U.S. Department of the Interior
Bureau of Land Management

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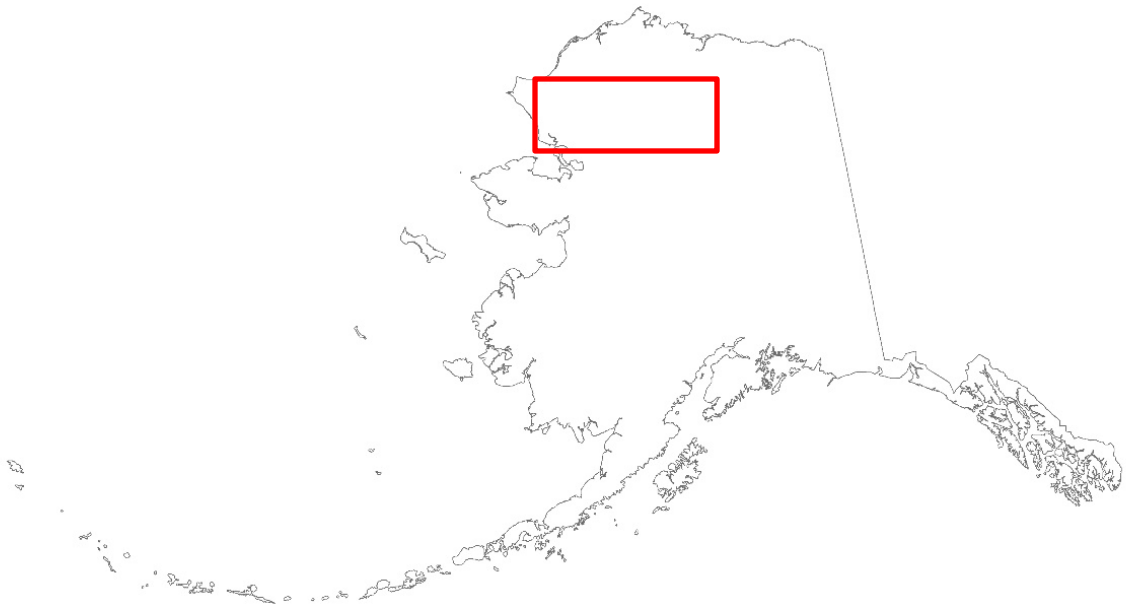
OTZ Microwave Tower Broadband Project
Preliminary Environmental Assessment

DOI-BLM-AK-A010-2024-0010-EA

Applicant: OTZ Telephone Cooperative Inc.
Casefile Number: AA-097882



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CHAPTER 1. INTRODUCTION

1.1. Background

The Bureau of Land Management (BLM) Anchorage Field Office (AFO) and the U.S. Fish and Wildlife Service (USFWS) Selawik National Wildlife Refuge have been working with the applicant, OTZ Telephone Cooperative, Inc. (OTZ) regarding their original March 2022 proposal and subsequent revisions since. The proposals and revisions have included:

- **July 2022 original proposal (replaced with June 2023 revision) – considered but eliminated from detailed analysis:** Application submitted by OTZ proposed 33 total microwave tower site locations, to include: 2 on NANA Corporation lands; 5 on BLM managed lands; 1 on USFWS managed lands, and the remaining being preexisting or on State of Alaska owned lands.
- **June 2023 revised proposal (current proposed action as amended per December 2023 revision):** Revised application by OTZ indicated that 3 towers were deemed no longer necessary changing total OTZ sites to 30 towers. Moved proposed site locations of two sites off on NANA corporation lands to USFWS and BLM. Site locations to include: 6 on BLM managed lands; 2 on USFWS managed lands, and the remaining being preexisting or on State of Alaska owned lands.
- **December 2023 revised proposal (part of the current proposed action):** Revised application by OTZ moved site 33 approximately 0.10 mile from original proposed location and required road construction for access. Additionally, all 30 sites were modified to include solar panels.

The BLM AFO and USFWS Selawik National Wildlife Refuge are now considering the revised December 2023 application from OTZ Telephone Cooperative, Inc. (OTZ) to install a series of microwave broadband communication towers as part of a project to provide broadband services for high-speed internet, data connectivity, and emergency communications for the communities of the Northwest Arctic Borough (NWAB) in northwest Alaska. The network of broadband communication towers would serve 10 communities within the NWAB with a population of 7,793 residents (*U.S. Census Bureau quick facts: United States,* 2022). OTZ Telephone Cooperative received a grant for the proposed network that would connect to an existing fiber optic cable located along the Dalton Highway, then span thirty (30) microwave broadband communication towers through the NWAB.

As part the most recently received revised proposal from December 2023 to BLM and the USFWS, OTZ proposes to construct, operate, and maintain six new communications towers on BLM managed lands and two new towers on USFWS managed lands. For such a proposal, the BLM would authorize a 30-year BLM communication site lease for future construction, operations, and maintenance on BLM-managed lands. USFWS would authorize a 10-year Right of Way (ROW) Permit for future construction, operations, and maintenance on USFWS-managed lands. Once each authorization expires, the issuing agency would conduct respective analysis for the renewal of the BLM lease and the USFWS ROW Permit. Once each authorization expires, the issuing agency would conduct respective analysis for the renewal of BLM Lease and the USFWS ROW Permit. Regardless of the agency-authorized land use, at the

end of each tower's lifecycle or utility, OTZ would remain responsible to fully decommission the towers (further described in Section 2.2).

1.2. Purpose and Need

The purpose for the action is to consider a ROW authorization to develop a portion of a Broadband Buildout Project that received a $30 million grant from the United States Department of Agriculture (USDA) Rural Utilities Service (RUS) through the Substantially Underserved Trust Area or "SUTA" Program; available to telecommunication companies that serve tribal lands. The project would increase broadband speeds to rural lower 48 standards; providing system redundancy and improved reliability; enhanced telehealth and emergency response capability for the region; and improved economic development opportunities.

The need for this action is established by the BLM's responsibility 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 USFWS must respond to applications for transportation and utility systems in and across, and access into conservation system units under Title XI of the Alaska National Interest Lands Conservation Act of December 2, 1980 (P.L. 96-487; 16 USC 31610) and in compliance with the National Wildlife Refuge System Administration Act (16 U.S. C. 668dd-668ee).

While the OTZ Project includes additional components to be installed on State of Alaska and private lands, these components are not direct actions for which the ROW application is under review. The direct action under review in this document are the eight (8) towers proposed for a federal public land communication site lease on BLM and USFWS lands. The additional towers are not the direct action for which the lease application is under review in this EA and are not part of the BLM and USFWS permitting processes. The additional towers represent a combination of new and existing towers and are connected actions as interdependent parts of the larger action and depend upon the towers of the entire network in order to operate (40 CFR 1501.9 I(1)(i-iii)). Some Chapter 3 effects analysis sections may consider, if relevant and applicable, the cumulative effects of the entire project as well as other future foreseeable activities to evaluate the overall effect of this action on the human environment.

1.2.1. Decision to be Made.

BLM is the lead agency for the Environmental Assessment (EA) with the role of technical analysis, communication, and decision-making under the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 et. seq.), and in its implementing regulations (43 CFR parts 1500-1508). The FWS is a cooperating agency, and contributed to the EA by providing information and reviewing components of the EA to insure it meets their agencies' respective permitting requirements. Each agency will develop the appropriate decision document with regard to the NEPA process for those lands under their management. Due to the fact that each agency has different regulatory authorities, regulations, and policies they must follow, it is feasible that the agencies could arrive at different determinations in their final decision documents.

The decision to be made by BLM and USFWS is whether to authorize communication site leases for the temporary construction to build, as well as the long-term operations and maintenance of the proposed microwave broadband communication towers. 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 with regard to approval or rejection of the applications received, and if approved, the appropriate terms and conditions under which such approval would be granted.

BLM's decisions on granting communication leases are guided by the underlying authority derived from Title V, of the Federal Land Policy and Management Act (FLPMA) (90 Stat. 2776; 43 USC 1761), as amended, and in accordance with regulations found in 43 CFR § 2800.

In reaching the decisions required for permits, each agency will develop terms and conditions The permit terms are legally binding, and agencies monitor compliance. Permit decisions made by each agency can be appealed by the applicant or an affected party, following the procedures of the individual agency.

1.3. Land Use Plan Conformance

The proposed action is in conformance with applicable BLM Land Use Plans (LUP) because it is clearly consistent with the following LUP decisions, (objectives, terms, and conditions) even though it is not specifically provided for:

1.3.1. BLM Land Use Plan Conformance

Kobuk Seward Peninsula ARMP/ROD September 2008.

H-2: Land Use Authorizations

Land use authorizations include various authorizations and agreements to use BLM lands such as right-of-way grants, temporary use permits under several different authorities; leases, permits, and easements under Section 302 of the Federal Land Policy and Management Act of 1976 (FLPMA); airport leases under the Act of May 24, 1928; and Recreation and Public Purposes (R&PP) leases.

H-2-a: Management Actions

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.

Utility Corridor Resource Management Plan, Approved/Amended: January 11, 1991

The proposed action is in conformance with the applicable LUP because it is specifically provided for in the following LUP decision(s): Utility Corridor RMP, Appendix N — Lands and Realty Program (Page N-8).

7. Process applications for land use authorizations from the general public, Federal and State agencies, and research organizations on a case-by-case basis.

1.3.2. U.S. FWS Land Use Plan Conformance

The Service reviews ROW applications under the terms of the National Wildlife Refuge System Administration Act of 1966 (16 U.S. C. 668dd-668ee) as amended, and the regulations found at 50 CFR Part 29. Additional requirements concerning a transportation and utility system within a National Wildlife Refuge are considered under the Alaska National Interest Lands Conservation Act (ANILCA) (16 U.S. C. 3161 et seq.). These acts are described below along with other key environmental requirements that must be taken into consideration when evaluating the permit request on National Wildlife Refuges in Alaska.

The *National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997*, 16 U.S.C. 668dd-668ee (Refuge Administration Act) consolidated the various categories of lands administered by the Secretary of the Interior through the Service into a single National Wildlife Refuge System. The act establishes a process for determining compatible uses of refuges, stating that first and foremost, that the mission of the National Wildlife Refuge System be focused singularly on wildlife conservation, and reinforces and expands the compatibility standard of the Refuge Recreation Act.

In deciding on issuance of the ROW for use of Selawik Refuge lands, under the Refuge Administration Act, the Selawik Refuge Manager must make a determination that the proposed action would not materially interfere with nor detract from the mission or purposes for which the Selawik Refuge was established. This draft determination is included in Appendix D.

The Selawik National Wildlife Refuge was established by the Alaska National Interest Lands Conservation Act (ANILCA) (16 U.S. C. 3161 et seq.) in 1980. Section 302(7)(B) of ANILCA states the purposes of Selawik Refuge include:

> (i) to conserve 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 the 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.

The purposes of the congressionally designated Selawik Wilderness Area are to secure an enduring resource of wilderness, protect and preserve the wilderness character of the area as part of the National Wilderness Preservation System (NWPS), and administer the area for the use and enjoyment of the American people in a way that will leave it unimpaired for future use and enjoyment as designated wilderness.

In Title XI, Congress recognized that Alaska was a comparatively young state, with incomplete transportation and utility systems. As a result, in Title XI Section 1101 (b), Congress stated that "to minimize the adverse impacts of siting transportation and utility systems within units established…by this Act and to insure effectiveness of the decision-making process, a single statutory authority...for such systems must be provided" within which an analysis of alternatives would be conducted.

Section 1104 (g)(2) requires consideration and findings regarding, the following, among others:

(A) the need for, and economic feasibility of, the transportation or utility system;

(B) alternative routes and modes of access, including a determination with respect to whether there is any economically feasible and prudent alternative to the routing of the system through or within a conservation system unit, national recreation area, or national conservation area and, if not, whether there are alternative routes or modes which would result in fewer or less severe adverse impacts upon the conservation system unit;

(C) the feasibility and impacts of including different transportation or utility systems in the same area;

(D) short- and long-term social, economic, and environmental impacts of national, State, or local significance, including impacts on fish and wildlife and their habitat, and on rural, traditional lifestyles;

(E) the impacts, if any, on the national security interests of the United States, that may result from approval or denial of the application for a transportation or utility system;

(F) any impacts that would affect the purposes for which the Federal unit or area concerned was established;

(G) measures which should be instituted to avoid or minimize negative impacts; and

(H) the short- and long-term public values which may be adversely affected by approval of the transportation or utility system versus the short- and long-term public benefits which may accrue from such approval.

The proposed sites OTZ-17 ALT and OTZ-19 are located on Selawik Refuge lands and subject to the determinations required under ANILCA Tile X1. BLM lands are not part of a conservation system unit, and therefore not subject to ANILCA Title XI review.

Selawik National Wildlife Refuge Revised Comprehensive Conservation Plan (2011)

Under the 2011 Comprehensive Conservation Plan (CCP) for the Selawik Refuge, lands affected by the proposed project are categorized as Minimal Management for which the following is an overview of the guidance:

> Minimal Management is designed to maintain the natural environment with very little evidence of human-caused change. Habitats should be allowed to change and function through natural processes. Administration will ensure that the resource values and environmental characteristics identified in the Plan are conserved. Public uses, economic activities, and facilities should minimize disturbance to habitats and resources. Ground disturbing activities are to be avoided whenever possible (USFWS, 2011).

If a transportation or utility system, as defined in Section 1102 of ANILCA is proposed to cross an area in Minimal Management, the authorization process would incorporate a corresponding comprehensive conservation plan amendment to change the management category in the affected area from Minimal to Moderate or Intensive Management, as appropriate.

Visual resources within the Refuge are managed by the Refuge's Comprehensive Conservation Plan (CCP) (FWS, 2011), which addresses Section 304(g) of the Alaska National Interest Lands Conservation Act of 1980 (ANILCA). Section 304(g) of ANILCA requires the USFWS to identify and describe special values of the Refuge. The stated goal of the CCP is to "minimize the visual impacts of refuge development and use. All activities and facilities on the Refuge will be designed to blend into the landscape to the extent practical."

1.4. Scoping and Issues

To focus this EA, specific issues of concern were selected for further analysis through internal scoping and others were eliminated from further analysis. To clarify the issue of greatest concern, the following two tables describe the issues analyzed in detail (Table 1) in Chapter 3 versus issues not analyzed in further detail (Table 2). Based on the results of an internal scoping meeting and review by BLM and USFWS specialists on November 16, 2022, the following issues were identified for further analysis in the EA.

1.4.1. Table 1. Issues Analyzed in Detail.

RESOURCE	ISSUE STATEMENT
Vegetation and Wetlands	Would construction and operations of the proposed microwave broadband communication towers affect BLM sensitive plant species or wetland areas?

RESOURCE	ISSUE STATEMENT
Issue 1	Would construction and operations of the proposed microwave broadband communication tower introduce new, or spread existing, priority invasive species? Would construction of the proposed microwave broadband communication tower necessitate permanent removal of vegetation?
Wildlife (Birds and Terrestrial Mammals) Issue 2	Could the project affect overall biodiversity in the project area? What direct effects on bird and terrestrial mammals may occur due to the tower construction and ongoing activities (i.e., mortality, injury, stress, behaviorally)? How would the project affect, muskox, moose, Dall sheep, and wolf distribution in the project area (i.e., displacement and avoidance of the project area)? Would helicopter use associated with the proposed action cause displacement from the project area and elevated levels of stress to the animals affecting reproductive success and survival? How would the proposed action affect small mammal and furbearer habitat and their distribution, specifically from ground disturbing activities associated with the proposed action? Would bears be present in the project area during construction and operation of the towers, and become attracted to any trash or food from left from camps? Would construction and operations of the proposed action affect caribou habitat or disrupt migrations? How would the project affect migratory birds in the project area, related to mortality associated by tower strikes, the destruction of eggs or nests during vegetation disturbing activities, and loss of habitat? Would construction and operations of the proposed microwave broadband communication towers affect wildlife habitat or disrupt migrations? How would the project affect birds in the project area, related to mortality associated by tower strikes, the destruction of eggs or nests during vegetation disturbing activities?

RESOURCE	ISSUE STATEMENT
	Does the project fall within designated habitat of either ESA or MMPA listed species?
Special Status Species Issue 3	Would construction and operations of the communication towers affect designated Sensitive, Threatened, and Endangered species or designated critical habitat through habitat loss, behavioral disturbance (avoidance and displacement), and injury/mortality? Is climate change and other cumulative factors contributing to the decline in range and abundance of listed species?
Socioeconomic Resources Issue 4	Are there socioeconomic impacts associated with the construction and operations of the proposed microwave broadband communication towers, and how would environmental justice populations be affected?
Subsistence Issue 5	Would the construction and operation of the proposed microwave broadband communications towers significantly restrict Federal subsistence uses? Would the construction and operation of the proposed microwave broadband communications towers decrease the abundance of Federal subsistence resources? Would the construction and operation of the proposed microwave broadband communications towers alter the distribution of subsistence resources and cause a decrease in the availability of subsistence resources to Federal subsistence users? Would the construction and operation of the proposed microwave broadband communications towers limit Federal subsistence user access to subsistence resources compared to existing conditions?
Cultural Resources Issue 6	Are there significant cultural resources that may be impacted due to the construction and operations of the proposed microwave broadband communication towers?
Soils Issue 7	Would the construction of the proposed microwave broadband communication towers result in direct loss of soil or soil erosion and runoff?

RESOURCE	ISSUE STATEMENT
	Would soils underlain by permafrost be disturbed during construction or operation of the proposed microwave broadband communication towers?
Hazardous Materials Issue 8	Would the construction, refueling, and operation of the proposed microwave broadband communication towers pose a risk for contamination at the sites?
Visual Resources (USFWS Only) Issue 9	Would the construction, presence, and maintenance of the microwave broadband repeater towers effect the viewshed for Selawik Refuge users?

1.4.2. Table 2. Issues not Included in Further Detail in the Environmental Assessment

RESOURCE	RATIONALE FOR NOT FURTHER DISCUSSING IN DETAIL IN THE EA*
Cost of Service	Price and reliability of broadband Internet service to be provided by local internet providers to households and other users in the project area is not subject to direct review in this EA, as it falls outside the regulatory authorities of BLM and USFWS. In addition, the cost structure for household service will be established by local internet providers, in negotiation with OTZ Telephone Cooperative, LLC, only after the construction is completed. As a result, this EA will not address an analysis of the cost of broadband.
Fish/Essential Fish Habitat	Not Present. The project is not located near streams and would not affect fish, fish habitat, or fishery resources. The towers on federal lands are located on uplands, mountain tops, or tussock tundra far from fishery habitats, minimizing potential impacts to fisheries. A review of the State of Alaska Anadromous Waters Catalog (AWC) identifies no sites near anadromous waters. Towers are not likely to affect Essential Fish Habitat (EFH) or resident fisheries. The remote towers are powered by liquefied petroleum (LP) fuel minimizing the potential for a fuel spill that could reach streams from tower sites. Annual

RESOURCE	RATIONALE FOR NOT FURTHER DISCUSSING IN DETAIL IN THE EA*
	refueling of towers with LP fuel would minimize the likelihood of a potential fuel spill to adjacent waters and the potential effects to the fisheries resource.
Hydrology	Not Present. It was determined that construction and operations would not affect streams and water bodies by introducing silt because the tower sites are not near streams or waterbodies.
Marine Life	Not Present. Construction of this project is located on uplands and would not generally affect marine mammals. The majority of helicopter routes to access sites for construction and maintenance operations would be over land, therefore the risks to marine life associated with spills from crashes are minimized.
Transportation	Present, but No Impact. There would be a negligible effect to the regional transportation system because the transportation of workers/technicians to the project area would not displace other users of commercial fixed-wing aircraft.
Lands with Wilderness Characteristics	Present, but No Impact. Inventories were completed for areas where 4 of the 6 sites are proposed and are described in the connected actions of the Terra Yukon EA (BLM 2015) and TERRA NW EA (BLM 2013). An inventory for the area where the 5th site, OTZ 33, is proposed determined that the area does not have wilderness characteristics (BLM 2018). Inventory areas and the impact criteria analysis are summarized as follows collectively for the 4 sites that have LWC's: The solitude and primitive experiences would be maintained in areas with LWC as no new access point would be introduced. Although some areas within each LWC would no longer have attributes of naturalness, these areas are small compared to the much larger geographic area for which those are maintained, therefore the impact would be of low intensity. The duration of the impact would be considered long-term as the naturalness of the sites would be impacted during the life of the project. The areas within each LWC outside

RESOURCE	RATIONALE FOR NOT FURTHER DISCUSSING IN DETAIL IN THE EA*
	of the areas affected by the project would retain all LWC criteria and would not impair BLM's ability to designate in a future land use planning action for all or part of the remaining LWC lands as Wild Lands. Therefore, the geographic extent would be local. Impacts to LWC's from the construction and operation of the proposed microwave broadband communication towers, as described in Sections 2.2, 2.3, and 2.4 and the cumulative effects of the connected actions of the Terra Yukon EA (BLM 2015) and the TERRA NW EA (BLM 2013) would be minor due to the acreage for each site and the remaining LWC's in the inventoried areas.
Wilderness and Wild and Scenic Rivers (on USFWS refuge lands)	The construction of towers within the Selawik Refuge would not be constructed within designated wilderness (Selawik Wilderness Area) or the Selawik Wild River corridor, as these areas have specific conservation designations in place. There are no additional lands or rivers within Selawik Refuge recommended designation under the Wilderness Act of 1964 or the Wild and Scenic River Act of 1968 per the 2011 Selawik Refuge Revised Comprehensive Conservation Plan.
Recreation	**BLM** Present on BLM managed lands, but No Impact. Impacts to recreation created from the construction and operation of the proposed microwave broadband communication towers, as described in Sections 2.2, 2.3, and 2.4 would be minor and are consistent with the recreation management criteria defined in the Kobuk-Seward RMP (BLM 2008). The impacts to recreators from the proposed action are currently experienced by recreators as described in the connected actions of the TERRA Yukon EA (BLM 2015) and TERRA-Northwest EA (BLM 2013) projects. Although the impacts of the proposed action and connected actions would extend 30 years (i.e., long-term), the remoteness of the project area makes access difficult, and low population densities limit the scale and impact to recreation activities. The impacts to recreation would be of low intensity and would contribute to improve

RESOURCE	RATIONALE FOR NOT FURTHER DISCUSSING IN DETAIL IN THE EA*
	telecommunications and associated enhancements in search and rescue and emergency response efforts throughout the project area. **USFWS** Present on refuge lands, but No Impact. Several public use activities take place on the Selawik refuge that do not fall neatly under either recreation or subsistence. These activities are unique in that they incorporate a cultural or historical component and are engaged in almost solely by local residents. In these ways, they differ from standard recreational activities (such as recreational hunting and fishing or wildlife viewing) in which visitors from around the world participate (USFWS 2011). The amount of public use of Selawik Refuge from outside the local communities is difficult to estimate with certainty because there are no controlled entry points where visitors are counted. There are no public recreation facilities located on the refuge. Non-local visitors mainly engage in hunting caribou, moose, and bear, or fishing for sheefish, (USFWS 2011). Additionally, in winter, non-local visitors engage in Nordic skiing, dogsledding, and visiting Selawik Hot Springs. There is one big-game guide use area for Selawik Refuge and permits are issued annually for commercial air taxi and transporter services. The proposed action is not expected to impact opportunity for recreation. Impacts to viewshed of refuge users and impacts to subsistence would be analyzed in detail.
Visual Resources (BLM Only)	Present, but No Impact. BLM included four Visual Resource Management (VRM) inventory classifications in the Kobuk-Seward RMP (BLM 2008). Of the four, Class I is the most restrictive; Class IV is the least restrictive. Visual impacts created from the construction and operation of the proposed microwave broadband communication towers, as described in Sections 2.2, 2.3, and 2.4 are consistent with existing VRM objectives

RESOURCE	RATIONALE FOR NOT FURTHER DISCUSSING IN DETAIL IN THE EA*
	defined in the Kobuk-Seward RMP (BLM 2008) and are currently part of the characteristic landscape as described in the connected actions of the TERRA Yukon EA (BLM 2015) and TERRA-Northwest EA (BLM 2013) projects. Although impacts of the proposed action and connected actions would extend 30 years (i.e., long-term), the overall contribution of the proposed action to cumulative effects to visual resources is expected to be minor, if required design features in Appendix A, Issue 9 Visual Impacts are strictly followed (painting of all structures to blend in with the natural landscape). The affected area surrounding all six sites is considered common in context, as five of the sites are managed by VRM Class III or IV objectives. The sixth site, OTZ 33, does not have a VRM designation however the landscape character at that site is similar as described in the 2018 Visual Resource Inventory (BLM 2018a) and therefore assumed to also be common in context.
Iditarod National Historic Trail	Not Present. The INHT (Iditarod) is not present in the project area and located several hundred miles to the south of the OTZ project and will not be impacted by the OTZ project.
Air Quality	Emissions at the tower sites from the proposed use of generators, helicopters, and mobile equipment was disclosed as having a negligible impact to air quality in the TERRA-NW Project (BLM 2012a). It is expected that this project would have a similar, negligible impact to air quality. In addition, this project proposed to use propane generators (using approximately 6,000 gallons of propane per tower per year) whereas previous projects used diesel. This change further decreases potential air quality impacts due to the cleaner burning nature of propane versus diesel. Climate change has been shown to have negative socioeconomic impacts with disproportionate effects on environmental justice populations, and arctic communities are experiencing rapid change. Greenhouse gas emissions associated with the project would contribute to climate

RESOURCE	RATIONALE FOR NOT FURTHER DISCUSSING IN DETAIL IN THE EA*
	change. The average CO_2 emissions from a gallon of propane is 5.59 kgs whereas a gallon of diesel is 10.21 kgs (Emission Factors for Greenhouse Gas Inventories (epa.gov)). So, for each tower associated with this project would produce 33.6 metric tons of CO_2 per year, assuming the entire tank is consumed. To put those numbers into perspective, it is the equivalent of CO_2 produced from 7.5 cars or energy from 4.2 homes per year (https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator). This contribution to climate change is negligible and will not be further analyzed.
Paleontology	Not Present. The proposed locations are on geologic formations with limited to no potential for scientifically significant vertebrate fossils, with Potential Fossil Yield Classes (PFYC) of Moderate Potential, Low Potential, or Very Low Potential (BLM 2016, USGS 2022). Sites OTZ 9, 10, and 19 are located on unconsolidated Quaternary aged sedimentary deposits, with no known fossils. Sites OTZ 11, 17, and 21 are located on igneous volcanic or plutonic strata with no paleontological potential. OTZ 2 is located on Devonian aged Eli limestone and the Kuguruk Formation with well known, fossilized brachiopods and conodonts. While conodonts are technically vertebrates, they are not "of paleontological interest" for the purposes of BLM management. OTZ 33 is located on sedimentary quartz pebble conglomerates and unconsolidated quaternary aged sediments with no known fossil occurrences.

* Supporting documentation for these statements are included in the project record

CHAPTER 2. ALTERNATIVES

The National Environmental Policy Act (NEPA) requires review of a reasonable range of alternatives in order to provide a comparison of the environmental effects of the Proposed Action. This chapter describes the alternatives that will be analyzed in Chapter 3, as well as alternatives that were considered and eliminated from detailed analysis (Section 2.5). Section 2.4 has a very helpful comparison of alternatives table. The alternatives in this chapter include:

- Alternative A - No Action Alternative.

- Alternative B - New Proposed Action Authorizing Six Towers on BLM Land, Two on USFWS Land (OTZ application revisions received June 2023 and December 2023)

2.1. Alternative A – No Action Alternative

The goal of describing Alternative A, No Action, is to allow the reader to see the difference between taking no action and implementing the action alternative. It provides a basis for comparison to the action alternative.

Under the No Action Alternative, BLM and USFWS would not grant the eight requested site leases on BLM and USFWS managed public lands. OTZ Telephone Cooperative Inc. would have to seek other alternatives to providing broadband services not involving federal public lands. BLM and USFWS would not continue to process the application for new communications sites. Existing authorizations for telecommunication infrastructure and associated services would continue.

2.2. Alternative B – June 2023 and December 2023 New Proposed Action.

Under Alternative B, the proposed action for the OTZ Microwave Tower Broadband Project would include six tower sites on BLM land and two on USFWS lands in the Selawik NWR. These eight proposed sites are part of the larger 29-site project that would provide additional broadband internet capability to communities in northwest Alaska. Under this alternative, the BLM would authorize a 30-year BLM communication site lease for future construction, operations, and maintenance on BLM-managed lands. USFWS would authorize a 10-year Right of Way (ROW) Permit for future construction, operations, and maintenance on USFWS-managed lands. Once each authorization expires, the issuing agency would conduct respective analysis for the renewal of the BLM lease and the USFWS ROW Permit. Regardless of the agency-authorized land use, at the end of each tower's lifecycle or utility, OTZ would remain responsible to fully decommission the towers (further described in Section 2.2.5). The BLM/FWS required design features (Appendix A) would be adhered to under this alternative. Measures to reduce or avoid adverse effects that are included as design features in the proposed action or alternatives are inherently addressed in the analysis of that alternative and generally do not necessitate a specific analysis.

2.2.1. Proposed Tower Locations

There are eight proposed towers on BLM and USFWS lands (**Figure 1:** OTZ Proposed Tower Locations Map). The following describes all proposed tower sites on BLM and USFWS lands and includes township range and section and distance to nearest community within the NWAB and by public land description:

- **OTZ 2 site**, located approximately 25 miles north of Kotzebue,

  Kateel River Meridian, T. 21 N, R. 18 W, Sec 17

- **OTZ 9 site**, located approximately 37 miles southeast of Kotzebue, 35 miles southeast of Buckland,

  Kateel River Meridian, T.12 N, R. 14 W, Sec 5

- **OTZ 10 - ALT site**, located approximately 10 miles north of Noorvik,
  Kateel River Meridian, T. 18 N, R. 11 W, Sec 6

- **OTZ 11 site**, located approximately 8 miles west of Buckland,

  Kateel River Meridian, T. 7 N, R, 13 W, Sec 28

- **OTZ 17 - ALT site**, ALT would be moved from Kateel River Meridian, T. 17 N, R. 8 W, Sec 24 to Kateel River Meridian, T. 17 N, R. 8 W, Sec 25

- **OTZ 19 site**, located 27 miles northeast of Selawik,

  Kateel River Meridian, T. 15 N, R., 2 W, Sec 35

- **OTZ 21 site**, located approximately 22 miles southwest of Shungnak,

  Kateel River Meridian, T. 16 N, R., 5 E, Sec 29

- **OTZ 33 - ALT site**, ALT would be moved ≈250ft east from BLM managed lands to BLM managed lands and would have a 15ft x 150ft right-of-way road, located approximately 13 miles south of Coldfoot,

  Fairbanks Meridian, T. 26 N, R. 13 W, Sec 14

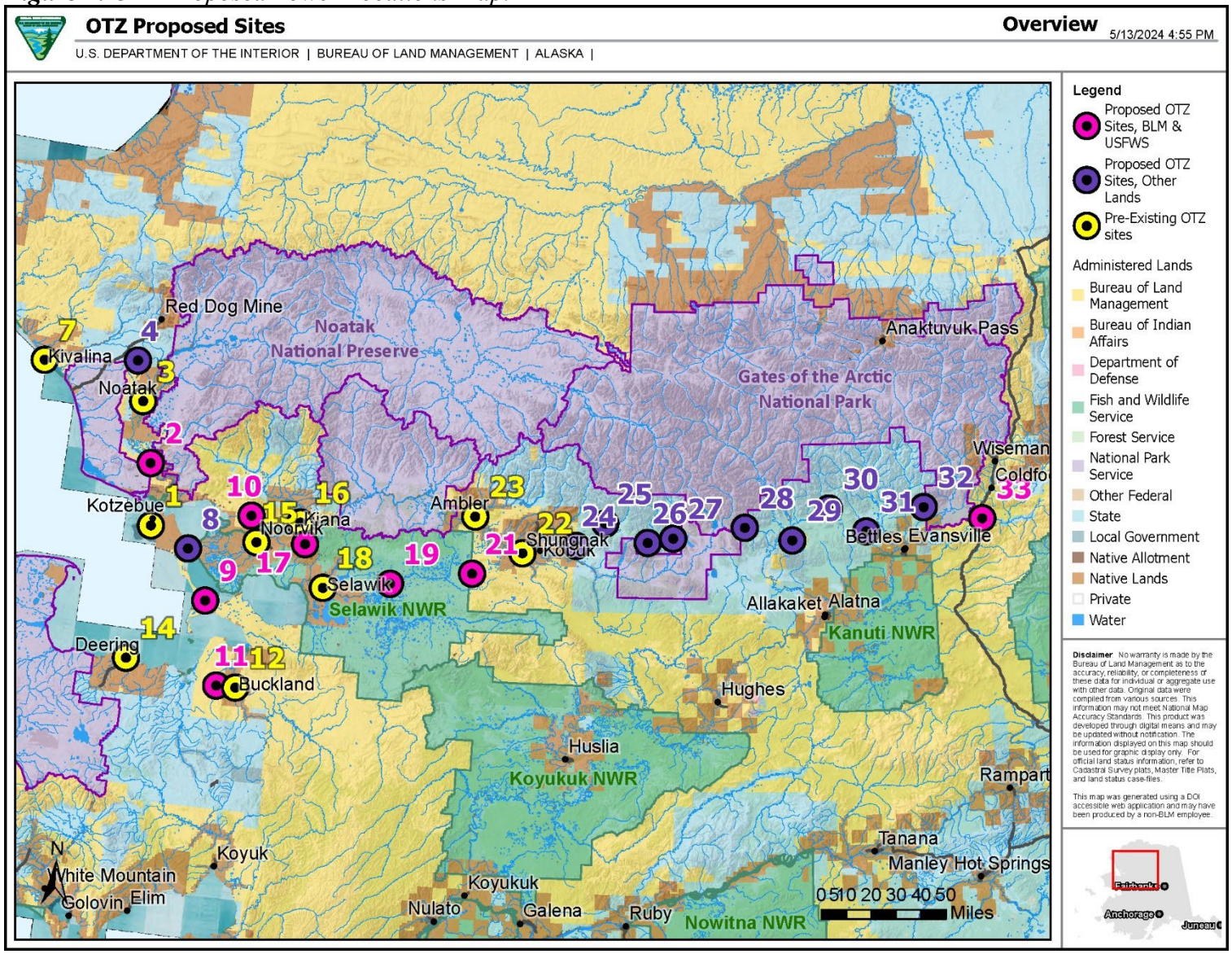
2.2.1.1. *Table 3: Proposed Action - Tower Locations*.

Towers on federal lands are identify by bold text.

Tower Name/ID	Longitude	Latitude	Legal Land Description	Land Owner/Manager	Tower Height (ft)
OTZ 1 Kotzebue	-162.614111	66.858278	Sec 21, Township 17N, Range 18W, Meridian KM	Existing OTZ location	50
OTZ 2	**-162.736304**	**67.218874**	**Sec 17, Township 21N, Range 18W, Meridian KM**	**BLM**	50
OTZ 3 Noatak	-162.971444	67.571444	Sec 16, Township 25N, Range 19W, Meridian KM	Existing OTZ location	50
OTZ 4	-163.133172	67.80239	Sec 26, Township 28N, Range 20W, Meridian KM	State Land	50
OTZ 7 Kivalina	-164.537972	67.726333	Sec 20, Township 28N, Range 25W, Meridian KM	Existing OTZ location	60
OTZ 8	-162.03131	66.752195	Sec 25, Township 16N, Range 16W, Meridian KM	Kikiktagruk Inupiat Corporation	50
OTZ 9	**-161.694133**	**66.462713**	**Sec 5, Township 12N, Range 14W, Meridian KM**	**BLM**	50
OTZ 10 - ALT	**-161.160075**	**66.984058**	**Sec 6, Township 18N, Range 11W, Meridian KM**	**BLM**	**50**
OTZ 11	**-161.398733**	**65.978339**	**Sec 28, Township 7N, Range 13W, Meridian KM**	**BLM**	50
OTZ 12 Buckland	-161.126028	65.978444	Sec 26, Township 7N, Range 12W, Meridian KM	Existing OTZ location	40
OTZ 14 Deering	-162.722389	66.0755	Sec 19, Township 8N, Range 19W, Meridian KM	Existing OTZ location	50
OTZ 15 Noorvik	-161.045778	66.833333	Sec 34, Township 17N, Range 11W, Meridian KM	Existing OTZ location	50
OTZ 16 Kiana	-160.430333	66.973472	Sec 18, Township 18N, Range 8W, Meridian KM	Existing OTZ location	40

OTZ 17 - ALT	**-160.333088**	**66.850473**	**Sec 25, Township 17N, Range 8W, Meridian KM**	**USFWS/Selawik NWR**	**50**
OTZ 18 Selawik	-160.014833	66.606839	Sec 17, Township 14N, Range 6W, Meridian KM	Existing OTZ location	50
OTZ 19	**-159.045158**	**66.662965**	**Sec 35, Township 15N, Range 2W, Meridian KM**	**USFWS/Selawik NWR**	50
OTZ 21	**-157.860282**	**66.753458**	**Sec 29, Township 16N, Range 5E, Meridian KM**	**BLM**	50
OTZ 22 Shungnak	-157.137966	66.888	Sec 9, Township 17N, Range 8E, Meridian KM	Existing OTZ location	50
OTZ 23 Ambler	-157.861805	67.086697	Sec 31, Township 20N, Range 5E, Meridian KM	Existing OTZ location	60
OTZ 24	-156.351967	66.943958	Sec 25, Township 18N, Range 11E, Meridian KM	State Land	50
OTZ 25	-155.932491	67.078928	Sec 1, Township 19N, Range 13E, Meridian KM	State Land	50
OTZ 26	-155.298957	66.972183	Sec 11, Township, 18N, Range 16E, Meridian KM	State Land	50
OTZ 27	-154.92354	66.999714	Sec 33, Township 19N, Range 18E, Meridian KM	State Land	50
OTZ 28	-153.866949	67.065818	Sec 7, Township 19N, Range 23E, Meridian KM	State Land	50
OTZ 29	-153.167044	66.990086	Sec 4, Township 18N, Range 26E, Meridian KM	State Land	50
OTZ 30	-152.616716	67.17316	Sec 16, Township 27N, Range 23W, Meridian FM	State Land	50
OTZ 31	-152.072428	67.033921	Sec 36, Township 26N, Range 21W, Meridian FM	State Land	50
OTZ 32	-151.208283	67.1635	Sec 13, Township 27N, Range 17W, Meridian FM	State Land	50
OTZ 33 - ALT	**-150.348249**	**67.081972**	**Sec 14, Township 26N, Range 13W, Meridian FM**	**BLM**	**50**

2.2.1.2. ***Figure 1:*** *OTZ Proposed Tower Locations Map.*



2.2.2. Tower Site Description and Dimensions

The typical new construction tower site plan for each new tower includes the components listed below and Figures 2 and 3 demonstrate the conceptual site plan drawing and a photo of similar installations.:

- one (1) 60-foot-high lattice tower, or shorter, with four legs attached by concrete into subsurface rock,
    - Each leg of the tower would be post driven and filled with concrete to thirty feet plus depth, or until solid rock is reached,
- one (1) 6.5 feet x 6.5 feet equipment shelter located within the base of the tower,
- one (1) 6-kilowatt LP generator and (1) backup 2.5-kilowatt LP generator,
- four (6) 1,000-gallon LP tanks,
    - The legs of the LP tanks would be attached to two wooden posts spanning the length of all six LP tanks, all six tanks would be attached by bolts to the wooden posts,
- one (1) 5 foot x 4.5 feet solar panel, with six legs
    - Each leg will be secured using helical piers,
- one (1) 4,072 square foot helicopter landing zone,
- 11,435 sq ft fire break, encompassing all of the above items (25ft buffer around the structure).

When construction is complete, the footprint of each site is estimated to be no more than 0.37 acres.

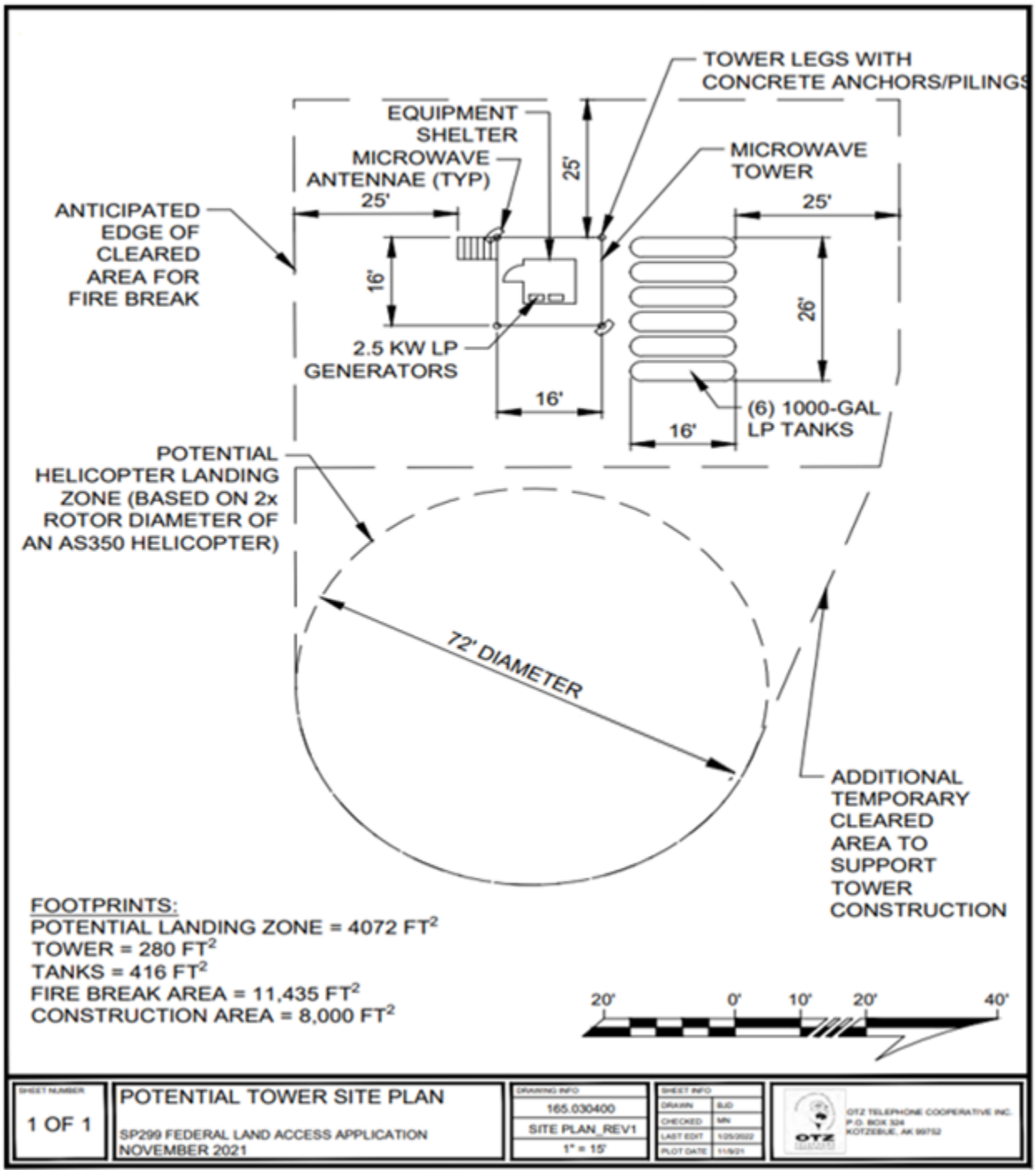
A portable LP generator would be brought on-site to support the construction activities.

Portable containers of fuel would be used, appropriate spill response kits would be on-site during the construction in the event of a spill or leak.

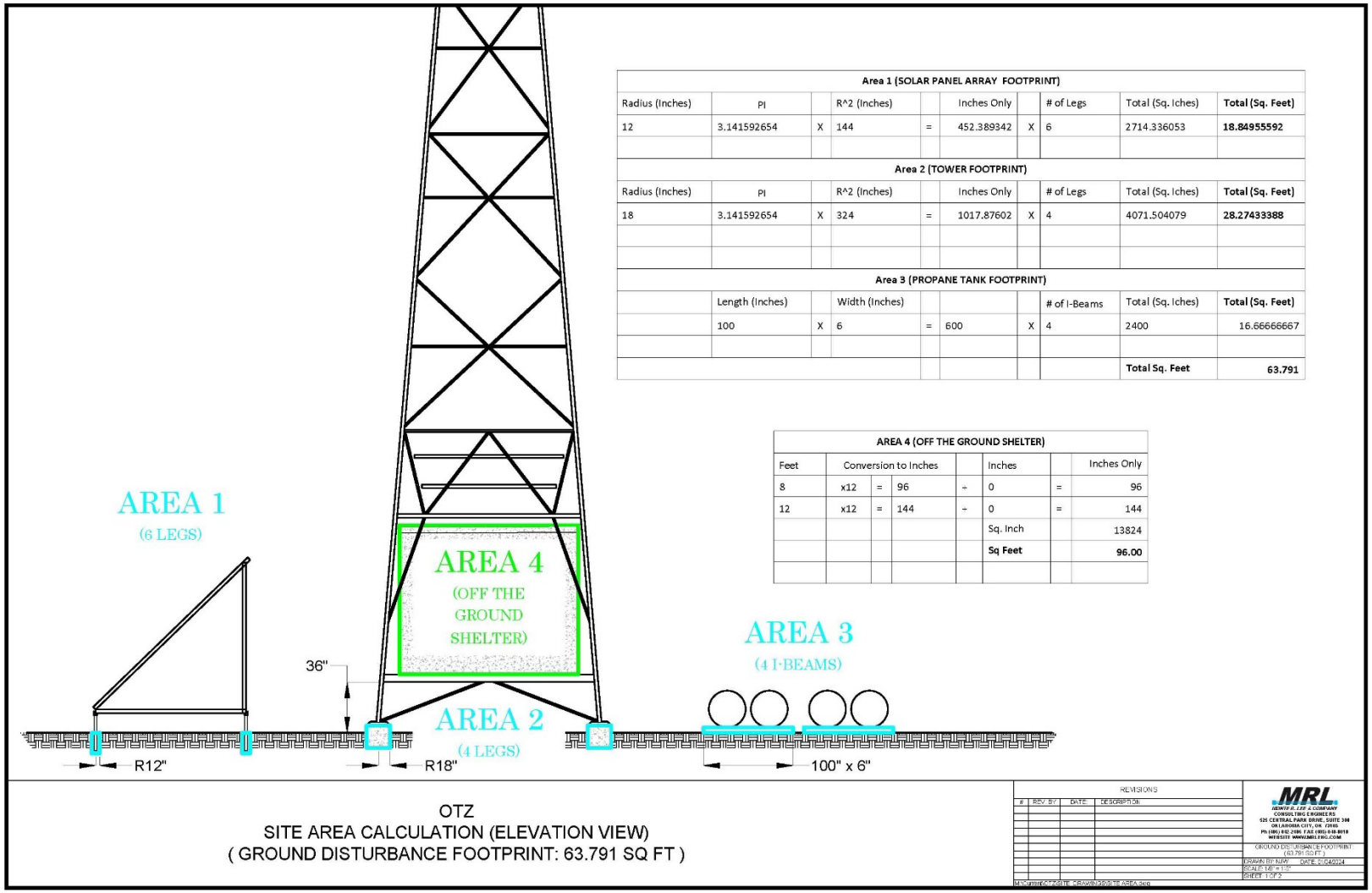
All construction waste would be transported back to the nearest community and disposed of.

Figures 2 and 3 below provide the site plans for the OTZ tower site, Figure 4 is of a pre-existing OTZ tower, that closely resembles the proposed OTZ towers.

2.2.2.1. ***Figure 2**: Typical Tower Site Plan top-down view.*



2.2.2.2. ***Figure 3:*** *Typical Tower Site Plan Side View.*



Area 1 (SOLAR PANEL ARRAY FOOTPRINT)									
Radius (Inches)	PI		R^2 (Inches)		Inches Only		# of Legs	Total (Sq. Iches)	**Total (Sq. Feet)**
12	3.141592654	X	144	=	452.389342	X	6	2714.336053	**18.84955592**
Area 2 (TOWER FOOTPRINT)									
Radius (Inches)	PI		R^2 (Inches)		Inches Only		# of Legs	Total (Sq. Iches)	**Total (Sq. Feet)**
18	3.141592654	X	324	=	1017.87602	X	4	4071.504079	**28.27433388**
Area 3 (PROPANE TANK FOOTPRINT)									
	Length (Inches)		Width (Inches)				# of I-Beams	Total (Sq. Iches)	**Total (Sq. Feet)**
	100	X	6	=	600	X	4	2400	16.66666667
								Total Sq. Feet	**63.791**

AREA 4 (OFF THE GROUND SHELTER)							
Feet	Conversion to Inches				Inches		Inches Only
8	x12	=	96	÷	0	=	96
12	x12	=	144	÷	0	=	144
					Sq. Inch		13824
					Sq Feet		**96.00**

2.2.2.3. ***Figure 4****: Photo of Typical System to be Installed.*

2.2.3. Temporary Construction

The total construction timeframe that would be authorized for the six BLM sites and two USFWS sites is anticipated to be up to 12 weeks, April through October 2024 and would occur as weather permits, ensuring all subsistence and wildlife windows aren't disrupted.

2.2.3.1. Site Access and Travel Routes

Access to each of the remote sites will be performed via helicopter. It is expected that up to 20 helicopter round trips may be necessary, for construction of each tower. Potential travel routes will be the most direct route from the nearest community, while taking care to avoid certain natural features (mountains, etc.). Once the construction team and materials/equipment are mobilized to each site, subsequent trips for construction purposes are not anticipated.

Up to 8 helicopter round trip flights are anticipated for LP refueling at each tower on an annual basis. During the year of construction, up to 28 total round trip flights may occur (20 for construction, 8 for fueling) at each tower.

2.2.3.2. On-Site Construction

Construction for each site will use a team of 4-7 individuals. Temporary camp facilities (tents) will be used to support the construction; potential camp/tent facilities include the following:

- tarps or semi-foldable foundations,
- one (1) 12' x 20' sleeping tent,
- one (1) 12' x 20' dining tent,
- one (1) man portable drill rig,
- one (1) 2.5 kilowatt or less liquid propane (LP) generator,
- one (1) outhouse, and
- four to seven person crews.

Electrical wire may be employed around the site perimeter to prevent bears from encroaching and endangering the team.

If a local community water source is available, this will be used for potable water, if a water source is not available, water bladders will be filled in the local community and transported (via helicopter) to each site.

Wastewater will be largely minimized; dry toilets are anticipated for use. A small package treatment system will be used to treat grey water. Less than 500-gallons per day of grey water are anticipated to be treated/discharged.

A portable LP generator would be brought on-site to support the construction activities.

Portable containers of fuel would be used, appropriate spill response kits would be on-site during the construction in the event of a spill or leak.

All construction waste would be transported back to the nearest community and disposed of.

2.2.3.3. *Vegetation Removal*

Three of eight tower locations may require vegetation removal. The OTZ – 10, OTZ-19, and OTZ-33 tower locations may require vegetation removal. Vegetation cleared for either the helicopter landing zone or construction of the towers will be scattered at each site for natural decomposition. The remaining BLM sites are located on mountain tops, ridges, or tussock tundra and would not require vegetation removal. The Coldfoot tower would be connected to an existing fiber optic line which runs alongside of the Dalton Highway. A trench would be dug, and a fiber optic line would be installed from the tower to an existing operational fiber optic line owned and operated by GCI.

2.2.3.4. *Table 4. Ground Disturbance*

Tower	***Vegetation Removal***	***Est Sq Ft*** *(tower/tank area)*	***Est Sq Ft*** *(land zone)*
OTZ 2	Dwarf Shrub	11,000	4,000
OTZ 9	Tussock Tundra	11,000	4,000
OTZ 10 - ALT	Tall Shrub	11,000	4,000
OTZ 11	Dwarf Shrub	11,000	4,000
OTZ 17 - ALT (USFWS)	Dwarf Shrub	11,000	4,000
OTZ 19 (USFWS)	Low Shrubs	11,000	4,000
OTZ 21	Dwarf Shrub	11,000	4,000
OTZ 33 - ALT	Small Trees	11,000	Not Required

2.2.4. Future Site Reclamation Plan

At the end of each tower's lifecycle or utility, OTZ would remain responsible to fully decommission the towers. This would include that each site be appropriately dismantled, and materials and tanks would be removed from federal lands. Dismantling would include removal of the tower and other related structures such as the generators, equipment shelter, LP fuel tanks

from the site. The below-grade tower legs might be abandoned in-place and cut at the surface. Natural revegetation would be allowed to regrow in the site areas. Replanting and reseeding of natural vegetation may be required.

2.2.5. Operations and Maintenance

Fueling and maintenance of each tower has been proposed to largely be conducted via helicopter. Should another mode for refueling and maintenance be preferred in the future, applicant will submit a request to BLM and/or USFWS for future approval. Refueling of the LP tanks for the generator would be performed annually 1-2 times per year during summer and fall. Maintenance visits to each tower, solar panels, and equipment would be coordinated with the recharging of the LP tanks to the extent possible.

The total operations and maintenance timeframe that would be authorized for BLM sites is 30 years. The total operations and maintenance timeframe that would be authorized for USFWS sites is 10 years.

Helicopter flight paths would be defined by origin of takeoff, most direct and safe path, and FAA laws and guidance.

The propane usage is anticipated to be between four to six thousand gallons annually per site and will be supplied by helicopter with up to 8 annually per site. The solar panels would provide backup power incase weather delayed refueling trips.

2.2.6. Applicant Committed Measures

In addition to the BLM/FWS required design features (Appendix A), the following are design features or measures that the applicant already committed to as part of their plan of development. These would be issued as BLM Stipulations and USFWS Stipulations with any future authorization. Measures to reduce or avoid adverse effects that are included as design features in the proposed action or alternatives are inherently addressed in the analysis of that alternative and generally do not necessitate a specific analysis.

The development operations of the tower sites include the following (sequential):

1. Mobilize equipment/materials to nearby community. Many communities will be used to stage materials for more than 1 tower. These staging areas are not located on public lands. Material staged would be flown to each tower site by helicopter.

2. Mobilize construction team and associated equipment for each tower site. Mobilizations would occur by helicopter between April and October.

3. Clear sites (of brush/bushes/trees as necessary) to facilitate construction and reduce potential wildfire ignition sources. Clearing would occur from April through October and the amount of clearing will depend on site specific conditions. Each site will be cleared to include the footprints identified in Figure 3 above.

4. Construct support camp at each tower site. Construction would take place from April through October and be supported by helicopter operations.

5. Deliver materials to each tower site. Delivery would take place from April to October and delivery will be by helicopter.

6. Install tower leg anchors, likely using small portable drill rigs. Installation would take place from April to October and involve drilling and concrete placement to secure tower legs to substrate.

7. Install footers for LP tanks. Concrete or timber pads would be installed to secure the LP tanks to the ground. Work would take place from April through October.

8. Complete tower construction, including installation of antennae, solar panel(s), etc. Work would take place from April through October.

9. Install building on tower and install equipment in building (generators, electrical panels, batteries, etc.). Work would take place from April through October.

10. Install LP tanks and connect piping and heat tracing. Work would take place from April through October.

11. Install monitoring and safety system(s) [smoke/CO/heat detectors, cameras, etc. Work would take place from April through October.

12. Configure antennae and software systems. Work would take place from April through October.

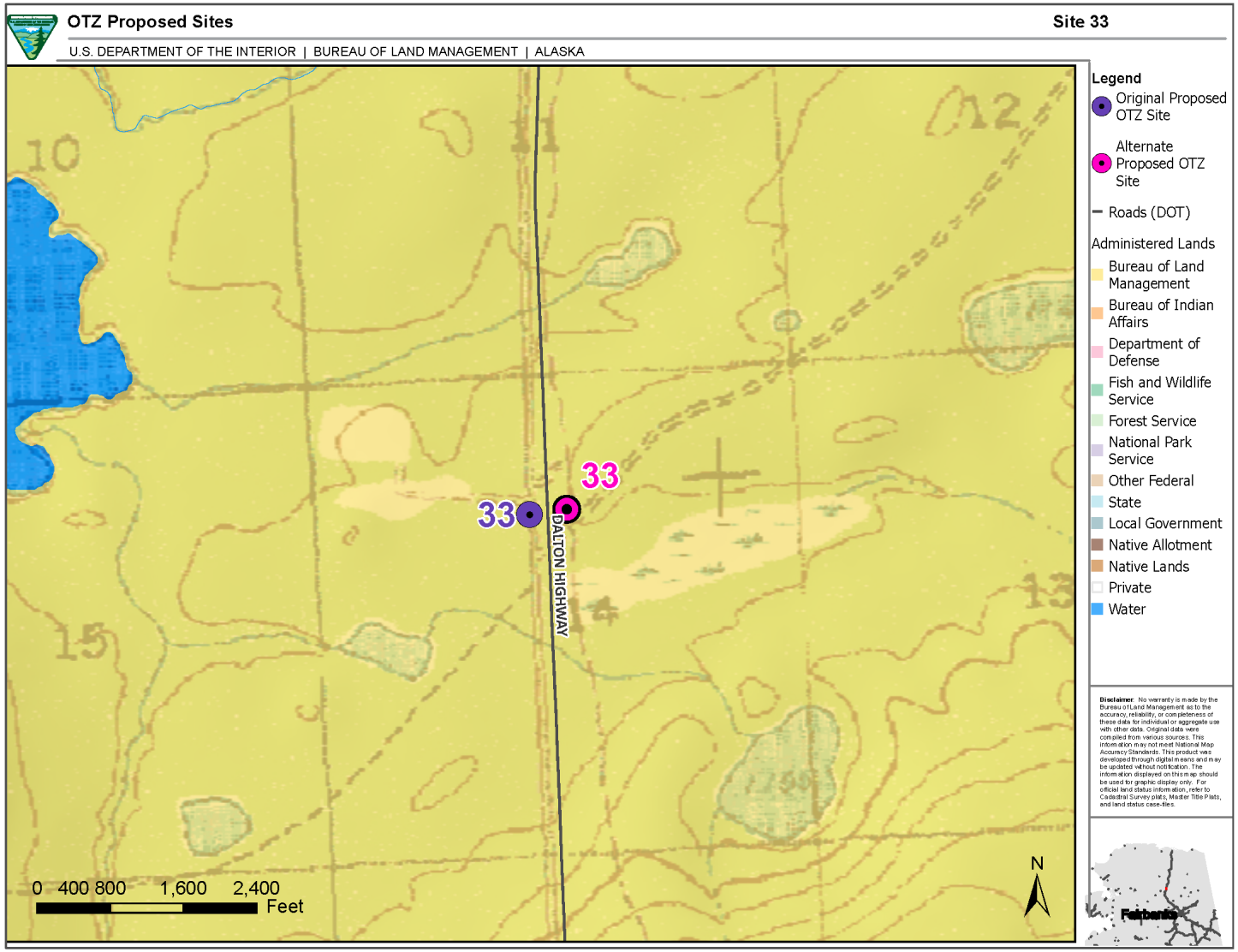
13. Fill tanks and test generator(s). Work would take place from April through October.

14. Demobilize temporary camp and excess materials. The work would take place from April through October and be helicopter supported.

15. Portable containers of fuel would be used, appropriate spill response kits would be on-site during the construction in the event of a spill or leak.

16. All construction waste would be transported back to the nearest community and disposed of.

2.2.6.1. *Figure 5: OTZ 33 alternate site location on BLM land.*



2.3. Comparison of Alternatives

The table below offers a visual and analytical representation of the comparison of alternatives.

2.3.1.1. *Table 5. Comparison of Alternatives*

Project Site Measurements	**Alternative A** **No Action**	**Alternative B (Updated Proposed Action)** **8 sites on BLM/USFWS managed public lands, 22 on non-federal lands.**
<u>During Construction</u> Landing Area (4072 sq ft) Tower (280 sq ft) LP tanks (416 sq ft) Solar Panel (18 sq ft) Fire Break Area (11,435 sq ft) Construction Footprint (8,000 sq ft) **24,221 sq ft = 0.56 acres per site** *Road = 2,250 sq ft <u>Site 33 only</u>) =.05 acres*		7 sites on federally managed lands off the road system X 0.56 acres = 3.92 acres 1 site on Federally managed BLM lands on the road system X 0.61 acres = 0.61 acres 11 sites located on non-federally managed lands, off the road system X 0.56 = 6.16 acres 10 existing sites being upgraded on non-Federal managed lands, no additional ground disturbance.
	Total Disturbed Acreage = 0	Total Acreages Disturbed = 10.69

Project Site Measurements	**Alternative A** **No Action**	**Alternative B (Updated Proposed Action)** **8 sites on BLM/USFWS managed public lands, 22 on non-federal lands.**
<u>Post Construction</u> Landing Area (4072 sq ft) Tower (280 sq ft) LP tanks (416 sq ft) Solar Panel (18 sq ft) Fire Break Area (11,435 sq ft) **16,221 = 0.37 acres per site** *Road = 2,250 sq ft <u>Site 33 only</u>) =.05 acres*	0	7 sites on Federally managed lands located off the road system X 0.37 acres = 2.59 acres 1 site on Federally managed BLM lands, located on the road system, (site 33) .37 acres + .05 acres = 0.42 acres 11 sites located off the road system X 0.37 = 4.07 acres 10 existing sites being upgraded on non-Federal managed lands, no additional ground disturbance.
	Total Disturbed Acreage = 0	Total Acreages Disturbed = 7.08

2.4. Alternatives Considered but Eliminated from Detailed Analysis

The following alternatives were considered, but ultimately eliminated from further analysis because they do not meet BLM's objectives for granting rights-of-way (Section 1.1).

2.4.1. July 2022 Original Proposed Action

The original OTZ application received in July 2022 for the OTZ Microwave Tower Broadband Project included five tower sites on BLM land and one on USFWS lands in the Selawik NWR. However, the application included three tower sites on NANA Native Corporation lands (NANA). On May 22, 2023, NANA presented their position on the OTZ project via an email with attachment to BLM where NANA states that they do not support the OTZ project and furthermore OTZ is not permitted to locate any towers on NANA lands. In response, OTZ submitted the June 2023 revised application which moved two sites (sites 10 and 17) from NANA lands to BLM (site 10) and USFWS (site 17). On April 16, 2024, OTZ communicated to BLM that site 5 (Red Dog site) has been previously removed with no replacement. Therefore, this proposal has been considered but eliminated from detailed analysis because 1) it has been replaced with the June and December 2023 revised applications (which comprise Alternative B – Proposed Action); and 2) NANA has not expressed intent to authorize construction of OTZ towers on NANA lands making the proposal as submitted in July 2022 to not be a viable/selectable alternative and therefore doesn't warrant detailed analysis.

2.4.2. Co-location Proposed Action

BLM in accordance with the 2008 Kobuk Seward Peninsula ARMP/ROD is required to at least consider co-locating future communication site ROWs where feasible. Specifically, the ARMP/ROD states:

> ***H-2: Land Use Authorizations***
> Land use authorizations include various authorizations and agreements to use BLM lands such as right-of-way grants, temporary use permits under several different authorities; leases, permits, and easements under Section 302 of the Federal Land Policy and Management Act of 1976 (FLPMA); airport leases under the Act of May 24, 1928; and Recreation and Public Purposes (R&PP) leases.
>
> **H-2-a: Management Actions**
>
> **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.

Therefore, BLM has considered co-locating two towers. BLM proposed to OTZ that two microwave tower sites would be co-located at existing communications sites on BLM-managed

lands as described below (all other tower locations were considered as described in the July 2022 OTZ application):

- **Site OTZ 2** – would be co-located with BLM authorized existing communication site F-096921 located approximately 1400 feet from proposed location.
  F-096921 – Kateel River Meridian, T. 21 N., R. 18 W., Sec. 17.

- **Site OTZ 9** – would be co-located with BLM authorized existing communication site AA-093345-B located approximately 6 miles from proposed location.
  AA-093345-B – Kateel River Meridian T. 13 N., R. 15 W., Sec. 14,

On January 19, 2023, OTZ submitted a letter to BLM explaining why co-locating these sites wouldn't be feasible. In general, OTZ listed the following reasons against co-location:

- Space is not available,
- The use is incompatible with the existing facilities,
- Additional space is needed by the facility owner/manager,
- Additional users will violate system security needs, and
- Potential interference is not resolvable.

OTZ concludes the letter in stating, "For the reasons described above, we do not believe that locating any of the OTZ antennae on the GCI towers is feasible or recommended and would likely cause issues with the operations of both systems."

Therefore, co-location was removed from detailed analysis based on the reasons OTZ presented in the January 19, 2023, letter to BLM and it is concluded that co-location of this project would not be viable/selectable alternative and therefore doesn't warrant detailed analysis.

2.4.3. August 2021 Locations

33 proposed tower locations, including 12 in communities and 21 in remote locations were proposed by OTZ in August 2021. This alternative included towers OTZ-24 to OTZ-33 along/near proposed Ambler Access Project (AAP) right-of-way (ROW). It also included a "northern" route for towers OTZ-17 and OTZ-19. This alternative was removed from further detailed analysis due to OTZ-17 and 18 occurring in a designated Wilderness area of Selawik National Wildlife Refuge (NWR) and Kobuk Valley National Park (NP).

2.4.4. November 2021 Locations

32 proposed tower locations, including 12 in communities and 20 in remote locations. Adjusted OTZ-24 to OTZ-33 to not utilize AAP ROW. Adjusted locations of towers OTZ-17 and OTZ-19 to avoid Selawik NWR and Kobuk Valley NP Congressionally Designated wilderness areas. Construction of towers in wilderness would not be feasible because it is a prohibited use under 4(c) of the Wilderness Act of 1964.

2.4.5. Fiberoptic Cable Connection

This alternative would require the connection of each village back to either the Dalton Highway or the offshore fiberoptic cable located in/at Kotzebue. The installation of a fiberoptic line could be over-land with water crossings, submerged within waterways, or a combination of over-land and submerged. If routed overland, it would need to cross numerous lakes and rivers and require elevated crossings. The presence of permafrost, wetlands and/or bogs throughout the area would require specific pole types and foundations to avoid pole settling. Standard vehicle-based installation would not be possible, though could be used during the winter months with the construction of ice roads.

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

This chapter defines the scope of analysis contained in this EA and describes the existing conditions relevant to the issues presented in Table 1 in Section 1.3.1 Issues Analyzed in Detail and discloses the potential effects of the alternatives. Below in table 6 the cumulative impacts table indicating acres or milage for past, present, and potential future project impacts.

3.1. Scope of Analysis

The OTZ microwave broadband communication project spans the NWAB in northwest Alaska and proceeds east to the Dalton Highway. The NWAB encompasses 35,899 square miles and includes 11 federally recognized tribes and 10 municipalities (*Northwest Arctic Borough 2030: Planning for our future*. Northwest Arctic Borough. Retrieved December 2022.)

All resources in Chapter 3 will use the scope of analysis for their project at the actual tower sites located on federal lands and impacts to the site-specific areas of each tower as they relate to:

> Vegetation and wetlands (Section 3.3), Subsistence (Section 3.7), Cultural Resources (Section 3.8), and Soils (Section 3.10).

Some resources may or may not include a wider scope of analysis for possible impacts to areas or resources that may extend beyond the tower sites, if applicable:

> Wildlife (Section 3.4), Special Status Species (Section 3.5), Socioeconomic Resources (Section 3.6), Soils (Section 3.9), Hazardous Materials (Section 3.10), Visual Resources - USFWS Only (Section 3.11).

Some resources may or may not include a wider scope of analysis for possible impacts related to the connected actions of the additional towers located on non-federal public lands that are part of the entire project. This connected action analysis would evaluate the 14 newly constructed towers and not the 10 tower replacements that would occur on existing developed pads with no new ground disturbance. The additional towers are connected actions as interdependent parts of

the larger action and depend upon the towers of the entire network in order to operate (40 CFR 1501.9 (e)(1)(i-iii)).

Some resources may or may not include an effects analysis discussion related to the cumulative effects of the reasonably foreseeable projects described in the next section if they are applicable.

3.2. Past, Present, and Reasonably Foreseeable Environmental Trends and Planned Actions

The affected environment considers reasonably foreseeable planned actions that would affect resources of concern within the geographic scope and the timeframe of the analysis (40 CFR 1502.15). The following are foreseeable actions that may have the potential to affect resources and issues of concern related to the proposed action.

The broadband and internet connectivity landscape in rural Alaska is undergoing changes. Technological advances and government programs are bringing internet broadband and cell services to remote communities within NW Alaska that are isolated from the road system.

NANA Regional Broadband Network Grant

The NANA Regional Corporation, Inc. (NANA) was awarded a $68.5 million broadband infrastructure deployment grant to construct the NANA Regional Broadband Network (NRBN) project under the U.S. Department of Commerce, National Telecommunications and Information Administration's Tribal Broadband Connectivity Program The Tribal Broadband Connectivity Program (TBCP) is a $3 billion program, from President Biden's Bipartisan Infrastructure Law and the Consolidated Appropriations Act, to support Tribal governments bringing high-speed Internet to Tribal lands, including telehealth, distance learning, affordability, and digital inclusion initiatives. NANA's Broadband Infrastructure Deployment project proposes to install approximately 680 miles of submerged fiber cable to directly connect 1,379 unserved Native American households, 451 businesses, and 212 anchor institutions, such as libraries and schools, with 1 Gbps symmetrical service. (https://broadbandusa.ntia.doc.gov/funding-programs/tribal-broadband-connectivity/award-recipients)

Ambler Road

The proposed 211-mile Ambler Road would be located in north-central Alaska, connecting the existing Dalton Highway, at Milepost (MP) 161, along the southern edge of the Brooks Range in the Koyukuk and Kobuk River watersheds. The western end of the Project lies within the Northwest Arctic Borough. The eastern end is in a broad unincorporated area (no borough government). The Project would include a road with stream crossings, temporary construction camps, permanent maintenance camps, airstrips associated with the maintenance camps, material sites, communications stations, and a fiberoptic line over more than 200 miles of land owned by the United States of America and other entities.

Table 6. Cumulative Impact Indicating Acres and Mileage of Past, Present, and Reasonably Foreseeable (RF) Projects.

PROJECT NAME	**PAST**	**PRESENT**	**RF**	**DISTURBANCE** (miles and/or acres)
Terra Communication Sites	X			9 Sites **11.32 acres**
OTZ Communication Sites				
Alternative A	X			10 Existing Sites (no new ground disturbance) **3.7 Acres**
Alternative B		X		19 New Sites and 10 Existing Sites (no new ground disturbance) **11.2 Acres**
NANA Broadband			X	Submarine fiber optic cable, 0 Sites and Unknown Acres **680 Miles**
Ambler Road			X	 **476 Miles**
CUMULATIVE TOTALS BY ALTERNATIVE				
OTZ PROJECT ALTERNATIVES	**PAST**	**PRESENT**	**RF**	**DISTURBANCE POST-CONSTRUCTION** (miles and/or acres)
Alternative A	X	X	X	19 Existing Sites (no new ground disturbance), and NANA Fiber and Ambler Road **15.02 Acres & 1156 Miles**

Alternative B	X	X	X	19 New Sites, 10 Existing Sites (no new ground disturbance), and NANA Fiber and Ambler Road **22.52 Acres & 1156 Miles**

3.3. Issue 1: Vegetation and Wetlands

Analysis in this section will be focused on the following issues identified in Table 1 in Section 1.3.1:

> Would construction and operations of the proposed microwave broadband communication towers affect BLM sensitive plant species or wetland areas?
>
> Would construction and operations of the proposed microwave broadband communication tower introduce new, or spread existing, priority invasive species?
>
> Would construction of the proposed microwave broadband communication tower necessitate permanent removal of vegetation?

3.3.1. Affected Environment

Comprehensive vegetation surveys and wetland determinations have not been conducted at any of the project site locations. However, using satellite imagery and best available remote sensed vegetation map products, a general vegetation community type for each site can be estimated. A vegetation survey focused on BLM sensitive plant species was conducted in July 2023 at OTZ 2, OTZ 9, OTZ 11, and OTZ 21. A survey was conducted at OTZ 33 in August 2023. Sensitive plant surveys were not conducted at OTZ 10 - ALT, OTZ 17-ALT, OTZ 19, OTZ 33-ALT, or any proposed locations on non-Federal lands.

A non-native invasive plant survey has not been conducted at any of the project site locations. The Alaska Exotic Plant Information Clearing House (AKEPIC, 2023) compiles interagency reports of non-native plant occurrences throughout the state. Seven of the proposed communication tower sites do not show any occurrences of non-native or invasive species; however, it is unlikely that a survey for non-native species has occurred in these locations. Although invasive species are not likely to occur at most of the proposed tower locations, they have been documented in the region, within the City of Kotzebue, and other communities that would be used as staging areas.

The Alaska Center for Conservation Science (ACCS) compiles reports of rare plant species found throughout Alaska. Their dataset was consulted for this analysis. Rare plant surveys have occurred in some locations in Alaska, but the majority of BLM and USFWS lands in Alaska have not been surveyed for rare and BLM sensitive plant species. Due to the lack of a comprehensive inventory, it is extremely likely that there are undiscovered populations of sensitive species in the project region.

OTZ 2: This proposed site is situated on a mountain top ridge within the Igichuk Hills. A National Park Service landcover map (Jorgenson et al., 2009) of the adjacent park units includes this location and classifies the ecosite type as Alpine Rocky Dry Alkaline Barrens. BLM

Sensitive Plant Species were not found within approximately 100 meters of the tower site coordinates.

OTZ 9: The NPS landcover mapping classifies this proposed site as Moist Acidic Dwarf Birch Tussock Tundra (Jorgenson et al., 2009). Given the map's coarse resolution and potential for error at a site-specific scale, it is possible that this proposed site could meet the U.S. Army Corps of Engineers criteria for jurisdictional wetlands. BLM Sensitive Plant Species were not found within 50 meters of the tower site coordinates.

OTZ 10-ALT: This proposed site is on a slide slope of a ridge in the Kiana Hills. NPS landcover mapping classifies this site as Tall Shrub (Open-Closed) (Jorgenson et al., 2009). Given the map's coarse resolution and potential for error at a site-specific scale, it is possible that this proposed site could meet the U.S. Army Corps of Engineers criteria for jurisdictional wetlands. There are no records of BLM sensitive plant species or rare plants found in the Kianna Hills. A search for BLM Sensitive Species was not conducted at this site.

OTZ 11: This proposed site is on the top of Clem Mountain in the northern part of the Kiwalik Mountain range. There are no vegetation classification map products available to provide insight into what vegetation types may be found here, although satellite images show it to be sparsely vegetated, likely a rocky alpine tundra. BLM Sensitive Plant Species were not found within approximately 100 meters of the tower site coordinates.

OTZ 17-ALT: This proposed site is located on a mountaintop ridge in the Hockley Hills. NPS landcover mapping classifies this site as Dwarf Shrub-Lichen (Open-Closed) (Jorgenson et al., 2009). There are no records of BLM sensitive plant species found in the Hockley Hills. A search for BLM Sensitive Species was not conducted at this site.

OTZ 19: This proposed site is in the Selawik Lowlands. NPS landcover mapping classifies this site as Moist Acidic Dwarf Birch Tussock (Jorgenson et al., 2009). Given the map's coarse resolution and potential for error at a site-specific scale, it is possible that this proposed site could meet the U.S. Army Corps of Engineers criteria for jurisdictional wetlands. There are no records of BLM sensitive plant species or rare plants found in the Selawik Lowlands. A search for BLM Sensitive Species was not conducted at this site.

OTZ 21: This proposed site is on a broad mountaintop ridge in the Sheklukshuk Mountain Range. The NPS landcover mapping classifies it as Upland Moist Dwarf Birch Ericaceous-Willow Low Shrub (Jorgenson et al., 2009). *Oxytropis kokrinensis* was found at this site during the July 2023 rare plant survey. 12 plants were found within 20 meters of the tower location coordinates, and 30 plants within 50 meters of the coordinates.

OTZ 33-ALT: This proposed site is located on the side of the Dalton Highway. Satellite imagery indicates that the site is in black spruce forest. This is the only proposed site that has known occurrences of non-native plant species. White sweetclover (*Melilotus albus*) has been found

growing along the roadside of the highway at this location and within the mineral material mining operation within close proximity to the proposed site. White sweetclover is considered a priority invasive plant (PIP) in the 2022 BLM Invasive Plant Prevention and Management Policy (AK-IM-FY2022-008). This policy required grantees, permittees, contractors, and BLM internal operations to prevent the introduction and spread of PIP and control infestations on BLM lands. BLM Sensitive Plant Species were not found within approximately 100 meters of the tower site coordinates.

Climate change-driven impacts are accelerating throughout Alaska affecting landscapes, wildlife, habitat, and human activities on millions of acres of federally protected public lands. Vegetation community shifts are expected as permafrost warms and thaws, species composition shift towards higher shrub cover, and lake and wetlands dry (Huntington et. al., 2023).

3.3.2. Environmental Impacts

3.3.2.1. *Impacts of Alternative A – No Action Alternative*

Under Alternative A, no communication towers would be built and there would be no direct or indirect impacts to vegetation, wetlands, or BLM sensitive plant species. No vegetation would be permanently removed and there is no potential for the introduction or spread of invasive species. With no direct or indirect impacts, there would also be no cumulative impacts to these resources.

3.3.2.2. *Impacts of Alternative B – Proposed Action*

This proposed alternative would permanently remove approximately 0.42 acres of undisturbed spruce forest at the OTZ 33-ALT tower site (0.37 acres for the communication tower site and 0.05 acres for an access road). The loss would be long term, lasting for at least the lifetime of the communication tower. The permanent loss of this vegetation would not adversely affect the population stability of typical black spruce forest plant species since they are generally abundant and widespread in this region.

At OTZ 2, OTZ 11, OTZ 17-ALT and OTZ 21 satellite imagery suggests that it is unlikely that vegetation would need to be cut, but vegetation would be trampled by crewmembers, aircraft landing, equipment moving, and tower installation. It is likely that most vegetation in the temporary construction areas (0.19 acres per site) would recover within 5 years, a short-term impact, as it is it expected the soils, seed bank, and underground plant structures will remain intact. But vegetation directly under the tower structures and growing within regular walking paths (0.37 acres per site) used by crews to maintain the sites would be permanently lost for the duration of the project.

At OTZ 9, OTZ 10-ALT, and OTZ 19 and any other site that contains permafrost soils, trampling of the tussock tundra ecosite types would result in long-term loss of this vegetation type underneath the tower and ancillary structures (0.37 acres per site). In the temporary

construction area and camping sites (0.19 acres per site), tussock tundra is estimated to recover within 10-20 years if the vegetation is significantly removed, but soils remain intact (Chapin and Chapin 1980). However, recovery is dependent on severity of the disturbance (Vavrek et al. 1999) and presence of soils containing a seedbank or propagules (Gartner et al. 1983).

Additionally, it is possible that some short shrub vegetation may need to be cut back at any of the sites. One tower location has a confirmed population of a BLM sensitive plant. There is also potential for BLM sensitive plant species to occur at the other five proposed tower locations if they are adjusted more than 100 meters from the current coordinates. The proposed construction would permanently remove plant individuals growing directly underneath the tower and ancillary structures, even though the sites are rocky and sparsely vegetated. Additionally, the equipment and work crew would trample plant species occurring within the permanent and temporary construction footprint of the lease sites.

At the seven sites where priority invasive plants (PIP) have not been found, the proposed activities have the potential to introduce PIP. At OTZ 33-ALT, there is potential to spread the existing infestations that currently occur there and/or introduce new PIP. New introductions and spread of existing PIP would result in degradation of native plant community structure, composition, and ecological functions. Once established, these species are difficult to eradicate. Therefore, these effects would be long-term. The proposed action involves two project elements that would result in degradation of native plant communities: (1) gear and equipment used to install the tower that may contain plant propagules and (2) equipment moving on-site material that contains existing infestations.

1. Materials and construction equipment often harbor seed or other plant material that can result in a new introduction. The proposed action does not include design features to clean equipment of plant propagules before being transported to the project area. Therefore, this analysis assumes that equipment and gear would harbor seed or other plant material of PIP species that are found where the equipment is stored and previously used (such as staging areas) and will be transported to the proposed project area.

2. White sweetclover growing along the Dalton Highway is an existing infestation of particular concern since equipment would likely be working within the infestation. Working within this infestation would spread white sweetclover into and around the footprint of the proposed tower location and anywhere the equipment or materials are moved to afterward.

Each of the OTZ network towers proposed to be constructed on non-federal lands are expected to have similar impacts to the towers proposed for federal lands and to past installed communications towers. Cumulatively, each tower constructed would have a discrete impact to vegetation that could be summed for all the towers. The activities of this proposed action, as well as other reasonably foreseeable actions, do not present an exponential impact to vegetation since the stability of vegetation species populations in this region would not be altered and general

ecological functioning would not be affected given the small scale of these activities. The cumulative impact of the proposed action is an additional 10.7 acres of disturbance and vegetation removal (of towers on federal lands and the connected action of non-federal towers) to the existing 15.02 acres of permanent disturbance caused by communication towers in the NWAB region.

See Table 5 for acreage at each site for temporary and long-term vegetation disturbance.

3.3.2.3. *Required Design Features*

Section 2.2.5 contains measures the applicant already committed to as part of their plan of development. None of these measures address the project elements that impact vegetation.

The following required design features are captured here and in **Appendix A** in more detail to reduce or eliminate adverse impacts to vegetation on BLM lands.

- To reduce impacts to native plant communities due to invasive species introduction and spread, the BLM Alaska Invasive Plant Prevention and Management Policy (AK-IM-FY2022-008) provides implementation level guidance for existing Resource Management Plan requirements to prevent the introduction and spread of priority invasive plants. The requirements in this policy would be issued as stipulations with the potential future authorization. These stipulations as required design features cannot completely eliminate the potential impacts of the project on vegetation, but they would significantly reduce effects.
- To mitigate impacts to BLM sensitive plant species, the Kobuk Seward Peninsula Resource Management Plan includes a Required Operating Procedures that is applicable to protections of BLM sensitive plant species:
    - KSP ROP SS-1e: "*Where populations or individual sensitive status plant species are located, take measures to protect these populations or individuals through site-specific buffers or management prescriptions*."

A survey for BLM sensitive plants found a population at OTZ 21, therefore a site-specific buffer of 30 feet between plant locations and project activities would be included in the ROW stipulations. The tower location would need to be shifted in order to avoid directly impacting a BLM sensitive plant species. A qualified botanical specialist would be required to guide the on-the-ground site selection before construction begins.

OTZ 10-ALT has not been surveyed. If that survey reveals any populations of sensitive plant species, a 30-foot setback around those plant individuals would be implemented. Additionally, if tower locations for previously sampled site are adjusted by more than 100 meters, another vegetation survey for BLM sensitive species should be conducted.

If these required design features are implemented, there would be no residual impact to BLM sensitive plant species.

FWS required design features: The following required design features are captured here and in **Appendix A** in more detail to reduce or eliminate adverse impacts to vegetation on FWS lands.

A representation, in the form of ArcGIS-compatible shapefiles, of the footprint of all temporary and permanent construction shall be provided to the USFWS Selawik Refuge Manager within 6 months of construction completion.

Tower installations shall be dismantled, removed, and the land restored starting as soon as possible after tower sites are no longer functional or the period of authorized use has expired.

The permittee shall develop and implement a USFWS approved abandonment and reclamation plan. The plan would describe short-term stability, visual, hydrological, and productivity objectives and steps to be taken to ensure timely ecosystem restoration to the land's previous hydrological, vegetation, and habitat condition, and intent to restore general wilderness characteristics of the area as applicable. The USFWS Authorized Officer may grant exceptions to satisfy stated environmental or public purposes. Reclamation shall include but not be limited to:

> Saving and properly maintaining topsoil to ensure seed source remains viable of topsoil for final application after reshaping of disturbed areas have been completed;
> Adequate and approved measures to control erosion, landslides, and water runoff;
> Adequate and approved measures to isolate, remove, or control toxic materials, including soil testing where applicable;
> Reshaping the area disturbed, application of viable topsoil, and revegetation of disturbed areas using native plantings from the immediate adjacent area, where reasonably practicable; and
> Rehabilitation of fisheries and wildlife habitat.

When reclamation of a disturbed area has been completed, the USFWS Authorized Officer shall be notified so that an inspection of the area can be made.

3.4. Issue 2: Wildlife (Birds and Terrestrial Mammals)

Analysis in this section will be focused on the following issues identified per the table 1 in Section 1.3.1:

Could the project affect overall biodiversity in the project area?

What direct effects on bird and terrestrial mammals may occur due to the tower construction and ongoing activities (i.e., mortality, injury, stress, displacement)?

How would the project affect muskox, moose, Dall sheep, and wolf distribution in the project area (i.e., displacement and avoidance of the project area), and could helicopter use associated with the proposed action displacement from the project area and cause elevated levels of stress to the animals affecting reproductive success and survival?

How would the proposed action affect small mammal and furbearer habitat and their distribution, specifically from ground disturbing activities associated with the proposed action?

Would bears be present in the project area during construction and operation of the towers, and become attracted to any trash or food from left from camps?

Would construction and operations of the proposed microwave broadband communication towers affect caribou habitat or disrupt migrations?

How would the project affect migratory birds in the project area, related to mortality associated by tower strikes, the destruction of eggs or nests during vegetation disturbing activities?

3.4.1. Affected Environment

Biodiversity

Numerous species of wildlife utilize many different habitat types within the proposed project area. Species use these areas both continuously and seasonally. General wildlife that has the potential of being in the project area include moose (*Alces alces gigas*), caribou (*Rangifer tarandus granti*), muskox (*Ovibos moschatus*), brown bear (*Ursus arctos*), back bear (*Ursus americanus*), polar bear (*Ursus maritimus*) (discussed in Issue 3: Threatened and Endangered Species), Dall Sheep (*Ovis dalli dallii*), wolf (*Canis lupus*), migratory birds, birds of prey, small mammals, and pollinators. There are several BLM listed special status species that have the potential to occur in the project area as well. These species are listed in 3.5: Threatened and Endangered species, and more species information can be found in Appendix B. Climate change-driven impacts are accelerating throughout Alaska affecting landscapes, wildlife, habitat, and human activities on millions of acres of federally protected public lands.

Caribou

Within the proposed project vicinity, caribou occupy treeless tundra and high mountain habitats year-round (ADFG, 2008a). Calving habitat is typically located in mountains or open, coastal tundra while winter range may comprise boreal forests when available (ADFG, 2008a). Movements occur seasonally between winter and summer range and calving grounds. Annual range size varies by herd, though, and is often unpredictable; caribou herds may change their range and migration patterns annually or long-term (Hinkes et al., 2005). The Western Arctic Caribou Herd (WACH) has the potential to occur in the project area. Specific information related to the WACH can be found in Appendix B: Wildlife Species Information.

Moose

Suitable habitat may occur within the footprint of at least one of the proposed microwave repeater sites, although year-round and winter suitable habitat occurs within the wet lowlands and drainages in areas below the proposed tower sites. Moose are highly valued for subsistence and general hunting as well as non-consumptive uses, and demand has generally been increasing (Bennett, 2006).

Bear

Three species of bear; black (*Ursus americana*), brown (*Ursus arctos*), and polar (*Ursus maritimus*) have the potential of occurring in the project area. These species inhabit a wide range of habitat, and utilize a vast suite of prey, and forage throughout the area. Additional species information can be found in Appendix B: Wildlife Species Information.

Muskox

Muskox (*Ovibos moschatus*) can occur throughout the project area. Groups are known to occur at the base of the Chamisso Peninsula (Dau 2012) approximately 10 miles south of the Baldwin Peninsula Repeater site, and another in the Nulato Hills, approximately 5 miles east of the Talik, Dime, and Ungalik River repeater sites (Dau 2012, Gorn 2012b). Since 2007 the ADFG has noted an eastward emigration of muskox on the Seward Peninsula. Additional information related to population trends and current distribution can be found in Appendix B: Wildlife Species Information.

Small Mammals/Furbearers

Within the project area, small mammals known to inhabit the proposed tower sites include Arctic ground squirrels and may also include pika or hoary marmots. Common small mammals in the vicinity of the proposed project area include beaver (Castor canadensis), red fox (Vulpes vulpes), Arctic fox (Alopex lagopus), coyote (Canis latrans), river otters (Lutra canadensis), porcupine (Erethizon dorsatum), red squirrel (Tamiasciurus hudsonicus), mink (Neovision vison), American marten (Martes americana), Canada lynx (Lynx *c*anadensis), Arctic ground squirrels (Spermophilus parryyii), short-tail weasel (Mustela erminea), least weasel (Mustela rixosa), muskrats (Ondatra zibethica), Alaska marmots (Marmota *browerii*), snowshoe hare (Lepus americanus), Alaska hare (*Lepus othus*), pikas (Ochotona collaris) and wolverines (Gulo gulo) (FWS 2009a; Bennett, 2006; BLM, 2008). Additionally, a wide variety of shrews, mice, lemmings, and voles occur, of which the red-backed vole (Clethrionmys spp.) is most abundant (Bennett, 2006; BLM, 2008). However, the region is believed by land managers to host healthy populations of small mammals and furbearers (FWS, 2009a; BLM, 2008)

Dall Sheep

Dall sheep (*Ovis dalli dallii*) are found throughout the Alaska Range, and some of the proposed tower locations fall within this range. While there is no known habitat for Dall sheep on the

towers proposed to be built on federal land, there are several that do fall within sheep habitat on non-federally managed lands. This is a connected action, and habitat and disturbance for sheep is included for that reason.

Wolf

Wolves (*Canis lupus*) are widespread throughout the proposed project area. Wolves are widely distributed in the region and could be found in the vicinity of the tower sites and transport corridors.

Birds

The lakes, rivers, tundra ponds, and coastal wetlands within the vicinity of the proposed project provide important resting, staging, breeding, brooding, nesting, and molting habitat for a wide variety of migratory and resident waterfowl, shorebirds, and land birds (FWS, 2009a; BLM, 2008). At least 39 species of shorebirds use the bays and lowlands in the proposed project vicinity as staging areas en route to and from the Arctic.

Many migrant sensitive species would occur in the proposed project vicinity, including the Steller's eider, olive-sided flycatcher, blackpoll warbler, gray-cheeked thrush, Townsend's warbler, tule white-fronted goose, dusky Canada goose, and trumpeter swan. There are approximately 180 species that occur in the Selawik National Wildlife Refuge, over 80 of which breed on the refuge, and approximately 20 are year-round residents (Table 6).

Over 20 species of raptors are known to occur in the proposed project vicinity, with 16 species known to breed there (FWS, 2009a; BLM, 2008). This raptor population includes 10 species of owls, 7 hawks, 2 eagles and 4 falcons (BLM, 2008). The most common raptors are bald eagles, northern harriers, rough-legged hawks, merlins, and short-eared owls, in addition to golden eagles, gyrfalcons, peregrine falcons, and northern hawk owls (FWS, 2009a).

Five upland game birds, all of which are grouse species, occur in the project vicinity, including spruce and ruffed grouse, and willow, rock, and white-tail ptarmigan (BLM, 2008; FWS, 2009a). Willow ptarmigan are the most common of these species, with flocks of several hundred or more birds occurring (FWS 2009a). Spruce and ruffed grouse inhabit forested areas, rock ptarmigan are on higher elevation barren habitats and tundra throughout, and willow ptarmigan in willow and alder thickets (BLM, 2008; FWS, 2009a).

More information related to both common and special status bird species can be found in Appendix B: Wildlife Species Information

3.4.2. Environmental Impacts

3.4.2.1. *Impacts of the Alternative A – No Action Alternative*

Under Alternative A, no communication towers would be built and there would be no direct or indirect impacts to wildlife resources. No wildlife would be permanently impacted. With no direct or indirect impacts, there would also be no cumulative impacts to these resources.

3.4.2.2. *Impacts of the Alternative B – Proposed Action*

Biodiversity

Construction of the new proposed 20 tower sites and the upgrade of the existing 10 sites permanently disturb 11.2 acres (0.56 acres at each site) through facility installation and helipads under the long-term leases. Terrestrial mammal habitat at the hilltop tower sites includes general habitat for moose, muskoxen, wolves, Dall sheep, caribou, and brown bears; habitat for some furbearers and small mammals; and winter foraging habitat for caribou. The habitat at the Baldwin Peninsula sites includes winter range and migration corridor for caribou and general habitat for moose, muskoxen, furbearers and small mammals. The habitat at all the tower sites is generally common and abundant, and loss of habitat is minimal compared to the amount of existing habitat in the area. It is unlikely that this loss of habitat would greatly influence biodiversity of the region.

Caribou, Moose, Bear, Muskox, Small Mammals, Dall Sheep and Wolf

Alternative B would impact terrestrial mammals including caribou, moose, bear, muskox, small mammals, Dall sheep, and wolf, through habitat loss, behavioral disturbance (displacement or avoidance), or injury/mortality from increased human presence. Direct impacts to terrestrial mammals resulting from construction of the proposed action would occur at the tower sites and staging areas in Kotzebue, Buckland, Koyuk, and on the Baldwin Peninsula. Habitat for Dall sheep is not present on the proposed tower sites that fall on federally managed lands but is present at other proposed tower locations connected to this federally action.

Avoidance or Displacement

Construction at the tower sites would result in noise and visual disturbance to wildlife from construction equipment such as generators and air compressors, helicopter operations, and human activity. Construction at sites is scheduled to occur between April and October, during the reproductive and rearing season for most terrestrial wildlife species. Caribou are known to occur in the project area from early fall to May. Tower sites may be located near the Nulato Hills ACEC, which is core winter habitat for the WACH.

The tower sites would be accessed during construction by helicopters using support sites at nearby communities. Staging camps and helicopter flights associated with the construction of the

towers may result in the disturbance of terrestrial mammals in the area, and within the flight path, but is expected to be limited in scope and temporary.

Noise and activity, although temporary, would occur in otherwise quiet and remote areas. Noise from construction could temporarily displace wildlife and could result in disturbance of wildlife. Muskoxen, small mammals including arctic ground squirrels, and brown bears or wolves may be in the exposed ridge top habitat of the project area, but other large mammals such as black bear and moose would likely occur in the more densely vegetated habitats associated within the valleys and riparian habitats of the project area. Most caribou would not be in the project area during the middle of the construction period, as calving grounds are located outside of the project area, but some caribou may be present.

Habitats within the helicopter flight paths include deciduous riparian shrub; wet, moist, and dry tundra; boreal forest; intertidal flats; and open marine waters. These habitats are potentially inhabited by small mammals, furbearers and large mammals that would be foraging, breeding, or rearing young during this time period. Wildlife disturbed by helicopter noise generally show signs of stress, ranging from mild annoyance to severe stress, which could contribute to panic and escape behavior. These responses could lead to temporary displacement from preferred habitat; accidental injury; effect on reproduction such as separation of adults from young and disrupted parental attendance; and energy losses that could affect food intake, growth, rearing, migration, and reproduction (NPS 1994; Radle 2007).

Studies show that moose react to overflights at altitudes less than 600 ft. by running, trotting, or discontinuing an activity. Reaction frequency is inversely related to the overflight altitude (McCourt et al. 1974). Moose are also known to increase their home range sizes substantially during helicopter disturbance but return to normal size within one week after the disturbance (Andersen et al. 1996). Muskoxen reactions vary depending, in part, on the overflight altitude, distance of the helicopter landing, terrain, and climate. Sex, group size and content, and number of calves/group are also factors. Muskoxen are sensitive to helicopters that approach them or make any change in flight path or power setting (Dau 2012). To reduce impacts to wildlife, helicopters would be restricted to an altitude of 1,500 feet above ground level and avoid approaching within 1,500 feet of wildlife.

Injury/Mortality

Predators, such as bears and wolves, could be killed in defense of life or property from encounters with site workers. To minimize the chances of such takings, attractants such as food and food waste would be stored in bear-proof containers. All camp and construction debris would be contained in drums or large, commercial trash bags and would be removed from the site periodically. The trash bags would be used for dry debris (plastic, wood pieces, etc.) and would be secured from the wind with cargo nets while awaiting transport. These measures would deter wildlife such as bears from accessing garbage or food at the tower sites (although attraction may still occur) and would also minimize dangerous interactions or ingestion that could injure or kill wildlife. Bears are known to chew on exposed cables, putting them at risk of electrocution

(Dau 2012). There would be no exposed cables at the tower sites, as all would be placed in conduit. Increased potential for mortality associated with human presence on the site would be of low intensity as the possibility of injuries or mortalities exists, but any occurrence is only to a few individuals, and would not be measurable at the local population level. The duration would be temporary during project construction. The extent would be local and limited to the vicinity of the project footprint.

Continued Operation (Helicopter Use)

The physical presence of the towers and noise of the generators (approximately 70 dB) could result in avoidance of habitat by terrestrial mammals, but habitat within the project area is generally abundant and common throughout the Seward Peninsula and Baldwin Peninsula. Given that the sites are discreet points, dispersed within a large area, impacts from avoidance of their physical presence are likely to be low intensity, long-term in duration, and local in extent to a generally common resource.

Generator noise would be constant during the operation phase, and thus a long-term effect. Because the noise would be constant, any impact to wildlife could result in long-term displacement from the immediate area of the tower. Impacts from generator noise would be low in intensity. The duration could be long-term as behavior patterns may become altered for the life of the project and would return to pre-activity levels at some time after operation ends. The extent would be local with impacts limited to vicinity of the project footprint. The resources affected would be common as they are considered usual or ordinary resources in the project area and are not depleted in the locality or protected by legislation.

The tower sites would be visited twice per year for maintenance and refueling, using helicopters for access. Helicopter-supported refueling operations for the generators could require 14 round-trip flights. Wildlife may be temporarily displaced and may exhibit physiological and behavioral responses similar to helicopter noise impacts described in the construction section but would be short-term in duration. Maier et al. (1998) noted that ungulates tend to respond more strongly to overflights by helicopters than those by light or jet aircraft, although Calef et al. (1976) detected the opposite, however, the frequency and duration of these visits would be limited enough that impacts would be low intensity. The impact is localized in extent and limited to the repeater site and helicopter overflight corridor, though when caribou are present at the sites, helicopter use is likely to be highly impactful. Common resources would be affected and are considered usual or ordinary resources in the project area and are not depleted in the locality or protected by legislation.

Cumulative Impacts

Past and present actions that have affected terrestrial mammals in the project area include other preexisting BLM granted communications tower projects, recreational hunting, subsistence activities, mining, and the introduction of non-native plant species. The region has had and may

continue to experience some industrial growth outside of the community hubs (mining), although most future projects would be considered speculative due to a lack of secured funding.

Climate change may also be a factor causing changes for terrestrial mammals in the region. However, the effect of climate change on terrestrial mammals in the region in the future is unknown, as described below by the US Global Change Research Program (2003):

> Potential climate change impacts on Alaska's wildlife both direct and indirect -- through changes in their habitats and food sources -- are likely to be both positive and negative, although all impacts are speculative at this time due to uncertainties in climate change projections.
>
> Local weather records show that the growing season in Alaska has lengthened by more than 14 days since 1950. A longer growing season could or could not benefit wildlife and could be particularly detrimental to those whose migration patterns would not allow them access to vegetation during its most nutrient-rich stage. Moreover, changes in temperature can impact the type of vegetation that grows in this region. For example, Nome is now surrounded by tundra that depends on cool summer days, but its number of warmer summer days is increasing and approaching the threshold that would foster tall shrub and tree development. Should its vegetation change, wildlife that depends on traditional tundra vegetation could be impacted. Shifts in the composition of tundra vegetation could decrease nutrition available for caribou and reindeer, and invasion of tundra by boreal or mixed forest is likely to curtail the range of caribou and muskoxen.

The Kotzebue Sound area has experienced and may continue to experience some industrial growth (mining), although most future projects are speculative and dependent on many factors (e.g., economic conditions, price of gold, government funding).

Alternative B would make a minor contribution to cumulative impacts to terrestrial mammals because the effects would be generally low in magnitude across numerous localized spots.

Bird Species

Alternative B would impact birds through habitat loss, behavioral disturbance, injury/mortality of birds colliding with the towers or helicopters, and direct mortality of eggs, the destruction of nests, or abandonment during vegetation removal. Impacts to birds would vary depending on location, timing, and activity. Impacts would be of low to medium intensity because while changes may be noticeable, they are not expected to result in population-level effects. The duration of the impact would be limited to temporary (construction) and long-term (life of project) and are not expected to persist if the towers were removed. The geographic extent of impacts would generally be limited to the immediate vicinity of the project activity but could extend to the region if migratory species are affected. The context of impacts can range from common to important because sensitive species could occur at all sites.

Construction (Vegetation Removal)

Direct and indirect impacts to birds resulting from construction of the proposed action are anticipated. Additional impacts to birds are anticipated on non-federal land connected to the proposed action including the construction and use of the other proposed towers. Construction at the tower sites would result in noise and visual disturbance from equipment, helicopter operations, and human activity. These disturbances could displace birds, potentially resulting in abandonment of breeding or nesting activities, or the destruction of active nests. Construction is scheduled to occur between April and October, during the nesting season for migratory birds in the region (April 15th – September 15th). These dates include nesting durations for most passerines, seabird colonies, and cliff nesting raptors. The repeater sites would be accessed during construction by helicopters using support sites in nearby communities.

Behavioral Disturbance (Abandonment, Avoidance, and Displacement)

Flight paths originate at staging areas in nearby towns and continue to the repeater sites directly. Habitats within the helicopter flight paths include riparian shrub; wet, moist, and dry tundra; boreal forest; rocky outcrops; estuarine intertidal flats; and open marine waters. These habitats are potentially used by passerines and other birds that would be breeding or rearing young during this time period. Response to helicopter noise ultimately depends upon the species and individuals of a population, and responses may be greater in remote areas that are typically quiet (beyond staging areas). Potential noise disturbance from helicopters may cause stress, ranging from mild annoyance to severe stress, which could contribute to panic and escape behavior. These responses could lead to accidental injury; reproductive losses such as nest flushing, separation of adults from their young, disrupted parental attendance; and energy losses that could affect food intake, growth, rearing, migration, and reproduction (NPS 1994). The high number of helicopter trips over the construction period could lead to habitat avoidance and abandonment, and increased potential for collisions between helicopters and birds. Habitat avoidance during construction would be a temporary impact, as construction would be completed during one season. Given the range of reactions, the magnitude of effect may range from low to medium and would occur in a localized area. The impacts of helicopter disturbance would be more acute in the vicinity of the staging areas because helicopters would be closer to the ground when landing and taking off.

In the Selawik-Kobuk-Baldwin Peninsula area there is a breeding population of 234,000 ducks and tens of thousands of white-fronted geese. In addition, thousands of seabirds nest in colonies on the southern end of the Baldwin Peninsula. The response of these waterbirds to helicopter noise may include flying, diving, or swimming away from the noise. The high energy requirements of waterbirds during the molting season, particularly fall staging in preparation for long-distance migrations, may not be met if these birds continuously expend energy to avoid aircraft (NPS 1994).

Noise associated with construction of the towers is expected to be lower level than the noise associated with helicopter landings and take-offs, but would likely be consistent and nearly

constant. Birds would likely maintain distance from the activities, resulting in habitat displacement for the duration of construction rather than numerous energy expenditures described above. Migrating birds could be affected by the disturbance of beach habitat during the fall, and wintering birds such as common raven and ptarmigan may be disturbed during the overland transport and tower construction and the use of aircraft for refueling and maintenance.

Continued Operation (Helicopter Use)

During the operation of the communication tower sites, scheduled maintenance and refueling would occur twice a year in addition to any emergency maintenance trips. Noise and human presence, especially during sensitive periods like nesting, could impact birds in the flight path and in areas adjacent to the footprint of the towers.

Habitat Loss

The permanent loss of habitat for the tower sites would be approximately 11.2 acres total for the project. This area would no longer be available as potential bird habitat. Although this would be a long-term duration, there is an abundance of undisturbed similar habitat throughout the area; therefore, the localized effect is considered low intensity. The change in habitat at the tower sites would cause the habitat to be less desirable for bird use. The duration of impact would be temporary (construction footprint) and long-term (operation footprint). The extent would be localized since it is limited to the project footprint and flight path of the helicopters.

Mortality/Injury

The presence of the towers could kill or injure birds from collisions, especially during low visibility situations such as night or during bad weather. Several towers would be located on hilltops at higher elevations. The towers would be 60 feet high or shorter. Ten towers would have guy wires. The immediate trajectories of migrating birds are species-specific and depend on varying environmental factors (wind, weather, visual cues, others). Although no project-specific bird migration studies have been conducted, a site survey for the Kotzebue Wind Farm (USDOE 1998), located on the north end of the Baldwin Peninsula, reported that most migratory bird movements are to the east in the Kobuk River Delta and farther offshore for spring movements of seaducks and brant, and that no major shorebird staging areas or migration corridors have been documented near the wind farm project site. Some birds could encounter the towers when their flight paths intersect with the proposed sites (e.g., birds flying to the coast from breeding areas in the highlands of the Seward Peninsula). The ridgelines and associated towers would not represent a barrier for migrating birds but could pose a strike hazard. Studies show that large numbers of migrating birds fly over the crests of ridges and passes rather than following mountain fronts, and migrants flying near ridges and in passes may be flying at lower elevations than broad-front migration (Kerlinger 1995).

Some birds may be migrating in a trajectory aligned with the tower sites, but the expected rate of collisions is unknown because flight pattern field work specific to the tower sites has not been

conducted. Studies elsewhere show that most migrants fly at elevations much higher than the proposed tower heights of 60 feet (hilltop sites) and 250 feet (Baldwin Peninsula sites) (Longcore et al. 2008; Able 1970; Bellrose 1971; and Mabee et al. 2006), with notable exceptions. For example, eiders tend to fly directly and low over the water (McDaffery et. al. 1999; and Day et. al. 2003) and follow the shoreline (Day et. al. 2003). Additionally, birds that are nesting near the tower sites and other non-migrants would be flying much lower to the ground. Mabee and Cooper (2004) found that only 2 to 15 percent of migrants flew below 300 feet (91 meters) above ground level during clear weather, but inclement weather is common at the sites, and higher winds and lower cloud layers or fog may contribute to lower altitude flights and increase the risk of mortality (Able 1970; and Erickson et. al. 2005). Local breeders or birds foraging on the hilltops or on the Baldwin Peninsula are more likely to be at risk than migrants, with the greatest risk during periods of poor visibility or inclement weather. Migrating passerines may be more at risk of colliding with structures at night because these birds tend to migrate at lower altitudes than do other groups of migratory birds (e.g., lower than waterfowl or shorebirds) (Kerlinger 1995).

Because guy wires would be used on several towers, the potential for collisions would increase relative to most towers (Longcore et al. 2008). Towers that cause the most collision problems are tall (especially those exceeding 1,000 ft.), illuminated, guyed, near wetlands, in migration corridors, and with a history of inclement weather (Manville 2005). Longcore (2012) reports that bird mortality at towers less than 197 feet (60 meters) contribute negligibly to overall annual bird mortality; however, single-night mortality events with several hundred identified dead birds at unlit towers less than 197 feet (60 meters) tall have been reported, often related to lighting at adjacent infrastructure.

Although some of the tower sites are near or in wetlands, and there is frequent inclement weather in the project area, relatively few collisions are anticipated due to the low height of most of the towers. Potential impacts to birds would most likely be limited to the occasional individual colliding with a tower and guy wires; these isolated collisions are not expected to affect local or regional population levels. The risk of collision is expected to be higher at the Baldwin Peninsula sites compared to the hilltop sites, both because the towers are higher and more birds are expected in the vicinity.

Cumulative Impacts

Visitor and residential growth may contribute to an increase in air traffic and development, increased recreation use, and increased hunting pressure resulting in greater disturbance to current bird resources in remote areas. There are existing towers in the area from other communication projects. These towers could cumulatively impact birds through habitat loss, behavioral disturbance, and injury/mortality from collisions with the towers. The level of impact would depend on site location and tower design (Section 2.2.1 and 2.2.2).

Climate change has been linked to altered migrations of birds, and precipitous declines of birds across the world. Continued disturbances in conjunction with climate change, and a suite of other factors have the potential to cumulatively impacts bird species, both common and sensitive.

3.4.2.3. *Required Design Features*

Section 2.2.5 contains measures the applicant already committed to as part of their plan of development. These would be issued as BLM/FWS Stipulations with the potential future authorization. Required design features related to wildlife resources are located in Appendix A. Measures to reduce or avoid adverse effects that are included as design features in the proposed action or alternatives are inherently addressed in the analysis of that alternative and generally do not necessitate a specific analysis.

3.5. Issue 3: Special Status Species

Analysis in this section will be focused on the following issues identified per the table 1 in Section 1.3.1:

Does the project fall within designated habitat of either ESA or MMPA listed species?

Would construction and operations of the proposed microwave broadband communication towers affect designated Sensitive, Threatened, and Endangered species or designated critical habitat through habitat loss, behavioral disturbance (avoidance and displacement), and injury/mortality?

3.5.1. Affected Environment

There are no threatened or endangered plants or animals listed by the Federal government on Selawik refuge lands (USFWS 2011).

BLM Sensitive species

Several species designated with special status by the BLM, have potential to occur within the project area. Bird and mammal species and their status are listed in **Table 7**. Note that ESA listed species are presented in **Table 7** and the following section. Additional information related to these listed Sensitive Species can be found in Appendix B: Wildlife Species Information.

Table 7, Sensitive Species and Endangered Species Act (ESA) Listed Species. ESA species are denoted with *.

Taxonomic Group	Scientific Name	Common Name
Birds	*Calidris canutus*	Red Knot
Birds	*Gavia adamsii*	Yellow-billed Loon

Birds	*Somateria fischeri*	Spectacled Eider*
Birds	*Euphagus carolinus*	Rusty Blackbird
Birds	*Brachyramphus brevirostris*	Kittlitz's Murrelet
Mammals	*Ursus maritimus*	Polar Bear*
Birds	*Contopus cooperi*	Olive-sided Flycatcher
Birds	*Calcarius pictus*	Smith's Longspur
Birds	*Accipiter gentilis*	Northern Goshawk
Birds	*Numenius tahitiensis*	Bristle-thighed Curlew
Mammals	*Spermophilus parryii osgoodi*	Osgood's Arctic ground squirrel
Birds	*Polysticta stelleri*	Steller's eider*
Birds	*Gavia stellata*	Red-Throated Loon
Birds	*Plectrophenax hyperboreus*	McKay's Bunting
Birds	*Calidris ptilocnemis tschuktschor*	Bering Sea Rock Sandpiper

ESA Listed Species

There are three species (polar bear, spectacled eider, and Steller's eider) listed under ESA as Threatened or Endangered that have the potential to occur in the project area. Likewise, several of the potential tower locations are located within, or adjacent to, Designated Critical Habitat for polar bear (Figure 9, USFWS Critical Habitat and OTZ Proposed Project Locations). More information related to these species are located in Appendix B: Wildlife Species Information.

3.5.2. Environmental Impacts

3.5.2.1. *Impacts of Alternative A – No Action Alternative*

Under implementation of the No Action Alternative, no direct or indirect impacts to special status species would be expected to occur since there would be no disturbances beyond existing conditions. Current trends and densities would be expected for special status species in the area.

3.5.2.2. *Impacts of Alternative B – Proposed Action*

BLM Sensitive Species

Impacts to BLM sensitive species associated with Alternative B would be similar to impacts associated with other birds and mammals and are described in the previous sections. This section will focus on species listed under ESA and MMPA where Informal Section 7 Consultation was completed with USFWS.

ESA Listed Species

Spectacled and Steller's Eiders

Habitat Loss

Construction of the towers in undisturbed areas would permanently disturb 8.88 acres (0.37 acres at each site) through facility installation under the long-term leases.

Spectacled and Steller's eiders may occasionally use the habitat within the project area for migration only. Due to the abundance of similar habitat adjacent to these sites, the loss of a small amount of migration habitat would have little or no effect on these species.

Behavioral Disturbance

Construction and operations at the tower sites would result in noise and visual disturbance from equipment, helicopter access, and human activity. This noise and activity would occur in an otherwise quiet and remote area. The tower sites would be accessed during construction by helicopters using support sites located in nearby communities. To reduce impacts to birds and other wildlife, helicopters would travel at an altitude of 1,500 feet.

Construction is scheduled to occur between April and October, during the nesting season for birds in the region. Since both eiders nest elsewhere, they are not expected to be in the project area during most of the construction period.

Migrating eiders in nearshore habitats are expected to move away from onshore disturbances. Eiders in nearshore habitats and those in further offshore in Norton or Kotzebue Sound, including molting eiders, would probably experience only temporary and limited to disturbances from helicopter overflights at an altitude of 1,500 feet. Thus, it is expected that any adverse effects to listed eiders from disturbance would be non-detectable.

Injury/Mortality

The presence of the towers has the potential to kill or injure eiders from collisions, especially during low visibility situations such at night or during bad weather. Either eider species could encounter the tower if their flight paths intersect (e.g., birds flying along the coast from wintering to breeding areas) with the proposed sites. The expected rate of collisions is negligible. Eiders are known to fly directly and low over the water (McDaffery et. al. 1999; and Day et. al 2003) and tend to follow the shoreline (Day et. al. 2003). Migrating eiders tend to fly low (less than 10 meters; Johnson and Richardson 1982), which would make them vulnerable to collisions with the proposed towers under low light or inclement weather conditions. However, most eiders in the project vicinity migrate offshore rather than flying overland, and the potential for tower strikes is very low.

The magnitude of injury/mortality impacts is expected to be negligible because the chance of take is extremely low. Therefore, the chance of a collision or disturbance causing "take" of a listed eider is considered discountable. The duration of this impact would be long-term (for the

20-year life of the project), and the geographic extent could be local or regional because migrating eiders could be affected. The context is important because both eiders are ESA-listed.

Cumulative Impacts

Past and present actions affecting spectacled and Steller's eiders in the project area include other communications projects, recreational hunting, subsistence activities, and mining.

Climate change has been linked to altered migrations of birds, and precipitous declines of bird across the world. Continued disturbances in conjunction with climate change, and a suite of other factors have the potential to cumulatively impacts bird species, both common and sensitive.

Polar Bear

Habitat Loss

The construction and operation of the towers on the Baldwin Peninsula would not be expected to adversely affect polar bear habitat because it would not reduce the availability or accessibility of polar bear prey species and would not render the habitat unsuitable for use by polar bears. While the construction, maintenance, or refueling activities may temporarily (length of the activity) disturb any polar bears present, they would likely return after the disturbance ceases. The long-term loss of a small amount of habitat at each repeater site is not expected to have a noticeable effect on polar bears. The long-term (life of the project) presence of the towers is not expected to appreciably diminish the value of the habitat for polar bears.

Behavioral Disturbance

Any polar bears on the Baldwin Peninsula or on sea ice within the helicopter flight corridor, would likely experience only minor disturbance limited in intensity and duration from construction-related activities or tower maintenance. They may avoid the tower sites when there was activity (maintenance) occurring or when disturbed by helicopter overflights.

Generator noise would be constant during the operation phase, and thus long-term in duration. Because the noise would be constant, any impact to polar bears could result in long-term displacement from the immediate area of the tower though this would be local in extent and affect an important resource. However, some level of habituation to the noise would be expected.

Injury/Mortality

Polar bears could be killed in defense of life or property if they encounter humans in the project area. Construction and maintenance personnel would be required to follow the USFWS's Polar Bear Interaction Guidelines to avoid and minimize the result of such encounters.

To minimize the chances of encounters, attractants such as food and food waste would be stored in bear-proof containers. All camp and construction debris would be contained in drums or large,

commercial trash bags and would be removed from the site periodically. The trash bags would be used for dry debris (plastic, wood pieces, etc.) and would be secured from the wind with cargo nets while awaiting transport. These measures would deter polar bears from accessing garbage or food at the tower sites (although attraction may still occur) and would also minimize dangerous interactions or ingestion that could injure or kill them.

Cumulative Impacts

Past and present actions that have affected polar bears in the project area are existing communication tower infrastructure, recreational hunting, subsistence activities, and mining. Introducing and/or upgrading broadband communications in the area could lead to a rise in economic activity and the potential for cellular service around new towers.

Climate change is another factor that has been and would continue to affect polar bears in the project area. Climate change is the primary reason polar bears were listed, as it is causing a melting of sea ice, the polar bear's primary habitat. Possibly because of climate change, terrestrial coastal areas are experiencing increasing use by polar bears for longer durations during the fall open-water period (the season when there is a minimum amount of ice present, which occurs during the period from when the sea ice melts and retreats during the summer to the beginning of freeze-up during the fall) (Schliebe et al. 2008).

3.5.2.3. *Required Design Features*

Section 2.2.5 contains measures the applicant already committed to as part of their plan of development. These would be issued as BLM/FWS Stipulations with the potential future authorization. Required design features related to wildlife special status species are located in Appendix A. Measures to reduce or avoid adverse effects that are included as design features in the proposed action or alternatives are inherently addressed in the analysis of that alternative and generally do not necessitate a specific analysis.

3.6. Issue 4: Socioeconomic Resources

Analysis in this section will be focused on the following issues identified per the table 1 in Section 1.3.1:

Are there socioeconomic impacts associated with the construction and operations of the proposed microwave broadband communication towers, and are there any negative, disproportionate effects on environmental justice populations?

3.6.1. Affected Environment

OTZ Telephone Cooperative, Inc. (OTZ) is proposing to install a series of microwave broadband communication towers to provide broadband services for high-speed internet, data connectivity, and emergency communications for 10 communities in the Northwest Arctic Borough (NAB) in northwest Alaska. OTZ's web site describes the project's intent:

> Benefits of this project will include providing internet access to OTZ's customers/members in each of the NWAB communities with broadband speeds (25mbs download/3mbs upload and unlimited data access packages) consistent with rural lower 48 standards; providing system redundancy and improved reliability; enhanced telehealth and emergency response capability for the region; and improving economic development opportunities. (https://otz.net/news-and-announcement/)

The NAB is the second largest borough in Alaska, comprising approximately 39,000 square miles. About 2/3 of the land in the NAB is federal. The five national parks fully or partially within the NAB boundaries comprise 44 percent of NAB lands. Other federal lands are managed by the BLM (18 percent of the NAB) and the Selawik National Wildlife Refuge.

The Borough population in 2021 was about 7,575 people (Alaska Department of Commerce Community Economic Development 2020). About 82 percent are American Indian or Alaska Native, nearly all Inupiat. About 20 percent of the residents have incomes below the poverty level, roughly double for the percentage statewide. The population is therefore considered an environmental justice population from the standpoint of both minority and low-income status. The presence of minority and low-income populations is of special interest due to BLM environmental justice policy (BLM IM2022-059), which calls for the fair and equitable treatment and involvement of all people and avoidance of disproportionate, negative effects on low-income and minority populations.

Communities within the NAB range in size from Kobuk (183) and Deering (190) up to the regional center of Kotzebue (3,004). All of the communities are 2nd class cities[1] except for Noatak, which is a Census Designated Place (CDP). The Red Dog Mine is also classified as a CDP.

The Northwest Arctic Borough's web site (https://www.nwabor.org/about/) describes the regional economy:

> Red Dog Mine, 90 miles north of Kotzebue, is the world's largest zinc and lead mine, and provides 370 direct year-round jobs and over a quarter of NAB's wage and salary payroll. The ore is owned by NANA Regional Corporation and leased to TeckAlaska, which owns and operates the mine and shipping facilities. TeckAlaska, Maniilaq Association, the Northwest Arctic Borough School District and Kikiktagruk Inupiat Corp. (KIC) are NAB's largest employers. The smaller communities rely on subsistence food-gathering and Native craft-making. 134 NAB residents hold commercial fishing permits. The City of Kotzebue is the "hub" of northwest Alaska and is the transfer point between ocean and inland

[1] These are smaller communities where state law defines powers, duties, functions.

shipping. Kotzebue does not have a natural harbor and is ice-free for only three months each year. Deep draft vessels must anchor 15 miles offshore, and cargo is lightered to the docking facility. Local barge services provide cargo to area communities. Ralph Wien Memorial Airport supports daily jet service and air taxis to Anchorage.

The current NAB Comprehensive Plan (Northwest Arctic Borough 2021) includes a vision statement: "Thriving, adaptable Iñupiaq communities, working together to prepare for a changing future." It also contains three Land Use and Subsistence goals: "Ensure the protection of subsistence resources and promote food security; Prepare communities for a changing climate and monitor progress and; Promote responsible community and economic development while ensuring the protection of subsistence resources." These goals reflect the common theme in rural Alaska of the desire to further develop a wage economy while protecting subsistence resources and access.

The Comprehensive Plan notes many of the challenges facing the region, including the high cost of living common in rural Alaska, which affects the ability to retain a workforce, start and maintain a business, and support subsistence activities. The Plan describes Red Dog Mine as an important economic generator in the region, and as the source of most of the Borough's revenue as well as the Village Improvement Fund (VIF), which contributes to local and regional economic development. Because the end of expected life of the mine is less than 10 years away, the Borough is seeking ways to expand its employment base. The mine also provides employment opportunities for many Inupiats, including those who no longer live in Northwest Alaska (Berman and others 2020).

The Comprehensive Plan notes the current needs for internet access: "The region also lacks access to affordable highspeed internet. Reliable internet connectivity has become increasingly important for education, training, commerce, and even microgrid technology...NAB communities have local schools with no educational powers. They rely on communication networks to provide education services online. The lack of high-speed affordable internet makes it harder to offer reliable distance learning." Poor internet structure is also cited as a barrier to renewable energy development.

The other regional entity playing a large role in NAB residents' lives is NANA (Map 1), a for-profit Alaska Native corporation formed as a result of the 1971 Alaska Native Claims Settlement Act (ANCSA). NANA's mission is "To improve the quality of life for our people by maximizing economic growth, protecting and enhancing our lands and promoting healthy communities with decisions, actions and behaviors inspired by our Iñupiat Iḷitqusiat values consistent with our core principles." (NANA.com).

As described in Section 3.2, NANA was awarded a $68.5 million broadband infrastructure deployment grant to construct the NANA Regional Broadband Network (NRBN) project. The future four-year project will install more than 680 miles of submarine fiber-optic cable from

Kotzebue to all 11 villages in the NANA region and install 33 feet tall towers in each village to provide wireless internet services to tribal homes, schools and clinics. A November 17, 2022, press release described this project: “The NRBN project supports NANA’s mission to improve the quality of life of our people,” said NANA’s Board Chair Ely Cyrus. “The pandemic highlighted the lack of access to the internet, especially for our youth and Elders. This project will directly and meaningfully improve the lives of current and future Iñupiat generations, providing enhanced healthcare, educational access, workforce development and economic equity.” https://www.nana.com/nana-awarded-68-5-million-grant-to-provide-high-speed-internet-to-remote-alaska-villages/.

Figure 8. NANA Region

3.6.2. Environmental Impacts

There are two primary ways that the project could affect social and economic conditions.

1. Impacts on other resource conditions could create impacts to social and economic conditions. For example, if the subsistence analysis anticipates that an alternative would reduce subsistence opportunities, then that would clearly have both social and economic implications. Lifestyles would be affected, as well as the mixed cash-subsistence economy present in most villages. As another example, changes in the level or type of recreation available could affect residents who use lands for recreation, as well as local economies if recreational use by outsiders brings money or resources into the village. For this analysis, the social and economic section relies on the findings of other resource sections, which will be summarized here to describe any resulting impacts to social or economic conditions.

2. The improvement of internet access itself has both social and economic impacts. Reliable and affordable internet access can improve peoples' quality of life through greater connection to the outside world, as well as allowing telehealth visits and improving medical care. It also facilitates development of business opportunities that lead to greater employment and wealth in the village. This analysis is imprecise and qualitative, because we do not know details of the resulting quality of service or affordability. Therefore, we will make the assumption that internet access simply will be better than it is now.

3.6.2.1. *Impacts of Alternative A – No Action Alternative*

Assuming the BLM and USFWS choose this alternative, the project cannot take place and internet access would not be improved; this would constitute a negative, disproportionate environmental justice impact. The 10 villages would not receive improved internet access that could benefit residents' quality of life, including their health. The villages would also not benefit from the potential for business development or expansion that would be expected with improved internet access and quality. Duration of the negative impact is unknown, as other broadband projects, including the NRBN, and new technologies may satisfy the need for increased broadband service in the 10 villages in the next 5-10 years. Impacts to other resource conditions would not occur, including no direct increases in greenhouse gas emissions from generators or helicopter operations.

3.6.2.2. *Impacts of Alternative B – Proposed Action*

The 10 villages would receive improved internet access that could benefit residents' quality of life, including their health. The villages would also benefit from the potential for business development or expansion that would be expected with improved internet access and quality. The regional direct and indirect impacts from the installation and maintenance of these sites include increased bandwidth to support telemedicine and distance education needs in the region and increased telecommunication capacity for public safety and other governmental functions. 1 As described in the Subsistence section, impacts would be local and minimal. Greenhouse gas emissions from generators and helicopter operations would contribute to climate change and associated negative impacts on environmental justice populations.

3.7. Issue 5: Subsistence

Analysis in this section will be focused on the following issues identified per Table 1 in Section 1.3.1:

Would the construction and operation of the proposed microwave broadband communications towers **significantly restrict** Federal subsistence uses?

Would the construction and operation of the proposed microwave broadband communications towers **decrease the abundance** of Federal subsistence resources?

Would the construction and operation of the proposed microwave broadband communications towers alter the distribution of subsistence resources and cause a **decrease in the availability** of subsistence resources to Federal subsistence users?

Would the construction and operation of the proposed microwave broadband communications towers **limit Federal subsistence user access** to subsistence resources compared to existing conditions?

3.7.1. Affected Environment

Subsistence in Alaska is the traditional way of life through which residents of rural communities, most of which are majority Alaska Native, secure a significant portion of their food through hunting, trapping, and fishing. While serving as a vital source of food, subsistence is also essential to maintaining the social organizations and traditional beliefs and culture of Native communities. Harvest techniques, cooperative labor, and sharing the harvest all serve to pass skills and traditions to future generation of subsistence users.

The following sections summarize the available land-based subsistence resources and access to land-based subsistence resources for the communities of Kivalina, Kotzebue, Noatak, Noorvik, Selawik, Buckland, Deering, Ambler, Kobuk, Kiana, Shungnak, Bettles and Wiseman within the affected area. Although some communities also rely on fish and marine mammals, these harvest practices are unlikely to be affected by the proposed action or alternatives because of the tower locations on land away from marine and inland water environments. Therefore, descriptions of the environment and impacts emphasize land-based hunting activities. It is important to note that the lack of subsistence harvest data and traditional subsistence use areas for some communities is not an indication of a lack of importance. Section 3.7.2 will address the potential for this project to affect the abundance of land-base subsistence resources and whether the project would significantly restrict subsistence uses. See Appendix F for the BLM Section 810 ANILCA Compliance/Clearance Determination of Need.

Subsistence Harvest Practices and Use Areas

Communities within the project area often utilize large portions of the project area to harvest land mammals for subsistence uses. The communities of Kivalina, Kotzebue, Noatak, Noorvik, Selawik, Buckland, Deering, Ambler, Kiana, Kobuk, Shungnak, Bettles and Wiseman are known to utilize large portions of the project area to harvest muskox, moose and caribou. Birds represent a favored subsistence resource, including geese, ducks, ptarmigan, grouse, and snowy owls and waterfowl are an important source of food in the spring and egg gathering (Bering Straits CRSA 2011). Gathering of tundra plants in the summer months included harvests of greens such as Eskimo potato, willow lavender wild celery, and roots. Late summer berry picking of blueberries, cranberries, salmonberries and whortleberries are another source of subsistence foods (Bering Straits CRSA 2011).

Affected Communities:

Kotzebue

The available land-based resources for this community in the vicinity of the proposed tower sites are:

> Access to the available subsistence resources for this community in the vicinity of the proposed tower sites include(s):
>
> Seasonal and subsistence use areas for Kotzebue overlap with the use areas of neighboring communities of Kivalina, Noatak, Kiana, Noorvik, and Buckland (Magdanz et al. 2010). A discussion of the seasonal harvest activities of Kotzebue and specific harvest areas follows.
>
> Most harvest in the winter months consists of land resources including caribou, furbearers and wood gathering. Saffron cod and smelt fishing can occurs in Kotzebue Sound near the community. During January caribou can be found over the ice from Sisualik toward Kobuk Lake and sometimes directly away from the coast toward the southern shore of Kotzebue Sound (Whiting et al. 2011). Arctic foxes and red foxes are hunted along the shore-fast ice. Hunting for caribou and furbearers occurs away from the coast. Marine mammals and marine and terrestrial fishing are important subsistence resources harvested but these harvests are unlikely to be impacted by the proposed project.
>
> Findings of a three-year study conducted by the Native Village of Kotzebue from 2002 to 2004 indicated that estimated total harvested varied from 1,401,325 pounds in 2002, to 892,782 pounds in 2003 and 1,022,847 pounds in 2004 with a total of 227 households surveyed (Whiting 2006). Household harvests averaged 5,031 edible pounds in 2002, 2,996 pounds in 2003, and 3,237 pounds in 2004. Five species accounted for nearly 90 percent of the harvest in the three study years, namely caribou, sheefish, bearded seal, chum salmon and moose as the main harvest species (Whiting 2006). Caribou were the most widely harvested species, since they were taken by 69 percent to 85 percent of the households. More recent data has indicated that levels of harvest in the Kotzebue area are consistent with earlier surveys. The three main harvested species included caribou, sheefish, and bearded seal (Braund 2009, Magdanz et al. 2010) Other major harvested species include chum salmon, moose, spotted seal, and Dolly Varden char. The composition of subsistence harvests in Kotzebue is considered to have remained relatively steady, with caribou, bearded seal, and sheefish among the top harvested species before and after the development and operation of nearby Red Dog Mine. The composition of the subsistence harvests of Kotzebue are similar to comprehensive subsistence harvest information from seven nearby communities (based on 97 surveys) in the Kotzebue Sound area where caribou comprises 30 percent of the subsistence foods harvested (Magdanz et al. 2010).

Kivalina

The available land-based resources for this community in the vicinity of the proposed tower sites are:

Access to the available subsistence resources for this community in the vicinity of the proposed tower sites include(s):

Subsistence harvest areas for Kivalina overlap with those of Noatak and include resources from both land and marine environments along the Wuluk River for the harvest of salmon, whitefish, Caribou, moose, waterfowl, berries and plants (Magdanz et al. 2010).

Kivalina's estimated total harvest of wild foods in 2007 was 256,088 pounds, while average harvests were 3162 pounds per household and 595 pounds per person. Although Kivalina's population has more than doubled in the past 50 years, estimates of total community subsistence harvest has been stable, ranging between an estimated 210,589 pounds in 1982 and an estimated 269,497 pounds in 1965 (Magdanz et al 2010). Subsistence species harvested in Kivalina include salmon, Dolly Varden, caribou and moose, ptarmigan, ducks, geese and snowy owls as well as seals, beluga whales and walrus in marine environments. Wild plant harvest includes greens, roots, salmonberries, blueberries, crowberries, lingon berries and low bush cranberries (Magdanz et al. 2010).

Noatak

The available land-based resources for this community in the vicinity of the proposed tower sites are:

Access to the available subsistence resources for this community in the vicinity of the proposed tower sites include(s):

Subsistence use areas for Noatak concentrate along the Noatak River from the delta to the confluence with the Anisak River. Subsistence resources harvested include salmon, Dolly Varden, caribou, moose, furbearers, waterfowl, eggs, and plants (Magdanz et al. 2010).

In Noatak, an estimated total harvest of wild foods was 191,589 pounds in 2007, with average harvest per household of 1,610 pounds and average harvest per person of 364 pounds (Magdanz et al 2010). Thirteen species account for 95% of the total subsistence harvest. Caribou contributed the most at 32% of the total community harvest of edible pounds, followed by Dolly Varden (18%), chum salmon (13%), bearded seal (13%), Whitefish (7%), beluga whale (3%), moose (3%), blueberries (3%), cloudberries (1%), walrus (1%) and coho salmon, Canada geese and sheefish each contributed less than 1% (Magdanz et al. 2010).

Noorvik

The available land-based resources for this community in the vicinity of the proposed tower sites are:

Access to the available subsistence resources for this community in the vicinity of the proposed tower sites include(s):

Subsistence use areas for Noorvik include the lower delta portions of the Kobuk River watershed and Hotham Inlet, near Kotzebue Sound.

In a 2008–2009 study, Noorvik hunters harvested an estimated 767 caribou, approximately 174 edible pounds of caribou per person. An estimated 25 moose were harvest in that same period. Ninety-four percent of Noorvik households reported uses of caribou in 2008-2009 (Braem 2012).

The composition of the subsistence harvests of Noorvik are similar to comprehensive subsistence harvest information from seven nearby communities in the Kotzebue Sound area where caribou comprises 30 percent of the subsistence foods harvested. Other subsistence resources harvested include salmon, Dolly Varden, caribou, moose, furbearers (beaver, lynx, fox, wolverine), waterfowl, eggs, and plants (Magdanz et al. 2010).

Selawik

The available land-based resources for this community in the vicinity of the proposed tower sites are:

Access to the available subsistence resources for this community in the vicinity of the proposed tower sites include(s):

Seasonal and subsistence use areas used by Selawik households includes the Selawik River watershed, Selawik Lake watershed, Kobuk River delta, and extends west to Candle, between the Kiwalik and Buckland River drainages, and south beyond the Selawik Hills. Caribou hunting in August -October occurs along river corridors (including the Selawik, Kugarak, Tagagawik, and Fish Rivers) and the shoreline of Selawik Lake. During winter and spring, caribou are hunted throughout the Selawik River and Selawik Lake watersheds, as well as toward Candle on the Seward Peninsula, including the Selawik Hills. Moose hunting areas are mostly along river corridors and the shoreline of Selawik Lake (Braem et al. 2013). Berry picking occurs around the Selawik and the Tagagawik Rivers, and gathering greens and firewood occurs north of the community in the Hockley hills (Braem et al. 2013).

Between October 2010 and September 2011, Selawik households harvested an estimated 175,095 pounds of wild foods (by edible weight), an average of 533 pounds per capita (Braem et al 2013). Non-salmon fish, particularly whitefish species, predominated in the harvest, providing more than one half (250,162 pounds) of the total subsistence harvest by

edible weight. Caribou contributed another 92,947 pounds of edible food, or about 20% of the total harvest. Six species, including broad whitefish, caribou, sheefish, northern pike, humpback whitefish and moose, provided 90% of the total subsistence harvest (Braem et al 2013). Beaver, wolf and wolverine, as well as ducks geese, ptarmigan grouse and bird eggs were also harvested.

Buckland

The available land-based resources for this community in the vicinity of the proposed tower sites are:

Access to the available subsistence resources for this community in the vicinity of the proposed tower sites include(s):

Seasonal and subsistence use areas for Buckland overlap with those of nearby Kotzebue (Magdanz et al. 2010). The area of the lower Buckland River and the associated riparian wetlands have been identified as in important resource use area for subsistence activities in the spring and fall when waterfowl are hunted. Sealing and berry picking occurs in this area during the summer months (NWAB 2006). Fishing for chum salmon occurs from the mouth of the Buckland River to the West fork and east into the lower reaches of the Fish River (NWAB 2006). The floodplains of the Buckland River are also considered an important area for moose hunting.

Over two thirds (68.5 percent of Buckland households) participate in the land-based subsistence harvest activities, based on the community baseline study conducted by ADFG Division of Subsistence in 2009 (ADFG 2009). The highest rates of participation are for caribou, at 66 percent of households, followed by small land mammals at 25.7 percent of households. Moose and muskoxen are also harvested, by a smaller percentage of households (Braem et al 2012a). Small land mammal harvest included beaver, red fox, lynx, marten wolf and wolverine.

Deering

The available land-based resources for this community in the vicinity of the proposed tower sites are:

Access to the available subsistence resources for this community in the vicinity of the proposed tower sites include(s):

Subsistence use areas for Deering include coastal marine environments and lands along southern Kotzebue Sound for the harvest of marine mammals, furbearers and caribou.

Caribou from the Western Arctic Caribou herd are an important subsistence resource for the residents of Deering. In 2007-2008, Deering hunters harvested an estimated 182 caribou, approximately 162 edible pounds of caribou per person (Braem 2011). The moose harvest is much lower, and may be shared or traded from other communities, while muskox, and brown bears harvest were much lower with less than 3% of households using these resources. Furbearers harvested including wolves, wolverines, arctic and red foxes and beavers (Braem 2011). Deering residents harvest several species of seal, walrus and beluga whale, with fish and marine mammals comprising about 1/3 of the communities' food harvest (Magdanz et al. 2002).

Ambler

The available land-based resources for this community in the vicinity of the proposed tower sites are:

Access to the available subsistence resources for this community in the vicinity of the proposed tower sites include(s):

Subsistence use areas for Ambler include areas along the Kobuk River between Kiana and Kobuk

And east of the community on the Ambler River and its tributaries and Cross Creek (Braem 2012a).

Caribou are an important subsistence resource for the community of Ambler and for the region. In 2009-1010, ambler hunters harvested an estimated 456 caribou, approximately 260 edible pounds of caribou per person (Braem 2012a). Other subsistence species harvested in Ambler includes moose, black bears, brown bears, wolves, marten red fox, wolverine, beaver and lynx (Braem et al. 2012a)

Kiana

The available land-based resources for this community in the vicinity of the proposed tower sites are:

Access to the available subsistence resources for this community in the vicinity of the proposed tower sites include(s):

Subsistence use areas for Kiana include areas mostly along the Kobuk River between the community and up river to Ambler, and to lesser extent in the delta portions of the Kobuk River watershed (Braem 2012a).

In Kiana in 2006, estimated total harvest of wild foods was 133,553 pounds, with an average harvest per household of 1406 pounds and an average per person harvest of 348 pounds

(Magdanz et al. 2011). Caribou are an important subsistence resource for the community of Kiana and for the region. In 2006, 31% of the total harvest of wild foods was caribou, and the subsistence harvest also included chum salmon (21%), whitefish (17%), Moose (6%), sheefish (5%) and other resources like burbot (3%), Northern Pike (3%), Blueberries (2%), Coho Salmon (2%), Bearded Seal (2%) and plants (8%) (Magdanz et al.2011).

Kobuk

The available land-based resources for this community in the vicinity of the proposed tower sites are:

Access to the available subsistence resources for this community in the vicinity of the proposed tower sites include(s):

Subsistence use areas for Kobuk overlap with the communities of Shugnak and Ambler and include portions of the Kobuk River watershed up-river from the community (Braem 2012a).

Caribou are an important subsistence resource for the community of Kobuk and for the region. In Kobuk, hunters harvested an estimated 210 caribou, 194 pounds per person (Braem 2012a). Other subsistence species harvested in Kobuk include moose, black bears, brown bears, wolves, marten red fox, wolverine, beaver and lynx (Braem et al. 2012a).

Shungnak

The available land-based resources for this community in the vicinity of the proposed tower sites are:

Access to the available subsistence resources for this community in the vicinity of the proposed tower sites include(s):

Subsistence use areas for Shugnak overlap with the communities of Kobuk and Ambler and include portions of the Kobuk River watershed between the river delta and Kobuk (Braem 2012a).

Magdanz et al. (2002) showed that residents of Shungnak harvested an estimated 151,911 pounds of edible wild food in 2002. The average harvests were 2,813 pounds per household and 610 pounds per person. The largest harvest of a single species was caribou. An estimated 403 caribou were harvested, providing 54,864 edible pounds or 36 percent of the total community harvest by weight. Humpback whitefish provided 40,615 pounds (27%), chum salmon 22,858 pounds (15%), sheefish 11,111 pounds (7%), moose 5,696 pounds (4%) and berries 2,374 pounds (2%) of the harvest with extensive cooperation among households (Magdanz et al. 2002).

Bettles

The available land-based resources for this community in the vicinity of the proposed tower sites are:

Access to the available subsistence resources for this community in the vicinity of the proposed tower sites include(s):

Subsistence use areas for Bettles are for fish in the tributaries of the Koyukuk River, moose and caribou in the John River and the Malamute Fork and small mammals and upland game birds in the Alatna and Koyukuk watersheds (Holen et al. 2012). The Lookout Mountain and the Nine Mile Hills area are important for berry picking and plant harvest.

In Bettles, moose, caribou, northern pike, chum salmon, blueberries, lowbush cranberries and firewood are the topmost harvested and used resources (Holen et al. 2012). The total estimated harvest for all subsistence resources during 2011 for Bettles was 2,104 pounds or 175 pounds per person. Moose constitutes the largest portion of the entire subsistence harvest, which totaled 1080 pounds or 90 pounds per person (Holen et al. 2012). Others subsistence resources harvested included northern pike, salmon, wild plants and berries and upland game birds (Holen et al. 2012).

Wiseman

The available land-based resources for this community in the vicinity of the proposed tower sites are:

Access to the available subsistence resources for this community in the vicinity of the proposed tower sites include(s):

Subsistence use areas Wiseman include the Jim River, and Koyukuk River near the Dalton Highway, and Bob Johnson Lake and Chandalar Lake north of the community. Caribou and moose are hunted along the Dalton Highway corridor from Wiseman to Atigun Pass (Holen et al. 2012).

In Wiseman, the average total harvest of all subsistence resources was an estimated 3819 pounds edible weight per household, or 294 pounds per person (Holen et al. 2012). The most common single resource harvested is moose with an estimated 2,160 pounds or 166 pounds per person. Moose, caribou and ptarmigan were the most harvested resources. Other resources harvested included Dall sheep, Arctic grayling, spruce grouse, blueberries, lowbush cranberries and wood (Holen et al. 2012). Small land mammals and furbearers are important to the residents of Wiseman for personal use and as a source of income, and include wolf, wolverine and lynx, as well as marten, arctic fox and snowshoe hare. Fish

subsistence resources from the Yukon River include chum and chinook salmon, Arctic grayling, burbot and whitefish (Holen et al. 2012).

3.7.2. Environmental Impacts

The previous section summarized the available land-based subsistence resources and access to land-based subsistence resources for the communities of Kivalina, Kotzebue, Noatak, Noorvik, Selawik, Buckland, Deering, Ambler, Kobuk, Kiana, Shungnak, Bettles and Wiseman within the affected area.

This section will address the potential for this project to affect the abundance of land-based subsistence resources and whether the project would significantly restrict subsistence uses.

3.7.2.1. *Impacts of Alternative A – No Action Alternative*

The potential for this alternative to effect the abundance, availability and access to land-based subsistence resources includes:

Under the Alternative A, BLM and USFWS would not grant a ROW for the project and no development would occur. Therefore, no direct or indirect impacts to subsistence would occur, and there would be no cumulative impacts to subsistence resources.

3.7.2.2. *Impacts of Alternative B – Proposed Action*

The potential for this alternative to effect the abundance, availability and access to land-based subsistence resources includes:

Under Alternative B construction activities could impact terrestrial mammals such as caribou, moose, black and brown bear and furbearers as well as waterfowl, small game and berries that are important subsistence resources. These resources would be impacted through habitat loss, behavioral disturbance, or injury/mortality from increased human presence, and affect the availability to subsistence resources. The helicopter flight corridors during construction and refueling could result in disturbance impacts from noise, affecting subsistence use patterns. Helicopter noise impacts would be temporary during construction but occur at regular intervals during refueling of the tower sites, and affect seabirds, shorebirds, waterfowl and caribou, moose, muskox, and furbearers depending on the location of the tower. Impacts would be long-term in duration and of low intensity (without a major alteration to subsistence resource availability) and local in extent. All of the proposed tower sites in this action and the proposed additional sites on state and private lands are within the range of the Western Arctic Caribou Herd (Joly and Cameron 2022). Caribou are a vitally important subsistence resource for all of the communities in the region. The WAH is generally in the region of the tower locations in fall, winter and spring, and on calving and summer range in June-August. Activity and noise associated with construction, refueling and on-site generators to power the communication sites

may cause migrating caribou to avoid the sites. These impacts would be of low intensity and localized and may cause caribou to avoid the areas immediately around the tower sites, but likely would not cause an impact to the availability of caribou to subsistence hunters when the herd is in the area in fall, winter and early spring.

When the microwave towers at sites OTZ 2, 9, 10, 11, 17, 19, 21, and 33 are operational there is likelihood that helicopter noise may impact the areas adjacent to these tower sites and along the helicopter flight paths used for refueling and maintenance. This disturbance would be limited to the yet to be determined number of days of helicopter flights required for refueling and maintenance (6-14 trips per year per site) for these eight repeater sites.

Presence of towers and associated infrastructure would result in loss of access to approximately .56 acres per site for subsistence uses. Tower sites on FWS managed lands would be reclassified from Minimal Management to Moderate Management under the 2011 CCP.

The areas around the Tower locations would likely be accessed by subsistence users using boats along waterways in summer (June thru September), or by snow machine in winter when enough snow cover allows for travel overland (November thru April). As a required design features measure, helicopter-supported refueling could occur during summer months to minimize impacts on fall hunting and gathering activities. This would also reduce impacts to subsistence users during the late spring and late summer and fall periods.

When the tower sites are deemed no longer functional, each site would be dismantled and removed, and the area returned to its natural state. When facilities are removed, the disturbance from removal activities and helicopters would be similar to that of the construction period. As a result, direct and indirect impacts from the dismantling operations would be of low intensity with impacts to subsistence resources occurring for a season and be localized and limited to the areas surrounding the repeater sites. The impacts would be temporary in duration lasting the length of the dismantling activity and affect resources that are locally available for subsistence harvest.

With regard to increased competition for subsistence resources, the scale of the proposed project would be such that a small workforce, including local hires as much as possible, would be expected to complete construction during a single season. This project would not be expected to bring a new permanent workforce to the region. For these reasons, the proposed project would not be expected to increase competition for subsistence resources in the project area.

3.7.2.3. ***Cumulative Impacts***

Past and present actions that have affected subsistence resources in the project area include recreational hunting, subsistence activities, and mining. The region has and may continue to experience some industrial growth (mining), although most future projects would be considered speculative due to a lack of secured funding. Recreational and visitor growth has also been on a recent upward trend, and some non-industrial capital projects are expected to occur in the near

future. Introducing and/or upgrading broadband communications in the area could lead to a rise in economic activity.

Reasonably foreseeable future actions in the project vicinity are described in Section 3.2.1. A planned four-year project will install more than 680 miles of submarine fiber-optic cable from Kotzebue to all 10 villages in the NANA region and install 33 feet tall towers in each village to provide wireless internet services to tribal homes, schools, and clinics.

Climate change may also be a factor causing changes to the population of marine and terrestrial mammals in the region that are important subsistence resources.

Alternative B would have a minor contribution to cumulative impacts to subsistence harvest and resources mammals as the effects would be generally low magnitude and localized in extent.

The existing communications sites associated with the permitted GCI microwave communication system in the region are within the same general corridor as the towers proposed for this project. Both systems will require refueling flights twice annually and could result in a cumulative amount of helicopter traffic and noise in the area that may result in increasing impacts to the subsistence resources described for this proposed project.

3.7.2.4. *Required Design Features*

Section 2.2.5 contains measures the applicant already committed to as part of their plan of development. These would be issued as BLM/FWS Stipulations with the potential future authorization. Required design features related to subsistence are located in Appendix A. Measures to reduce or avoid adverse effects that are included as design features in the proposed action or alternatives are inherently addressed in the analysis of that alternative and generally do not necessitate a specific analysis.

3.8. Issue 6: Cultural Resources

Analysis in this section will be focused on the following issue identified per Table 1 in Section 1.3.1:

> Are there cultural, archaeological, or historic resources that may be impacted due to the construction and operations of the proposed microwave broadband communication towers?

3.8.1. Affected Environment

The project area spans between the traditional territories of the Inupiat and Koyukon peoples. Seven of the eight installation sites proposed on BLM and USFWS lands are within Inupiat traditional territories. One site, OTZ 33, is located within Koyukon traditional territory. For the purpose of this analysis, the scope of the areas examined is one mile from each project location

on BLM or USFWS-managed lands to allow a wide range of flexibility for project site selection and construction. The Alaska Heritage Resource Survey (AHRS) database was examined for this project to locate known cultural, archaeological or historic sites in the six defined project areas. Known cultural resources in this project vicinity include surface features such as rock cairns or hunting blinds, as well as archaeological sites that may be discernable on the surface or completely buried. Archaeological sites in the project area contain prehistoric lithics, bone tools and faunal remains. Inupiat and Koyukon placenames for the individual project areas were consulted for this analysis. This placenames data was assembled by various ethnographic and linguistic researchers and their work has been compiled into an online database (Smith and Kari 2023).

OTZ 2 is within NOA-00042, the Cape Krusenstern Archaeological District National Historic Landmark (AHRS 2023). The OTZ 2 site is approximately one mile northwest of two reported Inupiat placenames for local water bodies (Smith and Kari 2023). OTZ 9 has no reported cultural resources or Inupiat placenames within one mile of the project area.

OTZ 9 has no known archaeological sites located within three miles of the project area (AHRS 2023). OTZ 9 has no reported Inupiat placenames within one mile of the project area (Smith and Kari 2023).

OTZ 10 has no known archaeological sites located within three miles of the project area (AHRS 2023). OTZ 10 has no reported Inupiat placenames within one mile of the project area (Smith and Kari 2023).

OTZ 11 has three reported archaeological sites located within one mile of the project area. The closest site is Clem Mt. #3, or CAN-00031, which is a small, native, stone cache located less than 0.1 miles northeast of the proposed tower. Clem Mt. #2, or CAN-00030, is another native rock cairn located nearby, approximately 0.1 miles to the west of the proposed site. Clem Mt. #1, or CAN-00029, is a larger rock cairn located on the slopes approximately 0.2 miles south of the project (AHRS 2023). There is a single Inupiat placename, specifically, for this rocky hill, which may relate to subsistence use of the landform (Smith and Kari 2023).

OTZ 17 has one known archaeological site located close to the project area. Site SLK-00147 is located approximately one mile east of the project area. SLK-00147 is a prehistoric winter trail between winter villages, and then was improved for use as a mail route by the Alaska Road Commission in the 1920s and 1930s. Part of the trail has been determined *not eligible* for the National Register of Historic Places, but the rest of the trail is unevaluated (AHRS 2023). OTZ 17 has no reported Inupiat placenames within one mile of the project area (Smith and Kari 2023).

OTZ 19 is within the Selawik National Wildlife Refuge and has no reported cultural resources or Inupiat placenames within one mile of the project area. Several public use activities take place on the Selawik refuge that do not fall neatly under either recreation or subsistence. These activities are unique in that they incorporate a cultural or historical component and are engaged in almost solely by local residents. In these ways, they differ from standard recreational activities (such as recreational hunting and fishing or wildlife viewing) in which visitors from around the world participate (USFWS 2011).

OTZ 21 has no reported archaeological resources reported in the AHRS (2023) near this location. However, there are both Inupiat and Koyukon placenames for this hill. The Inupiat name for the location may refer to a subsistence resource, while the Koyukon placename is not clearly definable (Smith and Kari 2023).

OTZ 33 has 15 cultural resources reported in the AHRS (2023) within one mile of the proposed location. Thirteen of these sites are prehistoric surface and subsurface lithic scatters. Only one of these has had a determination of eligibility for the National Register of Historic Places completed; that site was determined eligible for the National Register. WIS-00408 is the Dalton Highway, which has also been determined eligible for the NRHP. WIS-00466 is the Slate Creek to Stevens Village Winter Trail. No Koyukon placenames were noted within a mile of the project area.

3.8.2. Environmental Impacts

Generally, construction projects have the potential to adversely affect buried archaeological resources through soil disturbance and adversely affect surface cultural resources through other construction activities which alter the soil's surface. Alterations to the viewshed and soundscape are also considered adverse affects. Buried archaeological sites may require subsurface testing to locate them. This project area has only been partially investigated by archaeologists previously and may contain sites that have not been previously identified and recorded in the AHRS.

The USDA Rural Utilities Service, as Lead Federal agency for the project as defined in 36 CFR Part 800.2(a) has developed a Programmatic Agreement (PA) for compliance with Section 106 of the National Historic Preservation Act. The PA, *Programmatic Agreement Among the USDA Rural Utilities Service, the Bureau of Land Management, the Alaska State Historic Preservation Officer, and OTZ Telecom Regarding the OTZ Telecom Cooperative Microwave Towers Project, Alaska*, was executed on May 15, 2023. This PA addresses systematically locating currently unknown cultural resources, and potential impacts to both known and unknown cultural resources from the construction of all 29 towers across both State of Alaska, private property, USFWS and BLM-managed lands. The specific identification of affected cultural resources,

evaluation of adverse effects and mitigation will be phased with future construction under the terms of this PA.

Therefore, while all potential impacts from each alternative cannot be fully analyzed as part of this EA's analysis, the PA provides a mechanism to allow for a phased approach to identification of cultural resources and mitigation of potential adverse effects to historic properties.

3.8.2.1. *Impacts of Alternative A – No Action Alternative*

There are no anticipated effects from this Alternative, since there is no new ground disturbance being proposed.

3.8.2.2. *Impacts of Alternative B – Proposed Action*

Alternative B has the most potential to adversely affect reported cultural resources at the eight proposed locations as well as currently unknown cultural resources at all locations. This alternative could impact through soil disturbance or construction activities, three known archaeological sites at OTZ 11, and up to fifteen known archaeological sites near OTZ 33. It could also adversely impact through construction or disturbance of places of cultural importance relating to Inupiat and Koyukon placenames or traditional landuse. Additionally, adverse impacts may also come from alterations to viewsheds or soundscapes. Construction and soil disturbance could also adversely affect any undiscovered archaeological sites at any of the six proposed sites. It would have the same potential to affect currently unknown cultural resources within the Cape Krusenstern Archaeological District, National Historic Landmark near OTZ 2 or at OTZ 9.

3.8.2.3. *Cumulative Impacts*

Implementation of Alternative B would increase cumulative impacts to cultural resources in the region. There are currently a few past, present, or reasonably foreseeable Undertakings in the area. These include the GCI TERRA project, and the Ambler Road project, which both overlap the project area, and both have had adverse effects to cultural resources. While there would be cumulative impacts to cultural resources, the PA completed for NHPA compliance would mitigate those effects (see below).

3.8.2.4. *Required Design Features*

The USDA Rural Utilities Service is the "Lead Federal Agency" for the purposes of NHPA Section 106 compliance for this project and has consulted with the BLM, USFWS, and the Alaska State Historic Preservation Office, as well as Federally Recognized Tribes and ANCSA Corporations in the development of a Programmatic Agreement (PA), regarding the OTZ Telecom Cooperative Microwave Towers Project. The BLM and the USFWS are signatories to the PA, which was signed and executed on 5/15/2023. The PA provides for mitigation of adverse

effects to historic properties. If the terms of the PA and ROPs from applicable RMPs are followed, no additional mitigation for cultural resources is necessary.

3.9. Issue 7: Soils

Analysis in this section will be focused on the following issues identified per the table 1 in Section 1.3.1:

Would the construction of the proposed microwave broadband communication towers result in direct loss of soil or soil erosion and runoff?

Would soils underlain by permafrost be disturbed during construction or operation of the proposed microwave broadband communication towers?

3.9.1. Affected Environment

Permafrost soils are expected to be encountered at OTZ 9 and OTZ 19 since these two sites are classified as tussock tundra vegetation types. Permafrost soil is usually found at this type of vegetation community. It is also likely that permafrost occurs at OTZ 33 and OTZ 10; however, geotechnical surveys are needed to determine site specific soil characteristics for all sites. It is possible for permafrost to be encountered at any of the proposed project sites.

Climate change-driven impacts are accelerating throughout Alaska affecting landscapes, wildlife, habitat, and human activities on millions of acres of federally protected public lands. Mass wasting events, including thermokarst, will become more frequent as permafrost warms and thaws (Huntington et. al., 2023).

3.9.2. Environmental Impacts

3.9.2.1. *Impacts of Alternative A – No Action Alternative*

Under Alternative A, no communication towers would be built or installed, resulting in no direct or indirect impacts to soil resources, disturbances to permafrost, and loss of soil, soil erosion and runoff. Rapid warming in the Arctic would continue to pose a significant threat to underlying permafrost and it is expected that mass wasting events due to permafrost warming and thawing will increase in the project area in the future. With no direct or indirect impacts under Alternative A, there would be no contribution to cumulative impacts to soil resources.

3.9.2.2. *Impacts of Alternative B – Proposed Action*

Implementation of the proposed action would disturb a total of approximately 0.56 acres of shallow subsurface soil at each of the eight tower sites. 0.37 acres would be affected by project excavation and installation of facilities, and 0.19 acres affected by the temporary camp and construction area. Direct impacts on soils as a result of the proposed action would be of high intensity in a small, localized area and would include excavation, grading, and compaction, and direct loss of soil cover

by exposure in the area of the new facilities, and exposure of soils to localized runoff and erosion. Loss of soil, soil erosion, and runoff could all result from the proposed actions. Without site specific information detailing the characteristics of the soils underlaying the proposed project site, it is not possible to qualify the potential for loss of soil, soil erosion, or run-off.

Permafrost soils are expected to be encountered at OTZ 9 and OTZ 19. It is likely that permafrost soils occur at OTZ 33. It is possible that permafrost soils could occur at OTZ 10. Installation of the tower structures would result in permanent damage to 0.37 acres of permafrost at each tower site. Long-term disturbance of permafrost is expected in the temporary camp and construction areas that occur over permafrost (0.19 acres per site). Recovery after vegetation removal and exposure of permafrost soils is expected to take 10-20 years, depending on the severity of the disturbance (Vavrek et al. 1999, Chapin & Chapin, 1980). There is also potential for thermokarst to occur in any of the locations where permafrost soils are exposed or damaged. If a thermokarst event occurs, recovery of permafrost is extremely slow without restoration efforts (Jones et al., 2017). It is possible that permafrost soils may never recover, and the area may experience a permanent change in vegetation community type.

3.9.2.3. *Cumulative Impacts*

Each of the OTZ network towers proposed to be constructed are expected to have similar impacts as past installed communications towers. Cumulatively, each tower constructed would have a discrete impact to soils that could be summed for all the towers. The activities of this proposed action, as well as other reasonably foreseeable actions, do not present an exponential impact to soils given the small scale of these activities and the ability for areas to recover from initial installation construction. The cumulative impact of the proposed action is an additional 11.2 acres of disturbance to soil (of towers on federal lands and the connected action of non-federal towers) to the existing 15.02 acres of permanent disturbance caused by communication towers in the NWAB region.

3.9.2.4. *Required Design Features*

Section 2.2.5 contains measures that the applicant already committed to as part of their plan of development. None of these measures address the project elements that impact soil erosion or permafrost degradation. The following required design features are captured here and in Appendix A, Section 11 to These would be issued as BLM Stipulations with the potential future authorization. Section 2.2.5 contains measures the applicant already committed to as part of their plan of development. These would be issued as BLM/FWS Stipulations with the potential future authorization. Required design features related to soils are located in Appendix A would reduce or eliminate adverse impacts to soils. Measures to reduce or avoid adverse effects that are included as design features in the proposed action or alternatives are inherently addressed in the analysis of that alternative and generally do not necessitate a specific analysis.

Required operating procedures listed in Section II. Management Decisions, B. Air Quality, Soil, and Water Resources and Q. Vegetation and Special Status Species in the Kobuk Seward Peninsula Resource Management Plan would help reduce the potential for erosion and damage to permafrost. It is advised for project sites to be limited to flat areas of land so as to minimize additional or excessive soil erosion during construction.

3.10. Issue 8: Hazardous Materials

Analysis in this section will be focused on the following issues identified per the table 1 in Section 1.3.1:

> Would the construction, refueling, and operation of the proposed microwave broadband communication towers pose a risk for contamination at the sites?

3.10.1. Affected Environment

Items such as batteries, gasoline, and diesel fuel need to be properly managed in both their use and disposal. Though not common in remote areas, these items are used in project area communities and are also found occasionally in campsites, emergency response camps and equipment, or recreation vehicles (snowmachines). The area is remote and encountering existing hazardous materials during construction is not likely. Each of the repeaters on BLM-managed lands would require the use of solar panels, batteries, and LP for continued operations. Biannual refueling operations at each of the remote repeater sites would involve helicopter transportation of up to 6,000 gallons of LP in an estimated 6-14 trips (500-1000 gallons per trip) over a period of 1 day. To address the risk of hazardous releases, extensive prevention elements are included in the project's construction, operation, and facilities design. For each repeater site, the LP tanks and piping are designed with audible release detection and containment features aimed at preventing and minimizing the release of hazardous materials into the surrounding environment. Spill response materials would be stored on site.

3.10.1.1. *Impacts of Alternative A – No Action Alternative*

Under Alternative A, no communication towers would be built or installed; thus, there would be no direct or indirect impacts to environmental resources from potential releases of hazardous materials. There would be no risk for contamination. With no direct or indirect impacts under Alternative A there would be no contribution to cumulative impacts from potential releases of hazardous materials.

3.10.1.2. *Impacts of Alternative B – Proposed Action*

Under Alternative B, the proposed action for the OTZ Microwave Tower Broadband Project would include six tower sites on BLM land and two on USFWS lands in the Selawik NWR.

Items such as batteries, gasoline, and diesel fuel need to be properly managed in both their use and disposal. Though not common in remote areas, these items are used in project area communities and are also found occasionally in campsites, emergency response camps and equipment, or recreation vehicles (snowmachines). The area is remote and encountering existing hazardous materials during construction is not likely (URS 2015). The hazardous materials and facilities that would be employed in implementation of the OTZ Microwave Tower Broadband Projects are described in Section 2.2. Once built, these repeater sites would be un-manned and resupply would occur twice per year under normal planned operations.

Each of the repeaters on BLM-managed lands would require the use of solar panels, batteries, and LP for continued operations. Biannual refueling operations at each of the remote repeater sites would involve helicopter transportation of up to 6,000 gallons of LP in an estimated 6-14 trips (500-1000 gallons per trip) over a period of 1 day (Narus 2022). To address the risk of hazardous releases, extensive prevention elements are included in the project's construction, operation, and facilities design. For each repeater site, the LP tanks and piping are designed with audible release detection and containment features aimed at preventing and minimizing the release of hazardous materials into the surrounding environment. Spill response materials would be stored on site.

During construction and operations, LP fuel and other hazardous materials would be transported to the microwave repeater sites using helicopters (Section 2.2). Unforeseen helicopter accidents during the construction and operations phases would result in hazardous material releases to the environment. Jettisoned LP tanks would likely cause one of two effects upon striking the ground. The tank could explode upon impact causing thermal destruction to the area surrounding the blast zone. Alternatively, if the tank ruptures but does not explode the zone around the impact would experience immediate -44 F temperatures. When the tower sites are deemed no longer functional, each site would be dismantled and removed, and the area returned to its natural state. When facilities are removed, the disturbance from removal activities and helicopters would be similar to that of the construction period. As a result, direct and indirect impacts from the dismantling operations would be of low intensity with impacts to subsistence resources occurring for a season and be localized and limited to the areas surrounding the repeater sites. The impacts would be temporary in duration lasting only the length of the dismantling activity.

3.10.1.3. ***Cumulative Impacts***

Past and present actions that have affected hazardous materials impacts in the project area include mechanized travel and mining. The region has and may continue to experience some industrial growth (mining), although most future projects would be considered speculative due to a lack of secured funding. Recreational and visitor growth has also been on a recent upward trend, and some non-industrial capital projects are expected to occur in the near future. Introducing and/or upgrading broadband communications in the area could lead to a rise in economic activity.

Reasonably foreseeable future actions in the project vicinity are described in Section 3.2.1. A planned four-year project will install more than 680 miles of submarine fiber-optic cable from Kotzebue to all 10 villages in the NANA region and install 33 feet tall towers in each village to provide wireless internet services to tribal homes, schools and clinics.

Alternative B would have a minor contribution to hazardous material cumulative impacts to the area.

The existing communications sites associated with the permitted GCI microwave communication system in the region are within the same general corridor as the towers proposed for this project. Both systems will require refueling flights twice annually and could result in a cumulative amount of helicopter traffic and noise in the area that may result in increasing the hazardous material impacts described for this proposed project.

3.10.1.4. *Required Design Features*

Section 2.2.5 contains measures the applicant already committed to as part of their plan of development. These would be issued as BLM/FWS Stipulations with the potential future authorization. Required design features related to hazardous materials are located in Appendix A. Measures to reduce or avoid adverse effects that are included as design features in the proposed action or alternatives are inherently addressed in the analysis of that alternative and generally do not necessitate a specific analysis. Additionally, the required operating procedures listed in the Kobuk Seward Peninsula Resource Management Plan will help reduce the potential for contamination and damage to permafrost.

3.11. Issue 9: Visual Resources - USFWS Only

Analysis in this section will be focused on the following issues identified per the table 1 in Section 1.3.1:

> Would the construction, presence, and maintenance of the microwave broadband repeater towers effect the viewshed for Selawik Refuge users?

3.11.1. Affected Environment

Viewsheds from Selawik Refuge are predominantly natural in appearance, with little human development in or very near to Refuge lands. Most structures encountered by refuge users are small subsistence use cabins located on water bodies in the lower Selawik and Kobuk River watersheds, in the western portion of the refuge. Outside of river corridors, the viewshed is predominantly free of structures or artificial lights. The most highly used areas outside of river corridors are along the snowmobile trail system that connects villages within the region.

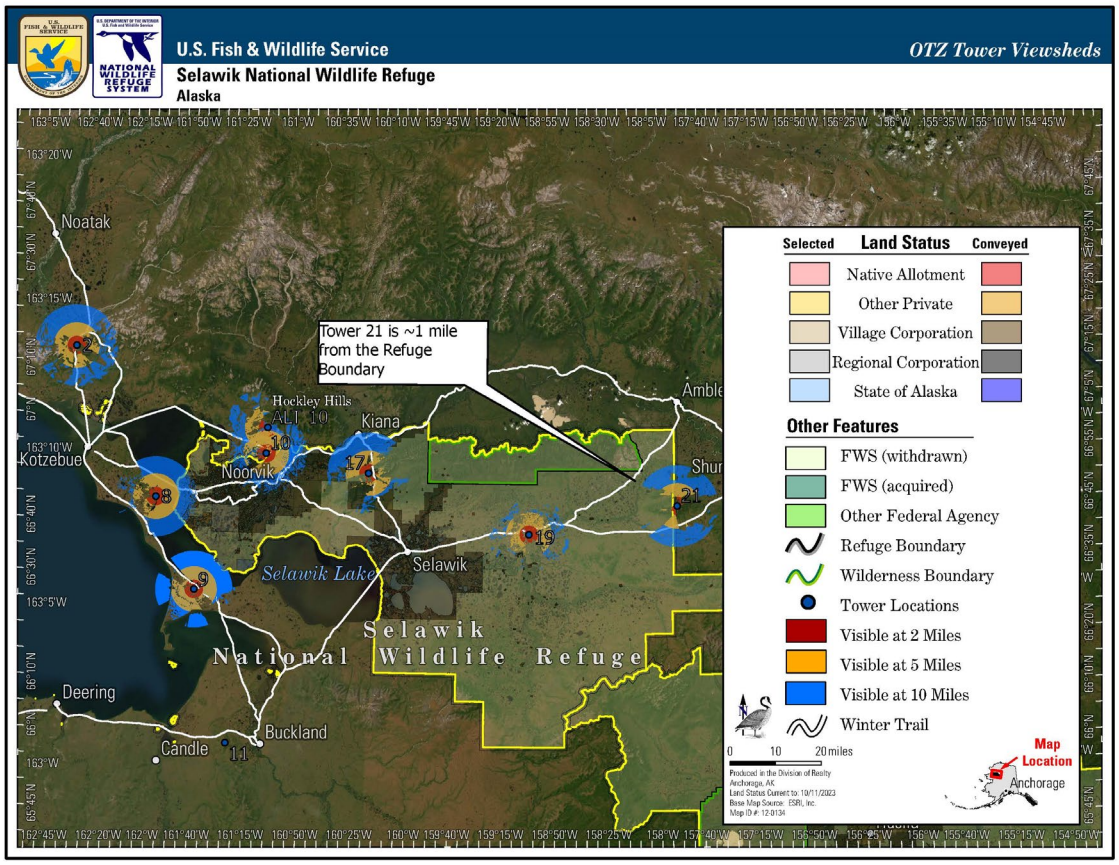
Visual resources within Selawik Refuge are managed under the terms of the 2011 Selawik Revised Comprehensive Conservation Plan (CCP), which addresses section 304(g) of ANILCA. The CCP identifies the basic stewardship responsibility to protect the quality of the visual environment and prevent deterioration of the visual environment (USFWS 2011). The Revised Selawik Refuge CCP states "The Refuge will identify and maintain the scenic values of the Refuge and will, within the constraints imposed by the conservation plan, minimize the visual impacts of development and use of the Refuge. To accomplish these purposes, all activities and facilities on the Refuge will be designed to blend into the landscape. The Service will cooperate with other federal, state, local, tribal, and private agencies, and organizations to prevent significant deterioration of visual resources."

New infrastructure on the Refuge would introduce visual impacts in areas that are otherwise undeveloped.

3.11.2. Environmental Impacts

The analysis area used to identify potential direct and indirect impacts of the proposed project included all areas located within 10 miles of the project that contain views of the project's towers, referred to as the "Seen Area". The Seen Area is based on views during a clear day and was calculated using a Geographic Information System viewshed analysis tool using a tower height of 60 ft. The three zones (0 to 2 miles or foreground, 2-5 miles or midground, and 5-10 miles or background) were delineated to give the reader a gauge for determining distance to known areas. Areas within 5 miles are most likely to have noticeable views of the towers, although within 10 miles towers may be noticeable by a sensitive viewer. As the viewer moves away from a tower, the tower will become less and less noticeable.

Figure 9: Seen Area for proposed structures within 10 miles of Selawik Refuge.



3.11.2.1. *Impacts of Alternative A – No Action Alternative*

Under Alternative A, no communication towers would be built or installed; thus, there would be no direct or indirect impacts to visual resources of Selawik Refuge.

3.11.2.2. *Impacts of Alternative B – Proposed Action*

Under Alternative B, the proposed action for the OTZ Microwave Tower Broadband Project would include one tower on Selawik NWR lands, and five additional new towers within 10 miles of Selawik NWR lands:

- OTZ 19 would be located in the Selawik Lowlands approximately 1 mile from a snowmobile trail, 2.8 miles from the Tagagawik River, and 4.2 miles from the Selawik River. The Selawik Lowlands is a large basin, characterized by broad river floodplains

and lakes. Permafrost overlain vegetation in the surrounding area is characterized by extensive tussock tundra wetlands containing grass and sedge meadows and thick peat. There is little topographic relief, and the viewshed is undeveloped. Viewshed for winter users on the snowmobile trail would be expected be highly impacted. The midground viewshed of hunters accessing the area via the Tagagawik and Selawik Rivers would be moderately impacted.

Figure 10: Viewscape at proposed site of OTZ 19, July 2023.

- OTZ 8 would be located on BLM lands approximately 4.5 miles west of the Kobuk River Delta area of the refuge. Due to the distance from the refuge, the current existence of structures near (approximately 1 mile north of) the proposed tower site, the current existence of subsistence use cabins in the Kobuk River Delta, and the restricted visibility waterway users experience due to vegetation and bank height, impacts to the viewshed from an unlit tower in the midground or background are expected to be minimal. Refuge users may not notice the tower or perceive it to have negative effects on the viewshed.

- OTZ 9 would be located on BLM lands approximately 7.2 miles southwest of the Kobuk River Delta area of the refuge. Due to the distance from the refuge, refuge users may not notice an unlit tower at the site or perceive it to have negative effects on the viewshed.

- OTZ 10 would be located approximately 5.1 miles north of the Kobuk River Delta area of Selawik Refuge and 4 miles from a snowmobile trail. Frequent use of this area by boaters occurs, though visibility of the tower may be restricted due to vegetation along the banks.

Visual impacts to winter users on the snowmobile trail would be expected. Overall, moderate, longer-term impacts to the viewshed.

- OTZ 17-ALT would be located on Selawik Refuge managed lands, and approximately 1 mile from a snowmobile trail. The site is characterized by mountainous terrain to the north and west. The terrain on the east side of the site is very steep. The terrain is also very steep to the south and west of the site. Visual impacts to winter users on the snowmobile trail would be expected.

  Figure 11: Viewscape at proposed site of OTZ 17-Alt, August 2023.

- OTZ 21 would be located on BLM lands approximately 0.9 miles east of the refuge border and 4 miles from a snowmobile trail. The site is on top of a mountain and may be visible at great distances. The area of the refuge near the tower is relatively far from communities and is not expected to receive high amounts of use, though typically the expectations of users far from communities is to have view free of structures and artificial lights. Viewshed for snowmobile trail users or winter hunters may be moderately impacted by the tower, though frequency of encounters is expected to be low.

Presence of helicopters in the air during construction, maintenance, and refueling operations would also impact the viewshed of refuge users.

Overall, moderate, long-term impacts to the viewshed for Selawik Refuge users are expected from Alternative B.

3.11.2.3. *Required Design Features for USFWS and BLM sites*

Section 2.2.5 contains measures the applicant already committed to as part of their plan of development. These would be issued as BLM/FWS Stipulations with the potential future authorization. Required design features related to visual resources are located in Appendix A. Measures to reduce or avoid adverse effects that are included as design features in the proposed action or alternatives are inherently addressed in the analysis of that alternative and generally do not necessitate a specific analysis.

CHAPTER 4.

4.1.Consultation and Coordination

Section 106.

The USDA prepared a NHPA Section 106 programmatic consultation letter to tribes and tribal related organizations in the Northwest Arctic Borough. A Section 106 Programmatic Agreement was drafted and sent to respective tribes/organizations in May and December of 2022 for review and comment; no comments were received from any of the native villages/corporations regarding the programmatic agreement. The native villages/corporations contacted included: native villages - Altna, Allakaket, Ambler, Buckland, Deering, Evansville, Hughes, Kiana, Kivalina, Kobuk, Kotzebue, Noatak, Noorvik, Selawik, and Shungnak; and native corporations – Kikiktagruk Inupiat, Maniilaq, and NANA Regional. In addition, the mayor for the NW Arctic Borough and the vice president for external and government affairs for NWALT were included in preparation of the programmatic agreement. In May 2023 the programmatic agreement was signed by the signatory parties which included the BLM AK State Director and the USFWS Regional Director, Alaska Region. The implementation of this project will be in accordance with the stipulations (as found in the May 2023 programmatic agreement) in order to take into account the effect of the project on historic properties and to satisfy all NHPA Section 106 responsibilities of the federal agencies for all aspects of the project.

Section 7 ESA.

In March 2023, BLM AFO initiated informal Section 7 Consultation seeking concurrence for a determination of "may affect, but not likely to adversely affect" due to discountable and insignificant effects on the ESA Threatened polar bear (Ursus maritimus), Steller's eider (Polysticta stelleri) and spectacled eider (Somateria fischeri) and a determination of "no adverse modification" to critical habitat for all three species. The Bureau of Land Management (BLM) Anchorage Field Office (AFO) and the U.S. Fish and Wildlife Service (USFWS), Selawik National Wildlife Refuge regarding OTZ Telephone Cooperative, Inc. (OTZ) proposal to install a series of microwave broadband communication towers as part of a project to provide

broadband services for the communities of the Northwest Arctic Borough (NWAB) in northwest Alaska.

On April 19, 2023, FWS (Ecological Services) responded with a letter of concurrence to BLM's evaluation of "may affect, not likely to adversely affect" for all three listed species that may occur in the project area, as well as, offering concurrence on Designated Critical Habitat for polar bear. Preparation of a Biological Assessment or further consultation under section 7 is not necessary currently. No additional mitigation, stipulations, or BMPs were recommended.

4.2.Public Involvement

OTZ's original proposed action was posted on the BLM's National NEPA Register on July 13, 2022 as DOI-BLM-AK-A010-2022-0015-EA. Due to the changes since the original proposal, the BLM canceled this original project and posted the most recent revised project description on April 15, 2024, DOI-BLM-AK-A010-2024-0010-EA. There have been no phone calls or inquiries received by BLM from either NEPA register posting.

This proposed project description has been publicly available since posted on the BLM National NEPA Register on July 13, 2022. No external public scoping was initiated for this project due to the similarities of the project to previous broadband initiatives analyzed by BLM in 2013 (DOI-BLM-AK-A010-2012-0036-EA). The Preliminary EA will be made available for 30-day public review and comment period.

4.3.Tribal Outreach/Consultation

USFWS offered opportunities for Consultation on potential impacts to subsistence opportunities to Tribes and Alaska Native Corporations (ANC) during preparation of ANILCA Section 810 Analysis. Tribes and ANCs contacted included: Native Village of Selawik, Noorvik Native Community, Native Village of Kiana, Native Village of Shungnak, Native Village of Kobuk, Native Village of Buckland and NANA Regional Corporation. Consultation requests were delivered in June 2022 and August 2023. A consultation teleconference for potentially affected Tribes and ANCs was held on January 20, 2023. eNewsletters updating Tribes and ANCs on the permitting process were distributed in April 2023, September 2023, November 2023, and May 2024. Additionally, input on impacts to subsistence was sought at the Northwest Arctic Subsistence Regional Advisory Council meetings in 2022 and 2023 and at the 2022 Western Arctic Caribou Herd Working Group meeting.

In addition, the BLM consulted with NANA Regional Corporation regarding the July 2022 original proposal that included towers that were originally proposed on NANA owned lands. On May 22, 2023, BLM and FWS met with the NANA Corporation regarding the OTZ broadband project. Prior to this meeting NANA submitted a position statement regarding the OTZ project. In the position statement, NANA generally states that NANA is opposed to the OTZ project and that no towers would be permitted to be located on NANA lands. In response, OTZ was forced

to modify the original proposal to remove all towers from NANA lands, resulting in the current proposed action – Alternative B.

In October 2023, BLM issued letters to the aforementioned native villages and corporations inviting them to review and comment on the forthcoming preliminary environmental assessment for the OTZ broadband project. Follow-up letters were issued in December 2023 including the mailing list for the October 2023 letters.

CHAPTER 5.

5.1. List of Preparers

Table 8. List of Preparers.

Name	Title	Area of Responsibility
Brian Bourdon	Realty Specialist	Project Lead
Jamie Rhoades	Assistant Field Manager	Project Lead and NEPA
Jorjena Barringer	Planning and Environmental Coordinator	NEPA Coordinator
Stewart Allen	Socioeconomic Specialist	Environmental Justice
Jenny Blanchard	Archeologist	Cultural and Paleontological Resources
Aliza DuComb	Ecologist	Vegetation, Invasive Species, and Soils
Francis Marley	Environmental Protection Specialist	Hazardous Materials
VJ Maisonet-Montanez	Physical Scientist	Air Quality
Paxton McClurg	Geographer	Maps
Merlyn Schelske	Fish Biologist	Fish, Fish Habitat, and Hydrology
Bruce Seppi	Subsistence Biologist	Subsistence
Scott Justham	Outdoor Recreation Planner	Visual Resources

Name	Title	Area of Responsibility
Stolf Short	Outdoor Recreation Planner	Recreation, Lands with Wilderness Characteristics, & Visual Resources
John Jangala	Archeologist	Cultural and Paleontological Resources
Craig Townsend	Wildlife Biologist	Wildlife
April Dent	Realty Specialist	USFWS – Project Lead
Wilhelm Wiese	Refuge Manager	USFWS – Authorized Officer
Emily Yurcich	Conservation Planner	USFWS – NEPA

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APPENDICES

APPENDIX A: Required Design Features (RDFs)

FWS - SELAWIK REFUGE RDFs

The permittee shall develop and implement a USFWS approved abandonment and reclamation plan. The plan would describe short-term stability, visual, hydrological, and productivity objectives and steps to be taken to ensure timely ecosystem restoration to the land's previous hydrological, vegetation, and habitat condition, and intent to restore general wilderness characteristics of the area as applicable. The USFWS Authorized Officer may grant exceptions to satisfy stated environmental or public purposes. Reclamation shall include but not be limited to:

- Saving and properly maintaining topsoil to ensure seed source remains viable of topsoil for final application after reshaping of disturbed areas have been completed; Adequate and approved measures to control erosion, landslides, and water runoff; Adequate and approved measures to isolate, remove, or control toxic materials, including soil testing where applicable; Reshaping the area disturbed, application of viable topsoil, and revegetation of disturbed areas using native plantings from the immediate adjacent area, where reasonably practicable; and Rehabilitation of fisheries and wildlife habitat.

BLM RDFs

Vegetation

- To reduce impacts to native plant communities due to invasive species introduction and spread, adherence to the BLM Alaska Invasive Plant Prevention and Management Policy (AK-IM-FY2022-008) shall be required – see Appendix C.

- To mitigate impacts to BLM sensitive plant species, the following Kobuk Seward Peninsula Resource Management Plan, Required Operating Procedures (ROPs) shall be required: SS-1e: "*Where populations or individual sensitive status plant species are located, take measures to protect these populations or individuals through site-specific buffers or management prescriptions*."

- A survey for BLM sensitive plants found a population at OTZ 21, therefore a site-specific buffer of 30 feet between plant locations and all project activities would be included in the ROW stipulations. The tower location would need to be shifted in order to avoid directly impacting a BLM sensitive plant species. A qualified botanical specialist would be required to guide the on-the-ground site selection before construction begins.

- OTZ 10-ALT has not been surveyed for sensitive plant species. If that survey reveals any populations of sensitive plant species, a 30-foot setback around those plant individuals

would be implemented. Additionally, if tower locations for previously sampled site are adjusted by more than 100 meters, another vegetation survey for BLM sensitive species should be conducted.

Subsistence and Wildlife

- Whenever possible, operations that require vegetation removal will avoid the migratory bird-nesting period of May 1 to July 15 (Area specific dates: **May 20-July 20 for Seward Pen**; June 1-July 31 for Northern region; and May 1-July 15 for Interior) to avoid take. If no feasible alternatives exist, assessment will be conducted to determine bird species present, significance of potential impacts, and possible mitigation measures (FWS Advisory: Recommended Time Periods for Avoiding Vegetation Clearing in Alaska to Protect Migratory Birds. September 2005). (KSP, ROPFW-3b)

- To prevent disturbing ground nesting birds, the operator would survey the site for nesting at the construction sites prior to vegetation clearing or ground disturbance. (DOI-BLM-AK-A010-2012-0036-EA, Pg 2-23)

- Applicant will comply with requirements outlined in the Bald and Golden Eagle Protection Act as amended. To avoid impacts to subsistence hunting and wildlife disturbance; during the operations period of the project, helicopter flights for refueling the microwave repeater sites will be limited to a period outside of the intensive hunting, fishing, and recreation activities – estimated at September through October. (DOI-BLM-AK-A010-2012-0036-EA, Pg 2-23). The seasonal window for helicopter-supported refueling (avoiding the period of intensive hunting, fishing, and recreation activities) will reduce the impacts.

- During construction, food would be stored in 55-gallon drums. All camp and construction waste would be contained in drums or large, commercial trash bags and would be removed from the site periodically. The trash bags would be used for dry garbage (plastic, wood pieces, etc.) and would be secured from the wind with cargo nets while awaiting transport. These measures would deter wildlife such as bears from accessing garbage or food at the proposed tower sites, although attraction may still occur, and would also minimize dangerous interactions or ingestion that could injure or kill wildlife. (DOI-BLM-AK-A010-2012-0036-EA, Pg 2-23)

- Lights used during construction or operational maintenance would be downturned to avoid light pollution impacting birds. (DOI-BLM-AK-A010-2012-0036-EA, Pg 2-24)

- Bird mortality surveys will be conducted during each refueling and maintenance visit to every tower site and results recorded on site report forms. If any bird mortalities are found, the USFWS would be notified. (DOI-BLM-AK-A010-2012-0036-EA, Pg 2-24)

- To avoid impacts to the WACH, prior to September 30 of each year during the term of this lease, a Plan of Operations for Annual Operations for construction, maintenance, refueling, and other planned visits to the facilities will be submitted to the Authorized Officer for approval.

- Refueling flights should maintain an altitude of 1500 feet above ground level when flying to communications sites whenever possible to prevent impacts to caribou, moose and muskox and access and availability of these resources to subsistence users.

- Refueling flight operations should avoid the spring (March-May) and fall (September-November) periods when subsistence hunts occur or when Western Arctic Herd caribou are migrating through the area if feasible.

- Site construction should not occur during periods when subsistence hunts occur in close proximity to the site.

- Birds Nesting on Towers: If birds are nesting on communication towers that require maintenance activities, contact the state natural resource protection agency and/or the USFWS for permits, recommendations, and requirements.

Soils

- Kobuk Seward Peninsula RMP ROP Soils-1a: All topsoil will be saved in a separate area from overburden for future use.

- Kobuk Seward Peninsula RMP ROP Soils-1b: All overburden will be stockpiled and saved for respreading over tailings.

- Kobuk Seward Peninsula RMP ROP Soils-1c: All overburden piles will be shaped and stabilized to prevent erosion.

- Kobuk Seward Peninsula RMP ROP Soils-1d: Final shape of respread tailing and overburden will approximate the shape of the surrounding terrain.

- Kobuk Seward Peninsula RMP ROP Soils 1-f: Roads, well pads, and other disturbed areas will be recontoured and revegetated as per an approved reclamation plan or Plan of Operations. Revegetation will occur through seeding of native seed or by providing for soil conditions that allow the site to re-vegetate naturally, whichever provides the most effective means of reestablishing ground cover and minimizing erosion. The final land surface will be scarified to provide seed traps and erosion control.

- Kobuk Seward Peninsula RMP ROP Soils 1-g: Surface disturbing proposals involving construction on slopes greater than 25% will include an approved erosion control

strategy, topsoil segregation/restoration plan, be properly surveyed and designed by a certified engineer and approved by the BLM prior to construction and maintenance.

Hazardous Materials

- Areas of operation will be cleaned of unnecessary debris.
- All feasible precautions will be taken to avoid attracting wildlife to food and garbage.
- All solid waste will be disposed of in an approved waste disposal facility in accordance with United States Environmental Protection Agency (USEPA) and Alaska Department of Environmental Conservation (ADEC) regulations and procedures.
- Fuel storage will be greater than 100 feet from any river, lake, stream, or wetland.
- All fuel containers, including tanks and drums will be labeled with the responsible party's name, product type, and date filled.
- All waste generated during operation, maintenance, and termination activities shall be removed or otherwise disposed of as required by state and federal law. In this case the wastes must be disposed of at an ADEC approved landfill site. (Waste means all discarded matter including, but not limited to human waste, trash, oil drums, petroleum products, batteries, ash, and discarded equipment).
- Drip pans must be used under stored equipment and absorbent pads must be onsite to contain any clean up any spills.
- All fuel or hazardous substance releases will be cleaned up immediately, taking precedence over all other matters, except the health and safety of personnel. Spills will be cleaned up utilizing absorbent pads or other ADEC approved methods. Any spill locations will be documented and clearly marked so the locations can be easily located during compliance inspections.
- The release of a hazardous substance must be reported as soon as a person has knowledge as defined in Alaska Statute Title 18, Chapter 75, Article 2. Reporting will be to the Authorized Officer (AO) and any other State and Federal Officials as required by law.
- All State and Federal safety standards and regulations for fuel transportation and handling will be followed. Only fuel products and amounts specifically authorized shall be stored onsite within secondary containment having a minimum of 110% volume capacity.
- Petroleum products or by-products shall not be used for dust suppression.

- Upon completion, areas of operation shall be left clean of all unauthorized foreign objects. This shall include, but is not limited to solid waste, wires, pins, flags, and reflectors.

RDFs – SAME FOR BLM AND FWS-SELAWIK REFUGE

Wildlife

- OTZ will comply with requirements of ESA as per Section 7 Consultation.

- Within the breeding range of Kittlitz's murrelet, habitat in the project area will be assessed to determine if murrelet's are likely to use the area for nesting. If nests are found, minimize ground-level disturbance and activity within identified areas of suitable habitat during June–August. (KSP, ROP SS-1c)

- Where practical, use will be redirected, as necessary, to protect Federal and State listed and candidate Threatened and Endangered species habitat, to enhance indigenous animal population, and to otherwise maintain public land health through avoidance of sensitive habitat. (KSP, ROP SS-1d)

- To reduce the possibility of spectacled and/or Steller's eiders from striking aboveground utility lines (power and communication), such lines will either be buried in access roads, or suspended on vertical support members, to the extend practical. Support wires associated with communication towers, radio antennas, and other similar facilities, will be clearly marked along their entire length to improve visibility for low flying birds. Such markings will be jointly developed through consultation with FWS. (KSP, ROP SS-2a)

- Should yellow-billed loons be present, the design and location of facilities must be such that disturbance is minimized. The default, standard mitigation is a 1-mile buffer around all recorded nest sites and a minimum 1,625-foot buffer around the remainder of the shoreline. Development would be prohibited within buffers. (KSP, ROP SS-2c)

- The best available technology will be used to prevent permanent facilities from providing nesting, denning, or shelter sites for ravens, raptors, and foxes in areas where ground nesting populations are sensitive to increased predation. (KSP, ROP FW-1a)

VRM

- Towers and associated structures (including fuel tanks) at the remote repeater sites would remain un-lit, except when personnel are present at the site for construction, maintenance, or refueling operations, or during emergencies (including during missing-person search and rescue operations initiated by state, borough, or local authorities).

- Towers and associated structures (including fuel tanks) at the remote repeater sites would be finished (painted) to blend with landscape character elements. The finish would be matte, nonreflective or light absorbing to reduce reflection. Antenna covers would also use a non-reflective color scheme. Landforms would not be modified, and vegetation removal would be minimal at each site.

APPENDIX B: Wildlife Species Information

5.2.1. Western Arctic Caribou Herd (WACH)

Caribou have played a fundamental role in the ecology of northwest Alaska for millennia and have been an integral part of the social and spiritual fabric of Alaska Native life for more than 10,000 years (Anderson 1968). The largest caribou herd in this region is the Western Arctic Herd, which occupies 157,000 square miles of northwest Alaska WACH Management Plan, 2020). The Western Arctic Herd has used the Utukok Uplands, situated between the Brooks Range and the Arctic Coastal Plain, for calving for more than 100 years (Horejsi, 1981). In recent years the Western Arctic Herd's movements, particularly in the fall, have changed from the previously familiar patterns; in which, the number of caribou not migrating south of the Kobuk River for wintering has increased (WACH Management Plan, 2020).

Caribou are known for large population swings (oscillations), and the Western Arctic Caribou Herd is certainly not an exception. Since at least 1850, the Western Arctic Caribou Herd has displayed large and quite rapid changes in population size, shown in Figure Y (WACH Cooperative Management Plan. 2020). The annual and winters distributions of the WACH are currently at the lowest recorded, and contributing factors are still not completely known (Joly & Cameron, 2022). The current population estimate of 164,000 is a third of the highest recorded population estimate of approximately 490,000 (Joly & Cameron, 2022).

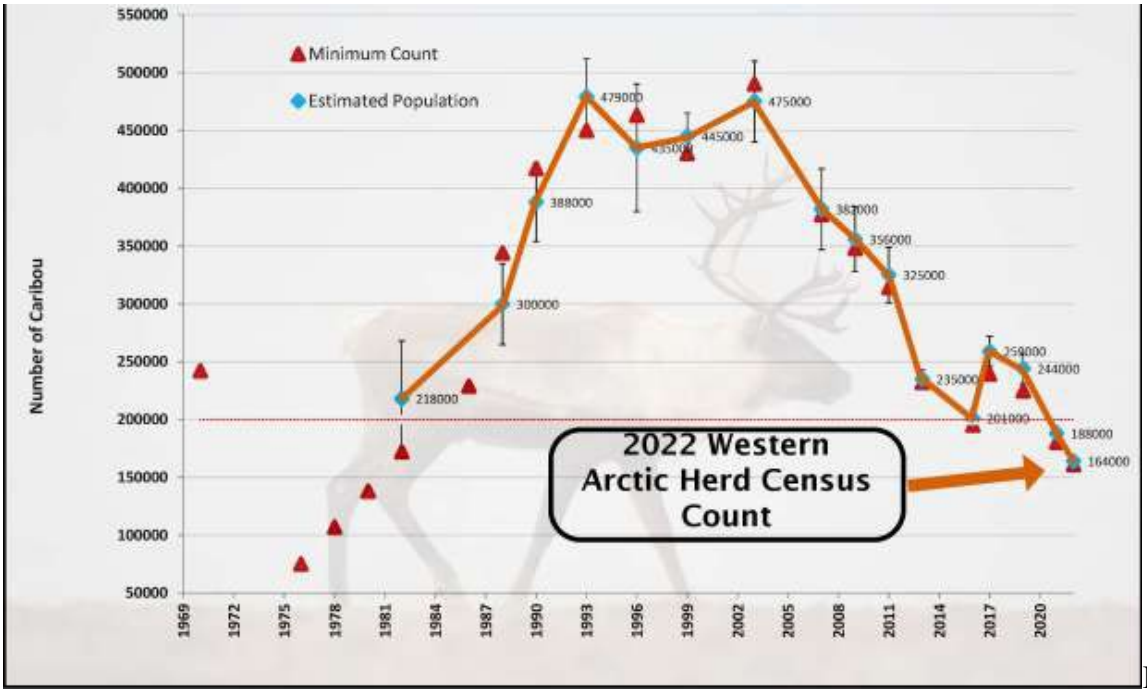

Figure 1: Western Arctic Caribou Herd Population Estimates (Western Arctic Caribou Herd Working Group Meeting, 2023)

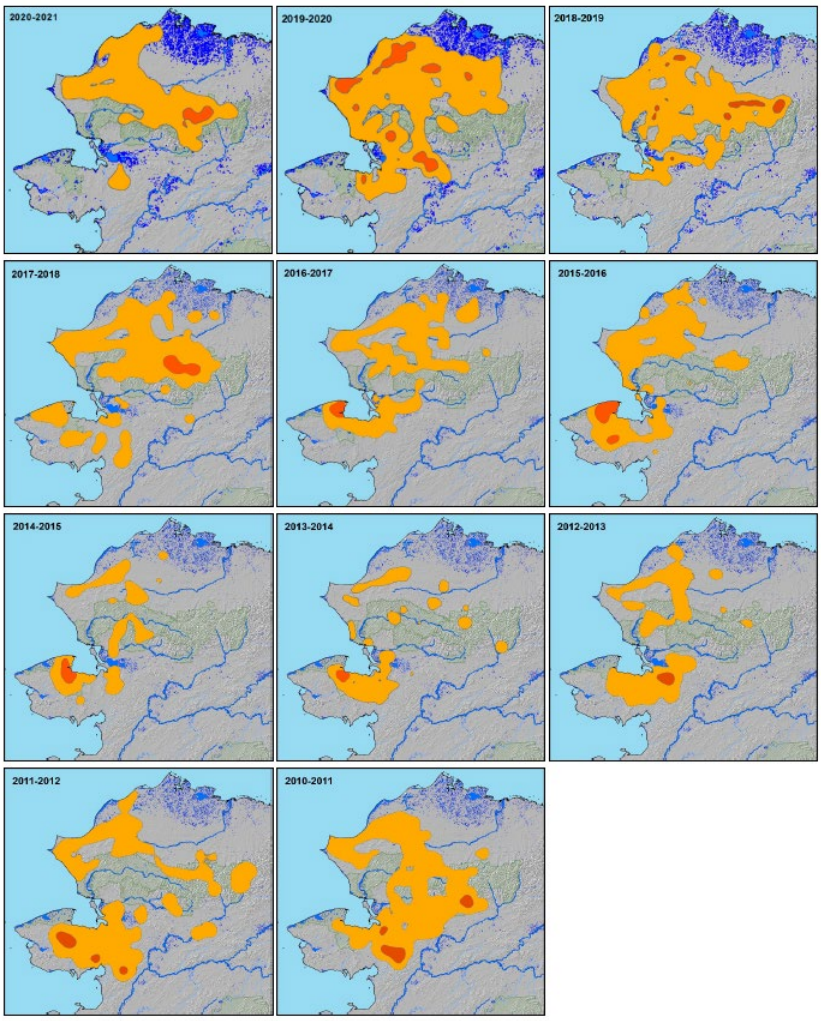

Figure 2: 2010–2021 annual (September 1–August 31) range use of Western Arctic Herd caribou.

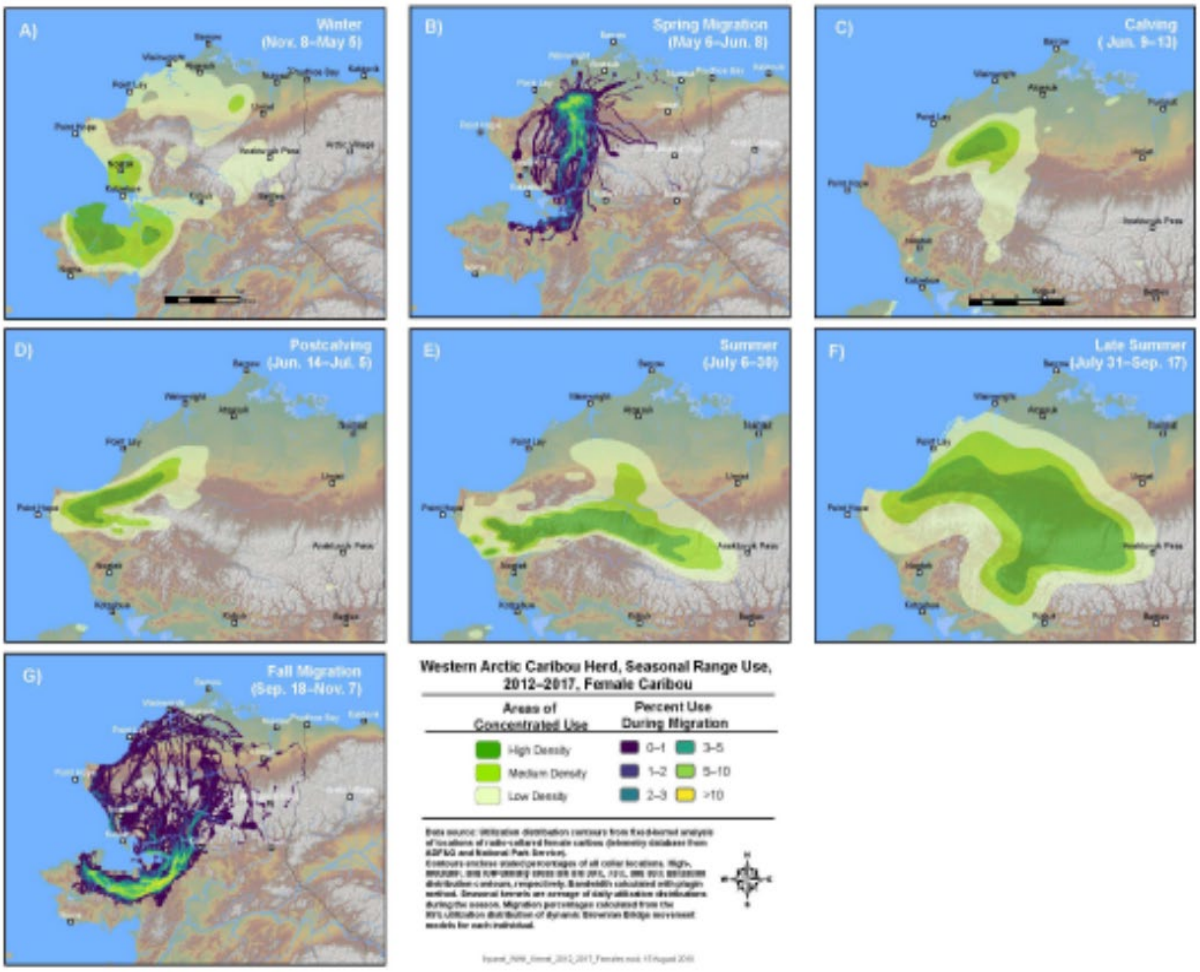

Figure 3: Seasonal ranges of the Western Arctic Caribou Herd (WACH Management Plan, 2020)

5.2.2. Moose

Moose *(Alces alces*) make seasonal movements up to 60 miles between calving, rutting, and wintering areas. Breeding begins in late September or early October and calving occurs from mid-May to early June. Diet during the spring includes grasses and sedges, while in the summer moose will feed on sedges, horsetail (*Equisetum* sp.), aquatic plants and grasses. In the fall and winter, green vegetation is hard to come by, leading moose to browse willow, birch, and aspen branches (ADFG, 2008b). Suitable habitat does not occur within the footprint of the proposed microwave repeater sites, although year-round and winter suitable habitat occurs within the wet lowlands and drainages in areas below the proposed microwave repeater sites.

Moose are highly valued for subsistence and general hunting as well as non-consumptive uses, and demand has generally been increasing (Bennett, 2006).

5.2.3. Bear

Suitable habitat for black bears (*Ursus americanus*) includes lower elevation riparian areas and forested uplands, the habitat of which is often shared with the brown bear. Brown bears (*Ursus arctos*) are common in most habitats within the proposed project corridor but are seasonally aggregated around sites with abundant prey. Prey species of brown bear primarily include caribou and moose calves during the spring and salmon during the summer. During the summer, upon emergence from hibernation, brown bears will also graze on sedges and grasses. Berries are foraged upon widely during the fall (BLM, 2008). Black bears also depend on berries during the fall and are opportunistic omnivores. Diet consists of vegetation, grubs, beetles, crickets, and ants, in addition to small or medium-size mammals, vertebrates, and salmon if available (ADFG, 2008a).

Both brown and black bears hibernate in the winter, in which the trigger is dependent upon temperature and forage availability. Cubs are born in the den during January and February, emerging in May to June. The breeding season ranges from May to July (ADFG, 2008a).

Because bears forage widely and use mountain tops and ridges for this activity, particularly during the spring, suitable habitat for brown and black bears occurs throughout the vicinity of the proposed microwave towers. Suitable habitat also occurs around the periphery of Lake Clark within the nearshore and forested habitats. Brown bear would be expected to be concentrated in the springtime around calving grounds, as well.

Polar bears *(Ursus maritimus)* that inhabit the area within the Proposed Action in the western Arctic coast of Alaska are from the Chukchi/Bering Sea (CBS) subpopulation or stock. In the 2019 stock assessment, USFWS estimated the minimum population at 2000 (USFWS 2019a). On the Western coast of Alaska, along the Bering Sea, four (Site 1, 8, 9, 18) overlap with the CDH for polar bear (Figure 9).

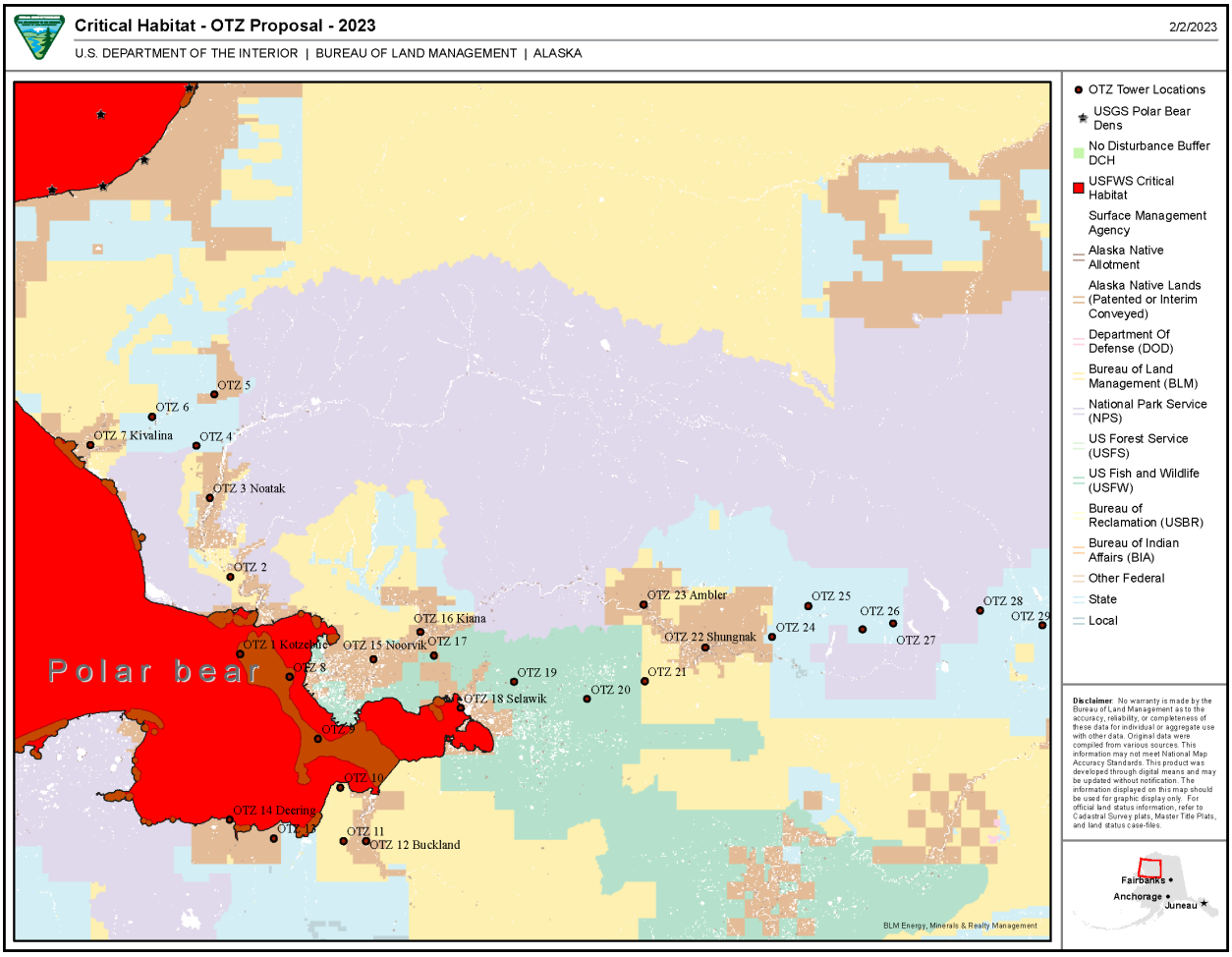

Figure 4: USFWS Critical Habitat and OTZ Proposed Project Locations

5.2.4. Muskox

The population had been growing for the last 40 years but is now in decline, with mortality rates high and recruitment rates low (Gorn 2012b). The 2010 Seward Peninsula muskox census estimates 2,616 animals in the 'core count area',and 2,903 animals in the 'expanded count area' (ADFG 2011).

Seward Peninsula and Nulato Hills (GMU 22 and Southwest 23): In 1970, 36 muskoxen were reintroduced to the southern portion of the Seward Peninsula from the population on Nunivak Island. In 1981, an additional 35 muskox were introduced. Muskox have extended their range to suitable habitat throughout the Seward Peninsula and as far east as Ruby on the Yukon River, and northeast into GMU 23. The population has been increasing since 2000. A 2007 census count in Unit 22 indicated 2,688 muskoxen, an increase since 2005, when 2,387 were counted. The total harvest, including subsistence, registration and drawing hunts, for 2007-08 season was 123 muskox.

Western Brooks Range and Kotzebue Sound: The two muskox populations that inhabit this area are products of translocations from the Nunivak herd. Animals in the Southwestern portion of GMU 23, between the Goodhope and Buckland rivers, are the product of the introductions mentioned in the preceding section, in 1970 and 1981. In addition, 36 muskoxen were moved to Cape Thompson from the Nunivak herd in 1970, and 34 more were released there in 1977. From 1970 until 1998 the Cape Thompson population grew about eight percent a year, and since 1998, the population has probably been stable at about 350 animals.

Muskoxen are energetically conservative in their movements and have a high fidelity to geographic regions (Reynolds et. al., 2002). Reynolds (1998) found that daily movements were limited to 3.1 miles (5 km) or less per day. During the summer, Reynolds (1998) found that the minimum size of core areas was four times larger than in winter or the calving season. These greater summer movements are likely related to peaking of plant biomass, taking advantage of high-quality forage (Chapin, 1980). In winter, forage availability and quality is low, so muskoxen conserve energy by reducing their movements and activity, including home range size, and remain in habitats where forage is not covered with deep snow (Reynolds et al., 2002).

5.2.5. Wolverine

Wolverines occur in taiga and boreal habitats and require large expanses of wilderness. This species is widely distributed throughout the project vicinity, preferring higher elevations during the summer and lower elevations during the winter due to varying food availability (ADFG, 2008; BLM 2008). Canada lynx, coyotes, snowshoe hares, and porcupine also range widely throughout the forests and low alpine areas (Bennett, 2006).

5.2.6. Dall's Sheep

Habitat for the Dall sheep is relatively dry country with alpine ridges, meadows, steep slopes, and rugged terrain (ADFG, 2008a). Diet varies by range but typically includes grasses, sedges, and forbs in the spring and summer, and winter forage includes frozen grasses, willow, sedge stems, sage, crowberry, cranberry, and sometimes lichen and moss (Whittaker et al., 1980). The breeding season is late November or early December. Lambs are born in late May or early June, of which time ewes and their lambs will move to yet more rugged terrain (ADFG, 2008a).

5.2.7. Wolf

During late fall, winter, and spring, wolves predate on species include large ungulates and their newborn, lambs, or calves. Wolves normally breed between February and March, with litters being born in May or early June. By early winter pups become mobile (ADFG, 2008b).

Wolves are classified as fur bearers and game species in Alaska. Harvests vary widely due to fur prices, access, predator control concerns, and population changes in response to prey population. Wolves in the project vicinity are typically hunted and trapped by local residents but will also be harvested opportunistically by non-local hunters. Local residents harvest wolves for subsistence and use fur for clothing, cultural, and craft purposes (BLM, 2008).

5.2.8. Birds

Table 1. Selawik Bird List

Common Name	Abundance Codes	Status Codes
Emperor Goose*	R	B
Snow Goose	C	M
Greater White-fronted Goose	C	B
Brant	U	M
Cackling Goose	C	B
Canada Goose	+	V
Trumpeter Swan	R	V
Tundra Swan	A	B
Whooper Swan	+	V
Blue-winged Teal	+	V
Northern Shoveler	C	B
Gadwall	+	V
Eurasian Wigeon	R	M
American Wigeon	A	B
Mallard	C	B
Northern Pintail	A	B

Common Name	Abundance Codes	Status Codes
Green-winged Teal	C	B
Canvasback	R	B
Ring-necked Duck	R	S
Redhead	+	V
Greater Scaup	A	B
Lesser Scaup	U	V
Steller's Eider	+	
Spectacled Eider	R	M
King Eider	U	M
Common Eider	R	B
Harlequin Duck	R	S
Surf Scoter	R	B
White-winged Scoter	R	V
Black Scoter	C	B
Long-tailed Duck	U	B
Bufflehead	R	B
Common Goldeneye	R	B
Common Merganser	R	V
Red-breasted Merganser	U	B
Spruce Grouse	R	P
Willow Ptarmigan	C	P
Rock Ptarmigan	U	P
Horned Grebe	R	B
Red-necked Grebe	C	B
Sandhill Crane	C	B
Black-bellied Plover	U	M
American Golden Plover	C	B
Pacific Golden Plover	U	S
Lesser Sand-plover	+	
Semipalmated Plover	U	B
Killdeer	+	
Upland Sandpiper	U	B
Bristle-thighed Curlew	U	V
Whimbrel	A	B
Bar-tailed Godwit	C	M
Hudsonian Godwit	R	S
Ruddy Turnstone	C	M
Black Turnstone	C	S
Red Knot	C	M

Common Name	Abundance Codes	Status Codes
Surfbird	U	B
Ruff	+	
Sharp-tailed Sandpiper	U	M
Stilt Sandpiper	R	M
Curlew Sandpiper	+	
Sanderling	U	M
Dunlin	R	B
Rock Sandpiper	+	
Baird's Sandpiper	R	B
Least Sandpiper	C	B
White-rumped Sandpiper	R	M
Buff-breasted Sandpiper	R	M
Pectoral Sandpiper	C	M
Semipalmated Sandpiper	U	B
Western Sandpiper	U	B
Long-billed Dowitcher	U	B
Wilson's Snipe	C	B
Red-necked Phalarope	C	B
Red Phalarope	C	M
Spotted Sandpiper	R	B
Solitary Sandpiper	R	B
Wandering Tattler	R	S
Greater Yellowlegs	U	S
Lesser Yellowlegs	U	B
Pomarine Jaeger	U	M
Parasitic Jaeger	U	M
Long-tailed Jaeger	U	B
Common Murre	+	
Thick-billed Murre	+	
Black Guillemot	R	P
Kittlitz's Murrelet	R	B
Horned Puffin	+	
Tufted Puffin	+	
Black-legged Kittiwake	R	V
Ivory Gull	R	M
Sabine's Gull	R	B
Bonaparte's Gull	U	B
Ross's Gull	R	M
Mew Gull	C	B

Common Name	Abundance Codes	Status Codes
Herring Gull	U	S
Iceland (Thayers) Gull	+	V
Slaty-backed Gull*	R	V
Glaucous-winged Gull*	R	V
Glaucous Gull	C	B
Aleutian Tern*	U	B
Arctic Tern	C	B
Red-throated Loon	U	B
Pacific Loon	C	B
Arctic Loon	R	B
Common Loon	R	S
Yellow-billed Loon	R	S
Short-tailed Shearwater	U	M
Pelagic Cormorant	U	M
Osprey	U	B
Golden Eagle	R	P
Northern Harrier	C	B
Sharp-shinned Hawk	R	S
Northern Goshawk	R	B
Bald Eagle	R	B
Rough-legged Hawk	R	S
Great-horned Owl	U	P
Snowy Owl	U	W
Northern Hawk Owl	U	P
Great Gray Owl	R	P
Short-eared Owl	U	B
Boreal Owl	R	P
Belted Kingfisher	U	B
American Three-toed Woodpecker	U	P
Downy Woodpecker	R	V
Hairy Woodpecker	+	
Northern Flicker	R	P
American Kestrel	R	V
Merlin	R	S
Gyrfalcon	R	P
Peregrine Falcon	R	B
Olive-sided Flycatcher	U	B
Western Wood-Pewee	+	
Alder Flycatcher	A	B

Common Name	Abundance Codes	Status Codes
Say's Phoebe	+	
Northern Shrike	U	S
Canada Jay	C	P
Common Raven	C	P
Horned Lark	U	S
Tree Swallow	C	B
Bank Swallow	C	B
Barn Swallow*	C	V
Cliff Swallow	R	V
Black-capped Chickadee	U	P
Boreal Chickadee	C	P
Gray-headed Chickadee	R	P
American Dipper	R	B
Ruby-crowned Kinglet	R	S
Arctic Warbler	R	B
Bluethroat	R	V
Northern Wheatear	U	B
Varied Thrush	C	B
Gray-cheeked Thrush	A	B
Swainson's Thrush	U	S
American Robin	A	B
Eastern Yellow Wagtail	C	B
White Wagtail	R	V
American Pipit	U	S
Bohemian Waxwing	U	B
Pine Grosbeak	U	P
Gray-crowned Rosy Finch	+	
Common Redpoll	U	B
Hoary Redpoll	C	B
White-winged Crossbill	U	P
Lapland Longspur	U	B
Smith's Longspur	R	B
Snow Bunting	C	B
McKay's Bunting	U	W
American Tree Sparrow	C	B
Fox Sparrow	C	B
Dark-eyed Junco	U	S
White-crowned Sparrow	C	B
Golden-crowned Sparrow	U	B

Common Name	Abundance Codes	Status Codes
Savannah Sparrow	U	B
Lincoln's Sparrow	U	S
Rusty Blackbird	C	B
Northern Waterthrush	C	B
Orange-crowned Warbler	U	S
Yellow Warbler	C	B

Abundance Codes (AC):

A – Abundant; species is abundant in all proper habitat with all available habitat heavily utilized; sighting likelihood excellent.

C – Common; species occurs regularly in most proper habitat with some available habitat sparsely utilized; sighting likelihood good.

U – Uncommon; species occurs in relatively small numbers or is unevenly distributed; sighting likelihood poor.

R – Rare.

Status Codes (SC):

P – Permanent resident; species occurs year-round.

B – Breeder; known to breed in the region.

W – Wintering resident; species occurs in the region during the winter but breeds elsewhere.

S – Summer resident; species occurs in the region during the summer but may breed elsewhere.

M – Migrant; species occurs when in transition between winter and breeding ranges.

V – Vagrant; species occurs casually or accidentally.

5.2.9. Special Status Species (Mammals and Birds)

Red knot

This shorebird breeds throughout the mountain tundra of northern and northwestern Alaska, and winters in South America (Harrington, 2001). Due to the large range, the species therefore has the potential to be present near the proposed project sites.

Yellow-billed loons

High densities of the species are unlikely in the proposed project area as most wintering occurs in Asian coastal waters (FWS, 2009a). The project is within the distribution of yellow-billed loon breeding range. The yellow-billed loon nests exclusively in coastal and inland low-lying tundra with large, permanent, vegetated, fish-bearing lakes. Breeding begins in late May, and nests are located typically at the shoreline on islands or points of land.

Spectacled eider

Spectacled eider (*Somateria fischeri*) nest on the Yukon-Kuskokwim Delta to the south of Kotzebue, but they are not known to commonly migrate through the Kotzebue area or use the Baldwin Peninsula (USFWS 1996). While breeding spectacled eiders were formerly common in small patches of suitable habitat in northwestern Alaska from Norton Sound to Kotzebue Sound, they now are rare or absent (Stehn et al., 1993).

Critical habitat was designated for molting in Norton Sound and Ledyard Bay; for nesting on the Yukon-Kuskokwim Delta; and for wintering south of St. Lawrence Island Figure 10. No critical habitat occurs in the project area.

Figure 5: Spectacled eider distribution in Alaska and Russia (USFWS 2013b)

Rusty blackbird

The breeding range of the rusty blackbird extends from Canada's east coast to Alaska's west coast. Breeding habitat includes wet coniferous and mixed forest from the edge of tundra, within fens, alder-willow thickets and bogs, muskegs, beaver ponds, tall riparian shrub, and wetlands along shores and lakes. No migrations occur in project area habitat. Breeding habitat for this species occurs along the drainages and freshwater wetlands throughout the project vicinity.

Kittlitz's murrelet

Kittlitz's murrelet are year-round residents along the Alaskan coast from Point Lay south to LeConte Bay. Nesting habitat occurs just above the treeline near glaciers, usually a short distance below peaks on coastal cliffs, barren ground, rock ledges, and talus slopes (Day, 1996) therefore nesting habitat is in the project area? . This bird can be found up to 45 miles inland and are solitary nesters (FWS, 2006).

Polar Bear

The majority of polar bear habitat that is used by the CBS stock is sea ice. Sea ice habitat is essential for many aspects of polar bear ecology, including hunting, traveling, migration, resting, and denning (Amstrup and Gardner 1994; 75 FR 76086; 7 December 2010). There is no sea ice habitat in the project area.

Currently, polar bears in the CBS stock rarely occur further south than St. Lawrence Island (Wilson et al. 2014). Polar bears of the CBS stock can use the terrestrial coastal habitat along the western coast of Alaska. Four of the tower locations are within that coastal habitat.

Olive-sided flycatcher

The olive-sided flycatcher breeding range extends from Alaska south through Canada and into the lower 48 states. The species is known to breed in the project vicinity. Breeding habitat includes coniferous boreal, riparian bottoms, and coastal forests, constructing nests in spruce trees (BLM, 2008).

Smith's Longspur

The Smith's Longspur breeds from northern Alaska, northern Yukon Territory to the District of Keewatin, and there are small disjunct populations in the uplands of southcentral Alaska (ADFG, 2008). While in Alaska, the species prefers moist tussock meadows in alpine habitat and dry ridgetop tundra (Kessel and Gibson, 1978) which is present in the project area.

Northern Goshawk

Northern goshawks are found in most mountainous and forested habitats of North America, ranging from western central Alaska down into the mountains of northwestern and western Mexico, and prefer to nest in mixed stands of coniferous and deciduous trees. They often return to the same general area in successive years and will occasionally reuse an old nest (ADFG, 2008).

Bristle-thighed curlew

Wintering occurs near the Hawaiian Achipelagos. Nesting duration is from May through June, in which nests are made on a depression and lined with tundra mosses. This species feeds on insects and plant matter during the breeding season. Following nesting, bristle-thighed curlews move to

pre-migration staging areas on the central and southern Y-K Delta and northern Alaska Peninsula. This staging habitat includes low-lying tundra.

Osgood's Arctic ground squirrel

Osgood's Arctic ground squirrel occupies tundra and forest clearings ranging in elevations from sea level to over 6,500 ft in areas where permafrost lies more than three ft beneath the ground surface. Suitable habitat includes areas with sandy or gravelly well-drained soil suitable for digging burrows, and may include eskers, moraines, mountain slopes, river flats and banks, lake shores, and tundra ridges (Government of the Yukon, 2011). Suitable habitat for this species may occur at the microwave repeater sites, although species specific surveys have not been conducted.

Steller's eider

The Alaska breeding population of Steller's eider is listed as threatened under the ESA (62 FR 31748). The Alaska population of the Steller's eider breeds along the Arctic Coastal Plain, with a small subset breeding on the Yukon-Kuskokwim Delta, outside the project vicinity (FWS, 2002). Steller's eiders winter in coastal areas of the Alaska Peninsula, possibly along the shorelines of the project vicinity, and also use the Goodnews Bay and other adjacent areas for molting and staging between spring and fall migration (BLM, 2008; FWS, 2002). Critical habitat for the Alaska- breeding population of the Steller's eider includes breeding habitat on the Y-K Delta and 4 units in the marine waters of Southwest Alaska, including the Kuskokwim Shoals in northern Kuskokwim Bay, and Seal Islands, Nelson Lagoon, and Izembek Lagoon on the north side of the Alaska Peninsula (66 FR8850). No critical habitat occurs in the project vicinity.

After breeding, birds leave for molting areas between late July and late October, in which the birds remain flightless for approximately 3 weeks. Molting habitat is characterized by extensive marine shallow areas with eelgrass (Zostera marina) beds and intertidal sand flats and mudflats. During the molt, Steller's eiders forage on marine invertebrates such as molluscs and crustaceans. Wintering habitat includes marine waters less than 10 meters deep, typically within 400 meters of shoreline unless shallows (i.e., less than 400 meters) extend farther offshore. Prior to spring migration, Steller's Eiders stage in estuaries and small bays prior to continuing northward to nesting grounds (FWS, 2002).

Although the Steller's eider is listed as threatened, the bird is subsistence hunted in the project vicinity in spring and during fall migration. Causes of decline are poorly understood. Potential causes of decline include predation; hunting; ingestion of spent lead shot in wetlands; changes in the marine environment, affecting either the Steller's eider food supply or other resources; and exposure to oil or other contaminants near fish processing facilities in Southwest Alaska (FWS,2002).

Red-Throated Loon

Red-throated Loons (*Gavia stellata*) are migratory seabirds that breed at high latitudes, nest in low-densities on small ponds in coastal tundra ecosystems and spend the majority of the remaining year on coastal marine waters. Similar to many seabird species, little information exists regarding the migratory patterns of loons (Barr et al., 2000)

Red-throated Loon breeding populations in Alaska experienced a 53% decline from 1977 to 1993 (Groves et al., 1996). The decline was most significant in the Yukon-Kuskokwim Delta and Seward Peninsula regions (Groves et al., 1996). Recent data suggest that Red-throated Loon populations in northern Alaska have continued to decline (Larned et al., 2012), while populations elsewhere in the state have stabilized (Mallek & Groves, 2012).

McKay's bunting

McKay's bunting is only known to breed on two small, isolated islands in the Bering Sea, Hall and St. Matthew islands, but may occasionally breed on other islands in the Bering Sea. This bird remains on breeding grounds from May until early October, and winters on the western coast of Alaska from Kotzebue south to the Alaska Peninsula. Wintering range includes the project vicinity. Wintering habitat includes coastal marshes, shingle beaches, and agricultural fields. This species feeds on seeds from weeds and grasses. This species is vulnerable due to the small population size and introduced predators (Lyon and Montgomerie, 1995).

Bering Sea rock sandpiper

The Bering Sea rock sandpiper breeds from Russia east to Alaska, from Seward Peninsula south to Bristol Bay. Wintering is typically in southern Alaska to California. Breeding habitat primarily includes lowland heath tundra along the coast but may also include mountain subarctic tundra with low vegetation in coastal mountains (O'Brien et al., 2006). Suitable nesting and foraging habitat during the breeding season occurs for this species, although species specific surveys have not been conducted.

APPENDIX C: Invasive Species Management Requirements (BLM)

BLM Alaska Invasive Plant Prevention and Management Policy (AK-IM-FY2022-008) provides implementation level guidance for existing Resource Management Plan requirements to prevent the introduction and spread of priority invasive plants.

Invasive Species requirements at all BLM lease sites:

- **Responsibilities:** The grantee is responsible for costs and coordination related to invasive species management to ensure that activities of the grantee do not result in the introduction, establishment, or spread of Bureau of Land Management (BLM) Alaska (AK) Priority Invasive Plants (PIP) (Attachment 2) for applicable periods of the permit.
- **Initial Inspection:** Grantee shall conduct a survey of PIP prior to conducting any on site project work to establish a baseline of any pre-activity infestations within the project area. Survey areas shall include all access roads or ancillary features associated with the area of operations, as defined by the plan of operations, and records of occurrence of PIP shall be reported to the Alaska Exotic Plants Information Clearinghouse (AKEPIC) and the AO. Use of best available data, including consultation of the AKEPIC, may satisfy this requirement when the project is small in scale and scope, and it is determined acceptable in advance of project commencement by the AO.
- **Preventative Measures:** Grantee shall develop project-specific preventative measures based upon standard best management practices for preventing the introduction and spread of invasive species. See list of suggested resources for developing project-specific preventative measures in Section III. Preventative measures shall include but may not be limited to the following:
    - Grantee shall ensure that all equipment, vehicles (e.g., trucks, trailers, watercraft, aircraft), and gear is free of visible soil, seeds, and vegetative parts before deploying to the project site.
    - Grantee shall not park or stage equipment, supplies, or materials in areas known to be infested with PIP. When feasible, activities shall commence from known un-infested areas and progress toward known infested areas.
- **Monitoring:** Grantee shall regularly survey the project area during the growing season for occurrence of PIP during the life of the permit/grant/contract and for two growing seasons thereafter unless evidence of PIP is documented, in which case treatment and additional monitoring may be determined necessary by the AO.
    - Surveys shall include lands encompassed by all access roads or ancillary features associated with the grantee's area of operations, as defined by their plan of operations.
- **Treatment:** If treatment is necessary to eradicate infestations that result from the activities of the grantee (i.e., documented establishment or spread of PIP above the baseline of pre-activity infestations) (Section I.B.), grantee-proposed treatment methods must receive concurrence from the AO. If the grantee fails to perform the necessary treatment, the BLM

may initiate treatment at the expense of the grantee. The grantee shall reimburse the BLM the cost of the treatment. The BLM will proportionally apply any cost incurred among all authorized users of the site.

- **Reporting:** Inspection and monitoring reports based upon a visual inspection that document initial inspection, monitoring, and treatment should be provided annually by December 31 to the AO and include:
    - Inspector's name
    - Inspection date
    - Map showing total area surveyed and any PIP location (center point GPS location and polygon delineating boundaries of infestations). Report should include electronic map files (ArcGIS compatible).
    - For any PIP infestations detected include:
        - Species identification for each PIP
        - Estimation of infestation size (number of plants or acreage)
        - Photographs showing the general extent of infestation and close-up photographs of individual plants.
        - Any treatment methods/strategies proposed for BLM approval.

- **Resources:** Suggested resources for more information on Alaska species identification and best management practices for preventing the introduction and spread of invasive species that may be used to develop project-specific preventative measures:

    - Alaska Department of Transportation and Public Facilities (DOT&PF). 2014. Disposal and Control of Invasive Plant Species. Prepared for Alaska DOT&PF Southeast Region. Prepared by Three Parameters Plus, Inc. Fairbanks, AK. 64 pp. Available: https://dot.alaska.gov/stwddes/desenviron/assets/pdf/resources/se_invasive_final.pdf
    - University of Alaska Fairbanks (UAF) Cooperative Extension Service. 2014. Best Management Practices Controlling the Spread of Invasive Plants During Road Maintenance. Published by the UAF Cooperative Extension Service in cooperation with the United States Department of Agriculture and Alaska DOT&PF. Available: https://dot.alaska.gov/stwdmno/ivmp/documents/Best_Management_Practices.pdf
    - Alaska Exotic Plants Information Clearinghouse (AKEPIC): https://accs.uaa.alaska.edu/invasive-species/non-native-plants/
    - Cal-IPC. 2012. Preventing the Spread of Invasive Plants: Best Management Practices For Transportation and Utility Corridors. Cal-IPC Publication 2012-1. California Invasive Plant Council, Berkeley, CA. Available at www.cal-ipc.org
    - Flagstad, L.A., H. Cortés-Burns, and C. Greenstein. 2019. Identification of non-native plants in Alaska. Alaska Natural Heritage Program, University of Alaska Anchorage. 219 pp. Available: https://accs.uaa.alaska.edu/invasive-species/publications/

- Fleming, J. 2005. Vehicle Cleaning Technology for Controlling the Spread of Noxious Weeds and Invasive Species. USDA Forest Service. Available: https://www.fs.fed.us/eng/pubs.
- Graziano, G., S Seefeldt, and L. Clayton. 2014. Best Management Practices: Controlling the Spread of Invasive Plants During Road Maintenance. PMC-00342. Available: http://cespubs.uaf.edu/publications/
- US Bureau of Reclamation and US Army Corps of Engineers. 2012. Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species. Tech Memo No. 86-68220-07-05. Available: https://www.usbr.gov/mussels/prevention/
- USFWS Region 7 Aquatic Invasive Preventions Guidelines. 2018. https://www.fws.gov/r7/fisheries/invasive/pdf/Region%207%20Aquatic%20Invasive%20Species%20Prevention%20Guidelines_Final_083018.pdf
- Alaska Exotic Plant Information Clearinghouse (AKEPIC). (2021). AKEPIC Database (http://aknhp.uaa.alaska.edu/apps/akepic/). Alaska Center for Conservation Science, University of Alaska, Anchorage. Accessed (March 2, 2022).
- Carlson, M.L., I.V. Lapina, M. Shephard, J.S. Conn, R. Densmore, P. Spencer, J. Heys, J. Riley, and J. Nielsen. 2008. Invasiveness Ranking System for Non-Native Plants of Alaska. USDA Forest Service, R10-TP-143. 218 pp. Available: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev2_037575.pdf
- Nawrocki, T.W., H. Klein, M.L. Carlson, L.A. Flagstad, J. Conn, R. DeVelice, A. Grant, G. Graziano, B. Million, and W. Rapp. 2011. Invasiveness Ranking of 50 Non-Native Plant Species for Alaska. Report prepared for the Alaska Association of Conservation Districts. Alaska Natural Heritage Program, University of Alaska Anchorage. Anchorage, Alaska. 253 pp. Available: https://accs.uaa.alaska.edu/invasive-species/publications/

Priority Invasive Plant List

BLM Alaska has developed this list of state-wide priority invasive plant species to help direct invasive species management within AK BLM lands (Table 1). BLM may update this list annually by March 15 to include and prioritize other invasive species of concern to BLM. The BLM Alaska Priority Invasive Plant (PIP) List was developed based upon the North American Invasive Species Management Association (NAISMA) and Alaska Department of Natural Resources Certified Weed Free Products Program guidance (http://plants.alaska.gov/invasives/weed-free-gravel.htm) with recommendations from the Alaska Weed-Free Material Committee and the University of Alaska, Alaska Center for Conservation Science. The BLM Alaska PIP List includes 32 plants from the Alaska Weed Free Gravel Certification List of Species (NAISMA list) that are currently known to be present in Alaska and adjacent regions, as identified through analysis of known distribution (AKEPIC, 2021) and consultation with the US Fish and Wildlife Service Regional Invasive Species Program Coordinator, University of Alaska Center for Conservation Science, USDA Forest Health

Protection program, USDA Agricultural Research Service, US Geological Survey, National Park Service, and University of Alaska Fairbanks Cooperative Extension Service (Carlson et al. 2008; Nawrocki et al. 2011).

Scientific Name	**Common Name**
Arctium minus	common burdock
Avena fatua	wild oats
Berteroa incana	hoary alyssum
Carduus nutans	musk thistle
Centaurea stoebe	spotted knapweed
Cirsium arvense	Canada thistle
Conium maculatum	poison hemlock
Convolvulus arvensis	field bindweed
Elymus repens	quackgrass
Euphorbia esula	leafy spurge
Galeopsis sp.	hempnettle
Hesperis matronalis	dame's rocket
Hieracium aurantiacum	orange hawkweed
Hieracium caespitosum	yellow (meadow) hawkweed
Hypericum perforatum	St. Johnswort
Leontodon autumnalis	hawkbit/fall dandelion
Leucanthemum vulgare	oxeye daisy
Linaria dalmatica	dalmatian toadflax
Linaria vulgaris	yellow toadflax

Scientific Name	Common Name
Lythrum salicaria	purple loosestrife
Melilotus albus, M. alba, M. officinalis	sweetclover, white sweetclover, yellow sweetclover
Phalaris arundinacea	reed canarygrass
Fallopia X bohemica	Bohemian knotweed
Fallopia convolvulus, syn. *Polygonum convolvulus*	black bindweed/wild buckwheat
Fallopia japonica var. *japonica*	Japanese knotweed
Fallopia sachalinensis	giant knotweed
Prunus padus	European bird cherry
Ranunculus acris	tall buttercup
Jacobaea vulgaris	tansy ragwort
Sonchus arvensis	perennial sowthistle
Tanacetum vulgare	common tansy
Verbascum Thapsus	common mullein
Vicia cracca	bird vetch
Elodea sp. (aquatic plant)	waterweed

APPENDIX D: Draft Compatibility Determination

Title

Draft Compatibility Determination for Right-of-Way for Remote Telecommunication Tower Installations, Selawik National Wildlife Refuge.

Refuge Use Category

Rights-of-way and Rights to Access

Refuge Use Type(s)

Rights-of-way (utility). The right to use and possibly alter the landscape through construction, maintenance, and operation of water or fuel pipeline, power line, telecommunications line or tower, or other utility.

Refuge

Selawik National Wildlife Refuge

Refuge Purpose(s) and Establishing and Acquisition Authority(ies)

As stated in the Alaska National Interest Lands Conservation Act (ANILCA) (Public Law 96-487) Section 302 (7) (B), the purposes for which Selawik Refuge was established and shall be managed include:

(i) to conserve 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 subparagraph (i), water quality and necessary water quantity within the refuge.

ANILCA Section 702(12) designated approximately 240,000 acres as the Selawik Wilderness. Section 102(13) of the act clarifies the term "wilderness" has "the same meaning as when used in

the Wilderness Act." The purposes of the Wilderness Act are additional purposes of the designated Wilderness portion of the Refuge.

ANILCA Sections 602(41) and 605(a) designated that portion of the Selawik River from a fork of the headwaters in township 12 north, range 10 east, Kateel River meridian to confluence of Kugrarak River; within the boundaries of the Selawik Refuge as a wild river pursuant to the Wild and Scenic Rivers Act, as amended by ANILCA Section 606. The purposes of the Wild and Scenic Rivers Act (1968) are to ensure: "certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations."

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System (NWRS) is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

Description of Use

Is this an existing use?

No

What is the use?

Right-of-way (utility). The right to use and alter the landscape through construction, maintenance, and operation of two (2) telecommunications towers.

OTZ Telephone Cooperative Inc. would construct, operate, and maintain two (2) 60ft microwave repeater towers on Selawik Refuge lands. The proposed towers would be part of a larger network of approximately 30 towers, that would relay broadband internet from the Dalton Highway to 10 communities in the Northwest Arctic Borough and the Red Dog Mine. Alternatives to siting towers on refuge lands were explored. However, no feasible routes were found that would not require use of lands within ANILCA conservation system units.

This compatibility determination (CD) examines whether or not the right-of-way may materially interfere with or detract from the purposes for which this Refuge was established or the NWRS mission as required by the National Wildlife Refuge System Improvement Act.

Is the use a priority public use?

No

This is not a use of a national wildlife refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation. The National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee) specifies that these are the six priority general public uses of the National Wildlife Refuge System.

Why is this use being proposed or reevaluated?

On November 15, 2021, President Biden signed the Infrastructure Investment and Jobs Act (Pub. L. 117-58) into law. This Act includes a significant investment of $65 billion to help close the digital divide and ensure that all Americans have access to reliable, high speed, and affordable broadband. This investment builds upon the funding for broadband deployment provided in the American Rescue Plan, the Consolidated Appropriations Act, 2021, the FCC's Universal Service program, and USDA's Rural Utilities Service broadband programs. The intent of the investment is to lay critical groundwork for widespread access and affordability of broadband, creating new jobs and economic opportunities, providing increased access to healthcare services, enriching educational experiences of students, and improving overall quality of life for all Americans.

The OTZ Telephone Cooperative Inc. would be utilizing the funding from USDA Rural Development to expand broadband availability in 10 remote Alaska communities through establishing 28 new microwave sites that would link to the optic route on the Dalton Highway.

Where would the use be conducted?

The OTZ Telephone Cooperative Inc. has requested the installment of two towers, identified as OTZ-19 and OTZ-17, to occur on Refuge lands. The project footprint for each tower site would be approximately 0.56 acres. Staging of equipment and materials for construction of the towers would not be located on Refuge lands.

OTZ 19 would be located in the Selawik lowlands, approximately 27 miles northeast of Selawik Village, 4 miles north of the Selawik River, and 3 miles from the Kugarak River. The landscape surrounding the proposed OTZ tower 19 location is relatively flat, with a uniform elevation and is mostly treeless consisting of tundra vegetation and low and dwarf shrubs. The coordinates of the proposed location are roughly 66.662965 N and -159.045158 W. The tower would be located in Kateel River Meridian T. 15. N., R., 2 W. Sec 35.

OTZ 17 would be located on a ridgetop in the Hockley Hills, approximately 9 miles south of Kiana and 350ft from privately owned lands within the refuge border. The coordinates of the proposed location are roughly 66.850903 N and –160.335447 W. The tower would be located in Kateel River Meridian T. 17. N., R., 8 W. Sec 24.

How would the use be conducted?

The proposed towers would be 4-legged lattice structures between 50ft and 60ft above ground level (AGL). The footprint of the base of each tower is 16 x 16ft (280 square feet). Four 10-inch concrete piles would be used and installed to depths of 30ft to 40ft to sufficiently secure each tower. Concrete will be required to anchor each tower leg. A grounding rod will be installed at one of the four legs. The tower would have two decks, with a small, insulated equipment enclosure (8 x 12 feet) located on the lower deck. OTZ-19 would support two 12' circular antenna and OTZ-17 would have two 12' circular antenna, one 10' circular antenna, and one 6' circular antenna, for a total of four antenna on the tower. All antenna would have a reflective covering. All of the telecommunication equipment and related appurtenances will reside on the tower, except for four (4) to six (6), 16 ft long, 1,000 gallon liquid propane tanks (approximately 400 square ft). The LP tanks would be adjacent to each tower and would be secured to the ground via wooden driven anchors and concrete. Power for the antennae is to be provided by two small air-cooled 2.5kW generators fueled by liquid petroleum (LP) and small acid gel-cell type batteries that will be located inside the equipment enclosures. Each tower will also be equipped with solar panels and small wind turbines to provide auxiliary power to minimize LP requirements. A 25 ft fuel break would surround the tower. The towers and associated structures would be unlit except for when personnel are present or in emergencies. Recommendation as provided in the *Recommended Best Practices for Communication Towers* (U. S. Fish and Wildlife Service 2021) will be incorporated into the tower paining and lighting.

Construction

It is expected to take up to 16 helicopter trips from nearby communities to mobilize the construction team, equipment, and materials to each site. This includes the steel members for the towers, generators, fuel tanks and the small equipment enclosures. Tower construction would require a small diesel-powered generator and small portable drill rig and concrete anchoring for the tower legs.

Less than 4 cubic yards of soil would be displaced at the site during the construction phase. All soil removed as part of the drilling phase would be graded back into the project footprint.

Construction at the sites would be performed by a team of 4-6 individuals. Temporary camp facilities (tents) would be used to support the construction. Camp and tent facilities would include sleeping and living quarters, a mess/eating tent, a shower tent and a restroom tent.

Dry toilets would be used during construction. A small package treatment system would be used to treat graywater. Less than 500-gallons per day of graywater is anticipated to be treated and discharged. Construction wastes and material would be transported back to the nearest community and disposed of appropriately.

Maintenance and refueling site visits

During the life of the project, scheduled maintenance trips would occur 1-2 times annually with a single helicopter moving from one site to the next. Refueling of the four (4) to six (6)-1,000-gallon LP tanks for the generator is expected to take six to fourteen helicopter trips annually from nearby communities. Additional site visits by helicopter may be required for emergency repairs, maintenance, and/or re-fueling.

Decommissioning

Each site would be appropriately dismantled upon expiration of the TUS right-of-way permit. Dismantling would include removal of the tower and other related structures such as the generators, equipment shelter, LP fuel tanks from the site. The below-grade tower legs may be abandoned in-place and cut at the surface.

When would the use be conducted?

The TUS right-of way-permit for the tower would be issued for 10 years. After 10 years, the compatibility of the tower would be reevaluated.

Construction is expected to be completed over a 3-to-4-week period for each tower in summer of 2024 or 2025. Construction activities would occur during daylight hours.

Site visits by the applicant would occur at least 1-2 times per year during the spring, summer, or fall for the life of the project.

Availability of Resources

Supervising this right-of-way permit would necessitate staff resources, both before and during the construction phase, on an annual basis throughout the project's duration, and during the decommissioning process at the end of the project's lifespan. Prior to construction, staff efforts will primarily focus on preparing NEPA documentation, development of mitigation measures, and execution of the right-of-way permit with appropriate bonding and other required documents. Costs associated with processing the right-of-way permit application would be recovered from OTZ Telephone Cooperative Inc. through a cost recovery agreement. During construction, staff efforts would primarily be on monitoring of field activities for compliance with permit stipulations and mitigation measures. On an annual basis, staff would monitor for compliance, conduct assessments to gauge the project's effects on refuge resources and subsistence users, review annual reports, conduct community outreach, and respond to requests for information, incidents, and accidents associated with the proposed use. During and after decommissioning of the towers, staff time would be required for monitoring compliance with permit stipulations and assessing effects of the project on refuge resources.

Quantification of resources required annually for administration of the proposed use is difficult due to uncertainty about staff time required for administration, future costs of labor, goods, and

services, and potential for spills, accidents, or unanticipated impacts on resources. Given this uncertainty, a minimum estimate of annual cost to the service is expected to average $25,000 annually over the life of the of the permit (10 years). Costs associated with construction and maintenance of the towers will be covered by OTZ Telephone Cooperative Inc. using their own resources. Any additional installations, alterations to the tower, changes to the operations plan, or activities not covered by the rights-of-way permit will require additional approvals.

Anticipated Impacts of the Use

The effects and impacts of the proposed use to refuge purposes and the Refuge System mission are those that are reasonably foreseeable and have a reasonably close causal relationship to the proposed use. This compatibility determination includes discussion of the anticipated short-term and long-impacts of the use on the refuge when the impacts could be more than negligible.

Additional impacts and mitigating measures may be included in the Environmental Assessment associated with this project.

Potential impacts of a proposed use on the refuge's purpose(s) and the Refuge System mission

The Western Arctic Caribou Herd

The Western Arctic Caribou Herd (WACH) is one of the largest caribou herds in the world. With a population estimate of 154,000 caribou in 2023, they range over a territory of about 157,000 square miles in Northwest Alaska (Alaska Department of Fish and Game 2022). Large numbers of WACH animals typically cross Selawik Refuge during the fall and spring migrations and in some years, a large number of animals winter within the refuge borders. Caribou move in response to changing weather conditions, biting and parasitic insect harassment, and predators. Climate change in the Arctic is impacting, and will continue to impact, caribou and their migrations in myriad ways (Jolly 2021).

Construction at the tower sites could result in noise and visual disturbance to caribou from construction equipment such as generators and air compressors, helicopter operations, and human activity. Staging camps and helicopter flights associated with the construction of the towers may result in the disturbance of caribou in the area, and within helicopter flight paths. Noise and activity, although temporary, would occur in otherwise quiet and remote areas. Noise from construction could temporarily displace WACH animals.

The presence of the telecommunications towers is expected to impact behavior of WACH animals when they are in the vicinity of the towers, but overall impact on the herd is expected to be minimal. Caribou avoid areas immediately surrounding localized human-infrastructure that they can either seen or hear. For example, caribou avoided visible but inactive camps by 200 meters (McCourt et al. 1974) and lone drill sites by approximately 1,200 meters (Wright and

Fancy 1980). Likewise, caribou moved away from an air compressor noises by approximately 800 meters (McCourt et al. 1974). It is expected that caribou will see the tower infrastructure and hear the continuously operating generators, and therefore may circumvent tower sites. Circumvention of the towers is not likely to cause a major deflection in the overall caribou migration route as the towers are the only modern human-developed infrastructure in the area and there is ample space for avoidance and continued directional travel.

When facilities are removed, the disturbance from decommissioning and removal activities and helicopters would be similar to that of the construction period.

Waterfowl, shorebirds and other migratory Birds

Selawik Refuge provides habitat for about 160 species of birds. Refuge habitats provide vital breeding and staging areas for large numbers of migratory waterfowl and shorebirds. The Selawik lowlands and river deltas host a fall migration of over 100,000 waterfowl. OTZ 19 would be located in the Selawik lowlands, in an area were medium densities of waterfowl have been documented.

Impacts to birds could be through habitat loss, behavioral disturbance, injury/mortality of birds colliding with the towers or helicopters, mortality of eggs, or destruction of nests. Impacts would primarily be expected to be local to the tower areas and not result in population level effects.

Construction at the tower sites could result in noise and visual disturbance from equipment, helicopter operations, and human activity. These disturbances could displace birds, potentially resulting in abandonment of breeding or nesting activities, or the destruction of active nests. Potential noise disturbance from helicopters may cause stress, ranging from mild annoyance to severe stress, which could contribute to panic and escape behavior. These responses could lead to accidental injury; reproductive losses such as nest flushing, separation of adults from their young, disrupted parental attendance; and energy losses that could affect food intake, growth, rearing, migration, and reproduction. Habitat avoidance during construction would be a localized temporary impact, as construction would be completed during one season.

The presence of the towers could kill or injure birds from collisions, especially during low visibility situations such as night or during bad weather. OTZ 17 would be located on a ridgeline, which can increase likelihood of collisions. Studies show that large numbers of migrating birds fly over the crests of ridges and passes rather than following mountain fronts, and migrants flying near ridges and in passes may be flying at lower elevations than broad-front migration (Kerlinger 1995). The immediate trajectories of migrating birds are species-specific and depend on varying environmental factors (wind, weather, visual cues, others).

When facilities are removed, the disturbance from decommissioning and removal activities and helicopters would be similar to that of the construction period. It is expected that there will be some permanent habitat loss at each location.

Salmon and Sheefish

The proposed tower locations are not located near rivers or lakes used by salmon or sheefish. No impacts to salmon and sheefish on the refuge are expected from the proposed use.

Other fish, wildlife, and habitats

1.12 acres of surface habitat would be directly effected by the proposed use. Surveys and wetland determinations have not been conducted at the proposed tower locations. However, using satellite imagery and best available remote sensed vegetation map products, a general vegetation community type for the site can be estimated.

OTZ-19 is in the Selawik Lowlands. NPS landcover mapping classifies this site as Moist Acidic Dwarf Birch Tussock (Jorgenson et al., 2009). Given the map's coarse resolution and potential for error at a site-specific scale, it is possible that this proposed site could meet the U.S. Army Corps of Engineers criteria for jurisdictional wetlands. OTZ-19 permafrost soils are expected to be encountered. At OTZ-19, permafrost , including ground subsidence and thermokarst is possible Trampling of the tussock tundra ecosite type would result in long term loss of this vegetation type underneath the tower and ancillary structures.

OTZ-17 is located on a mountaintop ridge in the Hockley Hills. NPS landcover mapping classifies this site as Dwarf Shrub-Lichen (Open-Closed) (Jorgenson et al., 2009). Vegetation at the site would be trampled by crew members, helicopter landing, equipment moving, and tower installation.

No direct impacts to fish are anticipated as the towers are not located near rivers or large lakes. Physical presence of the towers, noise from equipment, and presence of people during construction and maintenance of towers may displace or attract wildlife. However, ample habitat exists in the area. Effects on distribution of wildlife, including mammals and non-migratory birds, are expected to be minimal/temporary.

Treaty obligations

The proposed use is not expected to affect the refuge's ability to fulfil international treaty obligations with respect to fish, wildlife, and their habitats.

Subsistence

The communities most impacted in the areas of the two towers on Selawik Refuge are Selawik, Ambler, Kiana, Noorvik and Shungnak. Subsistence activities within the Refuge take place year-

round, with different uses occurring seasonally. Most residents within and surrounding the Refuge rely on wild-caught foods and materials for a substantial portion of their sustenance and for cultural meaning. Fish species (sheefish, whitefish, and Northern pike) are of key importance in Selawik village, which is located within the Refuge on the Selawik River. Caribou comprise most of the total harvest for subsistence in Kobuk River villages, including Noorvik, Kiana, Ambler, and Shungnak. Caribou is the most widely utilized and most valued resource throughout much of the region. Other big game species hunted for subsistence include moose, black and brown bears, and furbearers. Waterfowl, small game, berries, and other plants are also used.

The locations in which subsistence hunters search for and harvest animals vary from year to year, depending on a variety of factors such as migratory timing, species abundance, costs of gas and groceries, and ease of access to desired animals. The towers would be located within the subsistence harvest zones for subsistence users from multiple northwest Alaska communities (Satterthwaite-Phillips 2016). One tower, OTZ-17, would be built near the marked winter snowmachine route from Selawik to Ambler and the upper Kobuk River. The other tower, OTZ-19, would be built on the Hockley hills near the marked winter snowmachine route between Selawik and Kiana. The towers would be constructed on uplands, away from waterways or tributaries regularly traveled by local subsistence users during summer and fall when ice is not present. The areas surrounding the towers are most utilized by hunters during months of adequate snow cover for overland travel by snowmachine, roughly November through April. Caribou is the game most sought by local hunters during these months. The presence of the telecommunications towers is not expected to substantially change behaviors of fish and most wildlife. The impacts on caribou are expected to be minimal (see analysis of effects on WACH and wildlife above). Helicopter overflight noise may temporarily disturb wildlife and individuals within the flight path depending on the season.

A detailed evaluation of potential effects on subsistence uses and needs (ANILCA Section 810 Evaluation) will be completed prior to authorization of the proposed action.

Water quality and quantity

Surface or ground water contamination from accidental discharge of fuels or other hazardous materials at the proposed tower sites or along transportation routes used by helicopters is possible.

Liquid propane (LP) would be used to power generators at the sites, and four(4) to six(6) -1000 gallons tanks would remain at each site. LP leaks/spills vaporize quickly and would not affect water quality.

A limited volume of gasoline and/or diesel fuel would be stored and used at tower sites to power equipment during the construction phase. Small quantities of other hazardous materials including batteries and oil for generators would remain at the tower sites during operation. Spills of fuels or hazardous materials could affect local ground or surface water quality, though impact is

expected to be minimal due to limited quantities. Spill prevention measures would be required to minimize likelihood of spills.

Jet fuel would be used by helicopters to access tower sites during construction and annual refueling/maintenance trips. Helicopter accidents could result in contamination of ground or surface water.

Wilderness

OTZ-19 and OTZ-17 would be over 10 miles from the Selawik Wilderness Area. From within Selawik Wilderness, the proposed towers would be unlikely to be visible, and generator noise would not be noticeable. Presence of the towers is not expected to impact wilderness character. Helicopters used for construction and annual site visits may be heard and seen from within Selawik Wilderness, and could impact wilderness character.

Selawik Wild River

OTZ 19 would be located approximately 6.5 miles from the down-stream terminus of the Selawik Wild River corridor. Outstandingly Remarkable Values (ORVs) of the Selawik Wild River may include: Recreation, Scenery, Geology, Fish, Wildlife, and Subsistence. OTZ 19 would not be visible from the Selawik River, though may be visible from within the river corridor. Presence of the tower is not expected to impact ORVs, water quality/quantity, or free flowing condition of the Selawik Wild River. Helicopters used for construction and annual site visits, may be heard or seen from the Selawik Wild River and could potentially impact river ORVs.

National Wildlife Refuge System Mission

One of the biggest threats to the NWRS conservation mission in Alaska is climate change. Greenhouse gas emissions from continuous operation of generators at the proposed tower sites, annual helicopter operations, and construction activities would contribute to climate change. Soil and vegetation disturbance at tower locations could accelerate thawing of permafrost within and adjacent to the project area, resulting in release of carbon into the atmosphere.

Evaluation, permitting, and monitoring of newly proposed uses of refuge system lands requires staff capacity and resources. The proposed use would result in a decrease in staff time and resources allocated for other activities associated with conservation, management, and restoration of fish, wildlife, and plant resources and their habitats.

The proposed use would remove from availability 1.12 acres of refuge lands that are currently open for public use.

Public Review and Comment

The draft compatibility determination will be available for public review and comment for 30 days in conjunction with the public comment period for the OTZ Microwave Tower Broadband Project Environmental Assessment. The public will be made aware of this opportunity to comment through emails and/or letters to local Tribes, municipal governments, and the State of Alaska; radio announcements; and announcements on social media platforms. A hard copy of his document will be available at the Selawik Refuge headquarters in Kotzebue and will be made available electronically on the BLM Eplanning website (https://eplanning.blm.gov/eplanning-ui/project/2032192/510). Concerns expressed during the public comment period will be addressed in the final Compatibility Determination.

Determination

Is the use compatible?

Yes

Stipulations Necessary to Ensure Compatibility

Stipulations Necessary to Ensure Compatibility:

*** this section will be updated based on changes to EA and to ensure only Compatibility related stipulations are included.

General

1. Any changes or deviations from information provided in the original permit application and operations plan must be reported to and approved by the Refuge Manager prior to any activity.
2. The Refuge Manager will be notified of any emergency repairs and unplanned maintenance.
3. Maintenance, refueling operations, and other planned visits to the Facilities will be submitted to the Refuge Manager for approval.
4. Facilities and structures shall not be placed within Designated Wilderness
5. Facilities and structures shall not be place within the Designated Wild and Scenic River corridor.
6. Construction of any structure (temporary or permanent) not specifically addressed within the permit application is not authorized.
7. All human waste shall be removed from the site.

8. All food waste shall be removed from the site and be disposed of at a permitted off-Refuge facility.
9. The permittee is responsible for keeping the construction area clean. All trash and other debris shall be removed from the site. Burning of trash, solid waste or any other substances or materials is prohibited. At the completion of construction, a final cleanup shall be conducted by the Permittee and approved by the Refuge Manager.
10. All solid wastes, including batteries is to be removed from the site during each maintenance visit and not allowed to accumulate. Used batteries shall be disposed of at a licensed disposal site for used batteries, off of the refuge.
11. No toxic materials will be used or stored at the site except as required for maintenance and operation of the facility. Fuel storage, cleanup, and spill reporting will be conducted in accordance with Service policies. Absorbent material in sufficient quantity to handle spills must be on hand at all times for use in the event of an oil or fuel spill. All hazardous wastes (as defined by the Resource Conservation and Recovery Act of 1976, as amended) will be stored, transported, and disposed in accordance with regulation requirements.
12. The construction of landing strips or pads is limited to what is outlined in the original permit, unless authorized in writing by the Refuge Manager.
13. Equipment use will be limited to the construction boundary shown on the site plans.
14. Motorized vehicle use is prohibited unless otherwise authorized in writing by the Refuge Manager.
15. Use of heavy machinery or tracked vehicles is prohibited.
16. The National Historic Preservation Act (NHPA) and the Archaeological Resources Protection Act (ARPA), and the Paleontological Resources Preservation Act (PRPA) require that if newly discovered archaeological, cultural, and/or paleontological resources are identified during project implementation, work in that area must stop and the Refuge Manager notified immediately. The Native American Graves Protection and Repatriation Act (NAGPRA), requires that if the inadvertent discovery of Native American Remains or Objects occurs, activity must cease in the area of discovery, a reasonable effort made to protect the item(s) discovered, and immediate notice made to the Refuge Manager, as well as the appropriate Native American group(s)and State Historic Preservation Officer (SHPO). Further actions also require compliance under the provisions of NHPA, ARPA, PRPA, and NAGPRA.
17. Any problems with wildlife and/or animals taken in defense of life or property

must be reported immediately to the refuge manager and the Alaska Department of Fish and Game, and animals taken must be salvaged in accordance with State regulations.

18. The Permittee will provide a report to the Refuge Manager that details the previous years activities. This report will include
    a. All helicopter flights to the site during the previous year including actual # of flights, dates of flights, aircraft used and actual flight paths.
    b. The amount of fuel consumed at the site during the previous year (refuel to refuel).
    c. Any service interruptions during the previous year as a result any equipment failures or other causes at these Facilities, along with the cause and duration of those service interruptions
19. The Refuge Manager, or designee, upon request, shall be afforded the opportunity and logistical support from the nearest commercial transportation site to accompany the permittee for the purpose of inspection and monitoring permittee activities.
20. Permittee shall comply with the terms and conditions of the rights-of-way permit.

Subsistence

1. The permittee will take no action that interferes with subsistence and recreational activities of rural users or restricts the reasonable access of subsistence users to refuge lands. This may include, but not limited to disturbance of wildlife and their movements near subsistence hunters.
2. The permittee shall avoid concentrated public use areas and sensitive wildlife areas to be identified by the Refuge Manager in advance of annual refueling and maintenance trips.
3. The Refuge Manager will be notified prior to commencement of annual maintenance or refueling operations. All work proposed on the Refuge, must be scheduled to minimize impacts on other users in the area.

Wildlife

4. Construction and maintenance and refueling activities will be restricted during peak subsistence harvest time and when important species migration occurs as to not disturb the Western Artic Caribou Herd, nesting birds, and subsistence users, unless authorized in writing by the Refuge Manager.
5. The operation of aircraft at altitudes and in-flight paths resulting in the herding,

harassment, hazing, or driving of wildlife is prohibited. It is recommended that all aircraft, except for takeoff and landing, maintain a minimum altitude of 2,000 feet above ground, weather permitting.

6. Best management practices as described in the US Fish and Wildlife Service's *Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance and Decommissioning* (U. S. Fish and Wildlife Service 2021) shall be taken to reduce migratory -bird-disturbance and mortality

Noise

7. The long-term continual noise level during normal operations for the life of the project may not exceed levels established in operations plan, unless otherwise authorized in writing by the Refuge Manager. Additional acoustical baffling equipment or techniques may be required if the equipment structure exceeds acceptable noise levels.

Visual Resources

8. All structures and facilities on the refuge will be designed to minimize visual impacts and painted to blend into the landscape to the extent practical. Facilities shall be painted using non-reflective matte finish; the final choice of colors shall be determined by the Refuge Manager.
9. The equipment structure shall be the absolute minimum required to function. Any future additions of equipment shall require approval from the Refuge Manager.
10. The use of lighting shall not be allowed on telecommunication facilities unless required as a public safety measure by the Federal Aviation Agency (FAA) or approved in writing by the Refuge Manager.

Vegetation

11. Best management practices, including the use of certified weed free materials and supplies, shall be taken so that no invasive plants, insects, other invertebrates, or animals are introduced to refuge habitats. The permittee shall be responsible at all times during the life of the permit for taking any and all actions to prevent the introduction of invasive species on the refuge.
12. Prior to any construction, an invasive species survey will be completed at the construction site.
13. Any clearing of lands not specifically addressed with the permit application is not authorized.

14. During the annual maintenance visit, the site will be inspected for the growth of invasive plants. If invasive plants are found at a site; the permittee, with guidance from the Refuge, would develop and implement a plan for eradication, using an integrated pest management process.

Operations plan

1. During the term of the permit, a Plan of Annual Operations for annual maintenance, refueling operations, and other planned visits to the Facilities will be submitted to the Refuge Manager for approval. Included in the plan will be the following:
    a. Schedule for helicopter supported refueling and annual maintenance visits to refuge lands;
    b. The Refuge Manager will be notified prior to commencement of annual maintenance or refueling operations.
    c. Flight routes to and from the Facilities which must avoid concentrated public use areas and sensitive wildlife areas to be identified by the refuge in advance.
    d. Subsequent plans must be submitted annually for approval and must be received by the Refuge office 30 days before the expiration of the current plan

Justification

The proposed use would not materially interfere with or detract from the Selawik Refuge's primary purpose to conserve fish and wildlife populations and habitats in their natural diversity. Although there could be minimal, short-term disturbance or displacement of wildlife, including migratory birds and caribou, the effects to fish and wildlife populations do not rise to the level of incompatibility. Sensitive seasons or areas for wildlife, particularly the Western Arctic Caribou Herd migration and concentrations of migratory birds, will be protected through special conditions and/or prohibitions of helicopter flights in certain areas at certain times of the year.

The proposed use would not materially interfere with or detract from Selawik Refuge's purpose to fulfill international treaty obligations of the United States with respect to fish and wildlife and their habitats. There would be minimal loss of migratory bird habitat from this activity.

The proposed use would not materially interfere with or detract from the Selawik Refuge's purpose to provide the opportunity for continued subsistence uses by local residents. The presence of towers would not reduce availability or accessibility of subsistence resources. Helicopter use could temporarily displace wildlife or subsistence users, however mitigation measures would ensure that helicopter activity occurs outside important subsistence areas and time periods.

The proposed use would not materially interfere with or detract from the Selawik Refuge's purpose to ensure water quality and necessary water quantity within the refuge. Although water

quality could be affected by contamination from hazardous materials, the likelihood of a contaminant spill is low, and the quantity of hazardous materials to be used on the refuge is low.

The proposed use would not materially interfere with or detract from the purposes of Selawik Wilderness or the values of the Selawik Wild River. The tower locations are located away from the Selawik Wilderness and Selawik Wild River. Helicopter flight paths are not known, however given the tower locations and known staging areas (Kotzebue, AK and Coldfoot, AK), it is unlikely that helicopters will operate over the Selawik Wilderness or Wild River during tower construction, annual site visits, or tower decommissioning.

Climate change is affecting the mission of the NWRS. Although the proposed use would directly increase fossil fuel emissions and have potential to increase released of stored carbon from permafrost, the overall effect of the project on climate change would be minimal.

The resources and staff time (capacity) required for administering the proposed use would diminish the capacity for meeting the NWRS mission and purposes of Selawik Refuge. At current capacity levels, absorbing these reductions would not materially interfere with or detract from refuge purposes or the mission of the NWRS, however the cumulative effect of this use and continued declines in in capacity and/or increasing demands for non-mission related uses of the refuge could interfere or detract from the purposes or mission in the future.

ANILCA recognized the future need for transportation and utility systems in Alaska. Recent legislation and Executive Orders recognize the need for broadband infrastructure service in rural areas. Additionally, there has been increased emphasis on ensuring environmental justice and obligations to Tribes are met in decision making. Improved broadband access may help ensure the sustained viability of communities within and adjacent to Selawik Refuge, which include Tribes and environmental justice populations.

After fully considering the effects of this activity, it is my determination that this use would not materially interfere with or detract from the purposes of Selawik National Wildlife Refuge or the mission of the National Wildlife Refuge System. These activities will remain compatible with the implementation of the listed stipulations.

Signature of Determination

Refuge Manager Signature and Date

Signature of Concurrence

Assistant Regional Director Signature and Date

Mandatory Reevaluation Date

After expiration of the Right-of Way permit, compatibility of the use would be re-evaluated prior to permit renewal. During the life of the permit, only compliance with the terms and conditions of the authorization are to be examined, not the authorization itself.

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APPENDIX E: SELAWIK NATIONAL WILDLIFE REFUGE EVALUATION OF THE EFFECTS ON SUBSISTENCE USES AND NEEDS (ANILCA SECTION 810 EVALUATION)

The U.S. Fish and Wildlife Service (USFWS) is required by Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA) to evaluate the effects on subsistence uses and needs in determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands on national wildlife refuges in Alaska. The evaluation of effects of this proposed action/use on subsistence uses and needs is documented below. If this evaluation concludes with a finding that the proposed action will result in significant restriction to subsistence uses and needs, and the Selawik National Wildlife Refuge (Selawik Refuge) wishes to proceed, the Refuge must initiate further procedural requirements of Section 810.

PROPOSED USE: OTZ Telephone Cooperative Inc. (OTZ) Microwave Tower construction, operation, and maintenance.

The OTZ Telephone Cooperative Inc. (OTZ) submitted an application to the USWFS Region 7 National Wildlife Refuges Division of Realty requesting a right-of-way permit to construct two(2) 50’ free standing , unlighted, lattice type microwave towers on Selawik Refuge. This ANILCA Section 810 analysis evaluates effects on subsistence of the construction and operation of the two (2) telecommunications towers. In addition to the 2 towers on Selawik Refuge, 6 towers would be constructed on Bureau of Land Management (BLM) lands, and approximately 22 towers would be located state or private lands. Effects on subsistence from the overall project, including construction, operation, and decommissioning of all project towers, will be evaluated in a separate Section 810 Analysis document prepared by the BLM.

Construction

Construction staging will occur on private lands. Materials will be delivered to the staging sites via truck or barge and then helicopters will be used to transport equipment, materials and personnel to the construction sites. The towers will be constructed to use a four-legged multi-level design that is roughly 16 feet (ft) x 16 ft. The towers will support between three and four 6’ -12’ microwave dishes. Concrete and piles will be used and installed to depths to sufficiently secure the tower. All of the telecommunications equipment and related equipment will reside on the tower inside am equipment shelter, except for four(4) to six (6) - 1000 gallon liquid propane (LP) tanks that will be secured to the ground via wooden driven anchors. A helicopter pad will be located adjacent to the tower. The total area impacted by each tower, its helicopter access pad, and its construction zone is estimated at 0.56 acres. Multiple helicopter flights will be needed to construct each tower over a period of up to six weeks, with up to 16 trips anticipated during the construction phase for each tower. Construction timeframe for towers on refuge lands would occur from June to August.

Operation, maintenance, and refueling

Once constructed, towers would initially be authorized for use for 10 years. Towers would remain unlit, except for in emergencies or when personnel are present at the sites. A liquid propane generator would operate continuously producing audible noise outside the shelter at approximately 70 decibels. Regularly scheduled site visits for maintenance and refueling of each tower would occur 1-2 times annually in the spring, summer, or fall. Each scheduled site visit would require 4-8 roundtrip helicopter flights, for a total of up to 16 flights per tower per year. Scheduled site visits would avoid periods of time with elevated subsistence use activity, including during fall caribou migration. Additional site visits for unplanned repairs or maintenance could occur throughout the year.

Decommissioning

After the right-of-way authorization expires or is no longer valid, the towers and associated structures would be removed. Removal would require multiple helicopter flights, and would likely occur during the summer.

EVALUATION:

1. Subsistence Resources, Uses and Needs in the Affected Area:

The towers would be located within the subsistence harvest zones for subsistence users from multiple northwest Alaska communities (Satterthwaite-Phillips 2016). The communities most impacted in the areas of the two towers on Selawik Refuge are Selawik, Ambler, Kiana, Noorvik and Shungnak. Subsistence activities within the Refuge take place year-round, with different uses occurring seasonally. Most residents within and surrounding the Refuge rely on wild-caught foods and materials for a substantial portion of their sustenance and for cultural meaning. Fish species (sheefish, whitefish, and Northern pike) and caribou are of key importance in Selawik village which is located on the Selawik River. Caribou comprise most of the total harvest for subsistence in Kobuk River villages, including Noorvik, Kiana, Ambler, and Shungnak. Caribou is the most widely utilized and most valued resource throughout much of the region. Other big game species hunted for subsistence include moose, black and brown bears, and furbearers. Waterfowl, small game, berries, and other plants are also used.

Below is a table summarizing some of the most recently available subsistence harvest data for communities nearest the proposed project site.

Snapshot of Subsistence Harvest Data for Northwest Alaska				
Community	Survey Year	Total Community Harvest (*presented as pounds of wild foods*)	Per Capita Harvest (*average*)	Top Five Species Harvested
Selawik	2010	456,494 lbs.	533 lbs.	broad whitefish (33%), caribou (20%), sheefish (15%), Northern pike (12%), humpback whitefish (5%)
Ambler	2012	118,351 lbs.	603 lbs.	caribou (55%), broad whitefish (17%), sheefish (8%), chum salmon (5%), moose (5%)
Kiana	2006	108,248 lbs.	348 lbs.	caribou (31%), chum salmon (21%), whitefish (17%), moose (6%), sheefish (5%)
Shungnak	2012	66, 261 lbs.	368 lbs.	caribou (53%), sheefish (17%), chum salmon (15%), broad whitefish (3%), moose (2%)
Noorvik	2012	346,854 lbs.	592 lbs.	caribou (34%), sheefish (19%), chum salmon (16%), broad whitefish (9%), Northern pike (5%)

The locations in which subsistence hunters search for and harvest animals vary from year to year, depending on a variety of factors such as migratory timing, species abundance, costs of gas and groceries, and ease of access to desired animals. Caribou are a migratory species with population levels that fluctuate, so their presence and abundance in locations varies from year to year. In a 2018 study analyzing caribou use of the Selawik Refuge between 2010-2017, Joly and

Cameron (2018) noted "historically, the range of caribou has expanded and contracted, and in some time periods the Refuge has been heavily used by caribou and in other periods caribou have been largely absent." Data from this study and the Alaska Department of Fish and Game's household subsistence surveys likewise suggests that community harvest levels parallel proximities to caribou rather than the abundance of the herd. For example, Noatak only harvested 66 caribou in 2010 when no GPS-collared caribou migrated through the region. Harvest increased substantially (360 caribou) the following year when 37% of the GPS-collared caribou (and thus, a greater proportion of the herd) migrated nearby. From 2010-2017, Caribou were primarily using Selawik Refuge habitats during spring and fall migrations (Joly and Cameron 2018). This is also when local community members harvested the most caribou from refuge lands.

Recently, the timing, location, and abundance of caribou migrations have been changing. Caribou from the Western Arctic Herd have been migrating south later in the fall and have occupied a smaller overall range than in the past decade. Late summer and early fall are the preferred seasons for harvesting desirable bull caribou. Many subsistence hunters have reported not being able to harvest caribou in fall by boat. Meanwhile, a significant portion of the herd has wintered around the upper Kobuk River valley and into the Selawik drainage (Alex Hansen, ADFG, personal communication). As a result, local hunters have been able to access and harvest caribou during winter months by snowmachine. Both proposed tower locations will be approximately 1 mile from marked winter snowmachine routes. The areas in which the towers will be constructed were utilized by caribou during the winters from 2010-2017, with one of those areas being described as a "core area" of winter caribou use (Joly and Cameron 2018). This suggest that hunters from any of the nearby communities could readily be utilizing the areas near the proposed project sites to search for caribou during winters.

During open water periods, access to subsistence resources on Selawik Refuge primarily occurs by boat. One of the proposed tower locations is approximately 3 miles from the Kugarak River, a tributary regularly traveled by subsistence users from Selawik village during the summer and fall. Subsistence users primarily stay within a half mile of the river in search of caribou, moose, waterfowl, berries, and plants.

2. Concerns Expressed by Potentially Affected Subsistence Users and/or the State:

Generally, there is concern across the region about how increasing development may impact wildlife migrations, especially of caribou. This concern is often raised during discussions on potential road corridors, likely due to documented impacts of the Red Dog Road on caribou movements. While recognizing the need for infrastructure within the region, residents also express concerns about noise and aircraft activity and their impacts on wildlife movements overall. Similarly, residents have explained in many forums over the decades that air traffic—particularly from low flying aircraft—diverts caribou migrations. Subsistence users remain concerned about the impacts of air-traffic on caribou and may alter their subsistence activities when they believe that air-traffic has deflected caribou migrations.

3. Effects of Proposed Use on Subsistence Uses and Needs:

Caribou

Studies demonstrate that caribou avoid areas immediately surrounding localized human-infrastructure that can either be seen or heard. For example, caribou avoided visible but inactive camps by 200 meters (McCourt et al. 1974) and lone drill sites by approximately 1,200 meters (Wright and Fancy 1980). Likewise, caribou moved away from an air compressor noises by approximately 800 meters (McCourt et al. 1974). It is expected that caribou will see the tower infrastructure and hear the continuously operating generators, and therefore may circumvent tower sites. Circumvention of the towers is not likely to cause a major deflection in the overall caribou migration route as the towers are the only modern human-developed infrastructure in the area and there is ample space for avoidance and continued directional travel. Likewise, these small influences on caribou behaviors will not have significant impacts on subsistence practices. Subsistence hunters have extensive knowledge of the area and, if the caribou migrate to refuge lands, they will be able to avoid the towers when accessing caribou during the fall and winter seasons.

Helicopter activity has the potential to alter the availability, distribution and/or migration of caribou. However, potential effects of helicopter activity on caribou can be mitigated by planning flights for times of year when caribou are not present. Scheduled site visits to tower locations on refuge lands would avoid periods of time (recently September-October) when caribou are in the area. Unexpected or emergency maintenance needs could result in helicopter flights at any time during the year and could result in a localized change in caribou distribution. However the likelihood of the overall migration being altered by unplanned helicopter traffic is very low.

Construction and decommissioning of towers are not likely to affect caribou, as these activities would occur during summer months, when few caribou are present on Selawik Refuge.

Other subsistence resources

The construction, operation, and decommissioning of the towers is not likely to significantly affect the abundance, distribution, migration, or location of fish, birds, mammals (see above for detailed discussion on caribou), or plants used for subsistence purposes. The towers will be located away from waterways important for subsistence fish species. Migratory birds use the areas around the towers, however mitigations to prevent bird collisions, the relatively short duration of construction and helicopter activities, and the overall small footprint of the sites would result in negligible impacts to birds used for subsistence puroposes. Likewise, affects on moose, bears, and furbearers would be negligible. Berries and plants are not known to be harvested at/near either proposed tower location, though they're abundance would likely change within the project footprint.

Access (perception of areas off limits, potential for culture change)

Physical access to the tower locations would not be limited, however subsistence users may perceive a loss of access for subsistence harvesting near the towers. This effect is most likely to occur in winter months, when access to the areas near the proposed tower sites is primarily by snowmachine and areas is by subsistence users are most likely to be harvesting caribou or furbearers. Subsistence users are likely to adapt to the presence of towers on the landscape, and adequate areas nearby exist.

Helicopter traffic may also be perceived as reducing access to, and availability of, all subsistence resources. These effects would most likely occur in the summer months, when construction and scheduled maintenance would occur, and could overlap with times of year when hunting waterfowl, catching fish, or gather berries and plants are common. The magnitude of these potential affects is unknown.

The indirect effects of increasing broadband access in rural communities on access to subsistence resources could be positive and/or negative, and the net effect on subsistence access is unknown.

4. Availability of Other Lands for the Purposes Sought to be Achieved:

Locations for construction of the two towers relies on several criteria: 25-30 mile distance from other towers in the project (so it may reliably receive and relay signals), elevation, and aspect. The towers need to reliably receive and relay signals from the other towers, and therefore must be an appropriate distance and within a good line of sight from other towers. The potential locations for the telecommunication towers are therefore limited.

OTZ Telecommunications worked with the refuge to try to limit construction to just one tower on refuge lands. Ultimately, however, this was found to be unfeasible. Given the distances between the communities to be served by this project, it is necessary to build a minimum of two telecommunications towers on ANILCA conservation system units for the communications system to function.

5. Other Alternatives to Reduce or Eliminate Use on Public Lands Needed for Subsistence Purposes:

The following are alternatives that could accommodate the proposed use:

- Construction of an overland or submerged fiber-optic cable network on State and private lands, (e.g. the network of riverbed cables currently proposed by NANA Regional Corporation, or similar)
- Utilization of emerging satellite based technologies (e.g. StarLink or others)

FINDING:

Based on review and evaluation of information indicated above and in the supporting references indicated below, the Refuge has determined that the proposed action will not result in a significant restriction of subsistence uses.

AGENCY DECISION:

A finding of no significant restriction in subsistence uses completes the Section 810 requirements. The proposed action may be authorized.

SIGNATURE:

_____ _____

Refuge Manager Date

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APPENDIX F: BLM Section 810 ANILCA Compliance/Clearance Determination of Need

Casefile Number: AA-097882

NEPA Document Number: DOI-BLM-AK-A010-2022-0015-EA

Proposed Action: OTZ Microwave Tower Broadband Project

Applicant: OTZ Telephone Cooperative Inc.

Location of Proposed Action: The overall project involves the construction, operation and maintenance of 29 communication towers at the following locations:

OTZ 1 Kotzebue	Sec 21, Township 17N, Range 18W, Meridian KM	
OTZ 2	**Sec 17, Township 21N, Range 18W, Meridian KM**	**BLM**
OTZ 3 Noatak	Sec 16, Township 25N, Range 19W, Meridian KM	
OTZ 4	Sec 26, Township 28N, Range 20W, Meridian KM	
OTZ 7 Kivalina	Sec 20, Township 28N, Range 25W, Meridian KM	
OTZ 8	Sec 25, Township 16N, Range 16W, Meridian KM	
OTZ 9	**Sec 5, Township 12N, Range 14W, Meridian KM**	**BLM**
OTZ 10-ALT	**Sec 17, Township 21N, Range 18W, Meridian KM**	**BLM**
OTZ 11	**Sec 28, Township 7N, Range 13W, Meridian KM**	**BLM**
OTZ 12 Buckland	Sec 26, Township 7N, Range 12W, Meridian KM	
OTZ 14 Deering	Sec 19, Township 8N, Range 19W, Meridian KM	
OTZ 15 Noorvik	Sec 34, Township 17N, Range 11W, Meridian KM	
OTZ 16 Kiana	Sec 18, Township 18N, Range 8W, Meridian KM	
OTZ 17-ALT	**Sec 25, Township 17N, Range 8W, Meridian KM**	**FWS**
OTZ 18 Selawik	Sec 17, Township 14N, Range 6W, Meridian KM	

OTZ 19	**Sec 6, Township 15N, Range 2W, Meridian KM**	**FWS**
OTZ 21	**Sec 5, Township 16N, Range 5E, Meridian KM**	**BLM**
OTZ 22 Shungnak	Sec 9, Township 17N, Range 8E, Meridian KM	
OTZ 23 Ambler	Sec 31, Township 20N, Range 5E, Meridian KM	
OTZ 24	Sec 25, Township 18N, Range 11E, Meridian KM	
OTZ 25	Sec 1, Township 19N, Range 13E, Meridian KM	
OTZ 26	Sec 11, Township, 18N, Range 16E, Meridian KM	
OTZ 27	Sec 33, Township 19N, Range 18E, Meridian KM	
OTZ 28	Sec 7, Township 19N, Range 23E, Meridian KM	
OTZ 29	Sec 4, Township 18N, Range 26E, Meridian KM	
OTZ 30	Sec 16, Township 27N, Range 23W, Meridian FM	
OTZ 31	Sec 36, Township 26N, Range 21W, Meridian FM	
OTZ 32	Sec 13, Township 27N, Range 17W, Meridian FM	
OTZ 33	Sec 14, Township 26N, Range 13W, Meridian FM	BLM

Description of Proposed Action and Alternatives:

Alternative A- No Action Alternative

Under the No Action Alternative, BLM and USFWS would not grant the eight requested site leases on BLM and USFWS managed public lands. OTZ Telephone Cooperative Inc. would have to seek other alternatives to providing broadband services not involving federal public lands. BLM and USFWS would not continue to process the application for communications sites. This alternative would not provide internet service to ten rural Alaska communities serving over 7,000 residents within the NWAB. It would not increase broadband internet opportunities to facilitate economic development, improve services by health care providers, increase educational services, expand access to governmental, tribal, and non-profit entities nor would it provide additional competition for internet services for residential use.

Alternative B-June 23 and December 2023 New Proposed Action

Under Alternative B, the proposed action for the OTZ Microwave Tower Broadband Project would include six tower sites on BLM land and two on USFWS lands in the Selawik NWR. These eight proposed sites are part of the larger 29-site project that would provide internet service to ten rural Alaska communities, serving over 7,000 residents within the NWAB. This alternative would increase broadband internet opportunities, facilitate economic development, improve services by health care providers, increase educational services, expand access to governmental, tribal, and non-profit entities, and provide additional competition for internet services for residential use. Under this alternative, the BLM would authorize a 30-year BLM communication site lease for future construction, operations, and maintenance on BLM-managed lands. Under this alternative, the USFWS would authorize temporary construction for X years from the date X is signed and up to a 10-year lease for future operations and maintenance on USFWS refuge lands. Once each authorization expires, the issuing agency would conduct respective analysis for the renewal of lease. Regardless of the agency-authorized land use, at the end of each tower's lifecycle or utility, OTZ would remain responsible to fully decommission the towers.

Proposed Tower Locations

There are eight proposed towers on BLM and USFWS lands. The following describes all proposed tower sites on BLM and USFWS lands and includes township range and section and distance to nearest community within the NWAB and by public land description:

OTZ 2 site, located approximately 25 miles north of Kotzebue,

Kateel River Meridian T. 21 N., R., 18 W., Sec. 17.

OTZ 9 site, located approximately 37 miles southeast of Kotzebue, 35 miles southeast of Buckland,

Kateel River Meridian T.12 N., R. 14W., Sec 5.

OTZ 10 site, located approximately 10 miles north of Noorvik,

Kateel River Meridian, T. 18 N., R. 11 W., Sec.6.

OTZ 11 site, located approximately 8 miles west of Buckland,

Kateel River Meridian T. 7 N., R., 13 W., Sec. 28.

OTZ 17 site, ALT would be moved from Kateel River Meridian T. 17 N., R. 8 W., Sec 24 to

Kateel River Meridian, T. 17 N., R. 8 W., Sec. 25

OTZ 19 site, located 27 miles northeast of Selawik,

Kateel River Meridian T. 15 N., R., 2 W., Sec 35.

OTZ 21 site, located approximately 22 miles southwest of Shungnak,

Kateel River Meridian T. 16 N., R., 5E., Sec. 29.

OTZ 33 site, ALT would be moved ≈250ft east from BLM managed lands to BLM managed lands and would have a 15ft x 150ft right-of-way road, located approximately 13 miles south of Coldfoot,

Kateel River Meridian T. 21 N., R. 18., Sec. 17

Tower Site Description and Dimensions

The typical new construction tower site plan for each new tower includes the components listed below:

- one (1) 60-foot-high lattice tower, or shorter, with four legs attached by concrete into subsurface rock,
- Each leg of the tower would be post driven and filled with concrete to thirty feet plus depth, or until solid rock is reached,
- one (1) 6.5 feet x 6.5 feet equipment shelter located within the base of the tower,
- one (1) 6-kilowatt LP generator and (1) backup 2.5-kilowatt LP generator,
- six (6) 1,000-gallon LP tanks,
- The legs of the LP tanks would be attached to two wooden posts spanning the length of all six LP tanks, all six tanks would be attached by bolts to the wooden posts,
- One (1) 5 foot x 4.5 feet solar panel, with six legs
- Each leg will be secured using helical piers,
- one (1) 4,072 square foot helicopter landing zone,
- 11,435 sq ft fire break, encompassing all of the above items (25ft buffer around the structure).

When construction is complete the footprint of each site is estimated to be no more than 0.3 acres. A portable LP generator would be brought on-site to support the construction activities. Portable containers of fuel would be used, appropriate spill response kits would be on-site during the construction in the event of a spill or leak. All construction waste would be transported back to the nearest community and disposed of.

The total construction timeframe between April and October would be authorized for the six BLM sites is anticipated to be up to 12 weeks and would occur as weather permits.

Access to each of the remote sites will be by helicopter. It is expected that up to 10 helicopter round trips may be necessary depending upon the size of the available helicopter and the distance

to each site. Potential travel routes will be the most direct route from the nearest community. Once the construction team and materials and equipment are mobilized to each site, subsequent trips are not anticipated.

On-site Construction

Construction for each site will use a team of 4-7 individuals. Temporary camp facilities (tents) will be used to support the construction; potential camp/tent facilities include the following:

- tarps or semi-foldable foundations,
- one (1) 12’ x 20’ sleeping tent,
- one (1) 12’ x 20’ dining tent,
- one (1) man portable drill rig,
- one (1) 2.5 kilowatt or less liquid propane (LP) generator,
- one (1) outhouse, and
- four to seven person crews.

An electric fence may be employed around the site perimeter to prevent bears from encroaching and endangering the team. Local community water sources will be used for potable water. Water bladders will be filled in the local community and transported by helicopter to each site. Wastewater will be minimized; dry toilets will be used. A small package treatment system will be used to treat grey water. Less than 500-gallons per day of grey water are anticipated to be treated and discharged. A portable LP generator will be used on-site to support the construction activities. Portable containers of fuel will be used with appropriate spill response kits available on-site during the construction in the event of a spill or leak. All construction waste would be transported back to the nearest community.

Vegetation Removal

One USFWS tower location and the BLM Coldfoot tower location may require vegetation removal. Vegetation cleared for either the helicopter landing zone or construction of the towers will be scattered at each site for natural decomposition. The remaining BLM sites are located on mountain tops and will not require vegetation removal. The Coldfoot tower would be connected to an existing fiber optic line along the Dalton Highway. A trench will be dug, and a fiber optic line will be installed from the tower to an existing operational fiber optic line owned and operated by GCI.

Table 4. Vegetation Removal

Tower	***Vegetation Removal***	***Est Sq Ft*** *(tower/tank area)*	***Est Sq Ft*** *(land zone)*

OTZ – 2	Dwarf Shrub	11,000	4,000
OTZ – 9	Tussock Tundra	11,000	4,000
OTZ 10 - ALT	Tall Shrub	11,000	4,000
OTZ – 11	Dwarf Shrub	11,000	4,000
OTZ 17 – ALT (USFWS)	Dwarf Shrub	11,000	4,000
OTZ – 19 (USFWS)	Low Shrubs	11,000	4,000
OTZ – 21	Dwarf Shrub	11,000	4,000
OTZ – 33 - ALT	Small Trees	11,000	Not Required

Future Site Reclamation Plan

At the end of each tower's lifecycle or utility, OTZ would remain responsible to fully decommission the towers. This would include that each site be appropriately dismantled, and materials and tanks would be removed from federal lands. Dismantling would include removal of the tower and other related structures such as the generators, equipment shelter, LP fuel tanks from the site. The below-grade tower legs might be abandoned in-place and cut at the surface. Natural revegetation would be allowed to regrow in the site areas. Per USFWS grant authorization, a site decommissioning stipulation will include the replanting and reseeding of natural vegetation at each location. Regardless of the agency-authorized land use, at the end of each tower's lifecycle or utility, OTZ would remain responsible to fully decommission the towers.

Operations and Maintenance

Fueling and maintenance of each tower will be conducted by helicopter. Should another mode for refueling and maintenance be preferred in the future, applicant will submit a request to BLM and/or USFWS for future approval. Refueling of the LP tanks for the generator will be performed annually twice a year during summer and fall. Maintenance visits to each tower site will be coordinated with the recharging of the LP tanks to the extent possible. Helicopter flight paths would be defined by origin of takeoff, most direct and safe path, and FAA laws and guidance. The propane usage is anticipated to be between four to six thousand gallons annually per site and will be supplied by helicopter with at least 6 trips annually and possibly up to 14 trips annually per site. The solar panels would provide backup power in case weather delayed refueling trips.

Evaluation:

Under Alternative B, six of the proposed communication sites (OTZ 2, OTZ 9, OTZ 10, OTZ 11, OTZ 21, and OTZ 33) occur on unencumbered Federal lands managed by BLM, and two sites (OTZ 17 and OTZ 19) occur on FWS Refuge lands. These lands are Federal Public Lands as defined in ANILCA Section 102(3) and fall under the regulatory authority of the Federal Subsistence Board and Subsistence Management Regulations for the harvest of wildlife, fish and shellfish on Federal Public Lands in Alaska.

The other 21 tower sites are not on federal public lands. Ten are on existing sites within villages on Native Village Corporation lands, ten are on State of Alaska lands, one is on KIC native lands. These lands fall under the authority of the State of Alaska Hunting and Fishing Regulations.

Site OTZ 33 is in Game Management Unit (GMU) 24A which provides for Federal subsistence hunting opportunities for the residents of the village of Wiseman.

Sites OTZ 2, OTZ 9, OTZ 10, OTZ 11, OTZ 17 OTZ 19 and OTZ 21 are within GMU 23 which provide for Federal subsistence hunting opportunities for the residents of the villages of Kivalina, Kotzebue, Noatak, Noorvik, Kiana, Selawik, Buckland, Deering, Ambler, Kobuk and Shugnak.

Fisheries:

Under all of the action the proposed tower sites would be constructed in higher elevation areas away from lakes and streams and therefore would not likely significantly reduce harvestable fisheries resources that are available for subsistence use. The proposed action would not alter the distribution, migration or location of harvestable fisheries resources. The proposed action will not create any legal or physical barriers that would limit access by subsistence users of the fisheries resource.

Wildlife:

In GMU 23, subsistence hunts for caribou, moose and muskox generally occur in areas where the proposed communications towers will be located.

Caribou population numbers in the Western Arctic Herd have been in decline for the past decade and are at the herds lowest in 40 years (ADFG 2023). Caribou harvest on federal lands in some areas of unit 23 is currently limited to Federally qualified subsistence users due to conservation concerns (DOI 2022, page 117).

Moose population numbers in Unit 23 have been in decline for the past decade with temporary limits on hunts for non-qualified hunters and cow harvest due low calf:cow ratios, and likely exceedance of the harvestable surplus (OSM 2018).

Muskox population numbers in unit 23 are stable with limited permit hunts by qualified subsistence users (DOI 2022, page 117) and Alaska residents.

Impacts to these species would be highest during the construction period due to local noise and construction activities but would be temporary. The operation of the completed towers would have minimal effects to these species as the footprint of the towers is small (0.30 acres), noise from tower generators is relatively low, and towers are located on higher elevation areas.

The helicopter flights required for refueling and maintenance of each of the 29 towers twice annually may cause impacts to moose, caribou and muskox by noise disturbance and avoidance of the tower sites and surrounding areas. Migrating caribou may be especially affected by repeated noise by helicopters delivering fuel in fall and spring. Additional cumulative impacts to these species from helicopter flights to refuel and maintain existing communication tower sites along the same corridor on State and federal lands may also occur. These existing sites require refueling twice annually with diesel fuel with up to 14 trips per site during the same time intervals as the proposed action and could significantly add to the disturbance and avoidance of the sites by moose, muskox and migrating caribou.

Flight noise disturbance can be mitigated by timing flight outside of subsistence hunting seasons, spring calving seasons and spring and fall caribou migrations periods. Noise disturbance may also be mitigated by maintaining helicopter flight paths at or above 2500 feet altitude to reduce noise and minimize disturbance to wildlife movements or access by subsistence users.

Therefore, this proposal would not create any legal or physical barriers that would limit subsistence harvest and access. The impacts to subsistence resources associated with this action would therefore be negligible. The proposed action should not significantly alter the distribution, migration or location of harvestable wildlife resources.

Other Resources: The proposed action would not appreciably impact any other harvestable renewable resources such as wood, berries, vegetation or water.

Expected reduction, if any, in the availability of resources due to alteration in resource distribution, migration, or location: The proposed action is not likely to alter the availability, distribution, migration, or location of subsistence resources.

Expected limitation, if any, in the access of subsistence users resulting from the proposal: None. Access to subsistence resources will not be limited by the proposed action.

Availability of other lands, if any, for the purpose sought to be achieved: This EA evaluates the impacts to subsistence resources and access for a proposal to construct communications towers on several land ownerships. The locations proposed on federal lands were chosen to enable the proposed system to operate and therefore no other lands can be considered. Therefore, no other lands are appropriate.

Other alternatives, if any, which would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes: The only alternative that would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes is to not allow construction of the towers to occur or permit any activities that could potentially conflict with subsistence uses. However, the sites on BLM and FWS lands were chosen because of their location in relation to towers on State and Native lands that are needed to provide radio communication and connection to allow the proposed communication project to function. BLM manages public lands for multiple uses, and there is no substantial evidence that would indicate a significant impact to subsistence users or resources as a result of this proposed action. No other alternatives were evaluated.

Finding:

This proposed action will not significantly restrict subsistence uses. As a result of the proposed action there are no reasonably foreseeable significant decreases in the abundance or distributions and availability of subsistence resources and no reasonably foreseeable limitations to subsistence access.

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Bruce Seppi, Wildlife Biologist Date

Literature Cited:

Alaska Department of Fish and Game. 2023. Western Arctic Herd Overview presentation at the Western Arctic Caribou Herd Working Group meeting, December 2023. Marriott Hotel, Anchorage Alaska.

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