National Telecommunications
and Information Administration

Draft Environmental Assessment

NANA Regional Corporation, Inc. (NT23TBC0290014)

NANA Region Middle Mile Fiber Optic Project

Northwest Arctic Borough, Alaska

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List of Acronyms

AAC	Alaska Administrative Code
ACP	Arctic Coastal Plain
ADF&G	Alaska Department of Fish and Game
AHRS	Alaska Heritage Resources Survey
AIDEA	Alaska Industrial Development and Export Authority
ANCSA	Alaska Native Claim Settlements Act
ANILCA	Alaska National Interest Lands Conservation Act
APE	area of potential effect
AWC	Anadromous Waters Catalog
BCC	Birds of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BP	Before Present
C	Celsius
CBS	Chukchi/Bering Sea
CCP	Comprehensive Conservation Plan
dB	Decibels
DEC	Department of Environmental Conservation
DNR	Department of Natural Resources
DOD	Department of Defense
DOE	Determination of Eligibility
DOI	Department of Interior
DOT&PF	Department of Transportation and Public Facilities
DPS	Distinct Population Segment
DTS	desktop studies
EA	Environmental Assessment
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
ERMA	Extensive Recreation Management Area
FLPMA	Federal Land Policy and Management Act
FOC	Fiber Optic Cable
HDD	Horizontal Directional Drilling
Hz	Hertz
IPN	indigenous place names
KIC	Kikiktagruk Inupiat Corporation
km	kilometers
MBTA	Migratory Bird Treaty Act
NAB	Northwest Arctic Borough
NANA	NANA Regional Corporation
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTIA	National Telecommunications and Information Administration
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
OHA	Office of History and Archaeology

PILT	Payment in Lieu of Taxes
RDM	Red Dog Mine
RMP	Resource Management Plan
ROP	Required Operating Procedures
ROW	Right-of-Way
SGCN	Species of Greatest Conservation Need
SSS	Special Status Species
SWAP	State Wildlife Action Plan
TBCP	the Tribal Broadband Connectivity Program
TES	Threatened and Endangered Species
TUS	transportation and utility systems
USACE	US Army Corps of Engineers
USC	United States Code
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
VIF	Village Improvement Fund
VRM	Visual Resource Management
WAH	Western Arctic Herd
yrBP	years before present

1 INTRODUCTION

1.1 Background

NANA Regional Corporation, Inc. (NANA) is proposing to construct a broadband fiber as the recipient of a $65,168,000 grant from National Telecommunications and Information Administration (NTIA) under the Tribal Broadband Connectivity Program (TBCP), as part of award number NT23TBC0290014. The NANA Regional Broadband Network Project or "Project" would provide broadband internet to eight rural, underserved and unserved, predominately Alaska Native communities in the Northwest Arctic Borough, Alaska, including Ambler, Buckland, Deering, Kiana, Kivalina, Kobuk, Noatak, and Shungnak by deployment of fiber optic cable. Additionally, the proposed project would provide additional broadband infrastructure to Noorvik and Selawik.

U.S. Department of Interior (DOI) agencies received an Application for Transportation, Utility Systems, Telecommunication and Facilities on Federal Lands and Property (SF 299) on March 28, 2025. After receiving supplemental information, Bureau of Land Management (BLM) accepted the application as complete on July 1, 2025, and USFWS (US Fish and Wildlife Service) accepted the application as complete July 25, 2025.

The proposed project would require authorizations from Federal agencies, State of Alaska agencies, municipalities, and private landowners. NANA applied for and received coverage under the Fixing America's Surface Transportation Act (FAST-41) (42 USC 4370 m). FAST-41 is a legislatively established process for improving federal agency coordination and timeliness of environmental reviews for infrastructure projects. NTIA has assumed the role of Lead Agency for completion of an Environmental Assessment (EA), with the role of technical analysis, communication, and decision making under the National Environmental Policy Act (NEPA) (42 USC 4321 et seq.) as amended. BLM, NPS (National Park Service), FWS, USACE, NOAA are Cooperating Federal agencies and contributed to the EA by providing information and reviewing components to ensure it meets individual agencies' permitting requirements. The EA discloses environmental impacts and demonstrates compliance with applicable federal laws, regulations, and policies of the involved agencies.

1.2 Proposed Action

The proposed action under review in this EA includes the construction, operation and maintenance, and decommissioning of a fiber optic cable network across various routes within northwest Alaska. Additionally, the proposed action includes a change in management designation from Minimal to Moderate management category for lands within Selawik National Wildlife Refuge.

1.3 Purpose and Need

The purpose of this EA is to consider authorizations for infrastructure development that would provide broadband high-speed internet to the communities of Ambler, Buckland, Deering, Kiana, Kivalina, Kobuk, Noatak, and Shungnak, and addition infrastructure in Noorvik and Selawik.

The need for this action is established by the NTIA's responsibility under the National Environmental Policy Act (NEPA). The need established by the BLM's responsibility is under Title V of the Federal Land Policy and Management Act (FLPMA) of October 21, 1976 (90 Stat. 2776; 43 United States Code [USC] 1761), as amended, to respond to requests for rights-of-way across public lands. The need for the USFWS is to respond to applications for transportation and utility systems (TUS) in and across, and access into conservation system units under Title XI of the Alaska National Interest Lands

Conservation Act (ANILCA) (16 USC §§3161-3173) and the National Wildlife Refuge System Administration Act as amended by the National Wildlife Refuge System Improvement Act (16 USC 3101, 664, 668dd and 668ee and 43 USC 666).

1.4 Decision to be Made

The decision to be made by NTIA is to authorize the release of funds to deploy the Proposed Action.

The decision to be made by BLM and USFWS is whether to authorize grants for the installation and construction of a fiber optic cable network and associated structures, long-term operations of the network, maintenance and repairs of the network, and decommissioning of the project. The BLM and USFWS are required to evaluate the potential effects on the natural and human environment of the proposed action and alternatives.

This EA provides the technical analysis needed for each agency to independently make an informed decision regarding approval or rejection of the applications received, and if approved, the appropriate terms and conditions under which such approval would be granted.

1.5 Regulatory Authorities and Land Use Plan Conformance

As the lead federal agency, NTIA is responsible for evaluating the project under NEPA. A list of some major state, federal, and local permits needed for the project is provided in Section 1.5. This document is written in compliance with 43 CFR 46, and U.S. Department of the Interior Handbook of National Environmental Policy Act Implementing procedures (516 DM 1).

1.5.1 BLM

BLM's decisions on granting right-of-way grants are guided by the underlying authority derived from Title V, of the FLPMA (90 Stat. 2776; 43 USC 1761), as amended, and in accordance with regulations found in 43 CFR § 2800. Any BLM action must also be in conformance with the local Land Use Plan. The proposed action is in conformance with the 2008 Kobuk Seward Peninsula Approved Resource Management Plan/ Record of Decision (ARMP/ROD), and the applicable goals, objectives, or management decisions within as included below.

H. Lands, H-1 Goals (page A-RMP-18)

1. *Meet public needs for use authorizations such as ROW, leases, and permits while minimizing adverse impacts to other resource values.*
2. *Retain public lands with high resource values in public ownership.*
3. *Adjust land ownership to consolidate public land holdings, acquire lands with high public resource values, and meet public and community needs.*

H. Lands, H-2-a: Management Actions (Land Use Authorizations) (page A-RMP-19)

6. *Rights-of-way*
    - *Rights-of-way (ROWs) will be located near other ROWs or on already disturbed areas to the extent practical.*
    - *Communication site ROWs shall be co-located when feasible.*

1.5.2 USFWS

USFWS authorizes requests for rights-of-way in accordance with the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 USC 3101, 664, 668dd and 668ee and 43 USC 666) and Title XI of the Alaska National Interest Lands Conservation Act (16 USC 3161 et seq.); and ensures conformance with applicable Comprehensive Conservation Plans.

The project would affect lands designated under the Selawik National Wildlife Refuge Revised Comprehensive Conservation Plan (2011) (CCP) for Minimal Management. Authorization of a TUS across lands designated for Minimal Management would require the CCP to be amended or revised to change the designation of affected lands to Moderate or Intensive Management, and to ensure goals and objectives within the CCP remain achievable.

1.6 Scoping and Issues

NTIA and other cooperating agencies reviewed application materials provided by NANA and developed a list of issues for analysis. Additionally, public input on the scope of analysis were accepted August 4-19, 2025. These resource categories analyzed in the EA are listed below, and discussed in Chapter 3:

Table 1.6-1: Resource Categories Analyzed in the EA

Resource Category	Resource Category	Resource Category
Noise	Birds	Land Use
Hazardous Materials and Spills	Terrestrial Mammals	Socioeconomics
Geology and Soils	Marine Mammals	Subsistence
Water Resources	Threatened and Endangered Species	Recreation
Wetlands and Vegetation	Cultural/Historic Resources	
Fish and Fish Habitat	Visual Resources	

After consideration of the anticipated impacts of the proposed action and other alternatives, the following resources summarized in Table 1.6-2 were identified as not having potential for impacts and are dismissed from further consideration:

Table 1.6-2: Non-Issue Resource Categories

Resource Category	Evaluation
Air Quality	The projects would have negligible effect to the air quality of the affected environment. These effects would be limited in time to the duration of installation of the proposed cable and during maintenance activities.
Paleontology	There is the potential for paleontology resources in the project area. Almost all of the project area is Potential Fossil Yield Classification (PFYC) U, “Geologic units that cannot receive an informed PFYC assignment.” A small amount of the project area near Buckland has a PFYC of 1, “Geologic units that are not likely to contain recognizable paleontological resources.” Despite the “Unknown” classification, there is unlikely to be a significant impact to significant paleontological resources. This project primarily involves laying the fiber optic cable on the surface, which does not have the potential to impact paleontological resources. There is some ground disturbance proposed, however this extremely minimal amount of overall ground disturbance does not have the potential to impact significant paleontological resources.
Floodplains	Construction methodology (ground-lay fiber, ground fiber, aerial fiber) does not have the potential to change hydrodynamics due to its minimally invasive nature and lack of above-ground profile. Above ground structures are limited to vaults, poles, and similar infrastructure.
Water Quantity	The project would have negligible effect to water quantities. No use of water is proposed, outside of minor water used for construction. Water shall not be used from shallow waterbodies or other resources with limited water quantities.
Wilderness Areas	The project does not propose development that would impact wilderness areas.
Small Mammals	The project does not propose activity which would have a significant impact to small mammals. Direct impact may occur to individuals (i.e. interaction with heavy equipment, habitat modification from vegetation clearing), but no impacts are anticipated to exceed negligible impacts to small mammal populations.
Visitor Services	The project would have temporary impacts, primarily from construction activity (i.e. noise, visual). Design features have been incorporated to minimize impacts (i.e., aerial cable is high enough to not interfere on waterways with boaters; public information shall be made available, and outreach shall be conducted). Construction activities are primarily during the winter, the low season from recreation and visitor services. Noise and visual impacts would be short term. Impacts to sport hunters and fishermen would be avoided with winter construction methodology. Post construction activity (inspection, operations, repair and reclamation activities) would be limited and transitory.
Travel	The proposed project is not anticipated to change travel. Winter trails are an important infrastructure component of the landscape, and the project has been designed specifically to avoid impacts to winter trails. Waterway crossings include Horizontal Directional Drilling (HDD) on major rivers, aerial crossings on some rivers, and ground-lay on the remaining waterbodies. Obstructions to airspace are being permitted and marked in accordance with the Federal Aviation Administration requirements.

2 Alternatives

This section presents the alternatives for achieving the project's purpose and need, as well as a no action alternative (Figure 1). This EA includes completed figures (Appendix A), project description (Appendix B), Plan of Development (Appendix C), Avoidance Minimization and Mitigation Measures (Appendix D) and Management Plans (Appendix E). Detailed alternative screening is provided in Appendix F.

NANA Regional Corporation submitted an application to NTIA for funding under the Tribal Broadband Connectivity Program to install a fiber optic cable line that would facilitate the provision of affordable, high speed internet access throughout the NANA region. In preparation for submitting applications for right-of-way authorizations to the USFWS and BLM, NANA held pre-application meetings with both agencies to solicit preliminary input on the proposed routes. Agencies selected alternatives which are analyzed in the EA, and alternatives considered but discarded are discussed in Appendix F.

2.1 Alternatives

2.1.1 No Action Alternative

Under the No Action Alternative, the project would not be constructed and the environmental effects described in Section 3 would not occur. The BLM would not grant a right-of-way grant, and the USFWS would not authorize a right-of-way, or be required to change the CCP.

The No Action Alternative would not meet the purpose and need of the project. Existing broadband infrastructure would remain in place.

2.1.2 Alternative 1

This route connects the communities of the Northwest Arctic Borough (Appendix A, Figure 1). Two loops provide resiliency and redundancy, and connect: Kotzebue-Noorvik-Selawik, and Ambler-Kobuk-Shungnak. Lines extend from the loops, and connect to Noatak and Kivalina; Buckland and Deering, and Kiana.

This alignment features a crossing of Hotham Inlet (near Kotzebue), and a single corridor through most of the Selawik National Wildlife Refuge (NWR) to the loop that connects the Upper Kobuk communities.

The full project description is provided in Appendix B. The Plan of Operations (Appendix C) provides detailed construction methodology. The construction methodologies apply for all of the alternatives; the significant differences between the alternatives are the routing differences.

2.1.3 Alternative 2

Alternative 2 is a variation of Alternative 1, with changes in the eastern part of the alignment (Appendix A, Figure 1). This alternative eliminates the single cable "loop" connecting the easternmost communities, and replaces it with a double run cable, going north to Ambler, then Shungnak, and then Kobuk.

2.2 Alternatives Considered but Not Carried Forward for Detailed Analysis

Alternatives may be considered but not carried forward for detailed analysis under NEPA if it would not be technically or economically feasible or if it would not meet the purpose and need. These alternatives are described in Appendix F. They include alternative technologies (i.e. microwave tower and satellite services) and alternative alignments. These were eliminated from consideration because they did not meet the purpose and need because of quality-of-service requirements, or technical or economic feasibility.

Table 2.3-1: Route Summary

Item	No Action	Alternative 1	Alternative 2
Fiber Optic Cable (cable miles)	0	675.25	694.86
Subsea Fiber Crossings (miles)	0	10.21	10.21
Fiber Overland (cable miles)	0	640.19	658.67
Fiber Trench (cable miles)	0	0.89	1.3
Fiber Aerial (cable miles)	0	23.97	24.69
Stream/River Crossings (#)	0	761	768
River Crossings (Aerial) (#)*	0	20	19
River Crossings (Bore/HDD*) (#)	0	14	11
River Crossings (Ground Lay) (#)	0	727	738
Lake/Pond Crossings (#)	0	58	55
Permanent Loss of wetlands (acres)	0	0.004	0.004
Land Ownership (Right-of-Way: 60’ buffer (30’ either side))	0	4,276.96	4,032.04
Alaska Native Lands Patented or Interim Conveyed	0	2,048.93	1,944.31
Bureau of Land Management	0	1,046.10	984.40
Fish and Wildlife Service	0	637.73	567.93
Local Government	0	0.66	0
Private	0	24.96	19.12
State	0	401.19	401.19
Undetermined (i.e. water)	0	117.40	115.10

* 2 aerial crossings are attached to existing bridges (Kivalina and Selawik)
**Cable miles can be larger than miles of disturbed area, when cable is co-located.

3 Affected Environment and Impacts

The alternatives outlined in Chapter 2 may cause changes to the environment. This chapter assesses and analyzes the affected environment and potential changes and discloses the effects to decision makers and the public. The following bullets clarify some of the concepts:

- Impacts/Effects: The terms "effect" and "impact" are synonymous under NEPA. Effects may refer to adverse or beneficial phenomena that may be caused by the alternatives (40 CFR 1508.8).
- Direct/Indirect: A direct effect is caused by the action and occurs at the same time and place as the action (40 CFR 1508.8(a). An indirect effect is reasonably foreseeable, also caused by the action, that occur later in time or are removed in distance from the action (40 CFR 1508.8(b)).
- Significance (40 CFR 1508.27): Significance is defined as a measure of the intensity and context of the effect. Intensity refers to the severity of impact. Context means that the effect(s) of an action must be analyzed in context such as society as a whole (human, national), the affected region, the affected interests, and the locality.
- Intensity
  - Negligible: Change is too small to be measured, or no noticeable effect.
  - Minor: Change is just measurable. Change may affect a small portion (<15%) of individuals but not the overall population. There are no changes in management.
  - Moderate: Change is easily measured. Change may affect 15-75% of individuals of a population. There are required changes in management.
  - Major: A large, measurable change that is easily recognized. Change affects >75% of individuals of a population. There are profound changes in management.
  - Duration: Temporary (Short-lived [i.e., during construction]), Short-term (10 years or less), Long-term (More than 10 years)

3.1 Physical and Chemical Environment

3.1.1 Noise

3.1.1.1 Affected Environment

The Red Dog 2009 Environmental Impact Statement examined the background noise level for that project (EPA 2009), which is likely similar for the remote locations in this area. It found that typical natural noise levels varied between 15 - 45 dB(A), and storms were at about 65 dB(A). Monitoring at South Walker Lake in Gates of the Arctic National Park and Preserve (a similar location for remote sections of the project with best available data) found a time-averaged natural ambient sound pressure level of 20.9 dBA (Betchkal 2019). Subsistence activities with snowmachines, outboard motors, and float planes generated noise of 85 dB(A) at a distance of 50 feet from the source.

The Environmental Protection Agency (EPA) recommends a protective noise level for public health of 55 dB(A) for outside activities, and 45 decibels for indoor activities over a 24-hour period (EPA 1974).

The Northwest Arctic Borough code only limits 'excessive noise' that may disturb beluga or bowhead whales between April 15 and July 10 (Chapter 9.08.076.25(C)(3)), off-shore and on-shore uses within the areas of beluga, bowhead whale, or bearded seal, caribou or other species' migration which significantly interfere with subsistence activities or jeopardize the continued availability of migrating animals for subsistence purposes during the migration seasons (Chapter 9.08.076.25(C)(4)); and near species that are sensitive to noise (Chapter 9.25.020(D)(1)(a)). There are no quantitative limits to noise. That said, more recent studies on caribou suggest that they are extremely sensitive to low frequency noises (down to 30 Hz), which spans all potential industrial noises, including aircraft (Perra et al. 2022). Drolet et al. (2016) found white tailed deer had noise thresholds at 70 dB (discussed in the wildlife section). The WAH (Western Arctic Herd) is of critical importance to subsistence; it may be particularly sensitive to disturbance during calving and migration.

3.1.1.2 Environmental Consequences

The project would be anticipated to produce noise primarily during the construction phase. Limited noise, except for that produced through the potential route/cable inspections and repairs as described below, is anticipated for the operations and maintenance phase.

3.1.1.2.1 No Action Alternative

The No Action Alternative has no impacts to noise.

3.1.1.2.2 Alternative 1 Impacts

3.1.1.2.2.1 Construction Impact

Construction of the project would not result in any permanent increase in ambient noise levels.

Noise generated for all alternatives is anticipated to be relatively similar. Noise generated during construction activities would be transient and temporary, due to the anticipated rapid pace of cable placement. Table 3.1.1-1 provides a list of anticipated equipment that would be used to support cable deployment and field camp operations. All engines would only run when necessary, and include mufflers, which are specifically designed to reduce noise emitted by exhaust. The proposed operations may be anticipated to produce a maximum combined noise level of 93 dB(A) at 50-ft from project construction. At a distance of 2.3 miles, the construction noise would be indistinguishable from the EPA standard for indoor activity (45 dB(A)). At a distance of 38.1 miles, the noise would match the ambient levels observed at South Walker Lake. The anticipated rapid progress of the construction activities would minimize potential sustained noise levels in any area, and in most cases, the engines/equipment listed in Table 3.1.1-1 would not run simultaneously or at maximum output levels. Speeds are anticipated to be less than 10 mph for the overland equipment, and less than 10 knots for the vessels. Noise levels for the boats and equipment used for the subsea cable placement across Hotham Inlet are anticipated to be less than the levels for the equipment listed in Table 3.1.1-1. Additionally, the drilling equipment used for the installation of poles for the aerial waterbody crossings would have engines similar to those identified for the majority of the construction operations (Table 3.1.1-1).

Table 3.1.1-1: Noise of the loudest construction equipment proposed for the project

Sound Source	Sound Pressure Level [dB(A)]	Frequency/Duration	Maximum Combined Noise [dB(A)]	Wildlife Impacts [70 db(A)]	EPA Standard Indoor Activity [45 dB(A)]	South Walker Lake [20.9 dB(A)]
CAT D6	85 @ 50 ft (15m)	Transient/Temporary	93	706 feet (0.1 miles)	12,200 feet	201,358 feet

PistenBully 600	85 @ 50 ft (15m)	Transient/Temporary			(2.3 miles)	(38.1 miles)
Steiger 535	84 @ 50 ft (15 m)	Transient/Temporary				
Mulcher/Hydro-Ax	90 @ 50 ft	Transient/Temporary				
Generator	82 @ 50 ft	Transient/Temporary				
Snowmachine	85 @ 50 ft	Transient/Temporary				

Source: FHWA 2006, EPA 2009; Combined noise level is calculated using online calculator at: https://www.snapfour.com/CombinedNoise_Calculations.aspx. Distance to background calculated using online calculator at:https://www.engineeringtoolbox.com/inverse-square-law-d_890.html.

No established noise level standards exist in local or state regulations for the proposed activities. Since project construction noise would be transient, short-term, and primarily performed at distances greater than 1 mile from population centers, the project would produce no significant noise-related impacts.

3.1.1.2.2.2 Operations and Maintenance

The routine operation would not generate any noise. Aerial lines are not expected to cause a significant noise in the wind.

However, during routine and emergency maintenance activities some noise would occur. This includes annual helicopter (or fixed wing aircraft) overflights of the line for aerial inspection, and helicopter flights to address any maintenance that is required. In addition, winter overland travel may be required if winter maintenance is required (and this would likely be similar to the noise generated during the construction phase). Noise impacts, including helicopter use, can impact wildlife (i.e. caribou, migratory birds), recreation, and other environmental resources. These are discussed in their resource categories. Maintenance activities would occur intermittently and for short durations; thus, no significant noise-related impacts would be realized for project operation. In general, the noise created during the construction and operational phases of the project would not be louder than noise levels commonly heard in the region (Table 3.1.1-2).

Table 3.1.1-2: Noise levels from common engine sources that occur in the region

Equipment	Typical Sound Pressure Level (dB(A))
Outboard boat motor	85-90
Snowmachine	85
Highway vehicle	70-80

Noise impacts from Alternative 1 would be temporary and minor.

3.1.1.2.3 Alternative 2 Impacts

Noise impacts from Alternative 2 would be similar to Alternative 1 and would be temporary and minor.

3.1.2 Hazardous Materials and Spills

3.1.2.1 Affected Environment

The Alaska Department of Environmental Conservation (DEC) maintains a web map of known contaminated sites in the region (DEC 2025). DEC categorizes contaminated sites by the status described below (Table 3.1.2-1). All sites within 500 feet of one of the alternative routes were selected for a screening level analysis, in Appendix G. Sites are typically located in proximity to communities, although some sites are in more remote locations (Figure 3.1.2-1).

Table 3.1.2-1: Contaminated Site Status*

Contaminated Site Status	Definition	No Action	Alt 1	Alt 2
Open	Sites with confirmed contamination above action levels which require additional characterization, monitoring, or cleanup before a closure decision can be made.	0	13	13
Cleanup Complete – Institutional Controls	Sites where no further remediation is planned and the potential for future exposure to residual contamination warrants the use of institutional controls.	0	2	2
Cleanup Complete	Sites where remediation efforts are complete and any remaining contamination is below the levels that would pose a threat to human health or the environment.	0	7	7
Informational	Site record entered to track area-wide, site-wide, or facility-wide information that does not represent a distinct site, etc.	0	1	1

*sites within 500 feet to either side of an alternative

3.1.2.2 Environmental Consequences

3.1.2.2.1 No Action Alternative

The No Action Alternative has no impacts.

3.1.2.2.2 Alternative 1 Impacts

The project alignment was buffered 500 feet on either side, and all Open and/or Informational sites were reviewed for the potential to have negative interactions with the proposed project (see Appendix G). The Open and Informational sites listed in Table 3.1.2-1 are located near all alternatives, unless otherwise noted in the table.

There are sites in the vicinity of the proposed alternatives that have the potential to lead to inadvertent discovery of contaminated soil. Coordination would occur with appropriate agencies to address potential contamination found during construction. A contaminated soil management plan shall be prepared for review and approval by DEC under 18 AAC 75.325(i), providing instructions on how to identify, segregate, and address contamination discovered during construction. DEC guidance on managing contamination during utility construction would be followed (DEC 2018).

Construction would require the use of some hazardous materials including fuel, lubricating oil, and other constituents. This would include measures to prevent impacts on water quality (e.g., fueling activities must be conducted >100 feet away from surface waters).

Normal operations are passive and do not require hazardous materials. The fiber optic cable transmits data through light signals that travel along thin strands of glass or plastic and does not generate any radiation or heat.

During maintenance or repair activities the use of hazardous materials would be necessary, including fuel, lubricating oil, and other constituents. These activities would be completed under BMPs (Appendix E3) to address the storage, handling, and cleanup of potential spills. As a result, no significant impacts are expected during operations.

Impacts from Alternative 1 would be temporary and negligible to minor.

3.1.2.2.3 Alternative 2 Impacts

Impacts would be similar to Alternative 1 and would be temporary and negligible to minor.

3.1.3 Geology and Soils

3.1.3.1 Affected Environment

The area includes coastal lowlands and foothills, which reach up to 3,000 feet (BLM 2008). Permafrost underlies the majority of the area, and in the summer an active layer develops. Common landforms include tussock tundra, thermokarst lakes, and polygonal ground. Soils tend to be finely grained, poorly drained; while those on slopes or riverine environments can be gravelly, colluvial and weathered bedrock.

The Natural Resources Conservation Service (NRCS) has created a detailed digital soil survey for Alaska, named the Soil Survey Geographic Database (NRCS 2025). This provides information on the kinds and distribution of soils over the landscape, including soil characteristics, properties, and potential limitations or suitability for development or construction. This information is mapped at a scale of 1:250,000, and is the best available data for the project, but does not provide fine scaled mapping.

A soil component of particular interest for development is the erodibility factor (K-Factor). K-Factor quantifies how vulnerable an area is to erosion. Higher K-Factors indicate greater susceptibility to soil loss during construction. Soil properties that influence the K-Factor include texture, organic matter, structure, and permeability. Figure 3.1.3-1 maps the K-Factors for soils along the project alignments.

Another soil component of interest is the hydric class, which classifies soils according to degree of wetness. This can be an important factor in development, as hydric soils can be unstable, difficult to travel across, or protected as wetlands. Soil that is classified as hydric is saturated, flooded, or ponded long enough to develop anaerobic conditions in the upper soil layers during the growing season. Hydric soil is an important factor in determining if an area is a wetland (in combination with hydric vegetation and hydric hydrology). Figure 3.1.3-2 maps the soil hydric class. Permafrost extent and character is an important construction consideration. Warming temperatures and increased precipitation are contributing to warming and thawing of permafrost (Smith et al. 2022). Vegetation clearing and disruption of the insulating surface organic layer can result in thawing of underlying permafrost and loss of soil volume (thermokarst). The severity of these impacts depends strongly on the ice content of the frozen soil. Statewide mapping of permafrost features by Jorgenson et al. (2008) covers most of the project area (Jorgenson et al. 2015 provides coverage only part of the project area). The data provided for each mapped polygon includes estimated excess ice content (by volume) in the top 5 meters (16.4 feet) of soil, based on surficial geology (Figure 3.1.3-3). Approximately 15 percent of the project area is classified as having high (greater than 40 percent) excess ice content. Ice content is moderate (10 to 40 percent) in an additional 50 percent of the project area. In the remaining 35 percent of the project area, ice content is low (less than 10 percent) or variable, or the ground is unfrozen.

All alternatives for this project avoid the protected areas of known active sand dunes but crosses stabilized re-vegetated dunes. Outside of the protected areas, there are areas in the project with sensitive successional sand dunes (i.e. lichen covered dunes) - located in the northeast corner of Selawik National Wildlife Refuge, depicted on Patton (1968). These areas are particularly sensitive to disturbance.

The only past or present actions that are known to significantly influence soil conditions are the established developments around communities, which can include gravel pads for housing, roads, utilities, and other infrastructure. These can lead to local impacts to soil and geotechnical stability, particularly in permafrost rich areas.

3.1.3.2 Environmental Consequences

3.1.3.2.1 No Action Alternative

The No Action Alternative has no impacts.

3.1.3.2.2 Alternative 1 Impacts

3.1.3.2.2.1 Construction Impact

Changes to the surface organic layer can result in thawing of underlying permafrost. Where the minimum snow cover is not followed, and snow cover is low or absent, winter travel may damage the insulating surface organic layer and lead to thawing of the underlying frozen ground. Vegetation clearing can also impact permafrost, by removing shade and changing how snow interacts with the ground. In areas with moderate to high ground ice content, this thawing could result in loss of soil volume and subsidence (thermokarst), as well as possible changes to local runoff patterns. For this reason, the recommended snow coverage minimums should be followed and disturbance of insulating organic layers should be avoided and/or minimized.

The Fiber Optic Cable (FOC) would be buried for short distances near several communities, requiring the excavation of trenches during the summer. Trenching would disrupt the surface organic mat, including the living moss layer. The areas of potential impacts would be limited, as the trenches would be narrow (approximately 1 feet wide) and 1,500-feet or less in length. Trenching is proposed for 2,161 sq ft in low ice content, 2,194 sq ft in moderate ice content, 60 sq ft in high ice content, and 200 sq ft in variable ice content. If trenching encounters permafrost, it would not excavate into the permafrost. If trenching occurs in areas with moderate to high ice content, thawing may occur while the frozen ground is exposed during trenching. If thawing begins, it may continue after the trench is backfilled, unless the backfill material has high insulation value. Impacts from trenching would be minimal in areas with low soil ice content. Table 3.1.3-1 summarizes the soil ice content for the action alternatives.

Table 3.1.3-1. Areas of each category of ground ice content (excess ice in top 5 meters [16.4 feet]), based on surficial geology, within the right-of-way for the action alternatives.

Ground Ice Content (Volume)	No Action	Alternative 1		Alternative 2	
		30 ft Buffer Area (acres)	60 ft Buffer Area (acres)	30 ft Buffer Area (acres)	60 ft Buffer Area (acres)
High (> 40%)	0	301.88	603.71	302.06	604.08
Moderate (10-40%)	0	990.63	1,981.06	978.45	1,956.74
Low (<10%)	0	379.03	758.13	269.95	539.98
Variable	0	2.72	5.44	2.72	5.44
Unfrozen	0	366.11	732.10	364.69	729.29
Not Determined	0	98.27	196.51	98.27	196.51
Total	0	2,138.63	4,276.96	2,016.14	4,032.04

Source: Jorgenson et al. 2008

The relative proportions of low, moderate, variable, and high ground-ice classes within the ROW are similar for the action alternatives, indicating little difference in the potential for permafrost impacts.

Construction of the project would not result in permanent changes to soils (i.e., erodibility, soil hydric class, sands). The construction methodology has been chosen to avoid impacts to soils. these methods include ground-laying cable, HDD bores, and aerial installation. Anchors, poles, and splices may disturb the local vegetation and soils, but their limited size is not anticipated to result in impacts to soils. Where the minimum snow cover is followed, soil erosion, compaction, or degradation of the permafrost is not expected (including stabilized sand dunes in the northeast corner of Selawik National Wildlife Refuge).

Trenching is proposed in the summer in the vicinity of communities, improving safety for community members. Trenching shall minimize the potential thermal degradation of permafrost by not trenching into the depth that permafrost is encountered, and temporarily side casting material and quickly replacing the material into the trench. There may be localized thawing of permafrost along these sections, which would be a long-term minor impact.

Some trenching may be required on stream crossings with overhanging banks. This trenching shall occur during the winter. These crossings shall involve clearing snow, shallowly excavating (12 inches wide, 10 feet long) into the bank using a mini excavator, placing the fiber in the trench, and backfilling the trench with side cast bank material. During excavation, the organic layer shall be temporarily removed, but excavations shall not reach the permafrost layer. It is estimated that 10 of the ground-lay stream crossings shall require bank excavation, and these have been permitted with ADF&G and analyzed by NMFS in the Essential Fish Habitat consultation. Winter trenching in permafrost is commonly used in the North Slope, to preserve the permafrost. This method is expected to limit impacts to at most negligible effects to soil and permafrost for stream crossings. There may be localized thawing of permafrost along these sections, which would be a long-term minor impact.

3.1.3.2.2.2 Operations and Maintenance

The routine operation of the FOC is passive, since the cable remains undisturbed in the soils unless it needs to be accessed for maintenance activities, as discussed below, and therefore would not generate any changes in soils (i.e., erosion, hydric status).

During maintenance activities however, some disturbance of soil may occur. These impacts would be similar to the impacts generated during the construction phase, although generally much smaller in scale. Maintenance activities would occur intermittently, as needed, but the amount of activity is undetermined and will be localized to damage to the cable.

Impacts from Alternative 1 would be long-term and minor.

3.1.3.2.3 Alternative 2 Impacts

Alternative 2 eliminates the southern portion of the eastern loop and replaces it with co-located cable. This results in fewer acres of impact, but slightly more ground-lay stream crossings, 1 fewer aerial stream crossing, and three fewer HDD stream crossings. Impacts from Alternative 2 would be long-term and minor.

3.1.4 Water Resources

3.1.4.1 Affected Environment

3.1.4.1.1 Surface Waterbodies

3.1.4.1.1.1 Streams and Rivers

The several large rivers and hundreds of smaller rivers and streams that intersect the project provide water conveyance, fish and wildlife habitat, floodplain storage, and watercourse/wetland connectivity. Stream gage records of discharge and stage in the area are limited. Locations with either current or historic streamflow data from the U.S. Geological Survey (USGS) include Dahl Creek (near Kobuk, USGS 15743850), Kobuk River (near Kiana, USGS 15744500), Noatak River (near Noatak, USGS 15746000), Tutak Creek (near Kivalina, USGS 15746998), and two locations on the Wulik River (near Kivalina, USGS 15746900 and USGS 15747000). Generally, maximum discharge occurs during spring break-up, which usually happens in late May, and minimum stream flows occur in March. Flows typically increase in the fall during rain events. Long-term monitoring of the Kobuk River stream gage near Kiana indicates a lengthening of the open water period since recording began in the mid-1970s (O'Donnell et al. 2015, Tape et al. 2016). During spring break-up, the timing of peak discharge occurred earlier by 3.5 days per decade. Similarly, in the fall, river freeze-up occurred later by nearly 7 days per decade (NPS 2017).

Hydrologic conditions are generally changing in the Arctic due to climatological drivers such as warming temperatures and increasing precipitation. Trends include increasing mean annual flow, extreme low winter flows, a decrease in the snowmelt-driven annual maximum flow, and more frequent secondary peak flow events in late summer. Future projections of peak flow events remain unclear because peak flow could either increase or decrease depending on the specific region and localized weather and climate trends (Shrestha et al. 2021).

DEC provides information on impaired surface waters and water quality monitoring data to the public. There are no impaired waters in the NAB (Northwest Arctic Borough) (ADEC 2024, 2025). Additionally, various agencies and projects have infrequent records of water temperature and other water quality parameters at several locations within the region (AKTEMP 2025). Generally, water quality in the region is considered good. However, there have been reports and concerns of elevated concentrations of metals and organic carbon in the region, pointing to the vulnerability of surface waters due to changes in permafrost thaw and erosion (O'Donnell et al. 2015, 2024).

A comprehensive water quality and physical parameters survey was conducted on the Selawik River from July 24-August 11, 2023 which documented data at fourteen sampling locations (DEC 2023). Some of the results from the survey include an average pH of 8.11, an average water temperature of 14.11°C, average specific conductance of 75.09 µS/cm, and average dissolved oxygen of 9.39 mg/L.

3.1.4.1.1.2 Lakes and Ponds

Numerous lakes and ponds are within the proposed project corridor, and they are primarily located along wetland areas and lower gradient sections of rivers. There is very limited data available on water quantity, quality, or bathymetry for these lakes. Surveys of shallow lakes in Kobuk Valley National Park, however, indicate generally good water quality, as well as decreased surface area due to warming permafrost (NPS 2017).

3.1.4.1.1.3 Navigable Waters

The U.S. Army Corps of Engineers (USACE) has authority over navigable waters in Alaska that are regulated under Section 10 of the Rivers and Harbors Act. These are defined as tidal water and those waters subject to the ebb and flow of the tide shoreward to the mean highwater mark and/or those waters that are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Four rivers in the project area meet the regulatory definition of navigable water under jurisdiction of the USACE, including the Noatak River up to its confluence with Portage Creek, the Kobuk River for 200 miles upstream from tidal waters, the Buckland River from its mouth upstream to its confluence with the West Fork Buckland River, and the entire length of the Selawik River. The Kivalina Lagoon is also a Section 10 water, as is Hotham Inlet. Additional USACE Clean Water Act permitting shall require that the infrastructure does not interfere with the public's ability to freely navigate on these navigable waters. Impacts are avoided to these waters by using HDD, attaching to existing bridges (i.e. Selawik and Kivalina Lagoon), and burial in the marine benthic environment (Hotham Inlet).

The State of Alaska Department of Natural Resources (DNR) has management authority for state lands, including the submerged land, water, tidelands, and shorelands of navigable waters within the State. This authority includes management of navigable waters that are navigable for title purposes, tidelands, and shorelands within and adjacent to the boundaries of federal lands, including conservation system units created under ANILCA. There are 31 rivers designated as navigable by DNR that are crossed by the project (Appendix H, Stream Crossings).

Through the Submerged Lands Act of 1988, the BLM has the delegated authority to determine navigability for waterbodies for federal lands. Navigability for title purposes is yet to be determined for many of the waterbodies throughout the project area.

3.1.4.1.2 Coastal Zones

Impacts to the region's coastal zones would be limited to FOC crossing locations within Hotham Inlet, an arm of Kotzebue Sound. Hotham Inlet is approximately 50 miles long and almost entirely bounded by land with the exception of a narrow 2-mile outlet into Kotzebue Sound. Between the mouth of the Noatak River to the north and the tip of the Baldwin Peninsula to the south, this narrow channel connects Hotham Inlet to Kotzebue Sound, just east of the city of Kotzebue. In addition to the Noatak, the Kobuk and Selawik Rivers also flow into the inlet, contributing a major influx of freshwater and significant amounts of sediment and terrestrial organic matter to this shallow coastal area (Whiting et al. 2011, McMahon et cl. 2021). Benthic substrate within the inlet is primarily composed of mud and sand with small areas of coarse gravel. Northern beachfronts tend to be composed of sand and gravel. Tidal fluctuations are minor and are generally within +2 to -2 feet.

Hotham Inlet freezes over in the winter with ice forming in October and break-up starting in May. An unprecedented anomaly to this persistent winter sea ice occurred in the winters of 2017/18 and 2018/19 when Kotzebue Sound remained largely ice free. Observations from these winters reported that the only persistent sea ice remained at the outflow of the Noatak and Kobuk Rivers, where cold, low-salinity freshwater flows into the inlet (Witte et al. 2021).

In addition to Hotham Inlet Kugruk Estuary, a freshwater-brackish lagoon along the southern coast of Kotzebue Sound near the village of Deering, is also contained in the proposed project area. This estuary is defined as a stable-channel lagoon that provides a continual source of water between the freshwater and marine environments (Fraley et al. 2022). Kugruk Estuary is fed by Kugruk River, which originates from the Kuzitrin River on the Seward Peninsula.

3.1.4.1.3 Groundwater and Drinking Water Resources

Groundwater and drinking water resources are present along the proposed project corridors. DNR maintains a list of water rights and temporary water use authorizations for surface and groundwater (subsurface) water sources. Near the proposed project corridor there are five subsurface water rights in the communities of Noatak, Kiana, Ambler, and Kobuk and eleven surface water rights in the communities of Kivalina, Kotzebue, Buckland, Deering, Selawik, and Noorvik, as well as several private uses. There are currently six surface temporary water uses. The Selawik NWR has explicit, but unquantified federal reserved water rights conferred as part of the Refuge establishment under ANILCA (1980), which expanded the Refuge's purposes to include, "to ensure, to the maximum extent practicable and in a manner consistent with the purposes of the Refuge, water quality, and necessary water quantity within the Refuge. Additionally, the Alaska Department of Fish and Game (ADF&G) holds instream water rights through Reservations of Water on the Wulik and Kobuk rivers.

Within the project area, there is one known source of groundwater contamination from petroleum in Kotzebue where two separate and now comingled spills occurred at the former school/hospital (DEC Site File No. 410.38.02). The contamination is actively being monitored and remediated.

3.1.4.2 Environmental Consequences

3.1.4.2.1 No Action Alternative

The No Action Alternative has no impacts.

3.1.4.2.2 Alternative 1 Impacts

3.1.4.2.2.1 Construction Impact

Waterbody and streambank crossings have the potential to be impacted by construction through increased sedimentation, habitat disruption, altered hydrology, introduction of invasive plant species, and pollution introduction. As such, a concerted effort has been made to limit the number of waterbody crossings to minimize any potential construction impacts. The number of waterbody crossings (and miles for subsea crossings) for each alternative is listed in Table 2.3-1, and Appendix H.

Hydrologic connectivity would be maintained through all watercourse crossing methods. FOC crossing methods primarily involve ground-lay of FOC across the riverbed in smaller streams. The FOC would cross larger waterbodies through a mixture of HDD, aerial, and ground-lay crossings.

The ground-lay fiber installation, while chosen to minimize environmental impacts, may involve some temporary ground disturbing activities at streambanks with steep cutbanks. Where steep cutbanks exist, the streambank would be shallowly excavated (12 inches wide, 10 feet long), allowing for the cable to be trenched. It is estimated that 10 of the ground lay stream crossings shall require bank excavation. These crossings shall involve clearing snow, shallowly excavating into the bank using a mini excavator, placing the fiber in the trench, and backfilling the trench with side cast bank material. During excavation, the organic layer shall be temporarily removed. Backfill of any excavations near streams or other waterbodies, including those necessary for the placement of anchors or poles and anchor wires, would use native material. This disturbance has the potential to contribute to erosion and sedimentation. Revegetation and monitoring would help prevent long-term impacts to stream banks and water quality.

Ice may become compacted in waterways during construction activity from the weight of the vehicles crossing rivers and lakes and compressing the ice. However, in most cases, each waterbody shall only be crossed one time, so this minimal impact is not expected to impact water quality, scour, or hydrologic connectivity.

Horizontal directional drilling (HDD) avoids the potential impacts to waterbodies. For all the alternatives, HDD crossings occur entirely on privately owned lands with one HDD crossing on State land. HDD methods require use of local water sources, ranging from 200 – 1,000 gallons for each individual crossing. These would be withdrawn from the local waterbody. HDD methods do pose a low risk of frac-outs, where bentonite drilling mud inadvertently escapes through subsurface fractures and discharges into surface waters (Appendix C Section 3.2.2). This can lead to localized turbidity, disturbing aquatic habitat, and chemical changes in water quality, although bentonite is generally considered non-toxic. Groundwater resources can potentially be affected in permafrost zones where fractures or ice lenses can allow drilling fluids to migrate beyond the borehole and into subsurface layers. Frac-out risk is mitigated through careful planning, proper design and execution, and a well-defined contingency plan (Appendix E). There is also the potential for short-term impacts due to bank destabilization from construction crews and equipment crossing streambanks to access the land. Drilling operations would comply with site-specific erosion and sediment control plans and include 24/7 monitoring to ensure the integrity of the drill path and avoid inadvertent returns of drilling fluid to the river.

Aerial crossings are not expected to impact waterbodies because the ground infrastructure (e.g., support poles and guy wires) shall be placed a distance away from the streambank that allows for a sufficient buffer to protect riparian zones and minimize disturbance to waterbodies. Additionally, aerial crossings do not require in-water work or disturbance of streambeds. Wooden poles used to support aerial crossings are not expected to impact waterbodies or water quality, as they shall be setback at least 25 feet from the ordinary high water mark. Aerial crossings are proposed to occur on privately owned lands, BLM lands, and within Selawik NWR.

Potential impacts to coastal zones may occur where FOC trenching is proposed, which can disrupt sediment transport and coastal hydrology if not properly routed. Construction has the potential to increase turbidity due to erosion and increase the risk of hazardous chemical spills. BMPs would be implemented throughout the operation to protect the aquatic environment, minimize bank erosion, and avoid creating drainage paths (see Section 4 for more details). No significant impacts are anticipated to waterbodies.

No impacts are anticipated for the water rights, temporary water use authorizations, and/or Reservations of Water because water use is not a component of this project.

3.1.4.2.3 Operations and Maintenance Impact

Ongoing operation of the FOC network would not have any impact on surface or groundwater quality or quantity. Occasional maintenance activities may be required to repair breaks in the cable. These repairs would be conducted in a similar manner to those described for construction. Cable breaks would most likely be accessed by aerial or winter off-road travel. These are expected to be limited in duration and intensity and have no significant impact on waterbodies.

Alternative 1 is expected to have 761 stream/river crossings, with 727 ground-lay crossings, 20 aerial crossings, and 14 HDD crossings. Approximately 10 miles of the marine environment would be crossed. These crossings are not expected to significantly impact the waterbodies, due to the above-described construction methods, i.e., winter ground-lay, aerial and HDD crossings at large rivers, and enactment of BMPs.

Impacts from Alternative 1 would be long-term and negligible to minor.

3.1.4.2.4 Alternative 2 Impacts

Alternative 2 eliminates the southern portion of the eastern loop and replaces it with co-located cable. This results in fewer acres of impact, but slightly more ground-lay stream crossings, 1 fewer aerial stream crossing, and 3 fewer HDD stream crossings.

3.2 Biological Environment

3.2.1 Wetlands and Vegetation

3.2.1.1 Affected Environment

3.2.1.1.1 Vegetation

The project area for the Wetlands and Vegetation analysis is the combined area of the proposed ROW that encompasses the action alternatives. The Landfire Existing Vegetation Type dataset for Alaska (Landfire 2025a) was used to describe the range of vegetation types occurring in the project area. The existing vegetation in the project area consists of a mixture of arctic and boreal vegetation classes, including tundra, shrublands, and forests (Appendix I, *Vegetation and Wetlands*, Table 1). The most abundant vegetation type is Tussock Tundra which is dominated by *Eriophorum vaginatum* (tussock cottongrass) and a variety of dwarf shrubs. Other common vegetation types in the project area include Dwarf Shrubland and Willow Shrubland. Figure 3.2.1-1 shows the Landfire (2025a) vegetation types in the project area. Portions of the route cross 2 Ecosystems of Conservation Concern; the Arctic Pingos and Beringian Alpine Limestone Dryas ecosite types (ACCS 2025). Both of these ecosystem types are widespread in the region (Boggs et al. 2019). BLM's listed sensitive plant species are included in Appendix I.

This project is expected to require some clearing of vegetation that projects more than 8 inches above the snow surface within the ROW to allow for construction equipment passage. It is assumed clearing would occur in all vegetation types that include trees or low to tall shrubs. Dwarf shrubs (defined as being less than 8 inches in height) were excluded, as clearing shall not take place below 8 inches. Landfire (2025b) was used to estimate the acreage with vegetation greater than 0.2 meter

(8 inches) in height for each alternative (Figure 3.2.1-2). Data are classified by average height of the dominant vegetation grouped in 30-meter (98.5 feet) cells.

3.2.1.1.2 Wetlands

National Wetlands Inventory (NWI) wetland mapping is available for approximately half the project area (Figure 3.2.1-3). Wetlands or waters encompass a majority of the project area. The wetlands consist primarily of seasonally saturated Freshwater Forested/Shrub Wetlands and Freshwater Emergent Wetlands, which are abundant across the northwest Alaska region. For the portions of the project area where NWI mapping does not exist, likely wetland status (i.e., wetland or upland) was assessed based on a more detailed set of vegetation types included in the Landfire Existing Vegetation Type data set (Landfire 2025a; see Appendix I, *Wetlands and Vegetation*, Table 1). The areas without NWI mapping included only minimal acreages of open water.

The wetlands and vegetation in the area are largely undisturbed by current or past development. The exceptions are developed areas around communities and historic travel routes.

3.2.1.1.3 Fire

Wildland fire management and response are coordinated through the Alaska Interagency Coordination Center (Figure 3.2.1-4). Management options are defined through four fire management options, including: “critical,” “full,” “modified,” and “limited.” *Critical* have highest priority, *Full* response are aggressive initial attack, *Limited* are allowed to burn while protecting human life and site-specific values. The *Modified* option is treated as *Full* during the peak of fire season, then switches to *Limited* when large fire growth is less likely.

3.2.1.2 Environmental Consequences

3.2.1.2.1 Resilience to Winter Tundra Travel

Wells et al. (2018, 2020) developed rankings for ecotypes[1] of the Arctic Coastal Plain (ACP) for resilience to a range of potential disturbances, including winter tundra travel. Ecotypes were ranked as having low, moderate, or high resilience to each disturbance type, based on vegetation and physical characteristics. Ecotype characteristics that were used to determine resilience included the abundance of evergreen shrubs, vegetation height, and microtopographic relief (e.g., polygonal ground features). Appendix I provides the ecosystem translation tables for each resilience category.

The ACP is dominated by wet sedge terrain, tussock tundra, sedge-Dryas tundra, and low willow thickets. The project’s ecosystems differ, and include forests, shrublands, and lowland vegetation similar to the ACP. Additional descriptions of differences are available in Nowacki 2001. Although the project area is in a different bioclimatic zone, many of the vegetation types are similar to those that occur on the ACP (Nowacki 2001, S. Bishop, pers. comm., based on extensive field experience in both areas). Therefore, the same criteria were used to develop rankings for resilience to winter tundra travel in the project area. These rankings should be considered only as general guidance, since differences between the ACP and the project area may affect resilience in ways that are not currently understood. This analysis is based on the more detailed vegetation types included in the Landfire data set, which were also used to determine likely wetland status. Vegetation types that include cottongrass tussocks were ranked as having low resilience, as this plant growth form is vulnerable to damage from winter tundra travel. Vegetation types that include trees, which do not

[1] Ecotypes are “areas of the landscape with a unique set of state factors that are relatively stable through time” (Wells et al. 2020).

occur on the ACP, were also ranked as having low resilience, because they may require clearing, and trees need many years to regrow.

Based on these preliminary rankings, the majority of the area consists of vegetation types with low resilience to winter tundra travel. Approximately half of this total is ranked as having low resilience due to the presence of tussocks. The remaining areas with low resilience are included due to the presence of trees, evergreen shrubs, or polygonal ground. Overlap occurs because both tussock tundra vegetation types include evergreen shrubs.

3.2.1.2.2 No Action Alternative

The No Action Alternative has no impacts.

3.2.1.2.3 Alternative 1 Impacts

The proposed project's impacts to vegetation and wetlands would result primarily from winter tundra travel associated with construction activities. Sensitive habitats, including pingos, were avoided to the extent practicable during route selection. More limited, but higher intensity direct impacts, would come from the need to clear vegetation and from summer trenching activities near the target communities. Areas that may be impacted were calculated based on effects to a 30-foot-wide (15-foot on either side) corridor; however, most travel would occur within a narrower 15-foot-wide corridor, so actual acreages affected would be smaller.

No changes are expected from how fire behaves in the area or how fire is managed, and fire suppression is not anticipated to be required along the ROW. If fire threatens the cable, fire management practices would remain the same as for areas not around the cable. No change in fire suppression strategy, initial attack response, or fuel reduction projects is anticipated or requested for this project. If the area burns, the cable could be assessed for functionality after the fire moves away. Rapid repairs could be made to replace specific points of loss, and then permanent design and repair could take place after initial triage is complete.

The potential for introduction of nonnative and invasive species is expected to be low, since most project work shall be conducted during the winter. Waterbodies (marine and freshwater) shall be frozen at the surface and the placement of the FOC would require no in-water work. Summer construction involving in-water work would be conducted at the Hotham Inlet and Kugruk Estuary crossings; however, the vessels used in these locations would already be operating in area waters and are unlikely to introduce any nonnative or invasive species. Equipment used for summer, terrestrial work shall be cleaned before use to minimize the risk of introducing non-native plants.

3.2.1.2.3.1 Impacts from Winter Tundra Travel

The most likely impacts to vegetation from winter tundra travel are damage to shrubs and cottongrass tussocks that project above the snow surface and disruption of the surface organic mat, which provides insulation for the underlying frozen ground. The surface organic mat includes living mosses and lichens, as well as partially decomposed vascular and nonvascular vegetation. In some areas, these impacts shall be cumulative with disturbance from existing winter trails used by local residents for subsistence activities. No soil compaction or changes in phenology is expected due to the snow cover, frozen ground, and low-pressure vehicles.

Deciduous shrubs, particularly willows (*Salix* spp.) are generally adapted to natural disturbance, such as flooding and browsing, and typically recover rapidly from both natural and human-caused disturbance (Jorgenson et al. 2010). Evergreen shrubs, including common tundra species, such as mountain avens (*Dryas* spp.), lowbush cranberry (*Vaccinium vitis-idaea*), Labrador tea (*Ledum* spp.), and crowberry (*Empetrum nigrum*), are less tolerant of disturbance. Cottongrass tussocks often protrude above the surface if snow cover is shallow and are vulnerable to scuffing or breakage because of their morphology. Damaged tussocks may lead to a change in vegetation type as they are replaced by forbs and other graminoid species.

Studies of long-term effects of seismic exploration on the ACP (Jorgenson et al. 1996, 2010) provide the best available information on potential impacts to vegetation from winter tundra travel associated with the project. Many of the vegetation types in the project area are similar to those on the ACP, and the vehicle types and activities involved are generally similar. These studies found that sites with low to moderate levels of initial disturbance showed good recovery within 18 years, while recovery was poor at highly disturbed sites. A similar time frame for recovery is expected for vegetation in the project, with good recovery in 1-2 decades at sites with low to moderate disturbance. Recovery would be slower for sites with higher levels of disturbance, including damage to tussocks, tree cutting, or permafrost disruption. The authors concluded that winter travel should be avoided in sensitive vegetation types, including tussock tundra, that some types of disturbance may not recover, but that riparian shrub communities recovered rapidly from disturbance. Impacts would be reduced by conducting winter overland travel only when soils are frozen and sufficient snow cover exists to prevent snow compaction and loss or damage to vegetation. Measurements will be completed using the methodology in DNR (2025 and Appendix C). Minimum snow coverage on USFWS lands will be 9 inches. The proposed sampling methodology helps accommodate differences in snow depth across the landscape (i.e. due to wind, topographic differences).

Table 3.2.1-1. Areas of each vegetation resilience for the action alternatives.

Resilience	No Action	Alternative 1		Alternative 2	
		30 ft Buffer Area (acres)	60 ft Buffer Area (acres)	30 ft Buffer Area (acres)	60 ft Buffer Area (acres)
High	0	111.23	222.59	106.39	212.98
Medium	0	453.19	905.63	425.50	850.16
Low	0	1,574.20	3,148.70	1,484.24	2,968.86
#N/A	0	0.01	0.04	0.01	0.04
Total	0	2,138.63	4,276.96	2,016.14	4,032.04

3.2.1.2.3.2 Impacts from Clearing Vegetation

The project would require clearing of vegetation. Areas that may be impacted were calculated based on effects to a 30-foot-wide (15-foot on either side) corridor; however, most travel would occur within a narrower 15-foot-wide corridor, so actual acreages affected would be smaller. Vegetation less than 8 inches in height may be impacted in areas where snow cover is below average. Conversely, taller vegetation may not be cleared where snow depth is greater than average. The impacts caused by clearing trees would require regrowth of several decades. The vegetation types where clearing would occur are dominated by deciduous shrubs (e.g., willow, alders), which typically recover relatively rapidly (~10 years, Jorgenson 2010). Evergreen shrubs generally recover slowly from disturbance, but most evergreen shrubs in the project are less than 8 inches in height and would largely be protected by snow cover. The total area of forest and shrub vegetation types (excluding dwarf shrubs) ranges from 25-30% of the total ROW (Appendix I). Based on the Landfire (2025b) vegetation height data, approximately 30-50% of the ROW is occupied by woody vegetation greater than 8 inches in height (Appendix I). The higher total for the Landfire data may reflect the fact that some areas of tussock tundra can include shrubs greater than 0.2 meters (8 inches) in height. These areas would be included in the total area to be cleared based on the Landfire height data but were excluded from the analysis based on vegetation type.

Table 3.2.1-2. Areas of each vegetation class (acres) that may require clearing, based off of vegetation height.

Vegetation Height	No Action	Alternative 1	Alternative 2
		30 ft Buffer Area (acres)	30 ft Buffer Area (acres)
Veg Height (No Clearing - <0.2m)	0	1,347.35	1,287.76
Veg Height 0.2 m to 1 m	0	665.45	615.81
Veg Height 1m - 2 m	0	50.41	44.90
Veg Hight >2m	0	75.41	67.66
#N/A	0	0.01	0.01
Total Requiring Clearing	0	791.27	728.38

Source: USFWS 2025c

3.2.1.2.3.3 Impacts to Vegetation at Stream Crossings

Both summer and winter construction at stream and river crossings may result in impacts to riparian vegetation. Thickets of tall willows, which commonly occur on the banks of streams and rivers, are likely to be temporarily disturbed by vehicle traffic and other construction activities, however, the total area affected would be limited and riparian willows are generally adapted to disturbance.

3.2.1.2.3.4 Impacts to Wetlands

In most cases, the primary concern for impacts to wetlands is placement of fill, which would not occur in this project. Other potential impacts to vegetation, including wetlands, have been described above under the Impacts from Winter Tundra Travel.

Table 3.2.1-3 summarizes wetlands within the action alternative footprints based on the available NWI mapping (USFWS 2025c). Table 3.2.1-4 summarizes the likely wetland and upland status of the action alternatives using the Landfire Existing Vegetation type dataset (Landfire 2025a).

Table 3.2.1-3. Areas of each wetland class (acres) with National Wetland Inventory mapping for the action alternatives.

Wetland Class	No Action	Alternative 1		Alternative 2	
		30 ft Buffer Area (acres)	60 ft Buffer Area (acres)	30 ft Buffer Area (acres)	60 ft Buffer Area (acres)
Estuarine and Marine Deepwater	0	39.43	78.87	39.43	78.87
Estuarine and Marine Wetland	0	1.32	2.63	1.32	2.63
Freshwater Emergent Wetland	0	338.57	677.00	326.32	652.58
Freshwater Forested/Shrub Wetland	0	395.85	792.02	392.99	786.27
Freshwater Pond	0	3.56	7.19	3.29	6.65
Lake	0	11.78	23.48	11.78	23.48
Riverine	0	10.20	20.57	9.90	19.95
Total NWI Mapped Area (Including Uplands)	0	800.72	1,601.76	785.04	1,570.42
Total Wetlands (excluding Estuarine and Marine Deepwater)	0	759.96	1,520.26	744.29	1,488.93

Source: USFWS 2025c

Note: NA (not applicable); NWI (National Wetlands Inventory)

Table 3.2.1-4. Areas of likely uplands and wetlands based on vegetation type, based on detailed vegetation types included in the Landfire (2025a) vegetation type data set, for the action alternatives.

Likely Wetland Status	No Action	Alternative 1		Alternative 2	
		30 ft Buffer Area (acres)	60 ft Buffer Area (acres)	30 ft Buffer Area (acres)	60 ft Buffer Area (acres)
Wetlands	0	1,872.75	3,745.87	1,767.56	3,535.20
Uplands	0	86.08	171.36	77.88	155.11
Floodplain	0	73.65	147.34	68.04	136.23
NA (unvegetated)	0	106.15	212.39	102.66	205.49
Totals	0	2,138.63	4,276.96	2,016.14	4,032.04

Source: Landfire 2025a

Project impacts to wetlands and vegetation would be similar for all action alternatives. The estimated vegetation clearing is substantially larger for Alternative 1 than for Alternatives 2.

Disturbance to wetlands and marine Waters of the United States would be limited to areas of trenching, HDD pads, installation of aerial poles, and marine activities. An approximate area of these impacts is provided in Table 3.2.1-5. Updated calculations would be provided in the US Army Corps of Engineers permit application.

Table 3.2.1-5. Approximate areas of wetland and marine disturbance (acres).

Habitat	No Action	Alternative 1		Alternative 2	
		Temporary	Permanent	Temporary	Permanent
Wetlands	0	~0.1	~0.1	~0.1	~0.1
Marine	0	~0.9	~0.1	~0.9	~0.1

Source: Jorgenson et al. 2015
Assumes 1ft total wide disturbance for trenching, and 3 inch total wide disturbance for marine

Impacts from Alternative 1 would be long-term and negligible to minor.

3.2.1.2.4 Alternative 2 Impacts

Impacts from Alternative 2 would be similar to Alternative 1, but smaller due to the smaller footprint. Impacts would be long-term and negligible to minor.

3.2.2 Fish and Fish Habitat

3.2.2.1 Affected Environment

3.2.2.1.1 Waterbodies and Fish Habitat

The project would be constructed in northwest Alaska, from the Chukchi Sea coastal waters, including crossing the marine waters of Hotham Inlet near Kotzebue, to the foothills along the southern flank of the Brooks Range, crossing rivers, streams, lakes, and ponds (Figure 3.2.2-1, Appendix H). The waterbodies provide important spawning, rearing, and overwintering habitat for resident and anadromous fish. Non-anadromous waters (e.g., headwater streams) still contribute to anadromous and resident species as they contribute to the overall habitat quality and food resources found downstream through both autochthonous and allochthonous inputs.

The freshwaters in the area factor into the production of fish for both subsistence use and in commercial fisheries activities, and they are largely undisturbed by current or past development. Stream types range from small and ephemeral to large and wide rivers. The lower, middle, and upper reaches of larger streams provide migration, spawning, and rearing habitat for Pacific salmon, as well as a variety of resident and anadromous whitefish species and other subsistence species (e.g., Dolly Varden (*Salvelinus malma*), northern pike [*Esox lucius*], burbot [*Lota lota*], Arctic grayling [*Thymallus arcticus*]). The lower reaches of major rivers (e.g., Kobuk and Noatak rivers) that are influenced by saltwater with fine-material substrates are used by Pacific salmon as migratory routes to access spawning areas in the river's upper reaches and tributaries. Sheefish spawning areas have been avoided by the proposed alignments, although sheefish are present and utilize additional areas in the landscape, including areas between spawning locations and the maritime environment.

3.2.2.1.2 Fish

Fish species that may be found in the project area have been identified by the ADF&G in the Alaska Freshwater Fish Inventory and USFWS and are shown in Table 3.2.2-1.

Table 3.2.2-11. Fish Species Likely Present in the Project Area

Common Name	Scientific Name		Common Name	Scientific Name
Alaska blackfish	*Dallia pectoralis*		Longnose sucker	*Catostomus catostomus*
Arctic grayling	*Thymallus arcticus*		Ninespine stickleback	*Pungitius pungitius*

Arctic lamprey	*Lampetra camtschatica*	Northern pike	*Esox lucius*
Broad whitefish	*Coregonus nasus*	Pacific herring	*Clupea pallasii*
Burbot	*Lota lota*	Pink salmon	*Oncorhynchus gorbuscha*
Capelin	*Mallotus villosus*	Pond smelt	*Hypomesus olidus*
Chinook salmon	*Oncorhynchus tshawytscha*	Rainbow smelt	*Osmerus mordax*
Chum salmon	*Oncorhynchus keta*	Round whitefish	*Prosopium cylindraceum*
Coastrange sculpin	*Cottus aleuticus*	Saffron Cod	*Eleginus gracilis*
Coho salmon	*Oncorhynchus kisutch*	Sheefish (inconnu)	*Stenodus leucichthys*
Dolly Varden	*Salvelinus malma*	Slimy sculpin	*Cottus cognatus*
Humpback whitefish	*Coregonus pidschian*	Sockeye salmon	*Oncorhynchus nerka*
Lake trout	*Salvelinus namaycush*	Starry Flounder	*Platichthys stellatus*
Least cisco	*Coregonus sardinella*		

Source: ADF&G 2025a, USFWS 2025e

Historically, information for non-salmon species in the project area is more limited. Brown (2004, 2013) describes whitefish on the Selawik National Wildlife Refuge, and other research provides sheefish life history characteristics (Underwood, Whitten, Secor 1998, Underwood 2000, Hander, Brown, Underwood, 2008, Hander Brown, Carter 2019). Subsistence fishers are not required to report resident fish harvest, and most ADF&G sponsored studies focus on anadromous species. Post-harvest household surveys suggest that whitefish species, of which some unknown percentage of fish are resident, account for nearly a quarter of annual harvest for the communities of Ambler, Kiana, Kobuk, Noorvik, and Shungnak and another 13% for the Noatak River (Magdanz et al. 2011). Consultation with local communities and indigenous knowledge of subsistence practices supports and informs this conclusion.

3.2.2.1.3 Anadromous Fish

Anadromous fish live most of their lives in the sea but return to freshwater to spawn. Anadromous streams are those that support fish species that migrate between freshwater and marine waters, such as Pacific salmon. ADF&G maintains the Anadromous Waters Catalog (AWC) database (ADF&G 2025), which is the most comprehensive data source for anadromous waters in northwestern Alaska; however, the absence of documented anadromy does not indicate that a waterbody is not anadromous, as survey data is not available for all waterbodies the project would cross. The AWC identifies waterbodies the project would cross that contain anadromous fish species (Appendix H, *Water Crossing Table*). Anadromous fish species identified in the AWC that may be present in the project area are summarized in Table 3.2.2-2. Again, consultation with local communities and indigenous knowledge of subsistence practices supports and informs this conclusion.

Table 3.2.2-22. Anadromous Fish Species Likely Present in the Freshwaters in the Project Area

Common Name	Scientific Name	Life Stage	Activity
Chinook salmon	*Oncorhynchus tshawytscha*	Adult	Present
Chum salmon	*Oncorhynchus keta*	Adult spawning	Present, spawning

Coho salmon	*Oncorhynchus kistuch*	Adult	Present
Dolly Varden	*Salvelinus malma*	Juvenile, adult	Present, spawning
Humpback whitefish	*Coregonus pidschian*	Juvenile, adult	Present
Inconnu/sheefish	*Stenodus leucichthys*	Juvenile, adult	Present
Pink salmon	*Oncorhynchus gorbuscha*	Adult spawning	Present, spawning
Sockeye salmon	*Oncorhynchus nerka*	Adult spawning	Present
Whitefishes (undifferentiated)	*Coregoninae spp.*	Juvenile, adult	Present

Source: ADF&G 2025c

3.2.2.1.4 Essential Fish Habitat

In project area freshwaters, Pacific salmon are the only fish species managed under an Essential Fish Habitat (EFH) federal Fishery Management Plan (NPFMC 2024). National Marine Fisheries Service (NMFS) defines freshwater EFH for Pacific salmon as “freshwater areas used by egg, larvae, and returning adult salmon.” ADF&G maintains the Anadromous Waters Catalog (AWC), which identifies freshwater habitats important for Pacific salmon, and NMFS considers such habitats as EFH for identified managed species. Chinook, chum, Coho, pink, and sockeye salmon have designated EFH in Hotham Inlet and freshwater streams and rivers that would be crossed by the project (Appendix H and Appendix A). The project would also construct a subsea crossing of Hotham Inlet, where Pacific salmon EFH is located. Hotham Inlet also includes EFH for saffron cod.

3.2.2.1.5 Other Aquatic Organisms

There is limited comprehensive data on phytoplankton, zooplankton, and periphyton communities for the region, as well as the macroinvertebrate communities that are dependent on these primary and secondary producers. Invertebrates, in particular, are important for rearing juvenile and adult species of resident and anadromous fish, and they are the main food resource for most key fish species in the region. Aquatic invertebrates also perform important nutrient cycling functions by helping decompose materials in the water and are indicators of overall stream health. Typically, off-channel habitat shall provide higher densities of invertebrate communities compared to larger waterbodies like the Kobuk River (Durand et al. 2011). Changes in annual precipitation, freeze-up, and thaw, along with nutrient inputs to area waterbodies, shall influence overall stream productivity.

3.2.2.2 Environmental Consequences

3.2.2.2.1 No Action Alternative

The No Action Alternative has no impacts.

3.2.2.2.2 Alternative 1 Impacts

The planned winter construction timing and construction techniques would reduce or minimize many of the effects to fish and fish habitat.

3.2.2.2.2.1 Habitat Loss or Alteration

Direct habitat loss from the placement of the FOC across fish bearing waterbodies is likely to occur, underscored at the temporary construction phase; however, the nominal size of the cable (0.5-inch diameter) would result in minimal impact at water crossings. A summary for water crossings is listed in Table 2.3-1.

At most waterbody crossing locations, the project proposes to place FOC directly on frozen waterbody surfaces and allow it to passively fall to the waterbody bottom during spring breakup when the ice melts, which would minimize impacts to fish and fish habitat that would occur from active placement during summer. Length of required cable shall be determined by using an ice core to determine the depth to bottom of the waterbody. For the marine crossing of Hotham Inlet however, the FOC would be direct buried into the seafloor using a cable plow; this would temporarily disturb the muddy and silty surface during construction.

During subsequent spring breakup, the cable's position at the bottom of the stream is anticipated to remain submerged. If the cable does encounter breakup debris strong enough to break, it would be repaired by maintenance crews.

Ground laying FOC across frozen waters instead of trenching would prevent inducing sedimentation. At HDD crossings, surface ground disturbances may result in some erosion and sedimentation. These effects would be limited, as the ground disturbance at the HDD crossings would be limited. Similarly, any trenching activity on stream crossings could result in minor erosion and sedimentation if directly adjacent to waterbodies.

HDD crossings would require water withdrawals from local waterbodies. The HDD crossings are planned for several large river crossings, and these rivers would be the likely source water for mixing drilling fluids. Water withdrawals shall be from major rivers (HDD is only proposed on major rivers). The volume of water required to mix the drilling fluids would not result in an appreciable impact to water quality (e.g., dissolved oxygen) and impacts to fish are not expected. Impacts to fish resources from HDD could occur if drilling fluids used to lubricate, remove cuttings, and stabilize the bore hole are unintentionally released into surface waters due to site geological conditions or if drilling fluids are not properly contained or disposed, and a frac-out plan has been prepared to minimize the impact (Appendix E4).

Summer barge activity and equipment activity has the potential to impact fish and fish habitat. Access routes from the edge of streambank to the equipment staging area shall be planned for only the minimum width needed for operations to stage equipment and shall follow natural contours, where practicable to minimize cut and fill. Natural riparian buffers shall be maintained for 50 feet between the staging area and the edge of the stream.

The introduction of nonnative and invasive species is reduced because the timing of construction would be during winter when local waterbodies are frozen at their surface and the placement of the FOC on the frozen surface would require no in-water work. Cleaning equipment to ensure weed-free surfaces is the only way to ensure preventing invasive species spreading to new areas. Summer construction involving in-water work would be conducted at the Hotham Inlet and Kugruk Estuary crossings; however, the vessels used in these locations would already be operating in area waters and are unlikely to introduce any nonnative or invasive species.

3.2.2.2.2.2 Disturbance or Displacement

Temporary disturbance and displacement would occur during the summer construction of the Hotham Inlet crossing. Constructing the subsea crossing would result in temporary noise impacts from the cable laying vessel and temporary, localized sedimentation and increased turbidity from the operation of the cable plow. These disturbances would be short term, and fish would be expected to temporarily move to other nearby areas of similar habitat. Similar temporary disturbances may occur during the summer HDD crossing construction as the HDD barge and support vessels travel along project area rivers.

During winter construction, fish may be temporarily disturbed by equipment traffic traveling over frozen waters. Fish may be temporarily displaced in the immediate area of the crossing equipment, but the activity would occur for only a short time and no lasting impacts to fish are anticipated.

3.2.2.2.2.3 Injury or Mortality

The project is unlikely to lead to injury or mortality for fish present in the project area due to the planned winter construction for much of the project and the planned construction techniques. Water withdrawals from rivers or streams to supply water for HDD fluids, however, could result in the injury or mortality of individual fish should they become trapped or entrained by the pump's water intake hose. Using ADF&G-approved fish screening devices would reduce this impact.

3.2.2.2.2.4 Spills or Other Accidental Releases

Fuel spills or other hazardous substance releases from the project that reach waterways would degrade fish habitat, although the extent of these impacts could be mitigated by response actions. A large spill or accidental release into a smaller waterbody could result in injury or mortality to individual fish, depending on the spilled material and overall concentration in the receiving waterbody. Implementing project BMPs would reduce the risk of spills impacting fish or fish habitat.

Impacts from Alternative 1 would be long-term and negligible to minor.

3.2.2.2.2.5 Alternative 2 Impacts

Alternative 2 eliminates the southern portion of the eastern loop and replaces it with co-located cable. This results in fewer acres of impact, but slightly more ground-lay stream crossings, 1 fewer aerial stream crossing, and three fewer HDD stream crossings.

3.2.3 Birds

3.2.3.1 Affected Environment

The project area falls within the Bird Conservation Region 2 (Western Alaska), Region 3 (Arctic Plains and Mountains), Region 4 (Northwestern Interior Forest) and Marine Region 13 (Chukchi and Beaufort Seas); USFWS 2021a). One of the Selawik Refuge's purposes is conservation of waterfowl, shorebirds, and other migratory birds. Audubon Alaska recognizes Important Bird Areas in the region, including the Selawik Basin (Potentially Global Level of Priority), Kobuk River Mouth (Potentially Global Level of Priority), and Krusenstern Lagoon (State Level of Priority). Up to 180 bird species migrate through, breed, or overwinter in the region (Kessel 1989; Drew et al. 2005; NPS 2018; USFWS no date). Of these, 113 species are expected to occur in the project area during breeding, migration, or winter based on checklists from Western Arctic National Parklands (NPS 2018), and the Selawik National Wildlife Refuge (USFWS 2025d), excluding species classified as vagrants, casual, or accidental. Species occurrence was confirmed in the project area based on habitat preferences and species range (Kessel 1989; Drew et al. 2005; Billerman et al. 2025); 84 of these species are also USFWS Birds of Conservation Concern (BCC; USFWS 2021a), BLM Special Status Species (SSS; BLM 2019), Kobuk-Seward Peninsula Resource Management Plan Special Status Species (BLM 2008), or the ADF&G Species of Greatest Conservation Need (SGCN; ADF&G 2025; Appendix J, *Birds*). For example, Steller's eider, spectacled eider, yellow-billed loon, bristle-thighed curlew, whimbrel, bar-tailed godwit, Hudsonian godwit, red knot, dunlin, buff-breasted sandpiper, Kittlitz's murrelet, Aleutian tern, olive-sided flycatcher, gray-headed chickadee, McKay's bunting, and rusty blackbird are all BCC, SSS, and SGCN.

Two threatened species (Steller's eider and spectacled eider) occur in the region, but critical habitat does not overlap the project area (www.ipac.ecosphere.fws.gov, USFWS 2021b, 2025b, 2025f). Steller's eider breed primarily on the Arctic coastal plain of Alaska and Russia and winter in large aggregations along the coasts of Alaska Peninsula, Kodiak Island and Kamchatka Peninsula. Little is known about spring and fall migration routes, but evidence suggests most birds congregate in nearshore marine waters of the Bering and Chukchi seas within 5km of the coastline (Martin et al. 2015). Spectacled eiders historically spend the winter months in the Bering Sea pack ice south of Saint Lawrence Island (Sexson et al. 2016) and breed primarily on the Yukon-Kuskokwim Delta and Arctic coastal plain from Point Lay to the Canning River. In spring, pre-breeding birds stage in ice leads immediately off-shore of breeding areas. In fall, they molt in off-shore waters of the northern Bering Sea, eastern Chukchi Sea and western Bering Strait (Sexson et al. 2016). More information on these species is in Section 3.2.6.

Federal protections for eagles and migratory birds includes the Bald and Golden Eagle Protection Act (BGEPA: 16 USC 668-668d) and the Migratory Bird Treaty Act (MBTA; 16 U.S.C 703-712). The BGEPA protects eagles from take[2] at any time of the year, including disturbance of nest sites, roosts, and foraging sites (50 CFR 22.6). The Spring 2025 inspection of the area did not note the presence of eagle nests. In addition, bald and golden eagle nests are considered rare in the Selawik National Wildlife Refuge (USFWS undated). If an eagle nest is observed within the disturbance buffers (i.e. ½ mile) during construction, consultation with the USFWS would be initiated.

The MBTA protects migratory birds by prohibiting the take of protected species, their eggs, or nests, unless authorized by permit or state-authorized subsistence use. Eagles and a variety of other migratory birds are found seasonally in the marine and terrestrial portions of the project area.

Most birds are only seasonally present in the region to during the migratory and breeding periods (March – October) (Kessel 1989). The first migrants begin arriving in March and include snow buntings, cliff-nesting raptors and bald eagles, and seabirds that congregate in sea ice leads. Eider migration over these leads typically starts by mid-April and is followed by the arrival of glaucous gulls, murrelets, and murres. A major influx of migrants occurs as the sea ice retreats and temperatures warm in late May, when most other species arrive. Most species are present by June as nesting begins, with peak fledging occurring July-August. Fall migration for many species begins in August and peaks in September with the departure of waterbirds and cliff-nesting seabirds. After November, only resident birds remain. Of the 133 species that occur in the project area, 15 species are expected to be present during the winter (Appendix J, *Birds*).

The project is dominated by shrub-tussock tundra, extensive freshwater emergent wetlands and shrubland habitats, and smaller areas of boreal forest and woodlands, which includes moderate- to high-value habitat within 30 meters of the fiber optic cable route for 84 SGCN bird species across Alternatives 1, and 2 (Appendix J, *Table 3*). Habitat evaluations completed for ADF&G's draft State Wildlife Action Plan (SWAP; ADF&G 2025b) were used to describe species distribution and habitat associations. The habitats are based on the Landfire mapping for Alaska (Landfire 2024) (ADF&G 2025b). The 84 SGCN includes all bird species that are on the other avian conservation lists (i.e.,

[2] The BGEPA defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb." (USFWS 2025a)

USFWS BCC and BLM SSS; Appendix J, Birds). Each landcover class was ranked as high, moderate, low, or negligible habitat value for each species. High-value habitats are frequently used during the migration and breeding season for nesting and/or foraging/hunting by nonresident species or for shelter, breeding, denning, overwintering, foraging, and/or hunting by resident species. Moderate-value habitats may be used regularly during the breeding, migration, or wintering seasons for foraging/hunting or as travel corridors but less so than high-value habitats (ADF&G 2025b). Moderate- and high-value classes were combined to determine suitable habitat acreages for each species and species counts for each landcover class (Appendix J, *Birds*).

Birds in the area are described using five bird guilds: waterbirds (21 species), seabirds (20 species), raptors (10 species), landbirds (35 species), and shorebirds (27 species). Descriptions of habitat associations and species composition for each guild are provided in Appendix J, *Birds*.

3.2.3.2 Environmental Consequences

3.2.3.2.1 No Action Alternative

The No Action Alternative has no impacts.

3.2.3.2.2 Alternative 1 Impacts

The project's environmental impacts on birds would vary based on construction timing and bird presence. However, the intensity of impacts to birds is expected to be low to medium, as impacts would be localized and not at the population level. Most of the FOC would be installed during winter months (January through early May 2026), when approximately 15 resident, or wintering, bird species would be present in the project area. Construction activities scheduled during summer (June through September), when migratory birds would be present, include construction of the HDD crossings at major rivers (e.g., Kobuk and Noatak rivers), subsea FOC laying across Hotham Inlet, FOC ground-laying across the Kugruk Estuary east of Deering, and aerial-based overflights to inspect the winter-laid FOC. These activities may result in temporary habitat alteration from winter travel and vegetation clearing. Disturbance from summer construction activities and aerial overflights may likewise occur, as described below. Occasional maintenance activities may be required to repair breaks in the cable. Cable breaks would most likely be accessed by aerial or winter off-road travel. The project would avoid scheduling regular field maintenance activity when helicopter access would be required during the USFWS bird nesting window (1 June through 31 July); however, FOC outages that could occur during that time period may necessitate emergency repairs and field visits, including helicopter access. If emergency access is required within the nesting season window, the project would coordinate with USFWS to determine the appropriate course of action prior to mobilizing crews or equipment. These are expected to be limited in duration and intensity.

3.2.3.2.2.1 Habitat Alteration and Loss

Winter travel over bird habitats would create varying impacts depending on localized snow cover depths and vegetation type, with some habitats (e.g., deciduous shrubs) recovering rapidly while others (e.g., evergreen shrubs and tussocks) taking longer. Approximately 70 percent of the project area consists of vegetation types with low resilience to winter tundra travel (see Section 3.2.1). Trees and shrubs above the snow cover would be cleared along the 30-foot-wide corridor (usually only 15-foot-wide corridor) to allow for construction vehicle passage. The FOC route alternatives would avoid tall, dense shrub and forested habitats where practicable, and clearing would occur during winter, limiting direct disturbance to nesting birds, and complying with the USFWS timing recommendations for land disturbance and vegetation clearing (May 10-July 20). Up to 2,138.63 acres (and 2,016.14 acres) of bird habitat may occur within 30 feet of the fiber optic cable route across Alternatives 1 (and Alternative 2); Appendix J, Table 2. This habitat loss to birds is expected to be low to medium, as impacts would be localized and not at the population level.

Studies of birds nesting near seismic exploration lines on the North Slope of Alaska provide analogous information on the potential impacts of habitat alteration to arctic and boreal birds because of the similar winter travel methods, vegetation communities, and linear disturbance features (Machtans 2006; Ashenhurst and Hannon 2008; Kalukapuge et al. 2024). Ongoing consultation with local indigenous communities likewise informs this conclusion. Habitat alteration may affect breeding passerines through changes in community structure, territory use, and abundance patterns, with effects varying by disturbance age, width, and vegetation recovery rates (Machtans 2006; Ashenhurst and Hannon 2008; Boelman et al. 2015; Kalukapuge et al. 2024). Ground and shrub-nesting species may increase territory size to span disturbed habitat, while forest-nesting species may avoid these areas.

3.2.3.2.2.2 Disturbance and Displacement

Vessel traffic associated with laying the FOC across Hotham Inlet and Kugruk Estuary may elicit avoidance responses from seabirds, loons, and waterbirds feeding in marine waters. Hotham Inlet and Kugruk Estuary are important staging areas for waterfowl in late August and September (DNR 2008) and construction activities are scheduled during summer (June through September), when migratory birds would be present. These reactions may vary based on species, flock size, and boat speed. Arctic and Red-throated loons are likely to react to vessels and have been shown to avoid areas of high vessel traffic (Schwemmer et al. 2011; Fliessbach et al. 2019; Jarett et al. 2021). Large flocks of birds are more likely to elicit a response to vessels than small flocks, and birds are more likely to engage in avoidance activities as vessel speed increases (Bellefleur et al. 2009). Bird exposure to vessel traffic associated with the project would be limited to approximately 4 to 12 days (depending on action alternative) and impacts are expected to be minor.

Aerial overflights of the FOC alignment during summer have the potential to elicit avoidance reactions from birds. These reactions depend on aircraft attributes (e.g., flight pattern, engine type, altitude) and animal characteristics (e.g., species type, life-stage, level of aggregation; Mallory 2016; Mulero-Pázmány et al. 2017). Timing relative to the breeding season also affects bird responses, with breeding animals generally less inclined to flee than non-breeders, likely due to reluctance to abandon nests, although this varies by species, incubation stage and disturbance type (Ackerman and Eadie 2003, Mulero-Pázmány et al. 2017). In contrast, birds during non-breeding periods, including staging and molting waterfowl, are more likely to show behavioral reactions and may flush at greater distances (Mulero-Pázmány et al. 2017; Davis and Wisely 1974; Salter and Davis 1974). Considerable variation exists among species in response to aircraft overflights; one study in the high Arctic found that breeding gulls flushed when aircraft were within 200 meters but long-tailed ducks and common eiders did not (Malloy 2016). In contrast, aerial overflights at that altitude at a wader colony in Florida typically elicited minor reactions of short duration, but birds that flushed from nests returned within 5 minutes (Kushlan 1979). The extent of aerial overflight impacts on birds would depend primarily on the frequency of overflights and landings in the same area, as a single overflight or landing would be a limited exposure. Aerial flights have the potential to disturb eagles, including during sensitive periods of nesting and rearing young. Impacts could include attack (Fyfe and Olendorff 1976), avoidance (Fraser et al. 1985), or displacement (Grubb and King 1991; Tobajas et al. 2021; Grubb and Bowerman 2024), all of which are energetically costly and behaviorally disruptive. Eagle presence is listed as rare in portions of the projects, and flights shall avoid multiple low flying transects in potential eagle nest habitats. If an eagle nest is observed within the disturbance buffers (i.e. ½ mile 330 feet during winter, 660 feet during summer) during the aerial survey, the nest would be avoided and consultation with the USFWS would be initiated.

3.2.3.2.2.3 Other Impacts

Birds could be exposed to small petroleum spills, leaks, and other sources of accidental contamination because of FOC-laying activities. Oiling and ingestion of oil can result in bird death (Szaro 1977; Piatt et al. 1990; Leighton 1993; Wells et al. 1995). Appendix E5 has a spill response plan that shall be implemented to mitigate the risk.

Direct mortality of eggs or abandonment of nests is not expected as the terrestrial portions of the FOC would be installed during winter months when birds are not breeding, with the exception of the construction of the HDD crossings at major rivers (e.g., Kobuk and Noatak rivers). Activities on the riverbank during the breeding season could cause nest failure in a small number of avian SGCN. Aerial FOC crossings at major rivers could present a collision hazard for birds causing injury and mortality particularly in thick fog or during circular mating displays; however, bird diverters would be installed to increase the visibility of the FOC, and such diverters have been shown to be effective at reducing bird collisions (Ferrer et al. 2020, Barrientos 2011).

Impacts from Alternative 1 would be long-term and negligible to minor.

3.2.3.2.3 Alternative 2 Impacts

The alternatives are similar in terms of potential impacts to moderate-to high-value bird habitat (Appendix J Table 2). This alternative impacts fewer acres and so has proportionally less impact.

Impacts from Alternative 2 would be long-term and negligible to minor.

3.2.4 Terrestrial Mammals

3.2.4.1 Affected Environment

A total of 40 different terrestrial mammal species are known or expected to occur in the project area (Table 3.2.4-1; MacDonald and Cook 2009), although some species are rare and are likely to occur only in a portion of the project area, or are restricted to certain habitats. None of the terrestrial mammals in the program area are listed under the federal ESA or the BLM list of sensitive species (BLM 2019). Polar bears do occur on land in the project area, but they are classified as a marine mammal and are discussed in the section on *Threatened and Endangered Species*.

One of the Selawik Refuge's purposes is conservation of the Western Arctic Caribou Herd (Western Arctic Caribou Herd Working Group 2019, 2024). The most recent numbers from ADF&G research and following the Cooperative Management Plan suggest the WAH is at preservative levels; this would be discussed in further detail below.

For terrestrial mammals, the project area is defined as the area within 2.5 miles (4 km) of the FOC route. This distance was selected because multiple studies have shown that caribou occur at lower density within 2.5 miles of active infrastructure during calving, a period of low tolerance to human activity (Dau and Cameron 1986; Cameron et al. 2005; Johnson et al. 2020; Prichard et al. 2020a), suggesting that most impacts to terrestrial mammals would occur within this area.

Table 3.2.4-1. Terrestrial mammal species known or suspected to occur in the project area.

Common Name	Latin Name		Common Name	Latin Name
Alaska Marmot	*Marmota broweri*		Barren Ground Shrew	*Sorex ugyunak*
Arctic Ground Squirrel	*Spermophilus parryii*		Holarctic Least Shrew	*Sorex minutissimus*
Red Squirrel	*Tamiasciurus hudsonicus*		Little Brown Myotis (Bat)[1]	*Myotis lucifugus*
American Beaver	*Castor canadensis*		Canadian Lynx	*Lynx canadensis*
Collared Lemming	*Dicrostonyx groenlandicus*		Coyote[1]	*Canis latrans*
Brown Lemming	*Lemmus trimucronatus*		Wolf	*Canis lupus*
Singing Vole	*Microtus miurus*		Arctic Fox	*Vulpes lagopus*
Root (Tundra) Vole	*Microtus oeconomus*		Red Fox	*Vulpes vulpes*
Meadow Vole	*Microtus pennsylvanicus*		American Black Bear	*Ursus americanus*
Taiga Vole	*Microtus xanthognathus*		Brown Bear	*Ursus arctos*
Northern Red-backed Vole	*Myodes rutiles*		Wolverine	*Gulo gulo*
Common Muskrat	*Ondatra zibethicus*		North American River Otter	*Lontra canadensis*
Northern Bog Lemming	*Synaptomys borealis*		American Marten	*Martes americana*
North American Porcupine	*Erethizon dorsatum*		Ermine (Short-tailed Weasel)	*Mustela erminea*
Snowshoe Hare	*Lepus Americanus*		Least Weasel	*Mustela nivalis*
Alaska Hare	*Lepus othus*		American Mink	*Neovision vison*
Cinereus Shrew	*Sorex cinereus*		Moose	*Alces alces*
Pygmy Shrew	*Sorex hoyi*		Caribou	*Rangifer tarandus*
Dusky Shrew	*Sorex monticolus*		Muskox	*Ovibos moschatus*
Tundra Shrew	*Sorex tundrensis*		Dall's sheep	*Ovis dalli*

[1] Outside of typical range but has been observed in the area.

3.2.4.1.1 Caribou

Caribou (*Rangifer tarandus*) provide for a subsistence way of life in northwest Alaska and are the most abundant large game species in the project area. The project area is within the winter range of the Western Arctic Herd (WAH) of caribou (Joly and Cameron 2022; BLM 2024; Gurarie et al. 2024; Hansen et al. 2024) and is occasionally used by caribou from the Teshekpuk Caribou Herd (TCH; Person et al. 2007; Fullman et al. 2021). Caribou would also cross portions of the project route during fall and spring migrations. The WAH has declined in recent years from a peak of 490,000 caribou in

2003 to a current (2023) estimated population size of 152,000, thus in Preservative versus Critical status (Hansen et al. 2024).

The WAH wintering range varies but exhibits long-term decadal patterns (BLM 2024, Gurarie et al. 2024). For many years, the majority of the WAH wintered on or near the Seward Peninsula (Prichard et al. 2020b; Gurarie et al. 2024), but in recent years, more caribou have wintered farther north (i.e. Kobuk Valley, Brooks Range) (BLM 2024; Gurarie et al. 2024), making it more likely that caribou would be present in the project area during winter FOC deployment. During winter, the daily movement rates of caribou drop to their lowest levels of the year (Prichard et al. 2014). When walking in snow, the energy costs of movement to individual caribou increases exponentially with snow depth (Fancy and White 1987) as caribou may need to dig into deep snow to reach lichens (Fancy and White 1985).

The annual WAH winter range was mapped based on radio-collared caribou for the years 1987–2022 (some years were combined due to small sample sizes) for the Ambler Road Supplemental Environmental Impact Statement (BLM 2024). The entire FOC route would be in areas used for low-density wintering range at least 7 of 16 years (Table 3.2.4-2). The portion of the project area on the Seward Peninsula is in an area that has frequently been used for high-density wintering range and the northern section of the project area is largely outside of the high-density wintering ranges (Figure 3.2.4-1; Table 3.2.4-2).

In addition, the winter range for 2017-2021 was mapped to show more recent winter herd distribution (BLM 2024; Figure 3.2.4-2). Based on the WAH winter distribution map for 2017–2021, most of the southern and eastern segments of the project alternatives are within the high-density wintering range for that time period (the smallest area expected to include 50% of the herd), and the northern segments of the alternative are largely within the medium density winter range (the smallest area expected to contain 75% of the herd (Figure 3.2.4-2; Table 3.2.4-3). A total of 66.0% of the Selawik Refuge is within the high-density wintering area for 2017–2021 and 99.8% of the Selawik Refuge is within the high or medium density wintering area for 2017–2021.

Table 3.2.4-2. The acreage and percentage of the high- and low-density Western Arctic Herd wintering areas within 2.5 miles of the action alternative routes by number of years where different areas had high- or low-winter caribou density. For instance, 84,817 acres of the Alternative 1 was in an area that was used 7 out of 16 years for high-density winter range, and a total of 154,208 acres was in areas that were never used for high-density winter range during the 16-year period.

Year	No Action	Alternative 1		Alternative 2	
		High Density (acres/percent)	Low Density (acres/percent)	High Density (acres/percent)	Low Density (acres/percent)
0	0	154,208 (9.6)		154,209 (10.1)	
1	0	453,738 (28.2)		453,738 (29.8)	
2	0	112,806 (7)		112,807 (7.4)	
3	0	391,620 (24.3)		351,945 (23.1)	
4	0	155,860 (9.7)		107,319 (7)	
5	0	40,160 (2.5)		40,160 (2.6)	
6	0	19,603 (1.2)		19,603 (1.3)	
7	0	84,817 (5.3)	7,890 (0.5)	84,817 (5.6)	7,890 (0.5)

8	0	120,362 (7.5)	17,714 (1.1)	120,362 (7.9)	17,714 (1.2)
9	0	78,527 (4.9)	126,541 (7.9)	78,527 (5.2)	126,541 (8.3)
10	0		94,011 (5.8)		94,011 (6.2)
11	0		351,172 (21.8)		350,946 (23)
12	0		281,394 (17.5)		193,405 (12.7)
13	0		268,997 (16.7)		268,998 (17.7)
14	0		69,982 (4.3)		69,982 (4.6)
15	0		28,659 (1.8)		28,659 (1.9)
16	0		365,344 (22.7)		365,344 (24)

Table 3.2.4-3. The acres and percentage of the area within 2.5 miles of the action alternatives within different density categories of the Western Arctic Herd of caribou winter distribution for 2017–2021.

Year	No Action	Alternative 1		Alternative 2	
		Acres	Percent (%)	Acres	Percent (%)
High	0	840,942	98.6%	752,726	88.3%
Medium	0	610,329	71.6%	610,329	71.6%
Low	0	242,199	28.4%	242,215	28.4%

3.2.4.1.2 Other Ungulates

Muskoxen (*Ovibos moschatus*) disappeared from the project area before or during the 19th century, but the ADF&G translocated muskoxen to the area in 1970, 1977, and 1981 (Harper and McCarthy 2015, Figure 3.2.4-3). The Cape Thomson muskox population was estimated to be 227 animals in 2013 (Harper and McCarthy 2015) and the Seward Peninsula muskox population was estimated at 2,353 individuals in 2018 (Dunker and Germain 2022). Muskoxen could occur in all parts of the project area, but they are most likely to occur in coastal portions of the route.

Moose (*Alces alces*) occur at low densities throughout the project area with locally higher densities occurring in riparian areas and other areas with abundant tall shrubs, especially willow (Joly et al. 2016, Figure 3.2.4-3). Moose use low elevation riparian habitat more during moderate and severe winters but use higher elevations during mild winters. Females with calves also tend to use higher elevations and more forested areas during winter than males, presumably to avoid predators (Joly et al. 2016). Previously burned areas can provide high quality moose habitat, typically 11-30 years after a burn (Maier et al. 2005).

Dall's sheep (*Ovis dalli*) occur at low densities in the alpine areas of the western Brooks Range (Osburn 2025). In 2011-2013, the population decreased by roughly 80%, possibly due to icing events (Osburn 2025). Because Dall's sheep primarily use alpine habitats, they are unlikely to occur close to the project routes.

3.2.4.1.3 Large Carnivores

Wolves (*Canis lupus*), wolverines (*Gulo gulo*), and brown bears (*Ursus arctos*) all occur in the project area at low densities. The project area is on the edge of the typical coyote (*Canis latrans*) range, though they have been observed in the area (Prugh 2004; MacDonald and Cook 2009). Black bears (*Ursus americanus*) are strongly associated with forested habitat and are more likely to occur in the eastern portion of the project area. During summer, large aggregations of grizzly bears may occur on some salmon streams along the Kobuk River (Sorum et al. 2023). Black and brown bears of both sexes den during most of the winter and pregnant females give birth in the den. Brown bears often select moderately steep slopes and high snow load potential areas for denning (Sorum et al. 2019). Brown bears in the central Brooks Range have an average denning period from 30 September to 25 April (Deacy et al. 2025). Wolverines dig dens for both reproducing and resting, often selecting deep snowbanks to construct these dens (Glass et al. 2022). Wolverine natal and maternal dens are often found in areas with snowdrift-forming terrain features including streambeds, cutbanks on lake edges, and boulders (Glass et al. 2022).

3.2.4.1.4 Furbearers and Small Mammals

Furbearers, particularly lynx (*Lynx canadensis*), marten (*Martes americana*), beaver (*Castor canadensis*), and arctic and red fox (*Vulpes lagopus* and *V. vulpes*), are targeted by trappers throughout the project area, but harvest numbers are relatively low. Small mammals, including shrews (*Sorex* spp.), lemmings (*Synaptomys borealis, Dicrostonyx groenlandicus,* and *Lemmus trimucronatus*), voles (*Microtus* spp. and *Myodes rutiles*), ground squirrels (*Spermophilus parryii*), and weasels (*Mustela* spp.) often have cyclical population fluctuations, and some have specific habitat preferences while others are habitat generalists. Arctic ground squirrels hibernate during winter, while lemmings, voles, weasels, and shrews are active year-round. The project area is largely outside of the range of little brown bats (*Myotis lucifugus*), but they have been reported in the area. The distribution of the Alaska hare (*Lepus othus*) covers most of the project area, although there is limited information on the species.

We used habitat evaluations conducted for ADF&G'S draft State Wildlife Action Plan (ADF&G 2025b; Appendix J, *Birds*, 3), as well as continuing consultation with impacted indigenous communities. The draft State Wildlife Action Plan evaluated western Alaska habitat associations for 18 different mammal species present in the project area and designated as Species of Greater Conservation Need (SGCN; Table 3.2.4-4). These 18 species were selected based on being at-risk, having most of their range in Alaska, or being culturally or ecologically important; however, species that were already subject to high levels of research funding were excluded from the list. Each landcover class was classified as high, moderate, low, or negligible habitat value for each species. We combined moderate and high value classes to determine how much of the project area contained moderate- or high-value habitat for each of the 18 SGCN species and how many of the 18 SGCN species used each landcover type.

Table 3.2.4-4. The acres of landcover classes classified as high or moderate value in the draft State Wildlife Action Plan (ADF&G 2025b) for different selected species within a 15-foot and 2.5-mile buffers of the action alternatives.

Species	No Action	15-foot Buffer		2.5 mile Buffer	
		Alternative 1	Alternative 2	Alternative 1	Alternative 2
Arctic fox	0	1,942	1,907	636,527	626,570
Ermine (short-tailed weasel)	0	3,517	3,277	1,276,135	1,194,840

Alaska hare	0	3,855	3,638	1,272,535	1,202,814
Alaska marmot	0	1,621	1,590	535,604	525,787
Arctic ground squirrel	0	457	450	178,188	176,579
Common muskrat	0	63	60	168,799	161,916
North American porcupine	0	1,274	1,157	545,619	501,091
Snowshoe hare	0	1,852	1,653	716,394	648,382
Barren ground shrew	0	3,782	3,576	1,238,984	1,172,631
Dusky shrew	0	2,661	2,522	1,000,634	947,627
Holarctic least shrew	0	1,824	1,631	678,580	615,961
Collared lemming	0	2,230	2,196	743,221	732,756
Northern red-backed vole	0	3,847	3,613	1,357,725	1,278,613
Pygmy shrew	0	1,471	1,263	589,116	518,254
Root (tundra) Vole	0	2,748	2,628	887,644	852,659
Singing vole	0	1,912	1,880	635,395	625,574
Taiga vole	0	2,709	2,485	1,084,678	1,005,667
Tundra shrew	0	2,708	2,568	1,014,484	962,234

3.2.4.2 Environmental Consequences

3.2.4.2.1 No Action Alternative

The No Action Alternative has no impacts.

3.2.4.2.2 Alternative 1 Impacts

The project's environmental impacts on terrestrial mammals would largely be related to the human activity required to deploy the FOC along the project route during winter construction. This would include the temporary use of tracked vehicles and trailers for transporting the cable, camps, personnel, fuel, and construction equipment. In addition to potential disturbance and displacement of wildlife from project vehicles, there would be some impacts from snow compaction and vegetation clearing along the route. Summer activities, including summer overflights to inspect the placed FOC and construction activity at some river crossings, could also impact terrestrial mammals, including caribou. Similarly, helicopter use to support summer construction or respond to repair or maintenance needs may result in disturbance and displacement of caribou or other terrestrial mammals.

Any direct disturbance as a response to project vehicles or human activity associated with FOC deployment would result in localized and temporary displacement, as well as some energetic impacts to most species present during winter. Caribou are known to overwinter in the project area, and males have been tracked by biologists in the project area, as well as observed by indigenous residents during summer, but in more sporadic numbers (Gurarie et al. 2024). Moose and muskoxen are likely to be present in all seasons. Reimers et al. (2003) measured flight distances of wild reindeer in Norway in response to skiers and snowmobiles and found that the total flight distances were 3,180 feet and 2,160 feet in response to skiers and snowmobiles, respectively. They calculated the increase in total daily energy expenditure and estimated that 3 daily encounters during late winter would have moderate energy costs that would not result in demographic impacts. Drolet et al. (2016) found white tailed deer had noise thresholds at 70 dB (~706 feet in Table 3.1.2-1). Other studies have indicated other distances, including Dau (2023) who observed changes in direction within 30 miles of the road to the Red Dog Mine, and attributed these changes to caribou responding to the behavior of other caribou. Leblond et al. (2011) found disturbance of road proximity effects up to 1.25 km (0.77 miles). Caribou of the WAH currently have little exposure to human infrastructure or vehicles other than encountering hunters on snowmobiles or boat, and, as a result, they may have stronger reactions to human activity. Some WAH exhibit large alterations in movements in response to an industrial road within their migratory range (Wilson et al. 2016, Fullman et al. 2025). Behavioral disturbance could result in an increase in energy expenditure due to higher stress levels and an increase in startle and flight responses.

Impacts from deploying the FOC are likely to be similar to impacts from activity associated with seismic surveys for oil exploration, because both activities involve transporting convoys of large vehicles cross country across the snow. Seismic survey activity may temporarily displace muskoxen as far as 2 miles away (Clough et al. 1987) and some muskox herds moved 1.2-3.4 miles in response to seismic activity (Reynolds and LaPlant 1985), while others did not leave the area. Moose often have a high tolerance for human activities, but because moose in many of these areas have had limited exposure to human activity, they may be more likely to be temporarily displaced by project activities. Project vehicles could encounter and disturb bear dens or wolverine dens during winter. The chance of brown bear dens occurring along the project route would be low due to the tendency of brown bears to den on steeper slopes. Impacts to Dall's sheep would be minimal due to the low density of sheep and their high use of alpine areas, resulting in a low probability that project vehicles would be in Dall's sheep habitats. Aerial flights used for summer overflights of the FOC would result in localized and temporary disturbance to large mammals present in the area during summer.

Some additional impacts to herbivores could result from snow compaction and vegetation clearing along the project route, but these impacts would be localized and would only affect a small fraction of the available foraging habitat. Impacts to vegetation would be mitigated by requiring a minimum snow cover and frost layer levels for overland vehicle travel. Some impacts to vegetation from clearing and overland travel could be long lasting as described in Section 3.2.1. Compacted snow trails could also be used by predators, including wolves and wolverines, resulting in an alteration of predator distribution and movements. This could result in some higher levels of predation along the route, but the extent of the impacts is difficult to predict. Moose and caribou could also use these routes, resulting in lower energetic costs, but possibly higher levels of predation. Snow compaction from project vehicles could result in direct mortality of small mammals denning along the route, as well as limiting their movements and access to habitat under the snow.

Project activities have the potential to result in contaminant spills and adding food waste to the environment with subsequent impacts to terrestrial mammals. Protocols for handling food waste and avoiding dispersal of contaminants would be implemented to minimize potential impacts. Project impacts could also disturb bears in dens along the route or could result in defense of life and property bear mortality. Bears would largely be denning along hillsides during winter, and waste handling and wildlife interaction plans (Appendix E) can minimize impacts during summer and winter. Wolverines in dens could be disturbed by FOC deployment, but because they occur at low density, this is unlikely to occur. The potential impacts would be greatest for natal dens.

Rodents and other wildlife can chew into cables and other infrastructure. The makeup of the proposed cable resists such damage. The cable has a cable breaking load of 50 kN (11,200 pounds) and has a crush resistance of 350 bar (5,076 psi). For example, cutting the cable burns through multiple standard construction saw blades. If the cable is damaged by wildlife, the outage can be detected, and repair crews can replace the section of cable.

Impacts from Alternative 1 would be long-term and negligible to minor.

3.2.4.2.3 Alternative 2 Impacts

The potential impacts on terrestrial mammals from Alternative 2 would be generally similar to impacts from Alternative 1, but smaller, because the acres of the proposed route is smaller (Figures 3.2.4-1–3.2.4-2).

Impacts from Alternative 2 would be long-term and negligible to minor.

3.2.5 Marine Mammals

3.2.5.1 Affected Environment

The project area for marine mammals is defined as the area within 1.2 miles (2 km) of the FOC deployment corridor in Hotham Inlet (ABR 2025b) from the northern end of the Baldwin Peninsula to the mainland and the route of project activities in Kugruk Estuary. A distance of 1.2 miles around the FOC deployment route was estimated to be the distance at which disturbance from the presence of vessels may occur (ABR 2025b). This area could be used by up to 12 marine mammal species, including 5 that are listed as threatened or endangered (Table 3.2.5-1, discussed in Section 3.2.6).

Table 3.2.5-1. Marine Mammals known or suspected to occur in the project area

Common Name	Scientific Name	Status
Pacific walrus	Odobenus rosmarus	
Ribbon seal	Histriophoca fasciata	
Spotted seal	Phoca largha	
Beluga whale	Delphinapterus leucas	
Killer whale	Orcinus orca	
Harbor Porpoise	Phocoena phocoena	
Gray whale	Eschrichtius robustus	
Polar bear[1]	Ursus maritimus	Threatened
Ringed seal[1]	Phoca hispida hispida	Threatened
Bearded seal[1]	Erignathus barbatus	Threatened
Bowhead Whale[1]	Balaena mysticus	Endangered
Humpback Whale[1]	Megaptera novaenglica	Endangered (WNP)/Threatened (Mexico)

[1] Discussed in Threatened and Endangered Species section.

Belugas, harbor porpoises, and killer whales are most likely to be in Kotzebue Sound from June to November, although some belugas are present in early winter and some harbor porpoises are present from January to March (Castellote et al. 2022). Harbor porpoises are widely distributed and generally found in areas with depths less than 100 meters (Muto et al. 2021). There are an increasing number of harbor porpoise sightings in the Chukchi Sea (Muto et al. 2021), and they are frequently detected within Kotzebue Sound (Castellote et al. 2022). Both belugas and harbor porpoises use shallow areas to avoid predation by killer whales (Castellote et al. 2022). Belugas in Kotzebue Sound appear to be a separate stock from other belugas in the region, but their numbers declined dramatically in the 1980s (O'Corry-Crowe et al. 2021). The harvest of belugas dropped from 84/yr in 1977–1983 to 16/yr in 1984–2021 (Castellote et al. 2022). Belugas aggregated and were traditionally hunted near Sisualik on the mainland west of the Noatak delta (Huntington et al. 2016, O'Corry-Crowe et al. 2021, Castellote et al. 2022). In recent years, belugas are rarely sighted in Kotzebue Sound. Large groups of belugas are still occasionally observed, but these sightings likely result from unusual movements from other beluga stocks (O'Corry-Crowe et al. 2021, Castellote et al. 2022). Killer whales appear to be increasingly prevalent in U.S. arctic waters (Clarke et al. 2013, Castellote et al. 2022). Gray whales are often found in shallow water and forage on the ocean floor, but they are unlikely to be in the project area (Satherwaite-Phillips et al. 2016, Moore et al. 2022).

Bearded seals are frequently in the project area and are known to occasionally travel up the Noatak River (Huntington et al. 2016). Hotham Inlet is used by bearded seals for rearing grounds, and the area around the Noatak River is a high concentration feeding area (Satterthwaite-Phillips et al. 2016). Spotted seals migrate into the Chukchi and Beaufort seas during summer and haul-out on land. They are found in Hotham Inlet, Kobuk Lake, Selawik Lake and up the Noatak River (Huntington et al. 2016) and they feed and haul-out near the mouth of the Noatak River (Satherwaite-Phillips et al. 2016). Ribbon seals winter in the Bering Sea and about 29% of the central and eastern Bering Sea breeding population go to the Chukchi Sea in late summer and fall where they are widely dispersed and pelagic (Frouin-Muoy et al. 2019). They are rarely observed in Kotzebue Sound and the number of sightings appears to be declining (Huntington et al. 2016).

Pacific walrus are often observed in southeastern Kotzebue Sound in spring (Huntington et al. 2016). They winter in the Bering Sea with most juveniles and females, and some males, moving north along the edge of the pack ice in the Chukchi Sea during the summer (Fischbach et al. 2022). They feed on benthic invertebrates and are concentrated in the northeastern Chukchi Sea during summer.

3.2.5.2 Environmental Consequences

3.2.5.2.1 No Action Alternative

The No Action Alternative has no impacts.

3.2.5.2.2 Alternative 1 Impacts

The primary impacts to marine mammals in the project area along the winter trails route are temporary disturbance and displacement during the marine FOC deployment conducted during the summer. The primary source of potential disturbance to marine mammals from the project would be anthropogenic noise from vessels associated with the project during cable laying operations. Marine mammals use hearing and sound transmission to perform vital life functions and the introduction of anthropogenic noise into their environment can disrupt their behavior. In addition, a small amount of air traffic over the marine environment could cause additional disturbance. This air traffic shall primarily occur along the subsea cable route which already experiences moderate levels of air traffic associated with the airport in Kotzebue.

Vessel traffic can potentially pose a threat to some whales in the project area, because of the risk of ship strikes. The small number of vessel transits that could expose whales to strikes through the project area, slow barging transit speeds, low likelihood of whales occurring in the nearshore area where the project area occurs, and the ability of whales to detect and avoid slow-moving vessels would reduce the probability of ship strikes to whales to negligible levels. Ship strikes would not be an issue for seals or porpoises as they are agile swimmers and would be able to maneuver away from vessels to avoid interactions. Limiting the speed of travel for project vessels, as well as maritime best practices in navigation and distance requirements, shall reduce the potential for ship strikes.

For the subsea crossings, the cable shall be trenched between the shore and the lowest tide point. An excavator shall then trench the cable, until the water is too deep to allow trenching, then the cable shall be gravity laid or fixed-plowed across the sea floor to the opposite side of the inlet. This activity would result in temporarily increased suspended sediment in the water. This would also result in the burial and/or disturbance of the benthic habitat and benthic invertebrates. Given the amount of proposed work, and the available habitat of this type within the surrounding environment, effects would be minor and restricted to the area around the activity.

A small spill of fuel or other contaminants could occur from the vessels constructing the subsea crossing. If a spill were to occur during the ice-free portion of the summer and fall, some marine mammals may become exposed to the substance through direct contact, or perhaps through contaminated food items. Prey contamination from small spills would be localized and temporary because small refined offshore spills are expected to rapidly dissipate. Because the primary impacts of this alternative shall be short-term localized displacement or disturbance to marine mammals, the effects of the project are not likely to have a significant impact on marine mammals.

Impacts from Alternative 1 would be temporary and negligible to minor.

3.2.5.2.3 Alternative 2 Impacts

Potential impacts of Alternative 2 to marine mammals species would be similar to the impacts of Alternative 1. Because these two alternatives have the same level of activity in the marine zone, there would be minimal differences in the potential impacts to marine mammals.

Impacts from Alternative 2 would be temporary and negligible to minor.

3.2.6 Threatened and Endangered Species

3.2.6.1 Affected Environment

There are a total of five marine mammals and two avian species that are threatened and endangered species (TES) and may occur in the project area (Table 3.2.6-1). Fin whales are typically found in deep, offshore waters and are not expected to occur in the vicinity of the project area and are therefore not included. The potential impacts to TES are described in Biological Assessments prepared for the U.S. Fish and Wildlife Service (USFWS; ABR 2025a) and the National Marine Fisheries Service (NMFS; ABR 2025b). Both documents are summarized and incorporated by reference. The project area for TES is defined as the area within 1.2 miles (2 km) of the FOC deployment corridor in the marine zone (ABR 2025b). In addition, we included terrestrial areas within 30 miles (48 km) of the coast and along the FOC routes for polar bears (*Ursus maritimus*) and eiders because these species can occur on land but are most likely to occur in coastal areas (ABR 2025a).

Table 3.2.6-1. Threatened and Endangered species known or suspected to occur in the project area

Common Name	Scientific Name	Status	Critical Habitat
Marine Mammals			
Polar bear	Ursus maritimus	Threatened	Yes
Ringed seal, Arctic subspecies	Phoca hispida hispida	Threatened	In Kotzebue Sound but not FOC deployment area
Bearded seal, Beringia DPS	Erignathus barbatus	Threatened	In Kotzebue Sound but not FOC deployment area
Bowhead whale	Balaena mysticus	Endangered	No
Humpback whale, Western North Pacific/Mexico DPS	Megaptera novaeangliae	Endangered (WNP DPS)/ Threatened (Mexico DPS)	No
Avian Species			
Spectacled Eider	Somateria fischeri	Threatened	No
Steller's Eider	Polysticta stelleri	Threatened	No

Notes: DPS (distinct population segment); FOC (fiber optic cable); WNP (Western North Pacific)

Bowhead whales (*Balaena mysticus*) in the project area belong to the western Arctic stock, also known as the Bering-Chukchi-Beaufort stock, and are the only one of the four stocks that inhabit U.S. waters (Muto et al. 2021). Bowhead whales transit past the project area during spring (April – June) and fall (August – December) migration but rarely enter Kotzebue Sound; this is likewise informed by local indigenous knowledge and consultation (See also Quakenbush et al. 2013; Quakenbush and Citta 2019). Similarly, humpback whales (*Megaptera novaeangliae*) have been documented in the Chukchi Sea but are very unlikely to be found in the shallow waters of the project (Clark et al. 2013).

The Beringia DPS of the *Erignathus barbatus nauticus* subspecies of bearded seal was listed as threatened under the ESA on December 28, 2012 (77 FR 76379). Bearded seals use sea ice as a platform for whelping and nursing of pups, pup maturation, molting (shedding and regrowing hair and outer skin layers), as well as for resting (Cameron et al. 2010). During the open-water season, some bearded seals (largely juveniles) occur in small bays, lagoons, near river mouths, and up some rivers, particularly in late summer and fall (Oceana and Kawerak, Inc. 2014; Gryba et al. 2021). As summer sea ice has retreated, reports of bearded seal haul-outs on land have increased (London et al. 2024). During the summer, individual bearded seals are present in Kotzebue Sound and may be present in the project.

Ringed seals are highly associated with sea ice, which they use as a platform for whelping and nursing pups in spring, molting in spring to early summer, and resting throughout the year (Kelly et al. 2010). At some breathing holes with sufficient snow cover, ringed seals excavate lairs in snowdrifts on the surface of the ice within which they rest and give birth to and nurse pups (Smith and Stirling 1975; Williams et al. 2006). During the summer, ringed seals forage along ice edges offshore and in productive open water (Harwood et al. 2015). As a result, individual ringed seals may be present in the project during the summer, but most are anticipated to be north of Kotzebue Sound.

The USFWS listed the polar bear as threatened (73 FR 28212, 15 May 2008) throughout its range in 2008. The listing was primarily due to the rapidly diminishing sea ice cover and thickness, especially during summer. In the U.S., the polar bear is also protected under the Marine Mammal Protection Act and the Convention on International Trade in Endangered Species. The USFWS designated polar bear critical habitat in 2010 (75 FR 76086). Polar bears that inhabit the project area are from the Chukchi/Bering Sea (CBS) subpopulation or stock. In the 2019 stock assessment, USFWS estimated the minimum population at 2,000 bears (USFWS 2019). The project area overlaps with ESA-designated critical habitat for polar bears in the project area, for the Barrier Island Critical Habitat Unit, the Sea Ice Critical Habitat Unit, and the No Disturbance Zone (Figure 3.2.6).

The CBS stock is widely distributed on the pack ice in the Chukchi Sea and northern Bering Sea and adjacent coastal areas in Alaska and Russia. The majority of denning and summer/autumn land use by the CBS stock occurs on the Chukotka coast and Wrangel and Herald islands (Rode et al. 2015). Other datasets have also found that CBS polar bears have some limited use of coastal habitats on Alaska's western coast. The USFWS conducted polar bear capture efforts in the Chukchi Sea from 2008 to 2015. During this time, they captured 351 animals and fitted eighty-six females with radio collars to monitor their movements. They found that the majority of CBS polar bears remain on the ice year-round (Rode et al. 2015). The U.S. Geological Survey den catalog has no records of dens near the project area (1910-2018; Durner et al. 2020).

The Alaska breeding population of Steller's eider (*Polysticta stelleri*) was listed as threatened under the ESA in 1997 (62 FR 31748). There is no designated Steller's eider critical habitat in the project area. The current Alaska breeding population nests primarily on the ACP mainly concentrated around Utqiaġvik (Quakenbush et al. 2002), although a very small subpopulation may remain on the Yukon-Kuskokwim Delta (Flint and Herzog 1999; 68 FR 20020). No Steller's eider molting habitat is known to exist within the project area. Recent research suggests that they use deep (greater than 30 meters [100 feet]), offshore waters for wintering habitat (Martin et al. 2015). No Steller's eider wintering habitat is known to exist within the project area.

The spectacled eider (*Somateria fischeri*) was listed as a threatened species throughout its range under the ESA in 1993 (58 FR 27474, May 10, 1993). There is no designated spectacled eider critical habitat in the project area (66 FR 9145). Spectacled eider breeding is restricted to the Yukon-Kuskokwim Delta and the ACP and use of these areas occurs from May through September (Petersen et al. 2020). Spectacled eiders do not typically breed or molt around Kotzebue Sound (Petersen et al. 2020). No spectacled eider nesting habitat is known to exist in the project area. Molting occurs in Norton Sound and Ledyard Bay but not generally in Kotzebue Sound (Petersen et al. 2020). The entire global population of spectacled eider is believed to winter in the Bering Sea around Saint Lawrence Island (Petersen et al. 1999).

3.2.6.2 Environmental Consequences

3.2.6.2.1 No Action Alternative

The No Action Alternative has no impacts.

3.2.6.2.2 Alternative 1 Impacts

Habitat loss and temporary alteration of polar bear habitat could occur as a result of project activities. Noise and visual disturbance from human activity and operation of equipment, especially aircraft and vehicle traffic, have the potential to disturb polar bears. Disturbance of denning females with cubs can increase the probability of cub mortality, however, because most denning CBS stock of polar bears occurs in Russia, the probability of denning occurring along the project route is very low. Non-denning polar bears may alter their travel route to avoid contact with human activities or because intentional deterrence (i.e., hazing) deflects them away from an area. Short-term behavioral responses are not likely to have population-level effects and are thus considered less problematic than are den disturbance and abandonment impacts (USFWS 2008, 2009).

Proximity to humans poses risks of injury and mortality for both bears and humans and may necessitate nonlethal take through deterrence or, on rare occasions, lethal take to defend human life (Perham 2005). These risks can be mitigated effectively by following the wildlife interaction plan (Perham 2005) as well as engaging in local indigenous community consultation and knowledge-sharing. All project-related activities must be conducted to minimize the attractiveness of work sites to polar bears and to prevent their access to food, garbage, putrescible waste, and other potentially edible or harmful materials. Trained bear monitors would be present on site and all polar bear sightings would be reported immediately to safety personnel.

Vessel noise has the potential to disturb or temporarily displace marine mammals in the project area. Seals would be most affected by vessel traffic because activities could occur in the nearshore area. Ship strikes have the potential to injure whales, but the slow barging transit speeds, low likelihood of whales occurring in the nearshore area, and the ability of whales to detect and avoid slow-moving vessels would greatly reduce the effects of ship strikes to whales. Ship strikes would not be an issue for seals as they are agile swimmers and would be able to maneuver away.

While a small number of Steller's and spectacled eiders may be present in the project area during the ice-free season, they are not known to breed in this area, and it is anticipated that summer subsea construction would have minimal effects on eiders. Summer activities, including vessel traffic laying the cable, or aerial-supported cable inspection, may cause limited disturbance and displacement of eiders. No habitat loss or alteration, nor injury or mortality is expected.

Individual polar bears, whales, or seals could be exposed to small petroleum spills, leaks, and other sources of contamination as a result of cable-laying activities. Terrestrial spills during winter would have a low impact on polar bears because of the low probability of polar bears being present in a terrestrial portion of the project. There is a potential for eiders to be impacted by accidental spills of contaminants. If a spill were to occur in Hotham Inlet during the ice-free portion of the summer and fall, some threatened or endangered marine mammal species may become exposed to the substance through direct contact, or perhaps through contaminated food items. Prey contamination from small spills would be localized and temporary because small refined offshore spills are expected to rapidly dissipate. Few eiders are present in the area of summer project activities.

The effects determination in the Biological Assessment (ABR 2025a) and Biological Opinion for the USFWS was that the project may affect and is not likely to adversely affect polar bears, polar bear critical habitat, Steller's eiders, and spectacled eiders and a finding of shall not adversely affect critical habitat for listed eiders. The effects determination in the Biological Assessment (ABR 2025b) and Biological Opinion for NMFS is that the project may affect, but is not likely to adversely affect bowhead whales, bearded seals, and ringed seals, and have no effect on humpback whales and the project shall not affect humpback whale, ringed seal, or bearded seal critical habitat.

Impacts from Alternative 1 would be temporary and negligible to minor.

3.2.6.2.3 Alternative 2 Impacts

Potential impacts of Alternative 2 to TES would be similar to the impacts of Alternative 1. Because these two alternatives have the same level of activity in the marine zone and similar activity in the coastal zone, there would only be minimal differences between routes in the potential impacts to TES.

Impacts from Alternative 2 would be temporary and negligible to minor.

3.3 Social and Economic Environment

3.3.1 Cultural/Historic Resources

3.3.1.1 Affected Environment

Section 106 of the National Historic Preservation Act of 1966 (NHPA) (54 USC §§ 300101 *et seq*.) requires federal agencies to consider the effects on historic properties[3] of projects they carry out, assist, fund, permit, license, or approve. Additionally, under Section 106, each federal agency must consult and consider the views and concerns of relevant federal and state agencies, federally recognized tribes, local governments, the public, and other interested parties, about cultural resources when making final project decisions. This section focuses on characterizing the cultural resources that could be potentially affected by the construction and operation of the project and primarily draws from cultural resource datasets including the Alaska Heritage Resources Survey (AHRS) sites, indigenous place names (IPN), as well as ongoing indigenous and community consultations that are taking place in the impacted villages in the region. Indigenous place names are included as a dataset because they are a source of indigenous knowledge regarding cultural use of a landscape. Place names can provide information about natural and social environments as well as about human populations and their histories. Place names also provide insights into a culture's worldview and its perceptions of features of the environments it inhabits. Place names can be a key component for identifying cultural resources in an area, as well as establishing territorial range and means of travel throughout a traditional territory (Kari 2006). The information presented in this section is based on a previous cultural resource desktop study (DTS) that was prepared for this project for Alternative 1 (SRB&A 2025). Additional analyses for Alternative 2 are also presented in this section.

At the time of the DTS report (SRB&A 2025), the proposed ROW and area of potential effect (APE) had not been defined[4] and thus the analysis in that document focused on a 2,000 ft wide Study Area corridor. Subsequent to that report, NANA identified a proposed 60 ft ROW where construction and operational activities will occur along fiber lay corridor. This APE has been discussed with stakeholders and agencies, with no objections. Therefore, the APE for the FOC corridor is a 60 ft corridor centered on the FOC, and for all project components outside of the FOC corridor, the APE is the footprint. Because many of the IPNs represent geographic features that cover a large geographic area (e.g., summit) or lengthy linear distance (e.g., streams), the IPN information presented in this section focuses on the larger 2,000 ft wide Study Area. Due to the nature of the

[3] A historic property is defined in the NHPA (54 U.S.C. § 300308) as any "prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on, the National Register of Historic Places (NRHP), including artifacts, records, and material remains related to such a property or resource.

[4] Defining the Area of Potential Effects (APE) is a requirement under the National Historic Preservation Act, which is being coordinated with the National Environmental Policy Act process.

AHRS sites, which generally have more discrete site-specific locational information than IPNs, the information in the Affected Environment focuses on AHRS sites that are within or intersect the APE.

3.3.1.1.1 Alaska Heritage Resource Survey (AHRS)

A total of six previously documented AHRS sites (AHRS 2026) and two new sites (KTZ-00477 and SHU-00045) that were documented during the 2025 cultural resource survey for the project (see discussion below) are located within one or both of the alternatives' ROWs. Site types include two large archaeological districts, two indigenous camps and reindeer herding sites, one precontact lithic site with a subsurface component, and three trails. Table 3.3.1-1 provides a summary of the eight sites. Two of the sites are eligible for listing on the NRHP, one has previously been determined not eligible, two are pending agency and State Historic Preservation Officer consultation, and the remaining three sites have had no determinations of eligibility to the NRHP. The Cape Krusenstern Archaeological District National Historic Landmark (NHL[5]) is over 2 million acres in size and encompasses the Cape Krusenstern National Monument (approximately 560,000 acres), which was established under the Carter administration in 1978. (Only the NHL is crossed by the project, and the National Monument is not). Consultation with the NPS has been initiated and is taking place.

Table 3.3.1-1: Documented AHRS Sites within the Alternative ROWs

AHRS #	Site Name	NRHP Status	Landowner	Site Description
KTZ-00169	DEERING ARCHAEOLOGICA L DISTRICT	DOE-S	NANA	Archaeological district including human burials, buried prehistoric houses, a qargi (ceremonial house), cache pits, faunal remains (e.g., seals, caribou, Arctic hare, ducks, geese, murres, ptarmigan, salmon), artifacts, and dozens of related features.
KTZ-00477	SRB&A-25-NANAFOC-002	NDE	NANA	Historic reindeer corral, collapsed structure, and a small trash dump
NOA-00042	Cape Krusenstern Archeological District National Historic Landmark	NHL	BLM, NPS, State of Alaska, NANA, KIC, Private	Archaeological district (over 2 million acres) that contains houses, burials, cache pits.
NOA-00361	KOTZEBUE - NOATAK TRAIL	DOE-P-S	BLM, KIC	Historic trail
SHU-00037	KIANA-SELAWIK-SHUNGNAK TRAIL	DOE-P-S	BLM, USFWS, NANA	Traditional indigenous winter trail and historic mail route. Also see SLK-00147.
SHU-00045	SRBA-25-NANAFOC-003	NDE	USFWS	Surface and subsurface lithic scatter
SLK-00142	Qitiq	NDE	BLM	Cemetery, sea mammal hunting camp, and a reindeer herding station with reindeer fence.

[5] NHPA includes provisions that specifically address federal agencies' responsibilities when their activities involve National Historic Landmark (NHL) properties. Section 110(f) of the NHPA (54 U.S.C. 306107) also outlines the specific actions that an agency must take when NHLs may be directly and adversely affected by an undertaking. Agencies must, "to the maximum extent possible . . .minimize harm" to NHLs affected by undertakings (ACHP 2002).

SLK-00147	KIANA-SELAWIK-SHUNGNAK TRAIL	DREJ-S	NANA	Traditional indigenous winter trail and historic mail route. Also see SHU-00037.

Notes:
* Site documented during August 2025 surveys for this project, and AHRS number request from OHA is in progress.
Site Description field is verbatim from AHRS except confidential, site-specific, locational information has been removed.
NRHP Status Codes:
DOE-S Determined Eligible through SHPO and agency
DOE-P-S Pending Consultation between agency and SHPO
DREJ-S Determined not eligible by agency and SHPO concurs
NDE No Determination of Eligibility
NHL National Historic Landmark

3.3.1.1.2 Indigenous Place Names (IPN)

A review of the Alaska Native Place Name database (Smith and Kari 2025) and the accompanying Alaska Native Place Name of mapped waterbodies indicates that 101 previously documented IPNs intersect with the Study Area for the alternatives (Appendix K01 Table 2). These place names include locations for villages, camp sites, subsistence areas, lakes, streams, lagoons, and summits. While the majority of place names are of Iñupiaq origin, there are also four Koyukon place names in the Study Area. Ongoing indigenous and community consultations continue to take place in the impacted villages in the region to identify further areas.

3.3.1.1.3 Previous and Currently Ongoing Surveys

A review of the State of Alaska Office of History and Archaeology (OHA) document repository (ADNR OHA 2025) for previous surveys, within the overall Study Area for the alternatives, revealed nearly 40 surveys that have occurred within or near the proposed ROW (Appendix K01 Table 3). Most of these previous surveys have been concentrated in locations of proposed development surrounding the communities and near Red Dog Mine. Very few overland areas between the eight unserved Alaska Native villages for this project (Ambler, Buckland, Deering, Kiana, Kivalina, Kobuk, Noatak, and Shungnak) have received any previous survey efforts.

As a result of the overall lack of survey coverage, NANA and the relevant agencies associated with this project agreed that additional aerial and pedestrian[6] surveys of the proposed alternatives were warranted, especially in light of the potential to uncover previously unknown artifacts at specific locations.

Field surveys occurred during the entire month of August 2025 and included an initial 3-day helicopter overflight assessment of the entire Alternative 1 and 2 routes followed by pedestrian survey of areas of moderate to high potential for containing cultural resources along ground lay portions of the project, revisits to known AHRS and IPN locations within the proposed APE, examination of proposed trenching and gravel pads near the communities, and surveys at HDD locations at major river crossings. The field crew ranged from two to four archaeologists and the area of survey coverage was a 65 ft (20 m) wide corridor for the ground lay portions and an approximately 50 ft x 50 ft (15 m x 15 m) area for the gravel pads. The survey was larger than the APE to account for potential changes in project design. A summary of each of these survey activities is provided in the following sections.

[6] A field method where archaeologists systematically walk across a landscape, often in evenly spaced lines (transects), to locate and record cultural resources.

3.3.1.1.4 Aerial Reconnaissance

An initial aerial reconnaissance of the proposed alternative routes in their entirety via helicopter prior to performing on-the-ground cultural resource investigations for the project. The aerial reconnaissance consisted of a low altitude (< 100ft), low speed (< 80 miles-per-hour), flyover of the alternative to visually examine the terrain conditions and landscape characteristics of the alternative, assess the cultural resource potential, and identify target areas of moderate to high potential for pedestrian survey and subsurface testing. The reconnaissance also assisted in identifying potential cultural resource sites visible on or near the surface that are most susceptible to impacts from the project construction activities, particularly for the ground lay portion of the FOC installation. Additional aerial reconnaissance survey was regularly conducted over a majority of the route as the field crew traveled to and from the different project areas and survey locations daily. Overall, the survey determined that approximately 80-90 percent of the project area has low potential for cultural resources due to an engineering design that avoids high relief terrain and landforms, low potential landscape characteristics such as large expanses of featureless hydric tundra and wetlands, reworked floodplain deposits within broad meandering river drainages, and/or previous disturbance resulting from both natural and manufactured processes, particularly in the vicinity of the communities. The aerial reconnaissance resulted in the identification of one previously unreported cultural resource site (KTZ-00477) within the proposed ground lay route 5 mi east of Kotzebue.

3.3.1.1.5 Ground Lay

The proposed ground lay segments account for the largest portion of the project and cover a diverse range of terrain and ecological settings with varying potential for cultural resources. Most of the proposed ground lay is within areas determined to have low potential for cultural resources based on landscape characteristics, which include large expanses of featureless hydric tundra underlain by shallow permafrost, low relief wetlands covered with small lakes or ponds and areas of standing water, and reworked floodplain deposits within large meandering river drainages lacking terraces or well-defined banks. Areas within the proposed ground lay identified as having moderate-to-high potential for cultural resources included well drained upland areas with prominent and microtopographic landforms, isolated landforms in otherwise featureless terrain, and relict dune fields. The survey primarily conducted site specific pedestrian survey and subsurface testing of moderate-to-high potential ground lay areas by landing the helicopter and examining the immediate area. Over 40 unique areas along the ground lay were inspected through pedestrian survey. Two new sites were identified during the course of ground lay surveys, one of which is outside the APE (NOA-00640). The second site was a precontact site that included lithic artifacts identified on the ground surface and within a subsurface test (SHU-00045).

3.3.1.1.6 Gravel Pad and Trenches

The project proposes subsurface installation of the FOC and/or construction of gravel pads to support infrastructure equipment within several communities. Subsurface installation will require trenching as the FOC enters and exits the community. Within the community the FOC will be installed aerially on existing utility lines. All gravel pad and trench locations were visually inspected during field survey. Subsurface shovel tests were excavated at pad locations in Kiana, Ambler, Shungnak, and Deering, and along the trench location in Noatak. Overall, except for the gravel pad location in Deering, the survey determined the proposed trench and gravel pad locations had low potential for cultural resources due to previous disturbance and/or were situated in poorly drained areas that lacked prominent or microtopographic features. No cultural materials were identified within the gravel pad and trench locations except for in Deering where both precontact, historic, and modern cultural materials were documented within disturbed context at the proposed gravel pad location, which is situated within the larger, previously documented Deering Archaeological District (KTZ-00169).

3.3.1.1.7 HDD

The project includes a total of 18 locations of proposed HDD crossings. Surveys at these locations expanded to 100ft wide corridors to allow for greater flexibility in HDD placement by the construction crews and accommodate staging and placement of construction equipment. Eight of these locations were inspected via pedestrian survey as they included moderate to high potential landforms. The remaining 10 were inspected aerially and were determined to have low potential and primarily consisted of HDD locations in floodplain and meandering channels of major rivers in the region such as the Noatak and Kobuk rivers. Survey crews did not identify any cultural materials at the HDD locations.

3.3.1.1.8 AHRS and IPN Site Revisits

In addition to the three newly documented sites that were identified during the course of the field survey (one that is not in the APE), the survey conducted revisits to the six previously documented AHRS sites and 17 IPN areas that provided indication of possible harvest or other cultural activities (versus simple topographic or environmental descriptions). In general, the results of the site revisits did not identify cultural materials associated with the AHRS or IPNs within the proposed ROW. Two sites, however, did contain cultural materials within the APE. These included the Deering Archaeological District (KTZ-00169) and Qitiq (SLK-00142).

Discussion of the potential impacts to the associated cultural materials/features of both newly and previously documented sites are discussed below.

3.3.1.2 Environmental Consequences

3.3.1.2.1 No Action Alternative

The no action alternative has no impacts to cultural resources.

3.3.1.2.2 Alternative 1

Under both alternatives, impacts from the project on cultural resources are most likely to occur during the construction phase of the project. Direct impacts to cultural resources as a result of ground disturbance are considered permanent impacts. An inadvertent discovery plan will be used to address inadvertent discoveries (Appendix K). For ground lay areas, vegetation clearing activities and tracked vehicle operations during construction would be the cause with the greatest potential to impact cultural resource sites located on the surface or in shallowly buried areas. Areas of proposed trenching and HDD could also impact the same types of cultural resources as well as more deeply buried sites.

Given the nature of installation activities (i.e., winter ground lay), other impacts are less likely but could include artifact displacement via machinery, change of the physical features in the resource’s setting (e.g., visual impacts), or change in access to traditional use sites by land users. These other impacts would be less likely to occur because of the minimum required snow cover during installation would reduce the potential for impacts to the surface, and visual impacts would be minor and limited to the aerial crossings over streams, although none of the identified sites are near these aerial crossings.

Operational impacts are expected to be minor and would be limited to unforeseen damage such as trampling or displacement of surface artifacts during any repair activities that may need to occur. Large-scale repair activities (e.g., replacement of large sections) would pose the highest risk for impacts to cultural resources during the operation phase. Indirect impacts that are reasonably foreseeable and could potentially result from FOC installation include damage to sites from erosion caused by destabilizing the vegetation cover in relict dune fields or thawing of permafrost that could occur as a result of the removal or damage to the insulating vegetation mat within the ROW during installation. It is recommended that NANA consult with NTIA, SHPO, and the appropriate land managers before any largescale repair occurs, and that a cultural resource monitor is recommended if the repairs are occurring in a high potential area.

Project areas were surveyed where moderate or high potential for sites to exist were present, and all previously identified sites were revisited. A total of six AHRS sites are located within the APE for Alternative 1 (Table 3.3.1-2). NANA's goal is to avoid impacts to all individually documented sites.

Impacts to the Cape Krusenstern NHL are not anticipated as no sites were identified within the APE that crosses the NHL, and the route avoids the Cape Krusenstern National Monument. Consultation with NPS has included distribution of the scoping and pre-draft EA and discussion with the agency archeologist, and no response has been provided. NPS will continue to be included as the final determination of effect is developed.

Impacts to the Deering Archaeological District would also not be expected as the majority of the project within the district is aerial installation on existing utility lines except for the gravel pad location. Fieldwork in 2025 for this project identified cultural materials within the pad location but the cultural materials appear to be in a previously disturbed context, and NANA's design strategy is to place the Conex container on four leveling legs with wood dunnage support (and possible additional gravel fill) without any subsurface excavation. Both the Native Village of Deering and City of Deering have provided letters of non-objection to NANA regarding this design strategy.

Impacts to the Qitiq site (SLK-00142) are not expected to be adverse as the site is represented by a polygon that spans the width of the Baldwin Peninsula and individual site components will be avoided. The recently completed cultural resource survey efforts in August of 2025 delineated the location of the historic fence component of the site within the ROW and avoidance measures through an existing gap in the fence have been identified based on consultation with BLM, SHPO, and NTIA as the proposed method to avoid any known features of the site.

The two new sites (KTZ-00477 and SHU-00045) were identified in the field and were avoided by changing the alignment in both Alternative 1 and 2.

Lastly, impacts to the three historic trails would not be adverse as the FOC route intersects the trails in discrete perpendicular locations and does not occur within or parallel to the historic trails for any substantial length. Vegetation clearing will be minimized at the intersections to minimize impacts.

As previously mentioned, 101 IPNs are present within the larger study area. Of these 101, 87 IPNs are common to both alternatives. Table 3.3.1-3 shows the remaining 14 IPNs that only intersect with Alternative 1 and provide a relative indicator of which alternative may have a greater potential for cultural resource impacts to previously undocumented sites based on the assumption that the more IPNs that are present within an alternative Study Area, the greater the potential for cultural resources to be found near those IPNs. This assumption is based on multiple observations by indigenous communities and anthropologists across Alaska including examples such as “If it has a Dena’ina name the Dena’ina were there and used that land” (Stone 2008:3); “Place names provide important information regarding navigation, resource availability, cultural history, land ownership, and changes in land use” (Kari 1978:1); “Place names provide clear evidence of land use and demonstrate Native presence in an area” (Gary Holton, Director of the Alaska Native Language Archive, Alaska Native Language Center as cited in McCloskey, Jones, Paskvan, Moncrieff, Bodony, Toohey, and Jones 2014:1); “Other names are associated with lake locales, smaller streams, and an overland trail. These are of relative higher probability for association with preserved cultural remains” (Smith 2021:iii). As shown in the table, Alternative 1 has an additional 14 IPNs within the Study Area for a total of 101 IPNs.

Based on the cultural resources surveys and initial consultations with stakeholders, no potential adverse impacts on documented specific cultural resource sites would be expected in areas where agencies have determined that adequate investigation has occurred prior to installation and where appropriate avoidance, minimization, or mitigation measures are implemented. The Native Village of Deering and City of Deering have issues letters of non-objection.

3.3.1.2.2.1 Section 106 Consultation

The NHPA requires that federal agencies must consult with any federally-recognized tribal organizations that attach religious and cultural significant to historic properties affected by an undertaking in carrying out the Section 106 review process. Apart from tribal organizations, the Section 106 consultation process may include federal agencies, who may or may not have Section 106 obligations of their own, state and local agencies and government, other invited consulting parties, and the public.

Acting as the lead federal agency for NHPA, NTIA initiated Section 106 consultation on June 25, 2025 with a letter sent via email to 41 identified stakeholders, consisting of ten federal and state agencies, eleven city and borough governments, twelve Native Villages, and five ANSCA corporations and associated organizations (See Appendix K). The purpose of the letter was to notify stakeholders of the proposed project, provide a detailed project description, formally invite them to participate, and request any comments, questions, concerns, or information that they would like to provide about the project and/or regarding cultural resources. Three of the stakeholders were identified as having incorrect email addresses; however, alternate email addresses were identified and the letter was successfully sent to the stakeholders. A follow-up was also made via email two weeks after the initial outreach. The follow-up emails reminded stakeholders of initial outreach and requested that entities confirm receipt of the information. A distribution list was also included with this outreach to inquire if stakeholders had identified any other parties that should be included as a stakeholder.

The BLM, USFWS, NPS, USACE, and Alaska SHPO all responded acknowledging receipt of the emails and their desire to be involved in the Section 106 process. The ACHP also responded that they had received the invitation and would like to be informed of progress but would only be involved to provide technical assistance, if needed. Alaska Department of Natural Resources and Alaska Department of Transportation both responded that they did not feel the need to participate as their interests would be achieved by the Alaska SHPO’s participation. No other stakeholders responded to the initial invitation emails.

As discussed in Section 3.3.1, surveys have been completed for the proposed project area. Once the survey report is finalized, stakeholders shall be reengaged to continue consultation and provide them with an update on the results of the survey efforts and access to the survey report, if necessary. Follow-up(s) to this outreach shall occur as with previous efforts until final NHPA determinations are made and the Section 106 consultation period is concluded.

Table 3.3.1-2: AHRS Sites by Alternative ROWs

AHRS #	Site Name	NRHP Status	Alt 1	Alt 2
KTZ-00169	DEERING ARCHAEOLOGICAL DISTRICT	DOE-S	1	1
KTZ-00477	SRBA-25-NANAFOC-002	NDE		
NOA-00042	Cape Krusenstern Archeological District National Historic Landmark	NHL	1	1
NOA-00361	KOTZEBUE - NOATAK TRAIL	DOE-P-S	1	1
SHU-00037	KIANA-SELAWIK-SHUNGNAK TRAIL	DOE-P-S	1	
SHU-00045	SRBA-25-NANAFOC-003	NDE		
SLK-00142	Qitiq	NDE	1	1
SLK-00147	KIANA-SELAWIK-SHUNGNAK TRAIL	DREJ-S	1	1
Total			6	5

Table 3.3.1-3: Unique IPNs by Alternative Study Areas

Place Name	Translation	English Name	Type	Alt 1	Alt 2
Aullaqsruġaitchiaq	Way to go pick berries	Shungnak	Village	1	
Igaun Narvaak	Igaun's lakes		Lake	1	
Imaġluktuq	turbid water	Black River	Stream	1	
Itrigusruk	Cold		Lake	1	
Kaŋisugruk	Head of a lake	The head of Black River Lake	Lake	1	
Kuutchauraq	New river	Kerchurak Creek	Stream	1	
Mayuġiaġruaq	Way to go uphill	The bluff at Shungnak	Summit	1	
Napaaqtulik			Lake	1	
Napuuraq			Stream	1	
Paaŋuutitallak	Double paddle		Lake	1	
Sikłaksram kuuŋa	material for an adze, pick axe	Pick River	Stream	1	
Tayabralik	A wrist band		Lake	1	
Tayaġaralik	A wrist band		Stream	1	
Uqquqdim Kawii			Lake	1	
Additional IPNs Common to Both Alternatives				87	87
Total				101	87

In the unlikely event that unanticipated historic properties, cultural artifacts, archeological deposits, or human remains are inadvertently encountered during the proposed construction and associated excavation activities, all ground disturbing activities must halt immediately, and NTIA along with the appropriate land manager and tribal agencies must be contacted, in accordance with applicable state law, federal regulation (36 C.F.R. § 800.13(b)), and the proposed project's Inadvertent Discovery Plan.

3.3.1.2.3 Alternative 2

A total of five AHRS sites are located within the ROW for Alternative 2 (Table 3.3.1-2). These five sites include the Cape Krusenstern and Deering Archaeological districts, two trails, and Qitiq. Impacts to these five sites would be the same as described above for Alternative 1. One fewer site would be impacted under Alternative 2. This includes the Kiana-Selawik-Shungnak trail which is not crossed by Alternative 2. As shown in Table 3.3.1-3, Alternative 2 has 14 fewer IPNs within the Study Area that are not present within Alternative 1, for a total of 87 IPNs. Alternative 2 has the lowest number of documented AHRS sites (5) and IPNs (87) compared to Alternative 1 and based on these metrics has the lowest potential to disturb known sites and IPNs of the project alternatives.

No potential adverse impacts on documented specific cultural resource sites would be expected in areas where agencies have determined that adequate investigation has occurred prior to installation and where appropriate avoidance, minimization, or mitigation measures are implemented.

3.3.2 Visual Resources

3.3.2.1 Affected Environment

The project connects the communities of the NAB and as a result occurs in a variety of visual settings. Most of the project is within anthropomorphic-undeveloped lands, with a variety of form, line, color, texture, contrast, and seasonal visual settings that are focused on the natural topography, precipitation, vegetation, and water. Some project locations are in more anthropomorphic-developed communities, which have buildings, roads, modified vegetation, or other characteristics of the built environment.

All public lands provide visual settings, and these can include:

- Natural topographic vistas, including rivers, mountains, refuges, parks, recreational areas, and subsistence gathering locations
- Locations of human habituation, which include communities, travel corridors (e.g. rivers, winter trails), cabins, and seasonal camps
- Industrial or commercial development, including communities, ports, aviation, and mines

BLM provides Visual Resource Management (VRM) classifications for all of its lands and provides a description of the visual landscape incorporated by reference (BLM 2008). The Kobuk-Seward Peninsula Resource Management Plan (RMP) is the managing document for the BLM lands located throughout the area. It designates visual resource management classes within the RMP Planning Area. The BLM's VRM classifications are provided on map Figure 3.3.2-1. These were digitized by the BLM from the RMP, with the condition that they are approximate and not exact.

VRM classifications include (BLM 2008):

- Class III: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes caused by management activities may be evident but not detract from the existing landscape.
- Class IV: The Class IV objective is to provide for management activities that require major modification of the existing character of the landscape. Changes may attract attention and be dominant landscape features but should reflect the basic elements of the existing landscape. A Class IV rating is generally reserved for areas where visual intrusions dominate the viewshed but are in character with the landscape. The change to the characteristic landscape can be high.

Categories of management currently designated under USFWS's (2011) Comprehensive Conservation Plan for Selawik National Wildlife Refuge include Minimal Management, Wilderness Management and Wild River Management. The proposed ROW is entirely within areas designated for Minimal Management. Minimal Management is designed to maintain the refuge environment with minimal or no evidence of human modifications or changes. A change in management category would be required for all of the action alternatives.

Other landowners along the corridor do not provide visual resource management guidelines that are as specific as USFWS or BLM.

3.3.2.2 Environmental Consequences

3.3.2.2.1 No Action Alternative

The No Action Alternative has no impacts.

3.3.2.2.2 Alternative 1 Impacts

All the alternatives cross BLM lands managed under VRM Class III and Class IV. These allow moderate or high levels of changes to the visual characteristic landscape, respectively. The alternatives do not propose changes to the visual landscape that rise to moderate or major impacts. As has been described, the method of construction shall have minimal visual impacts. Therefore, the alternatives would not adversely impact the scenic or aesthetic quality of the landscape or be inconsistent with the VRM Classes, which provide for moderate to high levels of change.

The FOC cross-section is provided in Figure 3.3.2-2, with an example of the actual cable size. The cable has a 0.472-inch diameter, which is smaller than a penny.

The primary construction involves placing cable directly on the ground during winter when the underlying tundra is frozen and snow-covered, allowing it to settle naturally into the surrounding vegetation during spring thaw. In some locations, the cable is anticipated to become overgrown by vegetation and incorporated into the surrounding landscape, similar to the ASTAC ground-lay FOC construction (Figure 3.3.2-3). Other habitats shall not have vegetation overgrow the cable. This ground-lay method shall have minimal visual impacts.

Vegetation clearing shall create a linear change of habitat across the project. This shall provide a change in visual resources, as visual evidence of the installed telecommunication infrastructure. This shall be a long-term visual impact. The magnitude of impact to recreation is minor, as the visual change shall be a line of different vegetation, and the proposed action does not propose development of an access road or other high visual impact long linear infrastructure.

Cable anchors (~640 anchors) and splice points (~24 splices) shall be placed to facilitate construction of the project. These are low-profile devices and enclosures, spaced at regular intervals of no greater than 6,000 feet or 24 miles (respectively). Anchors shall additionally be placed on either side of ~787 streams and lakes where ground-lay fiber occurs. These shall be above the organic mat but shall have minimal visual impacts.

HDD borings and subsea crossings shall be buried, and have no visual impacts. For the subsea crossing, concrete beach manholes shall be placed on either side of the crossing to facilitate the transition between infrastructure. These shall have negligible visual impacts.

When crossing some large rivers, the cable shall be suspended 20-ft. above the water on wooden poles (Table 3.3.3-1). The visual impacts shall be similar to the ASTAC aerial crossings (Figure 3.3.2-4). These crossings shall be visible and there shall be a change to the surrounding landscape.

Table 3.3.3-1: Aerial Crossings

Alternative	Alaska Native	State	BLM	USFWS
1	14	1	2	3
2	14	1	2	2

Segments of the line will be trenched near communities to reduce the risk to public safety (trip and entanglement hazards). The Department of Transportation and Public Facilities (DOT&PF) may also require some trenching along ROWs adjacent to their roads. Trenches will be backfilled to the same topographic elevation, and salvaged vegetation mat from the excavation shall be replaced on top of the trench. The vegetation is anticipated to regrow and provide negligible impact to visual resources.

As part of the authorization process for a USFWS ROW, the CCP would be amended to change the management category in the affected area from Minimal to Moderate Management. In Moderate Management, the natural landscape is the dominant feature although signs of human activities may be visible. Structures would be designed to minimize visual impact, and facilities would be designed to blend with the surrounding environment to minimize visual impacts. All of the land within the refuge under the ROW would need to be changed to Moderate Management.

Other landowners along the alternative routes do not provide as specific management guidelines concerning visual resources, but given the low visual changes proposed by the project, no impacts are expected for these other landowners.

During construction, equipment, material, and personnel shall be present which shall temporarily change the visual character of the immediate area. These changes shall be transient and temporary, due to the rapid pace of cable placement. The anticipated rapid progress of the construction activities would minimize the potential sustained impacts to visual resources.

During routine and emergency maintenance activities, some visual activity shall occur. These shall be similar to the visual impacts for the construction phase. Maintenance activities would occur intermittently and for a short duration.

Impacts from Alternative 1 would be long-term and negligible to minor.

3.3.2.2.3 Alternative 2 Impacts

Impacts would be similar to Alternative 1, but smaller, because there is less acres of proposed disturbance and one less aerial crossing. Impacts would be long-term and negligible to minor.

3.3.3 Land Use

3.3.3.1 Affected Environment

Landownership is depicted on Figure 3.3.3-1 and Figure 3.3.3-2.

3.3.3.1.1 U.S. Fish and Wildlife Service

The Selawik National Wildlife Refuge encompasses approximately 2.3 million acres surrounding the Selawik River and Kobuk River Delta. The establishment clauses state (Public Law 96-487, 16 US Code 668dd):

> *(B) The purposes for which the Selawik National Wildlife Refuge is established and shall be managed include—*
>
> *(i) to conserve the fish and wildlife populations and habitats in their natural diversity including, but not limited to, the Western Arctic caribou herd (including participation in coordinated ecological studies and management of these caribou), waterfowl, shorebirds and other migratory birds, and salmon and sheefish;*
>
> *(ii) to fulfill international treaty obligations of the United States with respect to fish and wildlife and their habitats;*
>
> *(iii) to provide, in a manner consistent with the purposes set forth in subparagraphs (i) and (ii), the opportunity for continued subsistence uses by local residents; and*
>
> *(iv) to ensure, to the maximum extent practicable and in a manner consistent with the purposes set forth in paragraph (i), water quality and necessary water quantity within the refuge.*

Title XI of the Alaska National Interest Lands Conservation Act (ANILCA) (16 USC 3161 et seq.) and the implementing regulations in 43 CFR Part 36 established procedures for approval or disapproval of Transportation and Utility System authorizations in conservation system units in Alaska. In making a decision on authorization, each Federal agency shall consider and make detailed findings supported by substantial evidence.

The proposed action would occur completely within lands designated as Minimal Management (USFWS 2011). Minimal Management is designed to maintain the refuge environment with minimal or no evidence of human modifications or changes. Habitats are allowed to change and function through ecological processes. Public uses, economic activities or uses, and facilities should minimize disturbance to habitats and resources. Generally, no roads or permanent structures are allowed (except cabins). Compatible economic activities may be allowed where the evidence of those activities does not last past the season of use, except as noted in the preceding discussion of cabins.

Authorization of a ROW across lands designated for Minimal Management would require a revision or amendment to the CCP.

3.3.3.1.2 Bureau of Land Management

The Kobuk-Seward Peninsula Resource Management Plan (RMP) is the managing document for the BLM plans located throughout the area (BLM, 2008). BLM Land Use Plans and RMPs frequently require that ROWs are co-located to prevent proliferation of ROWs across the landscape. This statement in our LUPs requires consideration of a co-location alternative of site-specific actions. This is analyzed in Alternative 5 and Alternative 6 of Appendix F.

The RMP also specifies standard Required Operating Procedures (in Appendix A of BLM 2008, and Appendix D of this document), which are to be applied unless alternative procedures are agreed upon. These have been found to be applicable to the project, without requiring project specific alteration, and so are compliant with the RMP.

3.3.3.1.3 National Park Service

The National Park Service manages Kobuk Valley National Park, located between Kiana and Ambler. Section 202(6) of ANILCA states that this park was established to maintain the environmental integrity of the natural features of the Kobuk River Valley, including the Kobuk, Salmon, and other rivers, the boreal forest, and the Great Kobuk Sand Dunes, in an undeveloped state to protect and interpret, in cooperation with Alaskan Natives, archaeological sites associated with Native cultures, to protect migration routes for the Arctic caribou herd, to protect habitat and population of fish and wildlife, including, but not limited to, caribou, moose, black and grizzly bears, wolves, and waterfowl, and to protect the viability of subsistence resources.

3.3.3.1.4 U.S. Department of Defense

The Alternative route overlaps with a location mapped by the BLM as owned by the Department of Defense (DOD), in Kivalina, Alaska. Locally, this building is known as the old Boys and Girls Club. Rights-of-way would be obtained for construction in these areas.

3.3.3.1.5 Alaska Department of Natural Resources

The Northwest Area Plan (DNR 2008) governs the State of Alaska DNR land in the vicinity of the project. The role of state land use plans is "...to establish a balanced combination of land available for both public and private purposes" (DNR 2008, Alaska Statute 38.04.005).

This management plan lists specific management intent for each surface classification crossed by the alternatives, and these are provided in Appendix M.

The DNR also asserts ownership and management authority of submerged lands of navigable waters, including the tidelands and submerged lands between the mean high tide and 3 miles offshore from the coast. It is noted, however, that through the Submerged Lands Act of 1988 the BLM has the sole authority to determine navigability for federal lands. These differing assertions lead to disputes over management authority where rivers flow through federal lands, which remain largely unresolved in the Northwest Arctic Borough.

3.3.3.1.6 Alaska Department of Transportation and Public Facilities

The alignments cross some properties owned by the DOT&PF, including land in the vicinity of the local airports and roads. Rights-of-way would be obtained for construction in these areas.

3.3.3.1.7 Alaska Industrial Development and Export Authority

The Alaska Industrial Development and Export Authority (AIDEA) owns the Delong Mountain Transportation System, including the industrial road serving the Red Dog Mine. Rights-of-way would be obtained for construction in these areas.

3.3.3.1.8 Northwest Arctic Borough

The NAB Planning Department governs land use through their Northwest Arctic Borough 2030: Planning for Our Future Comprehensive Plan Update (NAB 2021, 2011). Statements from this plan regarding existing infrastructure and infrastructure needs include:

- The region also lacks access to affordable high-speed internet. Reliable internet connectivity has become increasingly important for education, training, commerce…
- …lack of high-speed affordable internet makes it harder to offer reliable distance learning.

And the plan states that the Community Facilities, Infrastructure and Housing Strategy #3 is to: "*Improve internet connectivity in the region through infrastructure investments*."

In addition, the NAB Title 9 land use code specifies Zoning Districts, which include village districts, subsistence conservation districts, habitat conservation districts, general conservation districts, resource development districts, and transportation corridors.

3.3.3.1.9 Regional and Village Corporations (ANC Private Lands)

NANA is the Regional Corporation for the area. The individual village corporations were merged with NANA, except for Kikiktagruk Inupiat Corporation (KIC). KIC is the corporation organized to serve the shareholders of Kotzebue.

NANA is the project proponent and recipient of the TBCP grant from NTIA.

3.3.3.1.10 Other Private Lands

While other private lands are present in the vicinity of the project, the alignments intentionally avoid private lands, including Native allotments, to the greatest extent possible. Private lands are crossed on utility ROWs once inside of each community.

The Bureau of Indian Affairs provides land management services to Alaska Native landowners who own interests in restricted property throughout the state of Alaska. Restricted property is generally defined as either Native Allotments issued under the Native Allotment Act of May 17, 1906 (34 Stat. 197), as amended by the Act of August 2, 1956 (70 Stat. 954), or restricted townsite lots issued under the Native Townsite Act of May 25, 1926 (44 Stat. 629), as amended.

Native allotments are avoided in all the alternatives.

3.3.3.1.11 RS2477

RS 2477, or Revised Statute 2477, is a federal right of way granted as part of the 1866 Mining Law, over federal lands. While the law was repealed in 1976, rights granted prior to its repeal are still in effect. Development must not prevent public access along the rights-of-way.

3.3.3.1.12 17(b) Easements

17(b) Easements are rights-of-way granted to the public to cross lands conveyed to Alaska Native Village and Regional Corporations. These were granted in the Alaska Native Claims Settlement Act to preserve public access to lands and water; development must not prevent public access along the rights-of-way.

3.3.3.1.13 Trails

Trails remain an important method of transportation in Northwest Alaska. Communities are not connected by road and rely on winter trails for seasonal overland access. Winter trail routes provided by the Northwest Arctic Borough (Appendix M) includes both roads and trails.

3.3.3.1.14 Wild and Scenic Rivers

The Wild and Scenic Rivers Act was created in 1968 to preserve the natural, cultural, and recreational values of specifically listed rivers. These rivers are protected to preserve their character, and development must preserve their wild, scenic, and recreational values.

Section 7(a) of the WSRA directs federal agencies to evaluate federally assisted or permitted water resource projects to ensure the existing conditions of river values (free-flowing condition, water quality, and outstandingly remarkable values) are not diminished. Water resource projects must meet the requirements of Section 7 of the Wild and Scenic Rivers Act and NEPA prior to implementation. The proposed project crosses the Kugarak River, which flows into the Selawik River at the terminus of the Selawik Wild and Scenic River. Depending on relative water levels, water from the Kugarak River may enter the WSRA designated portion of the Selawik River.

3.3.3.2 Environmental Consequences

3.3.3.2.1 No Action Alternative

The No Action Alternative has no impacts.

3.3.3.2.1.1 Alternative 1 Impacts

Alternative 1 crosses USFWS, BLM, DOD, DNR, DOT&PF, NANA, KIC, local government, utility ROW, and waterways. This alternative also crosses a number of RS2477 easements, 17(b) easements, and mapped trails. Permission is required from each of these landowners to be practicable.

The quantity of acreage by landownership are detailed in Table 3.3.3-2. These acreages are assuming a 60-foot corridor (30-foot buffer on either side of the cable).

Potential effects on different landownerships are discussed in the following sections.

Table 3.3.3-2: Landownership (Acres)

Landowner	No Action	Alternative 1 60 ft Buffer Area (acres)	Alternative 2 60 ft Buffer Area (acres)
Alaska Native Lands Patented or Interim Conveyed	0	2,048.93	1,944.31
Bureau of Land Management	0	1,046.10	984.40
Fish and Wildlife Service	0	637.73	567.93
Local Government	0	0.66	
Private	0	24.96	19.12
State	0	401.19	401.19
Undetermined (i.e. water)	0	117.40	115.10
Total	0	4,276.96	4,032.04

Note: Apparent inconsistencies in totals are due to rounding

3.3.3.2.1.2 U.S. Fish and Wildlife Service

Alternatives 1 and 2 would result in issuance of a permit for a 60' wide ROW across Selawik Refuge for the construction, operation and maintenance, and decommissioning of a fiber optic network.

Under Alternative 1, the ROW would be 86 miles long, encompassing 638 acres. Under Alternative 2 the ROW would be 76 miles long, encompassing 568 acres.

Both Alternatives 1 and 2 would result in amending the 2011 Selawik Refuge CCP to change the management category for the entirety of the 60' wide ROW corridor from Minimal Management to Moderate Management. Moderate Management allows for changes to the refuge environment that are temporary or permanent but small in scale and that do not disrupt ecological processes. The natural landscape remains the dominant feature, although signs of human activities may be present.

Under Alternatives 1 and 2 the CCP would be amended to include additional Objectives relevant to existing Management Goals. Additional objectives would include:

- Monitoring ROWs for changes in ecological processes.
- Monitoring the effects of ROWs on fish and wildlife and their habitats.
- Monitoring the effects of ROWs on refuge water resources.
- Monitoring the effects of ROWs on subsistence activities.
- Monitoring the effects of ROWs on visitor experiences.
- Providing the public with information about ROWs and their effects.

3.3.3.2.1.3 Bureau of Land Management

Development on BLM lands requires ROW authorization. Alternatives 1 has more impact on BLM lands than Alternative 2, because the southern part of the alignment includes BLM lands. Each of the alternatives have ROPs (Required Operating Procedures) which would be applied to the project, under negotiation with the BLM.

The project would be in conformance with the Kobuk-Seward Peninsula Record of Decision and Approved Management Plan. This use is specifically provided for in H-2: Land Use Authorizations:

6. Rights-of-way

- *Rights-of-way (ROWs) will be located near other ROWs or on already disturbed areas to the extent practical.*
- *Communication site ROWs shall be co-located when feasible.*

A review of all of the ROPs from the Kobuk-Seward Peninsula Record of Decision and Approved Management Plan is provided in Appendix D2. The applicant does not request exception from ROPs applicable to the project.

3.3.3.2.1.4 U.S. Department of Defense

Development on the parcel owned by DOD, near Kivalina, requires ROW authorization.

3.3.3.2.1.5 Alaska Department of Natural Resources

The alternatives would comply with the management for the Northwest Area Plan, as described "…to establish a balanced combination of land available for both public and private purpose."

The management units crossed by the alternatives support this style of development. Important management intents are detailed in the land use plan, including specific considerations required for the WAH and other sensitive species and habitats.

3.3.3.2.1.6 Department of Transportation and Public Facilities

Rights-of-way would be obtained for construction on DOT&PF lands.

3.3.3.2.1.7 Alaska Industrial Development and Export Authority

Rights-of-way would be obtained for construction on AIDEA lands for all of the alternatives.

3.3.3.2.2 Northwest Arctic Borough

The Northwest Arctic Borough's land use planning documents support the development of broadband internet infrastructure.

The alternatives cross various borough zoning districts and subdistricts. The acreage of impacts for each alternative for borough zoning districts are listed in Table 3.3.3-3. The impacts to the borough habitat conservation and subsistence subdistricts are listed in Table 3.3.3-4. These acreage estimates are overestimated, since they are calculated on a 60-foot impact. In a similar manner, no impacts are anticipated to the subsistence conservation or habitat conservation subdistricts.

Table 3.3.3-3: Northwest Arctic Borough Zoning Districts (acres), assuming a 60-foot impact

District Name	No Action	Alternative 1	Alternative 2
Village	0	274.57	259.22
Subsistence Conservation	0	3,080.74	3,035.35
General Conservation	0	908.25	724.08
Resource Development	0	-	-
Transportation Corridor	0	13.36	13.36
Total (acres)	0	4,276.96	4,032.04

Note: Apparent inconsistencies in totals are due to rounding

Table 3.3.3-4: Northwest Arctic Borough Subdistricts (acres), assuming a 60-foot impact

District Name	No Action	Alternative 1	Alternative 2
Habitat Conservation District			
Kobuk River Sheefish and Whitefish Spawning Area	0	27.64	17.20
Noatak River Chum Salmon Spawning Area	0	9.97	9.97
Total Habitat Conservation (acres)	0	37.61	27.17
Subsistence Subdistricts			
Inmachuk River	0	34.50	34.50
Buckland River	0	134.70	134.70
Kobuk-Selawik Lakes	0	72.81	72.81
Selawik River Delta	0	106.25	106.25
Kobuk River Delta	0	19.91	19.91

District Name	No Action	Alternative 1	Alternative 2
Total Subsistence Subdistrict (acres)	0	368.17	368.17

3.3.3.2.3 Regional and Village Corporations (ANC Private Lands)

The alternatives all cross NANA lands. The project is consistent with NANA's goals for its region and shareholders. Alternatives also cross KIC lands and require permission to be obtained from KIC.

3.3.3.2.4 Other Private Lands

While other private lands are present in the vicinity of the project, the alignments intentionally avoid private lands, including Native allotments, to the greatest extent possible.

Private lands are crossed on utility ROWs inside of each community.

Native allotments are avoided in all of the alternatives.

3.3.3.2.5 RS2477

The RS2477 easement (ADL412734) is the Ambler River. This easement shall be crossed by all of the alternatives, with no impedance of public access. No significant impact is anticipated.

3.3.3.2.6 17(b) Easements

The 17(b) Easements crossed by the Alternatives are listed in Appendix M Table 2. Alternative 1 crosses 33 easements, and Alternative 2 crosses 30 easements. None of the alternatives are expected to impede public access for any of the mapped trails. No significant impact is anticipated.

3.3.3.2.7 Trails

The trails would be crossed by the alternatives. Alternative 1 intersects with 41 mapped trails, and Alternative 2 intersects with 37 mapped trails. None of the alternatives are expected to impede public access for any of the mapped trails.

3.3.3.2.8 Wild and Scenic Rivers

Action alternatives would not invade the area or unreasonably diminish the preliminary outstandingly remarkable values (i.e. recreation, geology, fish, wildlife, cultural, and subsistence) of the Selawik Wild and Scenic River.

Impacts from Alternative 1 and 2 would be long-term and moderate.

3.3.4 Socioeconomics

3.3.4.1 Affected Environment

The Northwest Arctic Borough includes 11 communities that are not connected to any road system or to the rest of Alaska. The largest community and borough hub is Kotzebue. Similar to other rural Alaska communities, limited economic opportunities have existed historically due to the remote and isolated nature of the region.

Existing internet connectivity includes access through the existing microwave network (Terra network), new microwave infrastructure (OTZ Buildout, BLM 2024), and satellite technology (i.e. Starlink). Some communities (i.e. Kotzebue, Kivalina, Deering) have existing fiber optic cable access.

The largest private employer is Red Dog Mine (RDM), located about 50 miles east of Kivalina and 30 miles north of Noatak. Other large employers are NANA, the Maniilaq Association, the Northwest Arctic Borough School District, and borough and tribal governments. Despite the mine's impact on economic development, high unemployment continues to exist throughout the region. The mine is also projected to close in 2031 as the current ore bodies would be expended; this is anticipated to present significant financial challenges to the individuals employed at the mine, NANA, and region.

Current social and economic metrics for the region are given in Table 3.3.4-1. As previously noted, each community in the borough has higher poverty rates than the U.S. and Alaska in general.

Table 3.3.4-13: 2023 Socioeconomics

Community	Population	Native American	Median Income	Below Poverty Level
Northwest Arctic Borough	7,611	80.3%	24,181	18.4%
Ambler	201	92.0%	16,389	31.3%
Buckland	629	91.7%	14,417	17.1%
Deering	205	82.4%	21,875	18.5%
Kiana	471	93.4%	18,977	22.9%
Kivalina	813	96.8%	19,313	22.1%
Kobuk	-	-	-	-
Kotzebue	3,046	64.4%	46,458	13.4%
Noatak	700	98.3%	14,519	9.2%
Noorvik	722	79.8%	18,235	19.5%
Selawik	403	89.8%	12,361	44.1%
Shungnak	211	100.0%	20,341	31.5%

Note: Data is from US Census Bureau (USCB 2023), Kobuk information is not available.

An agreement exists between the borough and RDM to provide a regular Payment in Lieu of Taxes (PILT). The PILT currently makes up over 80% of the revenue for the borough. The NAB-RDM agreement also includes separate contributions from RDM to the borough's Village Improvement Fund (VIF), used to provide grants for various capital projects for each community in the borough.

Many residents of the region rely on subsistence to support their food requirements (Section 3.3.5).

3.3.4.2 Environmental Consequences

3.3.4.2.1 No Action Alternative

Under the No Action Alternative, the region would continue to lack essential telecommunications infrastructure that prevents many residents from accessing services, including telehealth and remote learning, and opportunities such as remote jobs, that could contribute to economic growth within the region. The lack of such access would continue to put the region at a disadvantage in terms of opportunities for economic growth.

3.3.4.2.2 Alternatives 1 and 2

Regardless of the route of FOC placement, numerous social and economic advantages are anticipated to be recognized. These are best summarized through the following table.

Table 3.3.4-2: Socioeconomic Impacts

Potential Advantages	Potential Disadvantages
Social Impacts and Effects	
Improved Government and Emergency Services Access. Residents would be able to access government programs, public services, and emergency alerts more easily, improving safety and local engagement.	Cybersecurity and Privacy Concerns. An increase in technology use can lead to challenges like cyber threats, potential online scams, and concerns about data privacy. NANA is committed to providing cybersecurity and privacy education to mitigate these concerns.
Improved Educational Opportunities. Students and teachers would have better access to online educational resources, remote learning and tutoring, and access to distance education opportunities. This would help bridge the educational gap between rural and urban areas.	Changes in Youth and Adult Engagement and Entertainment. Better access to internet could change how people spend their free time, increasing screen time and participation in activities like gaming and social networking. This can be at the expense of other activities, including participation in cultural or subsistence activities.
Enhanced Healthcare Services. The availability of telemedicine appointments and virtual consultations would reduce the need for costly and time-consuming travel to urban medical facilities – a necessity that is currently unavoidable for many residents.	Lack of Trained Personnel. The implementation of the FOC network would require trained personnel to construct and maintain the network. NANA is committed to training and developing this workforce, providing additional career/job opportunities for local residents.
Strengthened Social Connections. Residents would have improved internet access that would enhance connections to families and friends in neighboring communities and outside the region.	Potential Societal Changes. Greater exposure to international media, customized media content, and customized/selected online interactions may influence traditional lifestyles, cultural practices, and engagement in subsistence activities.
Economic Impacts and Effects	
Increasing Economic Development Opportunities. High-speed internet can support local businesses, enable remote work, and create new job opportunities. These can help diversify rural economies beyond traditional activities like fishing and subsistence living.	Impact on Local Businesses and Retail. Easier online shopping may affect local businesses, as residents gain access to e-commerce options that could compete with local stores.
Population Retention. Many rural communities struggle with outmigration, often driven by limited economic and educational opportunities. Improved internet access may help retain residents.	
Impacts to Rural Lifestyle	
Emergency Communication. Improved internet connectivity speeds information sharing that	Trained Personnel. Training of community members and the permanent and transient workforce would be

Potential Advantages	Potential Disadvantages
would identify risks and concerns for individuals headed out for subsistence activities.	necessary to properly use and maintain the equipment to avoid misuse or damage.
More Efficient Search and Rescue. Faster internet would improve emergency coordination and response times, offering better coordination and mapping systems.	Work and School Productivity. Online activities can be a distraction and may potentially result in adverse impacts to workplace and educational environments.
Technology Upgrades and Advanced Equipment. Public facilities like schools, clinics, stores, and others would have the ability to upgrade to newer, high-tech equipment and software for staying current with industry and technology.	Cost of Hardware/Software. New technology has a high initial cost but would ultimately provide greater affordability in the long term.
Preservation and Sharing of Indigenous Culture. Faster internet can help Alaska Native communities document and share their languages, traditions, and histories through digital media and virtual platforms.	

Impacts from Alternative 1 and 2 would be similar, and effects on public health and safety; economics, and effects on quality of life of the American people would be beneficial. These effects would be long-term and minor to moderate.

3.3.5 Subsistence

3.3.5.1 Affected Environment

This section focuses on subsistence uses and activities for Ambler, Buckland, Deering, Kiana, Kivalina, Kobuk, Kotzebue, Noatak, Noorvik, Selawik, and Shungnak (Figure 3.3.5-1). All 11 study communities are highly dependent on subsistence to meet their nutritional, cultural, social, and economic needs. Subsistence is a central aspect of rural Alaska life and is the cornerstone of the traditional relationship between Alaska Native people and their environment. Residents of the study communities rely on subsistence harvests of plant and animal resources both for nutrition and for their cultural, economic, and social well-being. Activities associated with subsistence—processing, sharing, redistribution networks, cooperative and individual hunting, fishing, gathering, and ceremonial activities—strengthen community and family social ties, reinforce community and individual cultural identity, and provide a link between contemporary Alaska Natives and their ancestors. Traditional knowledge, based on a long-standing relationship with the environment, guides these activities.

A dual management system by the State of Alaska and federal government regulates subsistence hunting and fishing in Alaska. Subsistence activities on all lands in Alaska, including private lands, are subject to state or federal subsistence regulations, with the state managing subsistence harvest of fish and wildlife on state and privately-owned land. ANILCA Section 802(2) allows the federal government to prioritize subsistence taking of fish and game on federal lands over other taking of fish and game when it is necessary to restrict taking in order to assure the continued viability of the fish or wildlife populations. The project area would be located on state, federal, and private lands (including NANA lands, and KIC lands).

Detailed subsistence harvest tables, seasonal round figures, and subsistence use area maps for each of the study communities are provided in Appendix N. The following sections provide a summary of subsistence use areas, harvest amounts, and subsistence seasons.

3.3.5.1.1 Harvest Data

Appendix N shows the average composition of subsistence harvests (by pounds) for the study communities across all available study years. Appendix N provides data on individual study years for each of the study communities. As shown on the figure, subsistence harvests across the region are characterized by a heavy reliance on large land mammals, non-salmon fish, salmon, and for some communities, marine mammals. Large land mammals account for at least one-quarter of edible pounds harvested in all of the study communities, and up to 48 percent in Shungnak. Caribou is the primary large land mammal species harvested, although communities also hunt moose, bear, muskox, and Dall sheep. Non-salmon fish harvests account for at least one-quarter of harvests in six of the 11 study communities; non-salmon fish contribute over two-thirds toward Selawik's annual subsistence harvest, on average. Top non-salmon fish species include broad and humpback whitefish, sheefish, Dolly Varden (referred to by some as trout or char), smelt, saffron cod, northern pike, burbot, Arctic grayling, and least cisco (Appendix N). Salmon (primarily chum salmon) contribute at least 20 percent of the harvest in Deering, Kiana, Kobuk, and Noatak. Marine mammals are an important resource in the coastal and Kotzebue Sound communities of Kivalina, Kotzebue, Deering, Buckland, and Noatak (which hunts from Sheshalik in Kotzebue Sound), contributing between 14 and 47 percent toward the harvest in those communities. The other study communities harvest marine mammals but in smaller quantities. Kivalina is the only study community that hunts bowhead whales but has not had a successful hunt since the 1990s. Key marine mammal species in the region are beluga whales (Kivalina, Noatak, and Kotzebue), walrus, and seal (bearded, ringed, and spotted). Other subsistence resources, including vegetation, migratory birds, upland birds, and eggs are important to the study communities but contribute less in terms of usable pounds.

Harvest levels vary from year to year, and for most communities data are only available for one to three study years; however, based on available data, residents of the study community harvest an average of between 309 (Kobuk) and 918 (Kivalina) pounds of subsistence foods per capita. The Kivalina harvest average is high due to the inclusion of data from the 1960s when residents harvested large quantities of fish to feed dog teams. Most of the study communities harvest an average of between 300 and 700 pounds of subsistence foods per capita. For most of the study communities, harvest amounts have remained relatively stable over time, with some changes seen in individual resources (see Appendix N). In recent years, subsistence users from the study communities have expressed concern about the abundance or availability of certain subsistence resources including the WAH which has experienced population decline and sport hunting pressure in recent years.

Household participation in subsistence activities is high, with between 98 and 100 percent of households using subsistence resources during the study communities' most recent study year, and between 78 and 100 percent of households participating in subsistence activities (Appendix N). In 10 of 11 study communities (all but Kotzebue), at least 90 percent of households participated in subsistence harvesting activities during the most recent study year. Sharing is a traditional value which is central to the subsistence way of life. Over three-quarters of households in all of the study communities either gave or received subsistence resources during the most recent study year.

3.3.5.1.2 Subsistence Use Areas

Subsistence use areas for all study communities are depicted on Figure 3.3.5-2. Subsistence use areas for individual study communities are provided in Appendix N. As shown on Figure 3.3.5-2, subsistence use areas for the 11 study communities extend across a large area and encompass the entirety of the project area. Generally, Kobuk River communities focus their hunting activities along the Kobuk River and in overland areas extending north and south of the river and around other communities in the region. Kotzebue Sound communities have a greater focus on marine uses, with subsistence activities occurring throughout Kotzebue Sound and into the Chukchi Sea; however, these communities also use local river systems, including the Kobuk and Noatak rivers, to hunt caribou and other large land mammals and to harvest fish, berries, and other resources. Kivalina subsistence uses occur primarily in the Chukchi Sea and in and around the Wulik and Kivalina rivers. All communities report overland uses during the winter months, when they travel by snowmachine to hunt caribou, furbearers, and other small game.

3.3.5.1.3 Timing of Subsistence Activities

Data on the timing of subsistence activities for the individual study communities are provided in Appendix N. Appendix N Figures provide data on subsistence timing for the Kobuk River, Kotzebue Sound, and Chukchi Sea (Kivalina) regions. Overall, the seasonal round is similar between the three regions, with residents targeting the most subsistence resources during the summer (June through August) and fall (September and October) months when fishing and hunting of large land mammals and marine mammals are at their peak. Across the study region, the early spring months are a transitional time when residents continue to engage in key winter activities (e.g., hunting and trapping small land mammals and furbearers, caribou, and ptarmigan) while also preparing for the upcoming spring harvests. In Kivalina, the spring is when whaling crews set up camps on the ice and hunt bowhead whales and beluga whales; some residents from other regions travel to Kivalina or Point Hope during this time to participate in the whale hunt. Spring (April/May) is an important time in all study communities to hunt migratory birds, with bird eggs harvested in late spring and early summer (May/June). Residents set nets to harvest whitefish and Dolly Varden during their spring and summer runs, with sheefish particularly important in the Kobuk River communities, and Dolly Varden (locally called trout) a key resource in Kivalina and Noatak. Marine mammal hunting begins in the spring, particularly for the Kotzebue Sound and Chukchi Sea communities, and continues throughout the summer. Bearded seals in particular are targeted as they migrate north with the sea ice, and a first migration of beluga whales generally occurs in May or June.

Residents continue to set nets during the summer months for continued harvests of sheefish, whitefish, and chum salmon, and also harvest fish along local rivers with rod and reel throughout the summer months. Many residents from Kotzebue and Noatak travel to camps at Sheshalik during the spring and summer for fishing and other subsistence pursuits. Hunting of marine mammals continues, with residents of Kivalina and some Kotzebue Sound communities hunting beluga during a second migration (the Eastern Chukchi Sea stock). Residents harvest wild plants beginning in early summer and continuing into fall with berry harvesting intensifying in the late summer. In late summer and fall, residents increase their focus on large land mammal hunting. In particular, residents travel by boat along rivers and coastal areas to hunt caribou during their southward migration. Some individuals also hunt for moose, bear and Dall sheep during this time. Fall time is an important time to harvest Dolly Varden and whitefish during their fall runs, and some migratory bird hunting occurs during this time as well. Residents continue to fish through the fall and transition to ice fishing after freeze-up around November. Hunting and trapping of furbearers and small land mammals is a primary winter activity, with residents also hunting ptarmigan and caribou as available.

3.3.5.2 Environmental Consequences

The project has the potential to cause impacts primarily to subsistence user access and resource availability. Impacts would be greatest during the construction phase of the project due to increased human activity, noise, and physical obstructions. Table 3.3.5-1 shows the number of project acres that overlap with subsistence use areas for each of the 11 study communities (using the 60-foot ROW buffer of the alternatives), and Figure 3.3.5-2 shows subsistence use areas for the study communities, overlaid with the action alternatives. The following sections provide an analysis of potential impacts to subsistence by alternative.

Table 3.3.5-1: Subsistence Use Area Overlaps by Community and Alternative (acres of 60-foot ROW)

Community	No Action	Alternative 1	Alternative 2
Ambler	0	3,008	2,763
Buckland	0	1,497	1,497
Deering	0	1,206	1,206
Kiana	0	2,038	1,848
Kivalina	0	821	821
Kobuk	0	2,884	2,638
Kotzebue	0	3,448	3,415
Noatak	0	2,902	2,903
Noorvik	0	2,709	2,471
Selawik	0	2,111	1,866
Shungnak	0	1,749	1,504

3.3.5.2.1 No Action Alternative

The No Action Alternative has no impacts.

3.3.5.2.2 Alternative 1 Impacts

The Alternative 1 ROW overlaps with between 821 (Kivalina) and 3,448 (Kotzebue) acres of subsistence use areas for the study communities, with Kotzebue, Ambler, Noatak, Kobuk, and Noorvik all experiencing the highest amount of subsistence use area overlap (over 2,500 acres each) (Table 3.3.5-1). Under Alternative 1, subsistence users could experience reasonable, temporary reductions in access around construction zones or along the ROW. These impacts would be most likely to occur for residents traveling overland by snowmachine in winter to conduct subsistence activities such as hunting for furbearers, caribou, and ptarmigan, as a majority of construction activity would occur in winter. The applicant anticipates that the FOC would settle into the tundra and be subsumed by the surrounding vegetation over time. Once the FOC has been laid and before spring melt, subsistence users may encounter the FOCs while traveling by snowmachine, particularly in areas where the ROW intersects with existing snowmachine trails. While unlikely, it is possible that snowmachines could snag on the FOCs if they are not properly secured or fully flat. In most cases however, residents should be able to navigate over the FOCs without issue. Assuming that there are no areas where FOCs have not fully settled and remain exposed, the project would pose no physical obstructions to overland travelers during operation. Crews shall return in the summer to ensure that the cable is properly seated on the tundra. At large river crossings, the FOC shall run aerially over the water via wooden poles placed vertically, or crossed with HDD.

During summer construction activities, particularly along the Noatak and Kobuk rivers, subsistence users traveling along riverways by boat could experience temporary impacts to access if construction crews and equipment, including barges and tugboats, are active. Large river crossings are expected to take four to five days for construction. Overhead lines on smaller river crossings would be high enough to allow for boat access. Along streams where the FOC is dropped to the bottom of the streambed, if FOCs are not seated properly, then cables may interfere with boat travel along these streams. This would be particularly likely in late spring or early summer after construction, before maintenance crews return to conduct inspections and seat the cables (i.e., ensuring that the FOCs have settled either to the bottom of lake and stream beds, or into tundra). Key subsistence activities along riverways in the late spring and early summer include migratory bird hunting, travel to fish camps (including Sheshalik) where residents set nets for whitefish (including sheefish) and Dolly Varden, and travel to and from marine waters for beluga and seal hunting (particularly Noatak traveling to Kotzebue Sound).

In addition to physical obstructions, subsistence users may choose to avoid areas of active construction, including construction camps, due to noise and human activity, and concerns about hunting in the vicinity of infrastructure. The project would consist of three construction crews of 12 to 14 personnel, who would stay in mobile camps on sleighs that would traverse the construction corridor. Vegetation clearing would create a construction corridor along which residents may choose to travel by snowmachine or four-wheeler. This could increase access to subsistence harvesting areas and result in the creation of a hunting corridor. If travel increases along this corridor, it could concentrate harvests and result in increased competition among hunters/communities.

In addition to affecting subsistence user access, the project may also affect subsistence resource availability temporarily due to construction noise and activity; air, ground, and boat vessel traffic; removal of vegetation; human activity; and visual disturbances. Certain resources such as large land mammals, small land mammals, and migratory birds, may avoid areas with high levels of noise and human activity during the construction phase. If the migratory paths of resources are diverted, then subsistence users could experience reduced harvesting success; however, large-scale changes in migration are unlikely as construction activities would be concentrated in small areas at any given time. If residents have traplines that follow or cross the proposed FOC corridors, they may experience some temporary reduced success, as furbearers have been observed to avoid areas of human activity and construction.

While a majority of construction activities would occur during the winter when subsistence activities are less frequent, limited late spring/early summer construction activities such as tundra vehicle, aerial flights, and barge/tugboat could affect caribou behavior and movement through the area, resulting in temporary and localized disruptions to harvest success. Much of the WAH would be north of the project area in the summer and would be more likely to encounter the project area, either during the winter, or during fall migration. In-water activities could cause temporary and localized displacement of fish. If the FOCs become loose or are not properly anchored along stream banks, they could cause erosion and sedimentation, which could affect fish distribution and affect harvester success in certain areas. This may be more likely to occur during periods of high water or flooding. Cables shall be laid with enough slack to accommodate terrain contours and to drop to the bottom of lakes and ponds where they shall be covered with sediment over time. Crews shall return in summer to ensure that cables are properly seated. The majority of the construction activity is in the winter, to avoid impacts to migration activity for caribou, migratory birds, and other species. Cables shall be laid with enough slack to accommodate terrain contours and to drop to the bottom of lakes and ponds where they shall be covered with sediment over time. Crews shall return in summer to ensure that cables are properly seated.

Removal of vegetation would primarily consist of taller woody shrubs such as willows, dwarf birch, and alders and therefore would be more likely to affect species that feed on or use those shrubs for cover. Removal of vegetation may also result in certain resources, such as moose, using the corridor for travel and increasing their availability to subsistence hunters. In-water disturbances and vessel traffic during summer construction activities could temporarily affect the availability of fish and marine resources in the vicinity of those activities. In addition, aerial activity associated with delivery of equipment and maintenance activities could cause localized disturbances to certain resources such as caribou and migratory birds, resulting in temporary disruptions to harvester activities. Wooden poles used to run FOCs aerially over major river crossings would be the primary visual disturbances associated with the project and may cause some avoidance by wildlife. To prevent bird collisions, the project would install bird diverters at each aerial crossing to increase visibility. Bird mortalities would not be high enough to result in an overall reduction in resource abundance for subsistence harvesters. While the project may cause a reduction in habitat for certain resources, the change in habitat availability would be unlikely to affect wildlife survival and production or to affect overall abundance.

Improved internet access could change how individuals spend their free time, increasing screen time and participation in activities like gaming and social networking. This can be at the expense of other activities, including participation in cultural or subsistence activities. Alternatively, social media can be used as a tool in rural communities to improve engagement in subsistence activities.

Impacts from Alternative 1 would be temporary and negligible to minor.

3.3.5.2.3 Alternative 2 Impacts

Impacts to subsistence user access, resource availability, and resource abundance, would be similar to those discussed under Alternative 1, but with a slight decrease in use area overlaps near Ambler, Kobuk, and Shungnak. There would be no unreasonable interference or conflicts posed by this alternative to subsistence activities.

As discussed under Alternative 1, an increase in internet access could have both positive and negative impacts on subsistence, by decreasing the time some individuals spend on subsistence activities but improving communication about subsistence harvests and activities.

3.3.6 Recreation

3.3.6.1 Affected Environment

Recreation activities occur throughout the project area and vicinity, although generally in low density. Primary recreational activities can include hunting, fishing, foraging, boating, birdwatching, sightseeing, float trips, and hiking. Many recreational activities in the area rely on components of the natural environment, ‘getting away from it all,’ and removal from industrial aspects of the developed human environment. Lack of access is a primary barrier to recreation, and access is generally better near established communities, waterways, winter trails, developed infrastructure and/or suitable aircraft landing locations. Other built infrastructure detracts from the recreational experience, including vegetation clearing, utility lines, and industrial development such as mining.

Sport hunting and fishing in the area is regulated by the ADF&G. The project is located in Game Management Unit 23. Outfitters are permitted to guide hunts within these Game Management Units and in the vicinity of the project area. Sport fishing is popular in the area, and the Alaska State Trophy Fish Recordholder for Arctic Char/Dolly Varden was caught in the Wulik River near Kivalina. The other waterways such as the Noatak River and Kobuk River are also prized fish habitat. The harvest estimates for Northwest Alaska (Survey Area X) estimate 682 anglers fished for 3,156 days in 2023 (ADF&G 2023). Most anglers targeted Arctic grayling, followed by Dolly Varden, chum salmon, sheefish, Northern pike, and lake trout (in descending order of sport fishing effort).

Sport hunting in the game management unit includes caribou, moose, brown bear, black bear, muskox, wolves, and furbearers. Sheep have no open season for sport harvest. ADF&G reported sport harvest statistics for caribou (273 individuals harvested), moose (72 individuals harvested), and muskox (6 individuals harvested) in 2024 (ADF&G 2024).

The BLM has classified an Extensive Recreation Management Area (ERMA) as semi-primitive motorized under the recreation opportunity spectrum, managed for dispersed recreational use (BLM 2008). Management attention on commercial recreational use is focused on areas that have or may have conflicting uses or issues that require decisions to be made.

3.3.6.2 Environmental Consequences

3.3.6.2.1 No Action Alternative

The No Action Alternative has no impacts.

3.3.6.2.2 Alternative 1 Impacts

Improved internet access could change how individuals spend their free time, increasing screen time and participation in activities like gaming and social networking. This can be at the expense of other activities, including participation in outdoor recreation. Alternatively, social media can be used as a tool to share information and encourage recreation outdoors.

Sport hunting seasons vary, and include: black bear (all year), brown bear (all year), caribou (all year), moose (July 1 – December 31 and/or September 1- September 20), muskox (August 1 – March 15), wolf (August 1 – April 30), and wolverine (September 1 – March 31). Construction activity and post-construction maintenance (including helicopter inspections) can impact the experience of recreation uses, including sport hunters, guided hunters, and outfitter business. The primary construction effort is in the winter but also includes summer HDD and aerial crossing construction. Construction overlaps with hunting seasons. Impacts are expected to be of short duration and minor magnitude, as the construction team shall only be in a particular spot for a short period of time.

The primary construction involves placing the cable directly on the ground during winter when the underlying tundra is frozen and snow-covered, allowing it to settle naturally into the surrounding vegetation during spring thaw. This ground-lay method shall have minimal visual impacts. This winter activity is planned to minimize impacts to recreation during a period of low recreation activity. Impacts shall occur during the winter construction (i.e. noise and visual from the construction train) but are limited in duration at any specific location.

Vegetation clearing shall create a linear change of habitat across the project. This shall provide a change in recreational resources, as evidence of the installed telecommunication infrastructure shall be visible. This shall be a long-term impact. The magnitude of impact to recreation is minor, as visual impacts are the primary impact to recreation, and no recreation activities shall be restricted.

Cable anchors and splice points shall be visible to recreation users. These are low-profile devices and enclosures, spaced at regular intervals of no greater than 6,000 feet or 24 miles (respectively). Anchors shall additionally be placed on either side of streams and lakes where ground-lay fiber occurs. These shall be above the organic mat but shall have minimal recreational impacts.

HDD borings and subsea crossings shall be buried. Impacts from HDD shall be negligible, each boring shall take place in ~1 day, and a site may be occupied by the construction team for 3-5 days. For the subsea crossing, concrete beach manholes will be placed on either side of the crossing to facilitate the transition in infrastructure. These shall have negligible recreation impacts.

Aerial cable shall be suspended 20-ft. above the water. The visual impacts shall be similar to the ASTAC aerial crossings (Figure 3.3.2-4). These crossings shall be visible and shall be a change to the recreational resources in the landscape. These shall be visible only in the immediate to moderate landscape and may provide a visual reference point for people navigating on the landscape.

Construction activity may provide a temporary impact on recreation in the immediate area of the activity but are of short duration and minor magnitude. Vegetation clearing and installed infrastructure would provide long-term impacts of minor magnitude.

3.3.6.2.3 Alternative 2 Impacts

Impacts would be similar to Alternative 1, but less, because the alignment disturbs fewer acres and there is one less aerial crossing. Impacts would be temporary and negligible to minor for construction, and long-term and minor for vegetation clearing and installed infrastructure.

3.4 Summary of Impacts

A summary of impacts for each resource category and alternative is provided in Table 3.4-1.

Table 3.4-1: Summary of Impacts

Resource Category	No Action	Alternative 1	Alternative 2
Air Quality	-	Temporary and Minor	Temporary and Minor
Noise	-	Long-Term and Negligible/Minor	Long-Term and Negligible/Minor
Hazardous Materials and Spills	-	Long-Term and Minor	Long-Term and Minor
Geology and Soils/Permafrost	-	Long-Term and Negligible/Minor	Long-Term and Negligible/Minor
Floodplains	-	Long-Term and Negligible/Minor	Long-Term and Negligible/Minor
Water Resources	-	Long-Term and Negligible/Minor	Long-Term and Negligible/Minor
Wetlands and Vegetation	-	Long-Term and Negligible/Minor	Long-Term and Negligible/Minor
Fish and Fish Habitat	-	Long-Term and Negligible/Minor	Long-Term and Negligible/Minor
Birds	-	Long-Term and Negligible/Minor	Long-Term and Negligible/Minor
Terrestrial Mammals	-	Long-Term and Negligible/Minor	Long-Term and Negligible/Minor
Marine Mammals	-	Long-Term and Negligible/Minor	Long-Term and Negligible/Minor

Resource Category	No Action	Alternative 1	Alternative 2
Threatened/Endangered Species	-	Long-Term and Negligible/Minor	Long-Term and Negligible/Minor
Cultural/Historic Resources	-	Temporary and Moderate	Temporary and Moderate
Visual Resources	-	Long-Term and Minor/Moderate	Long-Term and Minor/Moderate
Land Use	-	Long-Term and Negligible/Minor	Long-Term and Negligible/Minor
Socioeconomics	-	Long-term and Minor	Long-term and Minor
Subsistence	-	Temporary and Minor	Temporary and Minor
Recreation		Temporary and Negligible/Minor	Temporary and Negligible/Minor

4 Applicable Environmental Permits and Regulatory Requirements

Major federal permits likely include a BLM ROW grant for construction on BLM lands, a USFWS ROW permit for construction on Selawik National Wildlife Refuge, and a USACE Section 404/Section 10 Permit for construction/fill in wetlands (Table 5-1).

At the State level, the project likely requires a DNR ROW easement for construction on state land, consultation with the DNR regarding cultural resources, and an ADF&G Fish Habitat Permit.

Local authorizations include a KIC and NANA land access, and a Northwest Arctic Borough Title 9 Permit.

Table 5-1: Listing of major state, federal, and local permit applications

Agency	Permit/ Authorization	Regulated Activity	Status
BLM	ROW Grant	Construction on BLM lands	In progress
USFWS	ROW Permit	Construction on USFWS land	In progress
USACE	Section 404 Permit	Construction/fill in wetlands	In progress
USACE	Section 10 Permit	Construction in Section 10 waters	In progress
FAA	Obstruction Evaluation	Obstruction Marking	In progress
NOAA	NMFS EFH Assessment	EFH consultation	Completed
DNR	ROW easement	Construction on state land	In progress
ADF&G	Fish Habitat Permit	Crossing of state waters	Completed
DNR OHA	Consultation on Cultural Resources	Consultation on Cultural Resources	In progress
KIC	Land Access/ROW Authorization	Construction on KIC lands	Completed
NAB	Title 9 Permit	Development within the Borough	In progress
NANA	Land Use Permit	Construction on NANA lands	In progress

5 Project Outreach and Consultation Activities

5.1 NANA Outreach and Consultation

NANA has prioritized meaningful community engagement throughout the project planning process. A summary of project outreach is below with consultation materials provided in Appendix O.

Between July and October 2024, NANA conducted formal, predominately indigenous community meetings with tribal, ANC, and other community residents, business owners, and interested stakeholders in all eleven villages affected by the project. These meetings included comprehensive presentations on the project scope, timeline, and anticipated benefits, followed by interactive question and answer sessions with all community members. During these sessions, residents reviewed detailed maps of the proposed cable routes and provided valuable input on potential adjustments, drawing by hand in some cases where subsistence activities occurred, as well as where and how to avoid valuable and meaningful traditional and cultural sites. Community concerns and suggestions were meticulously documented to ensure incorporation into the final project design to the extent possible. These meetings were conducted in partnership with tribal governments, ANC leadership, community leadership and other stakeholders.

Fall 2024 meetings. Locals used hard copy maps to draw preferred locations for the alignment, and subsistence areas to avoid. (Number in parenthesis is # of attendees)

- August 6, 2024 in Buckland (21)
- August 7, 2024 in Shungnak (8)
- August 8, 2024 in Kivalina (4)
- August 8, 2024 in Kobuk (20)
- August 9, 2024 in Kiana (11)
- August 12, 2024 in Noatak (17)
- August 13, 2024 in Noorvik (5)
- August 15, 2024 in Ambler (6)
- November 13, 2024 in Selawik (8)
- November 14, 2024 in Deering (7)
- May 20-21, 2025 Presentation to the Northwest Arctic Energy Steering Committee Meeting
- Ongoing website about the project (https://www.nanabroadband.com/)

NANA is committed to maintaining robust community engagement throughout project. Prior to construction in Fall 2025, NANA would conduct updated presentations in all affected communities and invite dynamic feedback for maximum impact.

NANA issued scoping letters, including:

- August 1, 2025 Letter to Tribal and City Leaders to provide input on the project
- August 6, 2025 Letter to Allotment Holders to provide input on the project

During the construction phases in Winter 2025-2026, Summer 2026, and potentially 2026-2027, NANA would provide updates to all stakeholders and continue to listen and learn from local community and indigenous leaders. A contact system for construction supervisors would be maintained, complemented by regular community radio announcements and a quick response system for addressing any subsistence concerns. Following construction completion, NANA would hold community meetings to gather feedback and provide information on broadband availability.

5.2 Federal Agency Outreach and Consultation Activities

Federal agencies conducted outreach and scoping for the project, wherein NTIA requested public input on issues related to the proposed project, alternatives, and identification of relevant information.

- August 6, 2025 Letter to agencies, stakeholders, and the public to provide input on the project
- August 4 – 19 Federal scoping for the project
    - Public input was received from three stakeholders (Appendix M): Western Arctic Caribou Herd Working Group, Trustees for Alaska, and DNR

5.3 Section 106 Consultation

This consultation is discussed in Section 3.3.1 (cultural resources).

5.4 Endangered Species Act Consultation

The Endangered Species Act requires consultation with the National Oceanic and Atmospheric Administration, National Marine Fisheries Service and US Fish and Wildlife Service to assess and advise and to minimize, mitigate, and offset adverse impacts to endangered species that may result from federal actions. This consultation has been initiated with both agencies. USFWS has completed their consultation, and their concurrence is included in Appendix M.

5.5 Essential Fish Habitat Consultation

The Magnuson-Stevens Fishery Conservation and Management Act requires consultation with the National Oceanic and Atmospheric Administration, National Marine Fisheries Service to assess and advise and to minimize, mitigate, and offset adverse impacts to Essential Fish Habitat that may result from federal actions. This consultation has been completed and is included in Appendix M.

6 References

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