wildlife Biologists, and Hydrologists, Recreation Specialist	Trail design and protection for nesting areas	Final design should keep people on the trail and out of nesting areas and include interpretative features to reduce impacts to nesting birds and colonies.

Attachment C: Adaptive Management Plan

Purpose

The Forest Service defines adaptive management as "a system of management practices based on clearly identified intended outcomes and monitoring to determine if management actions are meeting those outcomes; and, if not, to facilitate management changes that will best ensure that those outcomes are met or re-evaluated" (36 Code of Federal Regulations 220.3). Adaptive management recognizes that knowledge about natural resource systems is sometimes uncertain (Forest Service Manual 1900, Chapter 1940.5). As such, adaptive management emphasizes learning while doing and is a means to more effective decisions.

The adaptive management framework consists of:

- A measurable management objective to achieve desired conditions,
- Monitoring to assess the status of specific resource conditions,
- Evaluation of monitoring information to determine if the objective is being reached,
- Adaptation based on the results.

This adaptive management plan is intended to be flexible. As new information is collected and evaluated, the goals of the program, monitoring strategies, and management actions will be re-assessed. Any changes to monitoring strategies or use management will be relayed to the public through the Tongass National Forest website, monitoring reports, and public notifications or meetings, as needed.

This document outlines a strategy for monitoring and adaptive management for the Mendenhall Glacier Visitor Facility Improvements Project. The intent of the adaptive management plan is twofold: (1) to give special use permit holders (including outfitter/guide services and transportation services) an understanding and assurance in how commercial allocations could increase throughout project implementation and (2) to give the public an assurance that the increases in commercial use allocations will be based on monitoring information and will be phased in rather than allocated in bulk following a project decision. By incorporating adaptive management into the decision, commercial use allocations can be increased without additional environmental analysis if all conditions (such as upgrades to facilities) and monitoring requirements are met.

Summary

This Adaptive Management Plan identifies infrastructure and monitoring required to increase commercial use up to the maximum authorized in this Record of the Decision:

- Visitor Center Unit has a capacity of 999,000 people; 87 percent of that capacity may be allocated for commercial use as 869,130 service days. At full implementation, an estimated 178,460 service days would be available for trails outfitter and guide permits and an estimated 690,670 service days would be available for transportation permits.
- The West Glacier Unit has a capacity of 287,000 people; 42 percent of that capacity may be allocated for commercial use as 120,170 service days.

- The primary use season will be lengthened from the current 153 days to span 214 days, from April 1 through October 31.

Increases from current allocation of service days to intermediate or maximum allocations can happen when:

- The Responsible Official is required to adjust permittee reporting and permit administration at the MGRA and to consider if it is appropriate to allow an increase in service days for 2024 based on the extended primary use season. The Final EIS analyzed the number of service days that are associated with an extended primary use season. The Responsible Official may add service days in 2024 commensurate with additional days with cruise ships in port during the extended season, only if deemed appropriate and only if done in concert with adjustments to permittee reporting and changes to permit administration for shoulder seasons, weeks, or months.
- When main parking lots located closest to the lakeshore are constructed, 30% of the additional service days can be allocated for transportation.
- When additional restrooms are added in the Lakeshore Plaza area, an additional 30% of the additional service days can be allocated for transportation.
- When the Welcome Center is complete and 3 years of monitoring have been completed (after service day increases associated with main parking lots or additional restrooms), the full amount of service days can be allocated.
- Any changes to monitoring strategies or use management will be relayed to the public through the Tongass National Forest website, monitoring reports, and public notification and meetings, as needed.

Encounters Monitoring and Recreation Opportunity Spectrum Designations

- The designated Recreation Opportunity Spectrum (ROS) class for the East Glacier, Powerline, Moraine Ecology, and Trail of Time trails will remain Roaded Natural and the Lakeshore Trail will be designated Roaded Natural. The Adaptive Management Plan incorporates data collection for social encounters on these trails to determine if there are exceedances of the Roaded Natural ROS class. If monitoring data show that encounter levels for the existing ROS class are being exceeded, the Forest will take appropriate action to either restrict use or change the ROS class for the affected trail(s) at that time.

This adaptive management plan builds on the adaptive management components included in the 2015 Decision Notice for the Mendenhall Glacier Recreation Area Management Plan Revision Commercial Guide, Outfitter, and Transport Services. That decision stated that adaptive management would be used to implement changes if necessary to manage for the safety of visitors and protection of wildlife resources in the plan area as well as to manage for the appropriate level of encounters on trails in the MGRA. Relevant to implementation of the 2015 adaptive management plan, stipulations pertaining to wildlife are included in special use permits and the Forest Service monitored trail encounters from 2016 through 2020. The Forest Service increased commercial capacity in 2019 following trail improvements and addition of bathroom facilities under the adaptive management plan.

Adaptive Management Plan Components

Table AM-1. Adaptive management plan components

Desired condition[1]	Issue statement	Monitoring question	Indicator[2]	Threshold[3]	Potential management actions if thresholds are reached
Visitor experiences are positive	More visitor use could adversely impact visitor experience by increasing crowding and encounters between groups	E1. Are Visitor Center Unit facilities functioning to manage crowding?	Bathrooms have a line of people waiting to use the facility during peak visitation times Photo Point viewing area is crowded with people waiting for views and photo opportunities.	No more than 20% of samples show bathroom lines No more than 20% of sample show people waiting for access to views from Photo Point	• Institute a scheduling/ advisory system to coordinate visitation flow • Initiate a collaborative effort to work with tourism service providers to develop a system that allows for redistributing visitation during peak times
		E2. Are MGRA trails providing opportunities consistent with the applicable recreation opportunity spectrum (ROS) designation?	Number of encounters per day on trails during the primary use season. Trails required: East Glacier, Powerline, Moraine Ecology, Trail of Time, Lakeshore	Number of encounters will not exceed the ROS standards and guidelines for social encounters in 2 out of 3 consecutive years, excluding construction periods	• If monitoring data show that encounter levels for the existing ROS class are being exceeded, the Forest will take appropriate action to either restrict use or change the ROS class for the affected trail(s) at that time. • Require outfitters and guides to coordinate activities to certain days/times to reduce encounters • Outfitters and guides voluntarily reduce the number of authorized service days on trails where the high use is occurring • Agency formally revokes authorized service days proportionally from all outfitter/guides using the trail • Initiate a collaborative effort to work with tourism service providers to develop a system that allows for redistributing visitation during peak times • Educate permittees and their employees—especially bus drivers—on how they can help us mitigate overcrowding and damage to trails—even if they don't go on the trails themselves.
Biological and physical	More visitors and changes in visitor distribution could	B1. Are the trails and facilities functioning to	Number of times visitors are temporarily	No more than the 5% of total bear-human encounters	• Modify facilities to accommodate bear behavior • Adopt seasonal closures to accommodate bear behavior • Increase ranger patrols in areas with bear-human encounters

Desired condition[1]	Issue statement	Monitoring question	Indicator[2]	Threshold[3]	Potential management actions if thresholds are reached
resources are conserved	adversely impact bears and migratory birds and increase wildlife-human interactions	mitigate and contain human-bear encounters in order to protect the public and the bears as circumstances best allow?	restricted from access to desired path for 10 or more minutes due to bear encounters; Number of human-bear encounters that resulted in high-level hazing or appropriate deployment of deterrent	during the season resulted in high-level hazing or appropriate deployment of deterrent or 10+ minutes of temporary restricted access	• Institute bear hazing program • Require permittees to provide best practices in bear habitat information to guests before arrival • Educate permittees and their employees on best practices and the MGVC Bear Management Plan
		B2. Are trails and facilities functioning to limit visitor impacts to nesting shorebirds and seabirds?	Incidents of barriers breached by humans or dogs	No more than 5% of incidents of barriers breached resulted in damage to nest sites	• Close areas near nesting sites to dogs and visitors during nesting season • Inspect and maintain bird nesting barriers • Increase education about best practices around nesting sites during nesting season • Increase signage about nesting closure and add to maps • Increase enforcement of dog leash regulations and closure orders
	More visitor use could introduce or spread invasive species, particularly within riparian areas	B3. Are trails and facilities functioning to prevent the spread of invasive plant species?	Presence of new (unrecorded) populations of invasive species or spread of known populations in areas where commercial use is allowed	Any new or newly reported Tongass National Forest Priority invasives species populations or individuals without a treatment plan in place	• Develop and implement a treatment plan for each new population of Tongass National Forest Priority species • Continue detecting and responding to new occurrences • Develop partnerships with volunteers, outfitter/guides, etc. to remove/treat invasives • Increase education about Tongass National Forest Priority invasives and best practices for preventing spread
Local residents have an opportunity to visit the Mendenhall Glacier	More visitors may displace local residents	L1. Are local residents visiting the MGRA?	Estimated local use based on number of vehicles in parking lots from April to October	10% Decrease in estimated local use after the first phase of commercial use increase	• Initiate a collaborative effort to work with tourism service providers to develop a system that allows for redistributing visitation during peak times • Require outfitters and guides to coordinate activities to certain days/times to reduce encounters • Outfitters and guides voluntarily reduce the number of authorized service days on trails where the high use is occurring

Desired condition[1]	Issue statement	Monitoring question	Indicator[2]	Threshold[3]	Potential management actions if thresholds are reached
Recreation Area?					• Agency formally revokes authorized service days proportionally from all outfitter/guides using the trail

[1]*Desired conditions* are aspirational statements that "describe resource conditions, visitor experiences and opportunities, and facilities and services that an agency strives to achieve and maintain in a particular area" (IVUMC, 2019, p. 9).

[2]*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. Indicators translate the broad description of desired conditions into measurable attributes that can be tracked over time to evaluate changes in conditions" (IVUMC, 2019, p. 9).

[3]*Thresholds* are a "minimally acceptable condition associated with an indicator...the point at which the effects of visitor use on desired conditions are anticipated to become enough of a concern that a management action is needed to achieve and maintain desired conditions" (IVUMC, 2019, p. 10).

Plan Implementation

The adaptive management plan aims to reach the full commercial use allocation in the selected alternative when infrastructure is complete, there is demand for additional service days, and monitoring shows positive trends related to visitor experience, resource conservation, and local resident opportunities.

This section is organized as follows:

- Who – the individual job positions responsible for conducting the monitoring
- When – the timeframe and frequency for monitoring
- Where – the specifics about where monitoring will occur
- What – the specifics of what will be measured and type of data to be collected in the areas identified
- How – the protocols for conducting the monitoring
- Data management – the specifics about data storage and upkeep
- Data analysis – the procedures for evaluating and attributing meaning to the data
- Report of findings – the framework for communicating monitoring results
- Adaptive actions – the possible management and/or administrative actions that would be implemented to address resource issues identified from monitoring.

Table AM-2. Elements of plan implementation.

Monitoring question	WHO will conduct monitoring?	WHEN will monitoring occur?	WHERE will monitoring occur?	WHAT will be measured and what type of data will be collected?
E1. Are Visitor Center Unit facilities functioning to manage crowding?	Monitoring staff	In the first year of implementation of this decision to establish baseline information, monitoring will occur during peak hours on a random sample of days with an anticipated passenger count of at least 10,000 based on the Cruise Lines of Alaska calendar. Monitoring will reinitiate the first year after Main Visitor Center Unit parking lot complete, Welcome Center with additional restrooms complete, and renovated exhibit space or improved trails provide opportunities for visitors to spread out. Monitoring will continue each year until there are three consecutive years without increases in commercial use, then reassess information needs.	All Visitor Center Unit bathroom facilities	Date, time of day, facility, yes/no bathrooms have a line of people waiting to use the facility. A line is defined as more than five people waiting outside of bathroom.
E2. Are MGRA trails providing opportunities consistent with the applicable recreation opportunity spectrum (ROS) designation?	Monitoring staff and Juneau Ranger District (JRD) recreation program staff will collect data	In the first year after initial increase in commercial use on trails, trail monitoring will occur within the primary use season. This will continue annually for at least 3 years, then reassess information needs.	Steep Creek Trail Trail of Time East Glacier Trail West Glacier Trail	Primary data: Number of group encounters per day Secondary data: Type of groups (guided/non-guided, Juneau residents/non-residents), group size, frequency of encounters
B1. Are the trails and facilities functioning to mitigate and contain human-bear encounters in order to protect the public and the bears as circumstances best allow?	MGVC staff	Within the first year of implementation of this decision, data will be collected during primary use season. Monitoring will reinitiate the first year that commercial use is increased and will continue each year until there are three consecutive years without increases in commercial use, then reassess information needs.	Visitor Center Unit	Hazing/deterrent: date, time of day, location, brief description of situation Temporary restricted access: date, time of day, estimated amount of time access was restricted, location, and brief description of situation

Monitoring question	WHO will conduct monitoring?	WHEN will monitoring occur?	WHERE will monitoring occur?	WHAT will be measured and what type of data will be collected?
B2. Are trails and facilities functioning to limit visitor impacts to nesting shorebirds and seabirds?	Forest Service wildlife biologist	In the first year of implementation of this decision to establish baseline information, monitoring will occur during nesting season. Monitoring will reinitiate the first year after Main Visitor Center Unit parking lot complete, Welcome Center with additional restrooms complete, and renovated exhibit space or improved trails provide opportunities for visitors to spread out. Monitoring will continue each year until there are three consecutive years without increases in commercial use, then reassess information needs.	Known nesting sites near areas of visitor use within MGRA	Number of incidents of disruptive behaviors by humans or dogs, date, time, brief description
B3. Are trails and facilities functioning to prevent the spread of invasive plant species?	Partner organization	After facility/trail improvements are completed, annual monitoring will occur during the time of year when invasive plants are most identifiable. This will continue each year until there are three consecutive years without increases in commercial use, then reassess information needs.	Around newly constructed/ improved trails and facilities and areas of known populations that are near trails/facilities	Presence of new (unrecorded) populations of Tongass National Forest Priority invasive species or spread of known populations will be recorded using the appropriate Tongass National Forest Invasive Plant data collection form
L1. Are local residents visiting the MGRA?	MGVC staff	In the first year of implementation of this decision to establish baseline information, monitoring will occur on a random sample of days. Monitoring will reinitiate the first year that commercial use is increased and will continue each year until there are three consecutive years without increases in commercial use, then reassess information needs.	MGRA parking lots	Date, time, weather, parking lot, number of vehicles, type of vehicles (commercial, private)

Estimated sequence of monitoring activities

The following table summarizes when monitoring activities will occur for each monitoring question based on an estimated project implementation timeline. The timeline shown below is approximate and for illustrative purposes only. The actual implementation timeline will depend on funding, contracting, and other external factors.

Table AM-3. Estimated monitoring timeline.

Phases of project implementation	Estimated Timeline	Will monitoring occur?					
		E1 (bathrooms)	**E2 (trails)**	**B1 (bears)**	**B2 (birds)**	**B3 (invasives)**	**L1 (vehicles)**
First year after final project decision	2024	Yes	No	Yes	Yes	No	Yes
Construction of Main Visitor Center Unit parking lot, Welcome Center, exhibits or trails	2025-2030	No	No	No	No	No	No
First year after Main Visitor Center Unit parking lot, Welcome Center, exhibits or trails are completed; initial increase in commercial use	2031	Yes	No	Yes	Yes	Yes	Yes
First, second, and third years after initial increase in commercial use	2032-2034	Yes	Yes	Yes	Yes	Yes	Yes
Increase up to maximum commercial use allocation	2035	Yes	Yes	Yes	Yes	Yes	Yes
First, second, and third years after maximum increase in commercial use	2036-2038	Yes	Yes	Yes	Yes	Yes	Yes

How will monitoring be conducted?

E1. Are Visitor Center Unit facilities functioning to manage crowding?

Select a random sample of at least 30 dates with an anticipated 10,000 passengers or more from cruise ships. On those sample dates, select a two-hour block during peak visitation time. Within that two-hour block, collect three samples at each bathroom. Sampling will consist of noting presence of a line at the bathroom and taking a photo.

E2. Are MGRA trails providing opportunities consistent with the applicable recreation opportunity spectrum (ROS) designation?

The MGRA Trail Monitoring protocol will be used to measure the number of group encounters per day.

B1. Are the trails and facilities functioning to mitigate and contain human-bear encounters in order to protect the public and the bears as circumstances best allow?

MGVC staff currently maintain a Bear Map log throughout the primary use season in which all bear encounters are recorded. At the end of the season, the log will be reviewed for any instances of high-level hazing, appropriate use of deterrent, and temporary restricted access that lasted 10 minutes or more. These instances will be compiled and tallied for the season.

B2. Are trails and facilities functioning to limit visitor impacts to nesting shorebirds and seabirds?

Nesting areas that are near visitor use will be monitored using a livestream video camera. Video recordings will be reviewed for instances of disruptive behavior to nesting sites by humans or dogs. The number of instances will be counted for the season.

B3. Are trails and facilities functioning to prevent the spread of invasive plant species?

Monitoring will be conducted by a partner organization and/or Forest Service staff with knowledge of priority invasive plant species likely to be found in Southeast Alaska. Monitoring will consist of visual inspections around newly constructed and improved trails/facilities and areas of known populations that are near trails/facilities. Any new (unrecorded) populations of Tongass National Forest Priority invasive species, or spreading of known populations, will be recorded using the appropriate Tongass National Forest Invasive Plant form.

L1. Are local residents visiting the MGRA?

A statistical sampling methodology will be designed to estimate local use based on vehicle counts at MGRA parking lots and Glacier Spur Road pullouts.

Data Management

A thorough description of metadata describing the data, methods of data collection, acronym definitions, and other pertinent information will be created at the onset of the project and updated as necessary. Copies of original field records will be scanned and stored electronically, along with copies of raw digital data, subsequent versions of the data, and any revisions made to the data during edit checks and proofing processes.

Data Analysis

The following analyses will be conducted post-season on an annual basis:

- Compare existing conditions to desired conditions for each indicator and determine whether thresholds are exceeded. There are three possible outcomes:
    - Conditions acceptable
    - Conditions are near thresholds
    - Conditions are exceeding thresholds
- Analyze trends in resource conditions. Identify whether conditions are stable, improving, or degrading as related to desired conditions.

Report of Findings

Two reports will be prepared each year by the MGVC staff:

1. End of season summary report that will include the following:
    a. Overview of monitoring effort (e.g., number of monitoring events, number of hours and days per month spent monitoring)
    b. Map(s) displaying where monitoring was conducted that season
2. Analysis and trend report that will be added to each year as more data is collected. This report will not be generated until at least 2 years of monitoring have been completed. The report will include the following:
    a. Description of analysis and findings for each indicator
    b. Map(s) displaying visual representation of analysis and trends, where appropriate
    c. Recommendations for management actions and/or management actions taken in response to findings

A copy of each report will be provided to the District Ranger, special uses permit holders, and posted on Tongass National Forest public website.

Adaptive Actions: Increasing Commercial Use

Adaptive actions are actions that will be taken when certain conditions (thresholds) are met. A list of possible management actions are provided in Table AM-1, above. Future actions would be tailored to respond to the specific impact identified. An appropriate response would be evaluated based on all available information, best science, and coordination with appropriate agency specialists and special use permit holders.

Phases of increasing service days for commercial use

Not all service days will be made immediately available upon project decision. The Adaptive Management Plan must be implemented before increasing service days. If conditions and monitoring are not met, then do not increase service days and do not reallocate any forfeited service days.

In addition to the conditions listed in the table below, the following conditions must be met before service days will be increased for each commercial use activity/area listed:

- Permit holders for that activity/area are using existing allocation of service days;
- Demand for commercial use is increasing for that activity/area; and
- Monitoring of the indicators identified in this plan yields no concerns or concerns have been addressed

When service days are increased, commercial service providers that use electric vehicles to transport clients will be given preference in allocation of service days. Also, to encourage service providers to distribute their use to April and October, a portion of the additional service days will be specified for allocation only during those months. Service day increases will be phased in as follows:

Table AM-4. Phases of increasing service days by activity and area.

Activity and Area	Service days[1] may be increased up to:	When the following conditions are met:
Transportation Services in Visitor Center Unit	30% of the additional service days in the selected alternative	Main parking lots complete
	30% of the additional service days in the selected alternative	Additional restrooms at Lakeshore plaza complete
	Maximum commercial use allocation in the selected alternative	Upon completion of all proposed infrastructure improvements including Welcome Center and 3 years of monitoring after the prior increase in service days have been completed
Outfitting and Guiding on Trails	50% of the additional service days in the selected alternative	Visitor Center, West Glacier, and Glacier Spur Road trailhead parking lots complete; main parking lots and additional restrooms complete; and trail improvements (for permitted trails) are complete
	Maximum commercial use allocation in the selected alternative	Three years of monitoring have been completed
Outfitting and Guiding at Mendenhall Lake and River Non-Motorized (Kayak, Canoe, Raft)	5,000 service days (total 21,240)	West Glacier parking lots are complete
	Maximum commercial use allocation in the selected alternative	Three years of monitoring have been completed

[1]Unguided commercial visitors are counted as transportation service days and do not contribute to the commercial use allocation on trails.

Scope of Work to Implement this Plan

Project-level monitoring is a commitment of resources to manage the national forest. The estimated scope of work to implement this plan on an annual basis is shown below. The estimated costs in the following tables are 2023 numbers and do not account for any future inflation.

Table AM-5. Summary of total monitoring costs per season.

Monitoring Task	Total Cost
E1. Are Visitor Center Unit facilities functioning to manage crowding?	$1,395.00
E2. Are MGRA trails providing opportunities consistent with the applicable recreation opportunity spectrum (ROS) designation?	$6,700.00
B1. Are the trails and facilities functioning to mitigate and contain human-bear encounters in order to protect the public and the bears as circumstances best allow?	$1,320.00
B2. Are trails and facilities functioning to limit visitor impacts to nesting shorebirds and seabirds?	$2,560.00
B3. Are trails and facilities functioning to prevent the spread of invasive plant species?	$6,000.00
L1. Are local residents visiting the MGRA?	$7,245.00
Data analysis and reporting	$6,004.00
Total	**$31,224.00**

The following tables show the cost breakdown for each monitoring task for one season of monitoring.

Table AM-6. E1. Are Visitor Center Unit facilities functioning to manage crowding?

Resource	Cost/Unit	Assumptions	Total Units	Total Cost
Monitoring Staff (GS-5)	$26/hr	Data collection: 1 hr/day x 30 days data Data management: 0.5 hr/day x 30 days	45 hrs	$1,170.00
Mobile device w/camera and GPS	~$675		0.33	$225.00
			Total	**$1,395.00**

Table AM-7. E2. Are MGRA trails providing opportunities consistent with the applicable recreation opportunity spectrum (ROS) designation?

Resource	Cost/Unit	Assumptions	Total Units	Total Cost
Monitoring and JRD Recreation Staff (GS-5 to GS-9)	$37/hr on average	Data collection: West Glacier: 4 hrs/day x 20 days = 80 hrs E. Glacier: 2.5 hrs/day x 20 days = 50 hrs Trail of Time/Steep Creek: 2 hr/day x 10 days = 20 hrs Data management: 0.5 hr/day x 50 days = 25 hrs	175 hrs	$6,475.00
Mobile device to record data	~$700		0.33	$225.00
			Total	**$6,700.00**

Table AM-8. B1. Are the trails and facilities functioning to mitigate and contain human-bear encounters in order to protect the public and the bears as circumstances best allow?

Resource	Cost/Unit	Assumptions	Total Units	Total Cost
MGVC Staff (GS-7)	$33/hr	Data compiling: 40 hrs	40 hrs	$1,320.00
			Total	**1,320.00**

Table AM-9. B2. Are trails and facilities functioning to limit visitor impacts to nesting shorebirds and seabirds?

Resource	Cost/Unit	Assumptions	Total Units	Total Cost
Forest Service Wildlife Biologist	$64/hr	Data collection: 40 hrs	40 hrs	$2,560.00
			Total	**$2,560.00**

Table AM-10. B3. Are trails and facilities functioning to prevent the spread of invasive plant species?

Resource	Cost/Unit	Assumptions	Total Units	Total Cost
Partner Staff	~$50/hr	Data collection: 80 hrs Data management: 40 hrs	120 hrs	$6,000.00
			Total	**$6,000.00**

Table AM-11.L1. Are local residents visiting the MGRA?

Resource	Cost/Unit	Assumptions	Total Units	Total Cost
Monitoring Staff (GS-5)	$26/hr	Data collection: 8 hrs/day x 30 days Data management: 1 hr/day x 30 days	270 hrs	$7,020.00
Mobile device w/camera and GPS	~$700		0.33	$225.00
			Total	**$7,245.00**

Table AM-12. Data analysis and reporting

Resource	Cost/Unit	Assumptions	Total Units	Total Cost
MGVC Staff (GS-9)	$58/hr	Data analysis: 24 hrs Reporting: 16 hrs	40 hrs	$2,320.00
JRD Staff (GS-9)	$58/hr	Data analysis: 24 hrs Reporting: 16 hrs	40 hrs	$2,320.00
GIS Staff (GS-11)	$69/hr	GIS and mapping support: 16 hrs	16 hrs	$1,104.00
Public Affairs/ Website Support	$65/hr	Public communications and website postings: 4 hrs	4 hrs	$260.00
			Total	**$6,004.00**

References

Interagency Visitor Use Management Council (IVUMC). 2019. Monitoring Guidebook: Evaluating Effectiveness of Visitor Use Management. Denver, CO. https://visitorusemanagement.nps.gov/VUM/Framework.

USDA Forest Service. 2009. Forest Service Manual 1900 – Planning, Chapter 1940 – Inventory, Monitoring, and Assessment Activities. USDA Forest Service, National Headquarters, Washington DC.