



DRAFT Environmental Assessment

Mystery Creek Road FirstNet Communications Project

U.S. Fish & Wildlife Service

Kenai National Wildlife Refuge

November 27, 2025



Executive Summary

New Cingular Wireless PCS, LLC, a subsidiary of AT&T, proposes to build a new wireless communications facility within the Kenai National Wildlife Refuge (Refuge) as part of the Mystery Creek Road FirstNet Communications Project. The proposed project would include a communications facility composed of a 198-foot-tall, self-supported, lattice cellular communications tower and a supporting shelter sited along Mystery Creek Road within the Refuge. In 2012, the United States Congress signed the Middle-Class Tax Relief and Job Creation Act (H.R. 3630; Public Law 112-96), which established the First Responder Network Authority. This law mandates the building, deployment, and operation of a broadband network dedicated to the nation's first responders. The proposed infrastructure is intended to serve the FirstNet Network and AT&T commercial customers. The FirstNet Network will provide first responders with priority access to wireless communications services on a single nationwide network, enabling increased coordination among first responders and decreased response time. Under its agreement with the FirstNet First Responder Network Authority, AT&T is required to provide wireless communications service throughout the United States for 25 years, including the obligation to provide coverage in new areas. The nearest existing communications site is 12 miles from the proposed tower. As a result of topography and canopy cover, this tower does not provide adequate cover to Sterling Highway between Cooper Mountain, Mystery Hills, and Sterling.

Three project alternatives are analyzed within this Environmental Assessment (EA), Alternative A: No Action Alternative, Alternative B: Cellular Tower with Propane and Solar Power (Preferred Alternative), and Alternative C: Propane Only Power Alternative. Both action alternatives would provide first responders with access to the FirstNet Nationwide Safety Public Broadband Network and would serve AT&T commercial users within the Mystery Hills, Cooper Mountain, and Sterling vicinity along the Sterling Highway with increased cellular coverage. The Propane Only Alternative is similar to the Preferred Alternative but uses on-site generators and batteries to supply the site with power in lieu of a combination of solar panels and generators. Both action alternatives would also provide space for co-location of cellular services by another cellular provider if first approved and permitted by the United States Fish and Wildlife Service. Both alternatives also provide for future distributed energy for power, should that become available at this location in the future.

Under the No Action Alternative, the telecommunications facility would not be built near Mystery Creek Road. No change would occur to current Refuge habitats, public access to this area, or Refuge management activities. Emergency services and commercial users would continue to be subject to gaps in cellular communication service areas, and rural Alaska would fall short of the federally mandated rural buildout milestones of the Job Creation Act of 2012.

The Preferred Alternative, the Propane Only Alternative, and the No Action Alternative have been assessed based on the Council of Environmental Quality's regulations for implementation of the National Environmental Policy Act context and intensity criteria (40 Code of Federal Regulations 1508.27) based on resource group. This EA was prepared to consider the environmental effects of each alternative. Table ES-1 provides a summary of the EA findings.

Table ES-1. Summary of environmental effects for Alternative A: No Action, Alternative B: Preferred Alternative, and Alternative C: Propane Only Alternative.

Resource Group	Alternative	Impact Category	Impact Justification
Terrestrial Wildlife and Aquatic Species	Alternative A: No Action	No effect	No long- or short-term effects
	Alternative B: Propane and Solar (Preferred Alternative)	Long-term minor effect	Minor, short-term noise and physical effects from construction Minor, long-term noise effects from generator use, primarily limited to disturbed areas when the generator is in use Minor, long-term effects on habitat and vegetation from clearing 0.41 acre of trees and shrubs for the fire buffer Negligible long- and short-term effects on air resources from construction and maintenance Minor, long-term effect on habitat and vegetation from the potential introduction of invasive and exotic species
	Alternative C: Propane Only Alternative	Long-term minor effect	Same as the Preferred Alternative Minor, long-term effects in excess of Alternative B from 42 percent additional generator use resulting in additional animal deterrence
Visitor Use and Experience	Alternative A: No Action	No effect	No long-term or temporary effects
	Alternative B: Propane and Solar (Preferred Alternative)	Long-term moderate beneficial effect and long-term minor negative effect	Moderate, long-term, beneficial effect from allowing users to engage with the Refuge in new ways and providing a sense of safety Minor, long-term, negative effect resulting from fewer parking options on Mystery Creek Road and if users prefer recreating within areas without cell phone service.
	Alternative C: Propane Only Alternative	Long-term moderate beneficial effect and long-term minor negative effect	Same as the Preferred Alternative



Resource Group	Alternative	Impact Category	Impact Justification
Cultural Resources	Alternative A: No Action	No effect	No long-term or temporary effects
	Alternative B: Propane and Solar (Preferred Alternative)	No effect	No long-term or temporary effects SHPO concurred with the proposed determination of No Historic Properties Affected
	Alternative C: Propane Only Alternative	No effect	Same as Preferred Alternative
Subsistence	Alternative A: No Action	No effect	No long- or short-term effects
	Alternative B: Propane and Solar (Preferred Alternative)	Short-term minor effect	Minor, short-term effect resulting in noise and physical effects from construction influencing wildlife movement
	Alternative C: Propane Only Alternative	Short-term minor effect	Same as the Preferred Alternative
Visual Resources	Alternative A: No Action	No impact	No long-term or temporary effects
	Alternative B: Propane and Solar (Preferred Alternative)	Long-term minor effect	Minor, long-term effect from the tower being visible in the viewshed from commonly visited areas, including locations within the Mystery Creek Wilderness Area
	Alternative C: Propane Only Alternative	Long-term minor effect	Same as the Preferred Alternative
Noise	Alternative A: No Action	No effect	No long-term or temporary effects
	Alternative B: Propane and Solar (Preferred Alternative)	Long- and short-term minor effects	Minor, short-term noise effects from Project construction Minor, long-term effects from generator use and shelter cooling units, primarily limited to disturbed areas
	Alternative C: Propane Only Alternative	Long- and short-term minor effects	Same as Preferred Alternative except effects will occur at 43 percent greater frequency due to loss of solar power under this alternative
Greenhouse Gas Emissions	Alternative A: No Action	No effect	No long- or short-term effects
	Alternative B: Propane and Solar (Preferred Alternative)	Long-term negligible effect	Negligible, long-term effects from emissions generated from generators and maintenance operations
	Alternative C: Propane Only Alternative	Long-term negligible effect	Same, but in excess of, the Preferred Alternative due to increased generator use



Resource Group	Alternative	Impact Category	Impact Justification
Refuge Management and Operation	Alternative A: No Action	No effect	No long-term or temporary effects
	Alternative B: Propane and Solar (Preferred Alternative)	Long-term minor negative effect and long-term minor beneficial effect	Minor, long-term effects resulting from the need to modify wildfire protection for this area due to the presence of fire-susceptible infrastructure where none previously existed Minor, long-term, negative effect to aviation operations due to the proximity of the tower, a navigation hazard, to a Refuge helicopter landing area 0.5 mile west of the tower location Minor, long-term beneficial effect from enhanced cellular coverage in support of Refuge operations
	Alternative C: Propane Only Alternative	Long-term minor negative effect and long-term minor beneficial effect	Same as Preferred Alternative
Socioeconomics	Alternative A: No Action	No effect	No long- or short-term effects
	Alternative B: Propane and Solar (Preferred Alternative)	No effect	No long- or short-term effects
	Alternative C: Propane Only Alternative	No effect	No long- or short-term effects
Public Health and Safety	Alternative A: No Action	Long-term moderate effect	Moderate, long-term effect may occur due to gaps in first responder network coverage and cellular coverage
	Alternative B: Propane and Solar (Preferred Alternative)	Long-term minor negative effect and long-term moderate beneficial effect	Minor, long-term effects from air pollution on human health Moderate, long-term moderate beneficial effect from increased access to first responders and decreased first responder response time
	Alternative C: Propane Only Alternative	Long-term minor negative effect and long-term moderate beneficial effect	Same as Preferred Alternative except effects on air pollution will occur at 43 percent greater frequency due to loss of solar power under this alternative



Resource Group	Alternative	Impact Category	Impact Justification
Environmental Justice	Alternative A: No Action	No effect	No long- or short-term effects
	Alternative B: Propane and Solar (Preferred Alternative)	No effect	No long- or short-term effects
	Alternative C: Propane Only Alternative	No effect	No long- or short-term effects
Cumulative Effects	Alternative A: No Action	No effect	No long- or short-term effects
	Alternative B: Propane and Solar (Preferred Alternative)	Long-term minor effects	Minor, long-term effects from visual resources
	Alternative C: Propane Only Alternative	Long-term minor effects	Same as Preferred Alternative

Notes: SHPO = State Historic Preservation Officer; no effect = resource would not be affected; negligible = resource is slightly affected but the impact is so minimal the effects are not detectable or observable; minor = effects are detectable but insignificant; moderate = effects are detectable and may have effects to the population or resource on a large scale

DRAFT

Table of Contents

Executive Summary	i
1 Introduction	1
1.1 Proposed Action	1
1.2 Background	1
1.3 Purpose of and Need for the Action	3
1.4 USFWS Decision to be Made	3
1.5 Alternatives.....	4
1.5.1 Alternative A: No Action Alternative	4
1.5.2 Alternative B: Propane and Solar (Preferred Alternative)	4
1.5.3 Alternative C: Propane Only Alternative	7
1.6 Construction Details and Timeline	7
1.7 Alternatives Considered but Eliminated from Discussion	8
1.7.1 Open Field Location.....	8
1.7.2 Hideout Hill	8
2 Affected Environment.....	9
2.1 Natural Resources.....	9
2.1.1 Terrestrial Wildlife and Aquatic Species.....	9
2.1.2 Habitat and Vegetation	14
2.1.3 Geology and Soils.....	15
2.1.4 Air Resources	16
2.1.5 Water Resources.....	16
2.1.6 Wilderness or Other Special Designation.....	19
2.2 Visitor Use and Experience.....	21
2.3 Cultural Resources	22
2.4 Subsistence.....	23
2.5 Visual Resources.....	23
2.6 Noise	23
2.7 Greenhouse Gas Emissions	24
2.8 Refuge Management and Operation.....	24
2.9 Socioeconomics	24
2.10 Public Health and Safety	25



2.11	Environmental Justice.....	25
3	Environmental Consequences	26
3.1	Natural Resources	26
3.1.1	Alternative A: No Action Alternative	26
3.1.2	Alternative B: Propane and Solar Alternative (Preferred Alternative).....	26
3.1.3	Alternative C: Propane Only Alternative.....	29
3.2	Visitor Use and Experience.....	30
3.2.1	Alternative A: No Action Alternative	30
3.2.2	Alternative B: Propane and Solar (Preferred Alternative)	30
3.2.3	Alternative C: Propane Only Alternative.....	30
3.3	Cultural Resources	30
3.3.1	Alternative A: No Action Alternative	30
3.3.2	Alternative B: Propane and Solar Alternative (Preferred Alternative).....	31
3.3.3	Alternative C: Propane Only Alternative.....	31
3.4	Subsistence.....	31
3.4.1	Alternative A: No Action Alternative	31
3.4.2	Alternative B: Propane and Solar Alternative (Preferred Alternative).....	31
3.4.3	Alternative C: Propane Only Alternative.....	31
3.5	Visual Resources.....	31
3.5.1	Alternative A: No Action Alternative	31
3.5.2	Alternative B: Propane and Solar Alternative (Preferred Alternative).....	31
3.5.3	Alternative C: Propane Only Alternative.....	39
3.6	Noise	39
3.6.1	Alternative A: No Action Alternative	39
3.6.2	Alternative B: Propane and Solar (Preferred Alternative)	39
3.6.3	Alternative C: Propane Only Alternative.....	40
3.7	Greenhouse Gas Emissions	41
3.7.1	Alternative A: No Action Alternative	41
3.7.2	Alternative B: Propane and Solar Alternative (Preferred Alternative).....	41
3.7.3	Alternative C: Propane Only Alternative.....	42
3.8	Refuge Management and Operation.....	42
3.8.1	Alternative A: No Action Alternative	42
3.8.2	Alternative B: Propane and Solar Alternative (Preferred Alternative).....	42



3.8.3	Alternative C: Propane Only Alternative	42
3.9	Socioeconomics	42
3.9.1	Alternative A: No Action Alternative	42
3.9.2	Alternative B: Propane and Solar Alternative (Preferred Alternative)	43
3.9.3	Alternative C: Propane Only Alternative	43
3.10	Public Health and Safety	43
3.10.1	Alternative A: No Action Alternative	43
3.10.2	Alternative B: Propane and Solar Alternative (Preferred Alternative)	43
3.10.3	Alternative C: Propane Only Alternative	44
3.11	Environmental Justice	44
3.12	Cumulative Effects	44
4	Mitigation Measures	45
4.1	Applicant Committed Measures	45
4.1.1	Natural Resources	45
4.1.2	Visitor Use and Experience	46
4.1.3	Visual Resources	46
4.1.4	Noise	46
4.1.5	Greenhouse Gas Emissions	46
4.1.6	Refuge Management and Operation	46
4.1.7	Public Health and Safety	46
4.2	USFWS Suggested Mitigation Measures	46
4.2.1	Natural Resources	47
5	Public Outreach	47
6	List of Preparers, and Persons and Agencies Consulted	48
7	References	50
Appendix A.	Subsistence Evaluation	A
Appendix B.	EJScreen	B
Appendix C.	USFWS IPaC	C
Appendix D.	SHPO Concurrence	D

Tables

Table ES-1. Summary of environmental effects for Alternative A: No Action, Alternative B: Preferred Alternative, Alternative C: Propane-Only Alternative..... ii

Table 2-1. AHRS sites within the cultural resources study area22

Table 2-2. Dena'ina place names within the cultural resources study area.....23

Table 3-1 Greenhouse Gas Emissions for Each Alternative41

Table 3-2. Reasonably foreseeable future actions within the Proposed Action area that may result in cumulative effects.....45

Table 6-1. Preparers and persons consulted.....48

Figures

Figure 1-1. Proposed Action vicinity map.5

Figure 1-2. Alternative B: Propane and Solar (Preferred Alternative).6

Figure 2-1. Nearby waterbodies.18

Figure 2-2. Nearby Kenai Wilderness Area units20

Figure 3-1. Visual rendering of the view from road pullout during early summer conditions.....33

Figure 3-2. Visual rendering of the view from the Kelly Lake Campground during early summer conditions.....34

Figure 3-3. Visual rendering of the view from the Skyline Ridge Trail during summer.35

Figure 3-4. Visual rendering of the view from across the Sterling Highway.36

Figure 3-5. Visual rendering of the view from the gravel pad.....37

Figure 3-6. Visual rendering photograph locations.38

Figure 3-7. Preferred Alternative noise modeling results.40

Acronyms and Abbreviations

Acronym	Definition
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AHRS	Alaska Heritage Resources Survey
ANCSA	Alaska Native Claims Settlement Act
ANILCA	Alaska National Interest Lands Conservation Act
BMP	best management practice
CFR	Code of Federal Regulations
CO	carbon monoxide
CO ₂	carbon dioxide
dBA	A-weighted decibels
EA	Environmental Assessment
EPA	Environmental Protection Agency
ft ²	square foot/feet
g	gram(s)
GMU	Game Management Unit



Acronym	Definition
HDR	HDR Engineering, Inc.
kHz	kilohertz(s)
KPB	Kenai Peninsula Borough
kW	kilowatt(s)
kWh	kilowatt hour
MBTA	Migratory Bird Treaty Act
MP	Milepost
N ₂ O	nitrous oxide
NCW	New Cingular Wireless PCS, LLC
NEPA	National Environmental Policy Act
NMHC	nonmethane hydrocarbons
NO _x	nitrogen oxide
NRHP	National Register of Historic Places
NWRS	National Wildlife Refuge System
NWRSAA	National Wildlife Refuge System Administration Act
PM	particulate matter
Proposed Action or project	Mystery Creek Wireless Communications Tower Project
Refuge	Kenai National Wildlife Refuge
ROW	right-of-way
SHPO	State Historic Preservation Officer
SP	SoundPlan 3D acoustic modeling software
USC	United States Code
USFWS	United States Fish and Wildlife Service



Date: November 27, 2024

This Draft Environmental Assessment (EA) has been prepared to evaluate the effects associated with the Proposed Action and alternatives in compliance with the National Environmental Policy Act (NEPA; 42 United States Code [USC] 4321–4347) in accordance with Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] 1500–1509) in effect July 1, 2024, as well as Department of the Interior (43 CFR 46; 516 DM 8) and United States Fish and Wildlife Service (USFWS; 550 FW 3) regulations and policies. NEPA requires examination of the effects of proposed actions on the natural and human environment. Sections 2 and 3 discuss existing conditions and impacts on resources that may be affected by the Proposed Action.

1 Introduction

1.1 Proposed Action

New Cingular Wireless PCS, LLC (NCW), a subsidiary of AT&T, proposes to build a new wireless communications tower and facility within the Kenai National Wildlife Refuge (Refuge) as part of the Mystery Creek Road FirstNet Communications Project (Proposed Action). NCW is applying (40 CFR 1508.1(c)) for a right-of-way (ROW) permit from USFWS to site the proposed tower and communications facility within the Refuge. The new communications infrastructure would be designed to meet AT&T's coverage objectives for its FirstNet Network and provide service for commercial customers within a geographic area that is not currently serviced by AT&T's existing wireless communications network along the Sterling Highway between Mystery Hills, Cooper Mountain, and Sterling. The Proposed Action will meet all federal regulations for siting new telecommunications facilities on public lands. The Proposed Action is funded by AT&T's construction funding for new FirstNet sites.

1.2 Background

National Wildlife Refuges are guided by the mission and goals of the National Wildlife Refuge System (NWRS), the purposes of an individual refuge, USFWS policy, and laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act (NWRSA) of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, Refuge Recreation Act of 1962, the Alaska National Interest Lands Conservation Act (ANILCA) of 1980, and selected portions of the CFR and Fish and Wildlife Service Manual.

The Refuge was established as the Kenai National Moose Range pursuant to Executive Order 8979, signed December 16, 1941, with a primary purpose of protecting the natural breeding and feeding range of the giant Kenai moose on the Kenai Peninsula, Alaska. The moose are a unique wildlife feature, and the Refuge presents an unusual opportunity for the study of moose in a natural environment for the practical management of a big game species that has considerable economic value.



In 1980, ANILCA redesignated the Moose Range as the Kenai National Wildlife Refuge (Refuge), broadened its conservations purposes, substantially expanded its boundaries, and established the 1.35 million-acre Kenai Wilderness. Today, the Refuge comprises more than 1.9 million acres.

ANILCA sets out purposes for the Refuge in Section 303(4)(B) of the Act. ANILCA purposes for the Refuge are as follows:

- (i) To conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to, moose, bears, mountain goats, Dall sheep, wolves and other furbearers, salmonids and other fish, waterfowl and other migratory and nonmigratory birds;*
- (ii) To fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitat;*
- (iii) 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;*
- (iv) To provide in a manner consistent with subparagraphs (I) and (II), opportunities for scientific research, interpretation, environmental education, and land management training; and*
- (v) To provide, in a manner compatible with these purposes, opportunities for fish and wildlife-oriented recreation.*

USFWS policy (FWS 603 2.8) directs that pre-ANILCA purposes remain in force and effect, except to the extent that they may be inconsistent with ANILCA or the Alaska Native Claims Settlement Act (ANCSA), and that such purposes only apply to those areas of the Refuge in existence prior to ANILCA. The Executive Order purpose to protect Kenai moose, however, is treated as complementary to the broader ANILCA purpose of conserving fish and wildlife populations. Therefore, no special attention is given to the Executive Order purpose in this compatibility review process.

As discussed above, ANILCA designated approximately 1,350,000 acres of the Refuge as wilderness. Except as otherwise expressly provided for in ANILCA, designated wilderness is to be administered in accordance with applicable provisions of the Wilderness Act of 1964 (Public Law 88-577). Section 4.(3)(b) of the Wilderness Act provides,

Except as otherwise provided in this chapter, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. Except as otherwise noted in this Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.

1.3 Purpose of and Need for the Action

The purpose of this EA is to evaluate the decision of whether to issue a short-term ROW permit for the Proposed Action, as well as a long-term communication lease to operate and maintain these communications sites. The EA will provide sufficient evidence and analysis for determining whether there is potential for significant impact, thus requiring an Environmental Impact Statement, or whether there is justification to prepare a Finding of No Significant Impact.

USFWS must respond to applications for transportation and utility systems in and across, and access into, conservation system units under Title XI of ANILCA and in compliance with the NWRSA (16 USC 668dd–668ee). If the Proposed Action is found compatible and meets the decision criteria outlined in Title XI of ANILCA and the regulations at 43 CFR 36.7(a)(2), including that no economically feasible or prudent alternative exists outside the Refuge, then USFWS would issue a short-term ROW permit to authorize the construction of the telecommunications tower. The ROW permit would also provide temporary access across public lands in a manner that is consistent with the provisions and objectives established for the management of resources within the respective planning area to ensure the public uses described herein and to prevent unnecessary or undue degradation to public lands. Once construction is complete, a long-term communication lease would be authorized.

1.4 USFWS Decision to be Made

USFWS is the lead federal agency in this NEPA process. The lead agency is defined as the designee having primary responsibility for preparing the EA. Pursuant to 40 CFR 1508(t), USFWS has the authority to approve or veto the action proposed by NCW in this EA. The decision to be made by USFWS is whether to authorize ROWs for both temporary construction to build and conduct long-term operations as well as maintenance of the Proposed Action. USFWS is 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 USFWS 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.

USFWS reviews ROW applications under the terms of the NWRSA of 1966 (16 USC 668dd–668ee) as amended, and the regulations found at 50 CFR Part 29. Additionally, ROW proposals for Transportation and Utility Systems in or across conservation system units established by ANILCA fall under the authorities and requirements established in Title XI of ANILCA.

1.5 Alternatives

NCW and USFWS pose three separate alternatives to be analyzed as part of this EA; Alternative A: No Action Alternative; Alternative B: Propane and Solar (Preferred Alternative); and Alternative C: Propane Only. Both action alternatives are to be placed on Mystery Creek Road (Figure 1-1).

1.5.1 Alternative A: No Action Alternative

Under the No Action Alternative, the proposed telecommunications tower and site would not be built. No change to the Refuge would occur. Communications would remain in their current state along the Sterling Highway between Mystery Hills, Cooper Mountain, and Sterling. Rural Alaska would fall short of federally mandated rural buildout milestones of the Middle-Class Tax Relief and Job Creation Act (H.R. 3630; Public Law 112-96) of 2012.

1.5.2 Alternative B: Propane and Solar (Preferred Alternative)

The Preferred Alternative includes the construction, operation, and maintenance of a new 198-foot-tall, non-reflective, self-supporting, lattice cellular communications tower and foundation with an equipment shelter (Figure 1-2). The communications site would be situated on an existing gravel pad on Mystery Creek Road approximately 405 feet from the Sterling Highway within the Refuge. The Preferred Alternative location was identified through engineering surveys to be sited as a favorable position to provide high-quality service to AT&T's FirstNet and commercial users throughout most of the desired coverage area.

The communications tower would be outfitted with antennas, remote radios, a microwave dish, an ice shield, and supporting cabling and mounting equipment. The tower would be accompanied by a communications shelter. The shelter would house batteries that provide power to the site. Propane generators (59.6 inches by 26.9 inches by 42.6 inches each) would supply power to the batteries, with additional power provided by a solar array. In addition to generators, the site would include two 1,000-gallon propane tanks and a buried fuel line between the propane tanks and generators. The propane tank and generators would be placed on concrete pads. The solar array would be constructed adjacent to the communications shelter. The array is estimated to be 52 feet long and cover an approximately 313-square-foot (ft²) footprint.

The 12,950-ft² (0.30 acre) site would be surrounded by an 8-foot-tall fence. The bottom 6 feet of the fence would be constructed from chain link, and the top 2 feet of the fence would be composed of barbed wire. Access gates would be placed on the northern and eastern sides of the fence. The 0.30-acre site would be surrounded by a 0.41-acre fire buffer. Trees and shrubs within the fire buffer would be maintained to reduce wildfire safety risks. The site would have a 0.71-acre footprint.



Figure 1-1. Proposed Action vicinity map.

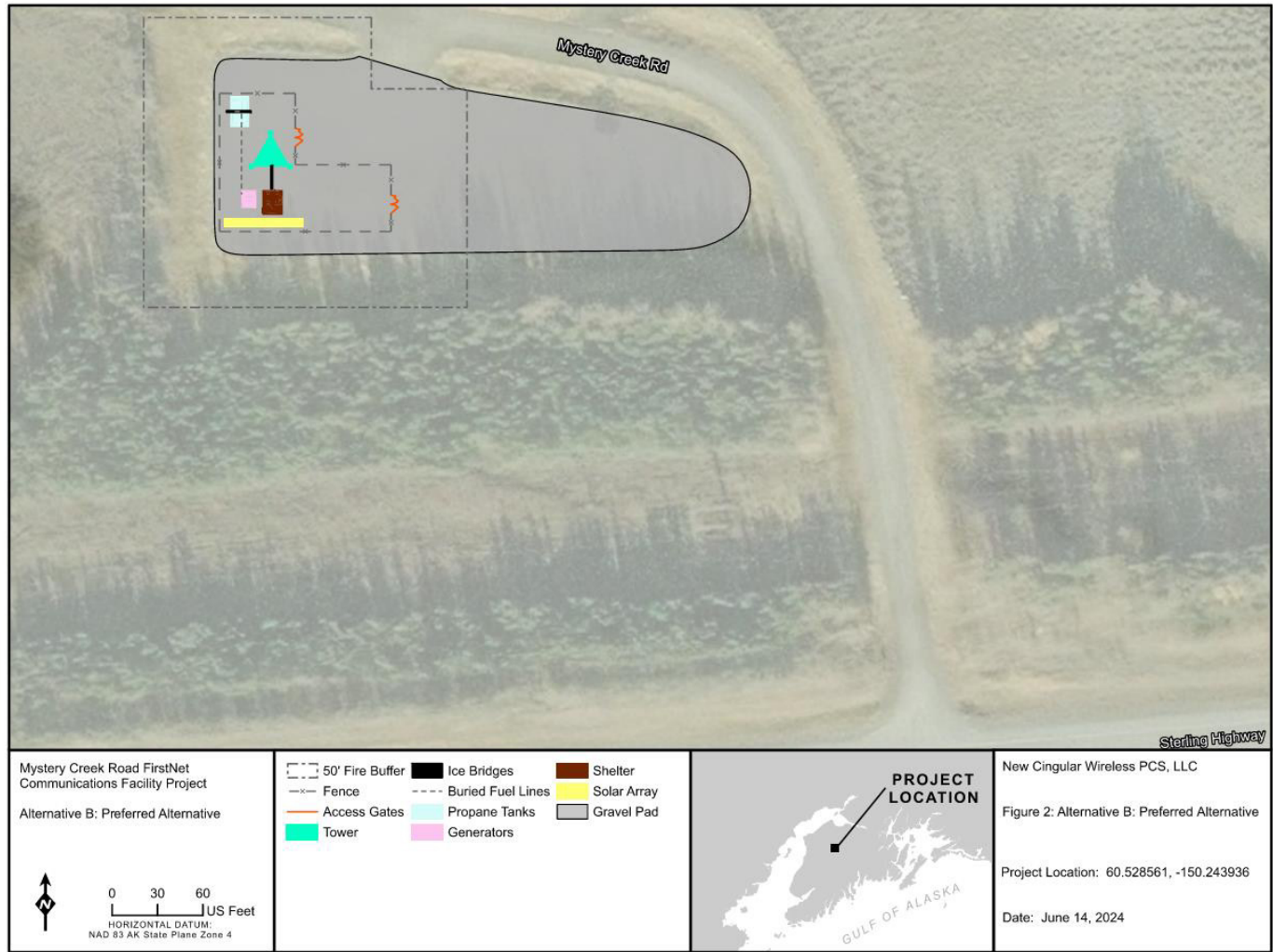


Figure 1-2. Alternative B: Propane and Solar (Preferred Alternative).



The gravel pad would require minimal clearing and grading prior to construction. Spaces on the gravel pad outside the site footprint would be used for staging and temporary work areas. The Preferred Alternative would not require the construction of new temporary work areas. Tower-mounted antennas, tower equipment, and the shelter's exterior would be treated to reduce or eliminate reflective glare. The fenced compound would be lined with privacy slats on the northern, eastern, and western perimeter to screen the ground equipment from view, and the design would incorporate aesthetic concepts to reduce the infrastructure's potential impact on visual resources. The southern perimeter would be positioned against an existing vegetative buffer to screen the equipment. The Preferred Alternative would meet all federal regulations for siting new telecommunications facilities on public lands.

Unused ground space within the fence would be left bare and provide an area for the siting of potential future infrastructure or co-location of cellular services by another cellular provider if first approved and permitted by USFWS. The Preferred Alternative site is located approximately 561 feet above mean sea level. An approximately 390-foot utility easement may be cleared in the future between the site and the Sterling Highway for utility access should distributed power become available in the future. The utility corridor effects are included within the review of the Preferred Alternative.

1.5.3 Alternative C: Propane Only Alternative

Infrastructure siting and maintenance for the Propane Only Alternative would be the same as the Preferred Alternative. The difference between the Preferred Alternative and Propane Only Alternative is that this alternative would rely solely on power generated from on-site propane generators and would not include a solar array. As with the Preferred Alternative, the generators would be placed on a concrete foundation. Additional concrete foundations would be constructed to support 1,000-gallon propane tanks. A fuel line would be buried between the propane tanks and generators. The same future utility easement as described under the Preferred Alternative is included in this alternative between the site and the Sterling Highway for potential future utility access should distributed power become available.

1.6 Construction Details and Timeline

Construction would require the following (or similar) heavy equipment: 200-foot crane, mini excavator, skid steer, dump truck, concrete truck, compactor, squirt boom truck or boom truck, propane fueling truck, and pile driving crane. Additionally, construction would require the use of the following (or similar) ancillary facilities and vehicles: an F-550 crew truck, an F-250 crew truck, six pallets, a prefabricated equipment shelter weighing no more than 4 tons, two 27-kilowatt (kW) propane generators, 10 pallets of solar equipment (if the Preferred Alternative is selected), and two 1,000-gallon propane tanks.

The construction would occur in one phase. The timeline would vary depending on the season the Proposed Action is constructed in, taking approximately 3 months if constructed during summer and 6 months if constructed during winter. The Proposed Action would begin with churning the top 3 inches of gravel of the site. Trenches would be created for power cables between the generators and solar array as well as to the propane lines, and a pile for the tower

would be driven into the ground. The tower would then be delivered and subsequently constructed in 20-foot sections. At that time, sector frames with antennas and radios would be constructed and placed on the tower where designed, and the tower crew would wire necessary electrical components on the tower.

After tower construction, the concrete pads would be placed. This would be followed by the siting and wiring of the communications facility, generators, and propane tanks. The fence would be constructed, and the fire buffer would be cleared. Next, the solar panel infrastructure would be constructed. The final components of construction would include the microwave tower installation and final equipment connections.

1.7 Alternatives Considered but Eliminated from Discussion

In accordance with 40 CFR 1502.14(a), agencies are required to describe the alternatives considered but eliminated from detailed study and to provide a brief rationale for eliminating the alternative.

The Proposed Action proposes to build a new wireless communications site near Milepost (MP) 63 of the Sterling Highway within the Refuge. During the initial planning stages, NCW considered other locations for the Proposed Action. The subsections below describe the other locations considered during the initial planning efforts and the rationale for their elimination from further analysis.

1.7.1 Open Field Location

The open field location alternative would retain all infrastructure components listed in the Proposed Action but would place the Proposed Action site within an open field 130 feet southwest of the Proposed Action site. With guidance from USFWS, this alternative was eliminated from discussion due to the ground disturbance effects that would come from leveling and placing fill in the field to support the infrastructure and site access.

1.7.2 Hideout Hill

As an alternative to the Mystery Creek Road location, Hideout Hill was considered as a potential location for the Proposed Action. Hideout Hill is approximately 1.2 miles from existing road access and currently has a repeater station on site. To facilitate construction, operations, and maintenance, this alternative would require a road to be built with 2,129 feet of roadway elevation change. Switchbacks would need to be constructed to overcome rapid elevation change, which would add an additional 1 mile of roadway. In total, this alternative would have required a 2.25-mile-long road to be built, which would include blasting and other forms of road construction. The hillside would need to be leveled to site the Proposed Action's foundations. This alternative was eliminated from further consideration due to its substantially greater environmental impacts than either action alternative. Additionally, the estimated cost for the Hideout Hill alternative exceeded \$20 million, making this alternative financially infeasible.

2 Affected Environment

The Preferred Alternative is sited on a previously disturbed gravel pad. The gravel pad is approximately 37,000 ft² in size and located at 60,528552°, -150.243382° on Mystery Creek Road near the intersection of Mystery Creek Road and MP 63 of the Sterling Highway within the Refuge. The Preferred Alternative would include the construction, operation, and maintenance of a new 198-foot-tall, non-reflective, self-supporting, lattice cellular communications tower and foundation, with a 10- by 10-foot shelter. The Preferred Alternative footprint would be 0.30 acre and include an additional 0.41-acre fire buffer. The total footprint size for both action alternatives would be 0.71 acre. The existing conditions of resources likely to be affected by the Preferred Alternative are described in this section, and potential environmental consequences to these resources are analyzed in Section 3.

2.1 Natural Resources

2.1.1 Terrestrial Wildlife and Aquatic Species

The Refuge provides diverse habitats, including mountains, wetlands, lakes, and rivers, to support a wide array of terrestrial wildlife and aquatic species. This section describes fish and wildlife species known to exist in the Preferred Alternative vicinity. The Preferred Alternative would be sited within an area that is currently used as emergency and overflow parking along Mystery Creek Road. Given that it is currently a gravel lot, it is not a natural environment of the Refuge. No waterbodies exist within 250 feet of the gravel pad.

2.1.1.1 Brown Bear

The only survey-based population estimate of brown bears (*Ursus arctos*) on the Kenai Peninsula was conducted during 2010 and produced a population density of 42 brown bears per 1,000 square kilometers (Morton et al. 2016). This density translated to a population of approximately 582 individual brown bears on the Kenai Peninsula in 2010.

2.1.1.2 Black Bear

No current population estimates exist for black bear (*Ursus americanus*) on the Kenai Peninsula, and population level surveys have never been conducted on black bear within the area. The most recent density estimate research was comparing the 1947 and 1969 burn habitats, and was specific to those two different seral stages (Schwartz and Franzman 1991). That study produced black bear density estimates of 205 (1947) and 265 (1969) per 1,000 square kilometers but does not represent the density of black bears across the entire Refuge.

2.1.1.3 Caribou

Large caribou (*Rangifer tarandus*) populations thrived on much of the Kenai Peninsula prior to several large wildfires during the late 1880s that destroyed lichen forage, limiting the number of caribou the area could support. Reintroduction efforts during the 1960s and 1980s established four herds on the Kenai Peninsula: the Kenai Mountain, Kenai Lowlands, Killey River, and Fox

River herds (Herreman 2020a). The Kenai Lowlands herd's wintering habitat includes areas of Refuge in the Preferred Alternative vicinity.

2.1.1.4 Dall Sheep

Dall sheep (*Ovis dalli*) habitat is common within the Refuge. The Dall sheep population reached as low as 350 individuals on the Kenai Peninsula in 1942. Since 1953, Dall sheep hunting has been closed in the Cooper Landing Closed Area immediately east of the Preferred Alternative site. The Kenai Peninsula population rebounded to approximately 2,190 individuals in 1968. Over the next 10 years, it declined sharply to around 1,000 animals. In 1980, the bag limit was changed from one 3/4 curl ram to one 7/8 curl ram. It is unknown if this regulatory change had any direct effect on the population, which began to rise again slowly over the next 15 years, reaching 1,500 animals in 1997. Since that time, the population declined and is currently estimated at fewer than 500 animals. This decline occurred even with protecting females from hunting. The factors for this decline are unknown, but may include disease, predation, and habitat change, such as changes in spring foraging plant phenology, likely stemming from global climate change (Herreman 2018; Aycrigg et al. 2021), and rain on snow events limiting access to winter forage (Van de Kerk et al. 2020).

2.1.1.5 Furbearers

The Kenai Peninsula supports many species of furbearers, including beaver (*Castor canadensis*), coyote (*Canis latrans*), lynx (*Lynx canadensis*), mink (*Neogale vison*), muskrat (*Ondatra zibethicus*), river otter (*Lontra canadensis*), ermine (*Mustela erminea*), wolf (*Canis lupus*), red squirrel (*Tamiasciurus hudsonicus*), marmot (*Marmota caligata*), and wolverine (*Gulo gulo*).

The most common furbearers within the Preferred Alternative area are beaver, river otter, coyote, wolf, and lynx. Beavers are common in the Preferred Alternative vicinity; however, their population trends are generally understudied. River otters are also common within the Preferred Alternative vicinity. They are present on much of the Kenai Peninsula in drainages that support anadromous fish and lake systems. Coyote population status is unknown on the Kenai Peninsula. Lynx population trends are cyclical in nature, fluctuating in response to the cyclic populations of their primary prey, the snowshoe hare (*Lepus americanus*).

2.1.1.6 Wolf

Wolves were extirpated from the Kenai Peninsula by 1915 (Peterson and Woolington 1982) and began recolonizing during the 1960s. The wolf (*Canis lupus*) population on the Kenai Peninsula has fluctuated over time, likely due to fluctuations in prey abundance. The Refuge and the Alaska Department of Fish and Game (ADF&G) conducted extensive research and monitoring of wolves during the 1970s and 1980s, and the ADF&G began a new research effort in 2017. Wolf populations during the 1980s were estimated at 133 individuals in Game Management Unit (GMU) 15 (Peterson et al. 1984) and are currently estimated at 80 to 100 animals (ADF&G unpublished data). Wolf populations likely declined on the northern Kenai Peninsula in response to moose population declines associated with declining habitat quality with forest succession following large wildfires in 1947 and 1969. Moose populations within this area are expected to



increase in response to favorable habitat created by large fires in 2014 and 2019. The increase in prey resources will allow for wolf population growth as prey resource abundance becomes less of a limiting factor.

2.1.1.7 Mountain Goat

The mountain goat (*Oreamnos americanus*) population on the Kenai Peninsula began to decline during the 1990s. Harvest restrictions have returned mountain goat populations to the pre-1990s numbers throughout most of the Kenai Peninsula. However, it is suspected that increased helicopter traffic and winter recreation activities within mountain goat habitat are limiting population growth within some areas (Herreman 2022a).

2.1.1.8 Moose

The Preferred Alternative site is within GMU 15A. In 2020, ADF&G conducted a moose population survey within GMU 15A. The survey yielded a population estimate of 818 individuals, well below the target population of 3,000 to 3,500 (Herreman 2022b). The small population size is largely attributed to the lack of large and periodic wildfires, which create browsing habitat. The population of moose typically begins to increase 7 to 8 years after a fire, and this increase can last for 20 to 25 years, until the vegetation grows too tall for the moose to reach (Loranger et al. 1991). Consequently, it is expected that the moose population in GMU 15A will start to increase in 2026 following the 2019 Swan Lake Fire.

2.1.1.9 Birds and Waterfowl

A total of 173 bird species are either migratory or breed within the Refuge (Refuge, pers. comm.). Bald eagles (*Haliaeetus leucocephalus*), trumpeter swans (*Cygnus buccinator*), and common loons (*Gavia immer*) are frequently observed on lakes and rivers within the Refuge. Common breeding landbirds within the Refuge include slate-colored junco (*Junco hyemalis*), myrtle warbler (*Setophaga coronata*), orange-crowned warbler (*Vermivora celata*), Swainson's thrush (*Catharus ustulatus*), boreal chickadee (*Poecile hudsonicus*), ruby-crowned kinglet (*Regulus calendula*), gray jay (*Perisoreus canadensis*), alder flycatcher (*Empidonax alnorum*), and American robin (*Turdus migratorius*) (USFWS 2010).

2.1.1.10 Fisheries

Pacific Salmon

The five Pacific salmon species that spawn in Alaska—Chinook (*Oncorhynchus tshawytscha*), sockeye (*O. nerka*), coho (*O. kisutch*), pink (*O. gorbuscha*), and chum (*O. keta*)—all return to natal streams and rivers within the northern Kenai Peninsula. Anadromous fish gain access to these freshwater drainages from Cook Inlet. Other anadromous fishes within the Preferred Alternative vicinity include Dolly Varden (*Salvelinus malma*), steelhead (*O. mykiss*), and eulachon (*Thaleichthys pacificus*).

The Kenai River is a glacially fed system originating at Kenai Lake approximately 16 miles southeast of the Preferred Alternative vicinity. The Kenai River is approximately 5 miles from the Preferred Alternative site, on the opposite side of the Sterling Highway. Near the Preferred Alternative site, the river runs southward and flows westward and southward to its confluence

with Cook Inlet. Dog Team Lake and Upper Jean Lake, the nearest waterbodies to the Preferred Alternative site, are lower in elevation than the Preferred Alternative site and flow into the Kenai River. In total, the Kenai River is 82 miles long and is fed by many freshwater drainages within the northern Kenai Peninsula.

Common resident freshwater species include rainbow trout (*O. mykiss*), Dolly Varden, and lake trout (*Salvelinus namaycush*). In addition to these naturally occurring populations, ADF&G stocks rainbow trout, Dolly Varden, and lake trout in some Kenai Peninsula lakes.

2.1.1.11 Threatened and Endangered Species

No threatened or endangered species having protections from the Endangered Species Act of 1973 have ranges that overlap with the Preferred Alternative area. No special status species proposed to be listed in the Endangered Species Act have ranges that overlap with the Preferred Alternative site (USFWS 2024a; NMFS 2024).

2.1.1.12 Birds of Conservation Concern and the Migratory Bird Treaty Act of 1918

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 as amended (16 USC 703 et seq.), which implements treaties with Canada, Mexico, Japan, and the Russian Federation. Many bird species travel from all over the world to breed and nest in Alaska, and some may transit through and use habitat within or near the Preferred Alternative site. Under the MBTA, it is illegal to “take” migratory birds, their eggs, feathers, or nests, unless permitted by regulations (39 *Federal Register* 1178).

Several bird species within the area are also listed as birds of conservation concern, including the olive-sided flycatcher (*Contopus cooperi*), lesser yellowlegs (*Tringa flavipes*), and rusty blackbird (*Euphagus carolinus*; USFWS 2021). They tend to breed and nest within northern coniferous forests, such as those within the Refuge, and winter within the tropics. Olive-sided flycatchers predate on insects. They often perch and catch insects that fly by, rarely foraging from the ground (National Audubon Society 2024a).

Lesser yellowlegs prefer marshes, mudflats, shores, ponds, and open boreal woods. Preferred habitat for breeding includes large clearings such as burn areas and near ponds within northern forests. Preferred nesting habitat is on the ground, in the open. This tends to be in a dry site and may be far from water. Nests are built in a small depression and sparsely lined with leaves or grass. Lesser yellowlegs diet includes insects, crustaceans, worms, snails, and small fish (National Audubon Society 2024b).

Rusty blackbirds prefer river groves and wooded swamps. They breed within muskeg habitats among wet northern coniferous forests populated with lakes and bogs. They will typically nest as isolated pairs but may choose to nest with small, unstructured colonies. Nests are built within areas of dense cover. They tend to choose sites within conifers or shrubs above the water. Twigs and grasses are often used as nest material, while the inner bowl is shaped out of decaying plant material and fine grasses. Rusty blackbird diet is composed of seeds and insects, including caddisflies, mayflies, dragonflies, water beetles, and terrestrial insects (National Audubon Society 2024c).

USFWS offers guidance measures for the MBTA (USFWS 2024b), which are:

- Intentional take of migratory birds may be permitted in limited situations (fws.gov/program/migratory-bird-permit).
- Incidental take (i.e., unintentional take from an otherwise lawful activity) of migratory birds cannot be permitted. The best way to avoid incidental take and comply with the MBTA is to avoid vegetation clearing, ground disturbance, and other site construction activities during the nesting season. Visit fws.gov/alaska-bird-nesting-season to view nesting season dates for migratory birds based on location, habitat, and bird species.

2.1.1.13 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Act of 1940 and the MBTA protect bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*). Bald eagles are likely present within or near the Preferred Alternative area. Their breeding season within the region spans March through August (USFWS 2024b). Bald eagles feed heavily upon salmon and carrion within the area. They often roost and nest within the highest trees and close to water within areas that have clear views of surrounding habitat. Bald eagles tend to build their nests during February and March and will return to the same nest or a secondary nest site nearby. Incubation lasts approximately 35 days, and young tend to leave the nest approximately 75 days after hatching. It takes approximately 4 to 5 years for an eagle to reach breeding age. Adults will perch near their nest site and continue to feed after incubation and rearing (ADF&G 2024a).

USFWS (2024b) offers regulatory best management practices (BMPs) on the Bald and Golden Eagle Protection Act, which include:

- If construction activity time restrictions are not possible, use down shielding or directional lighting to avoid light trespass into bird habitat (i.e., use a 'Cobra' style light rather than an omnidirectional light system to direct light down to the roadbed). To the maximum extent practicable, while allowing for public safety, low-intensity, energy-saving lighting (e.g., low-pressure sodium lamps) should be used.
- Minimize use of high-intensity lighting, steady-burning, or bright lights such as sodium vapor, quartz, halogen, fluorescent, or other bright spotlights.
- Minimize illumination of lighting on associated construction or operation structures by using motion or heat sensors. Use switches to keep lights off when not required.
- Avoid installing lights offshore or within 0.5 mile of the coast.
- Cap pipes, and cover and seal all small, dark spaces where birds may enter and become trapped.
- Install anti-perching devices on facilities and equipment where birds may commonly nest or perch.
- Cover or enclose all potential nesting surfaces on the structure with mesh netting, chicken wire fencing, or other suitable exclusion material prior to the nesting season to prevent birds from establishing new nests. The netting, fencing, or other material should have no opening or mesh size greater than 19 millimeters and should be maintained until the structure is removed.

2.1.1.14 USFWS Guidance on Broadband Towers for Migratory Birds

USFWS (2024b) offers guidance on BMPs associated with the site selection, construction, and operation of broadband towers as it concerns migratory birds. USFWS recommends conducting vegetation clearing and ground-disturbing operations outside regionally specific nesting windows. For the Proposed Action area this includes May 1 to July 15 for forest/woodland and shrub/open birds, April 15 to September 7 for seabird colonies, and March 1 to August 31 for eagles. Additional recommendations include:

- Prevent increase in lighting of native habitats during the bird breeding season.
- To the maximum extent practicable, limit construction activities to the time between dawn and dusk to avoid the illumination of adjacent habitat areas.
- If construction activity time restrictions are not possible, use down shielding or directional lighting to avoid light trespass into bird habitat (i.e., use a 'Cobra' style light rather than an omnidirectional light system to direct light down to the roadbed). To the maximum extent practicable, while allowing for public safety, low-intensity, energy-saving lighting (e.g., low-pressure sodium lamps) should be used.
- Minimize use of high-intensity lighting, steady-burning, or bright lights such as sodium vapor, quartz, halogen, fluorescent, or other bright spotlights.
- Minimize illumination of lighting on associated construction or operation structures by using motion or heat sensors. Use switches to keep lights off when not required.
- Avoid installing lights offshore or within 0.5 mile of the coast.
- Cap pipes, and cover and seal all small, dark spaces where birds may enter and become trapped.
- Install anti-perching devices on facilities and equipment where birds may commonly nest or perch.
- Cover or enclose all potential nesting surfaces on the structure with mesh netting, chicken wire fencing, or other suitable exclusion material prior to the nesting season to prevent birds from establishing new nests. The netting, fencing, or other material should have no opening or mesh size greater than 19 millimeters and should be maintained until the structure is removed.

2.1.2 Habitat and Vegetation

The Refuge is bordered on the north by Turnagain Arm/Chickaloon Bay, on the west by Cook Inlet, on the south by Kachemak Bay, and on the east by Prince William Sound. The Refuge is on the northern edge of the Sitka spruce-dominated (*Picea sitchensis*) coastal rainforest biome on the eastern edge of the Kenai Mountains and is on the western-most reach of boreal forest in North America on the western side of the Kenai Mountains. Forests within the Refuge are dominated by white (*Pineae glauca*), Lutz's (*Picea x lutzii*), and black spruce (*P. mariana*) intermixed with aspen (*Populus tremuloides*) and birch (*Betula neoalaskana*). Above the tree line, groundcover is composed primarily of lichen (Morton et al. 2009).

A total of 733 vascular plant species and 321 fungi, including lichen species, have been recorded within the Refuge (Refuge, pers. comm.). No special status plants are near the Preferred Alternative site. Land cover types present within the Refuge include alpine tundra,

estuarine or riparian areas, black spruce forest and peat bog, hardwood and mixed spruce-hardwood forests, black spruce forest, and white spruce forests. Steep slopes and mountainside habitats are sculpted by avalanches and receding glaciers, and the warming climate is actively drying lowland wetlands (USFWS 2010).

Forest habitats adjacent to the Preferred Alternative site have been impacted by both natural and human-caused processes. A large human-caused wildfire in 1947 burned this area, and the area burned again during the lightning-caused 2019 Swan Lake Fire, which burned more than 170,000 acres. During the mid-1970s, to support moose population growth, between 6,000 and 8,000 acres of maturing forest north of the Preferred Alternative area was mechanically crushed to create early succession habitat preferred by moose.

Warming climates have increased the frequency and extent of spruce bark beetle (*Dendroctom rufipennis*) outbreaks on the Kenai Peninsula. Their presence has resulted in significant destruction of spruce trees throughout the region. Other climate change-related habitat changes include a decline in base lake levels as much as 1 meter within the northern Kenai Peninsula. Many ponds shown on 1950s maps and aerial photographs are now grassy pans with various degrees of black spruce and hardwood invasion. Additionally, between the 1950s and 1990s, the tree line in the Kenai Mountains has risen on average 1 meter per year (Morton et al. 2009).

Approximately 100 exotic plant species have been documented on the Refuge (KNWR Biology Team 2022). The Refuge is particularly susceptible to exotic and invasive species because it is bisected by the Sterling Highway, which can be an introductory pathway for these species. Most recorded exotic plant species are located along roads, trails, seismic lines, utility ROWs, oil and gas infrastructure, campgrounds, and cabins. Exotic plant species include several invasive species such as scotch broom (*Cytisus scoparius*), white sweet clover (*Melilotus alba*), bird's vetch (*Vicia cracca*), reed canary grass (*Phalaris arundinacea*), and Elodea (*Elodea spp.*).

2.1.3 Geology and Soils

A 2024 geotechnical review of the Preferred Alternative site provided data on both sediment size and moisture content of the gravel pad and earth beneath it. Depending on the sediment core sample, gravel ranged from 48 to 56 percent of the sample composition, sand between 30 and 41 percent, and fines between 6 and 14 percent. Moisture content varied between 5 and 56 percent, depending on the sample (MasTec 2024).

The geology of the Preferred Alternative site vicinity is defined as unconsolidated surficial deposits. The geology is poorly to well-sorted, poorly to moderately well-stratified deposits, consisting predominately of alluvial, colluvial, marine, lacustrine, eolian, and swamp deposits. The area includes widespread glacial and periglacial deposits that consist of end, lateral, and ground moraine; outwash; rock glacier deposits; other glacial and periglacial deposits; and glacially scoured bedrock that may be covered with thin, glacially derived deposits. These glacial deposits are of Holocene and Pleistocene age and may include small areas of potentially late Tertiary deposits. They include reworked volcanic debris as well as block and ash flows (Wilson et al. 2015). National Resources Conservation Science soil survey information is not available for the Preferred Alternative site or surrounding area (USDA 2024a).

2.1.4 Air Resources

The Clean Air Act of 1977 requires USFWS to preserve, protect, and enhance air quality and air quality-related values on USFWS lands (USFWS 2010). The Clean Air Act established the Refuge as a Class II air quality area. Several sources of air pollution are identified within the region and are primarily related to oil and gas production and transport. In 2002, three major contributors of contamination within the region released more than 1.8 million pounds of contaminants on site into the air and water (USFWS 2010). The Alaska Department of Environmental Conservation (ADEC) does not have meteorological stations monitoring air quality near the Preferred Alternative site. The State of Alaska Department of Transportation and Public Facilities operates a meteorological station approximately 1.25 miles east of the Preferred Alternative site on the southern side of the Sterling Highway near MP 62. During record-breaking heat waves in July 2019, this site recorded a high of 89 degrees Fahrenheit. The lowest temperature recorded at this site is -45 degrees Fahrenheit (March 2017). The maximum recorded windspeed is 70 miles per hour (March 2024; DOT&PF 2024).

The annual temperatures across the Kenai Peninsula have increased a minimum of 3.4 degrees Fahrenheit between 1950 and 2017. Over this period, 75 percent of the annual average warming is attributed to greenhouse gas emissions. An increase in extreme heatwaves on the Kenai Peninsula and across the rest of Alaska have resulted in biological effects, including substantial fish die-offs and extensive wildfires. The 2019 Swan Lake Fire, which covered 170,000 acres of the Kenai Peninsula, including areas of the Refuge surrounding the Preferred Alternative site, has been attributed to these changing conditions. The 2019 Swan Lake Fire was the most expensive fire suppression effort in Alaska's history at the time (USDA 2024b). Changing climate has resulted in shifting precipitation trends. Much of the Refuge underwent a decrease of approximately 15 percent in the annual average precipitation between 1974 and 2023 (USDA 2024b).

2.1.5 Water Resources

The Kenai River is the largest river system on the Kenai Peninsula and drains approximately 2,148 square miles of its surrounding landscape. Approximately 54 percent of its watershed is within the boundaries of the Refuge. Large river and stream systems within the Refuge that do not flow into the Kenai River instead drain into Cook Inlet. These include the Kasilof River (which drains first into Tustumena Lake); Deep Creek; and the Swanson, Fox, Ninilchik, and Chickaloon Rivers. Thousands of lakes are within the Refuge, the largest of which are Tustumena and Skilak Lakes.

Lakes within the Refuge tend to be frozen between November and May, with streams freezing later and thawing earlier. Summer water temperatures rarely exceed 68 degrees Fahrenheit. The high-flow period for glacial streams is during summer maximum glacier melt. Glacial streams tend to be murky in appearance from suspended silt originating from glaciers, while streams that are primarily generated from runoff tend to be clear outside the period of heavy runoff. Waters within the Refuge tend to be cold waters with reduced light penetration and low mineral content. Minimal water pollution combined with high dissolved oxygen and diverse

aquatic communities promote growth within these habitats and make them ideal nurseries for juvenile and early life-stage anadromous fish (USFWS 2010).

Waterbodies nearest to the Preferred Alternative site are Picnic Lake (1.5 miles north), Dog Team Lake (0.8 mile east), Unnamed Lake (between Dog Team and Upper Jean Lakes, approximately 1.1 miles east), Upper Jean Lake (approximately 1.2 miles east), Campsite Lake (approximately 2.3 miles north), Jean Creek (approximately 2.1 southeast), Jean Lake (2.8 miles southeast), Chatelain Lake (1.5 miles south), Hidden Lake (2.6 miles south), and Hikers Lake (2.0 miles southwest) (Figure 2-1; ADF&G 2024b). No impaired waters or drinking water protection areas are within 5 miles of the Preferred Alternative site (ADEC 2024a). Federal Emergency Management Agency floodplain mapping is not available for the Preferred Alternative area (FEMA 2024).

Applicable regulations for wetland habitats include Clean Water Act Section 404 and Executive Order 11990 613 FW 2 Wetland Protection. Executive Order 11990 directs all federal agencies to minimize the destruction, loss, or degradation of wetlands; and preserve and enhance the natural beneficial values of wetlands in the conduct of the agency's responsibilities.

DRAFT

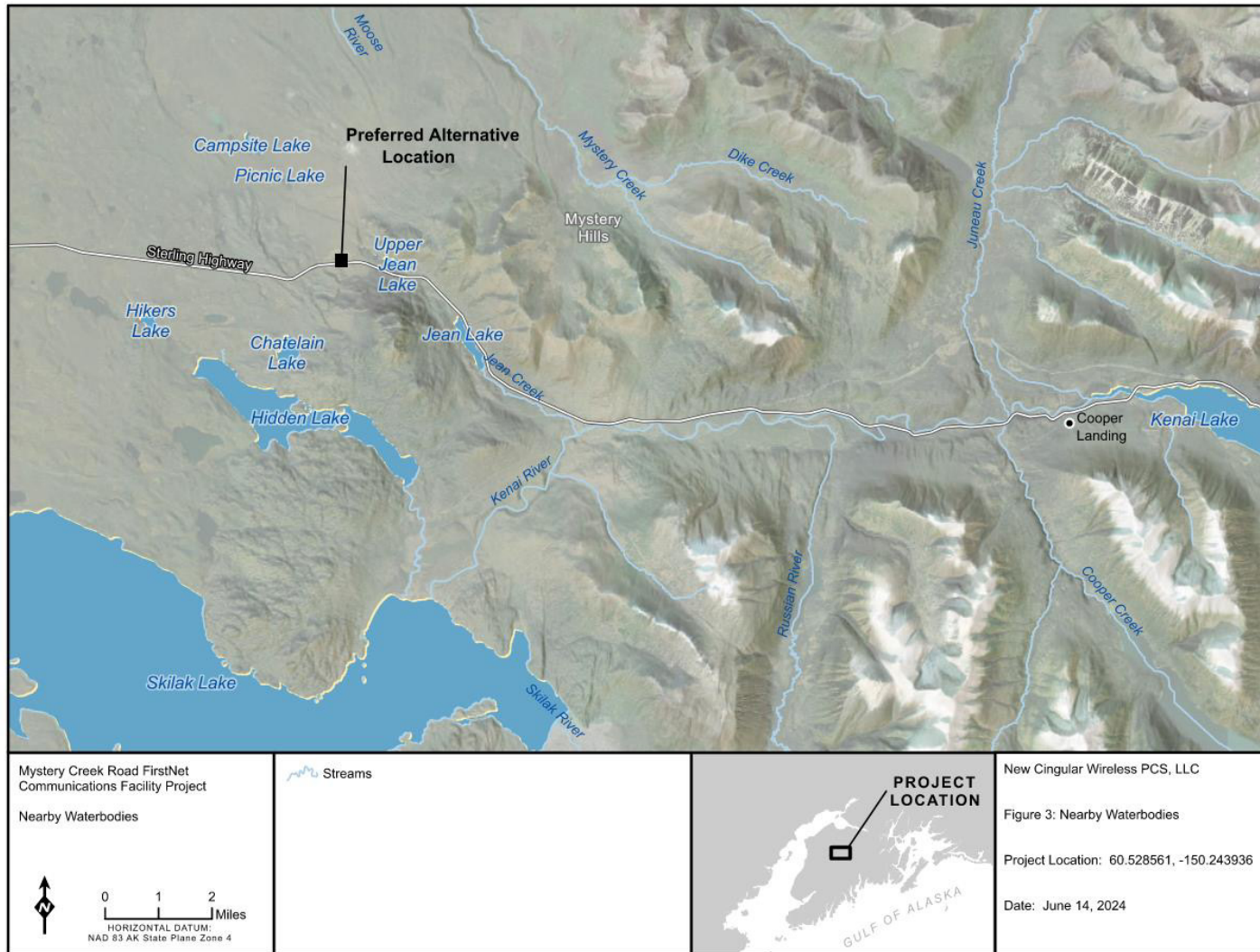


Figure 2-1. Nearby waterbodies.

2.1.6 Wilderness or Other Special Designation

The 1.35-million-acre Kenai Wilderness was created by the passage of ANILCA. In addition to those purposes outlined in ANILCA for wilderness areas, the Wilderness Act of 1964 provided the following purposes for the Kenai Wilderness area:

- (i) To secure an enduring resource of wilderness;
- (ii) To protect and preserve the wilderness character of areas within the national Wilderness Preservation System; and
- (iii) To administer for the use and enjoyment of the American people in a way that will leave them unimpaired for future use and enjoyment as wilderness.

The Kenai Wilderness is subdivided between three units: Mystery Creek, Dave Spencer, and Andrew Simons. The Mystery Creek Unit encompasses 46,068 acres, and its western extent is approximately 0.65 mile east of the Preferred Alternative site. The Andrew Simons unit is the next closest unit to the Preferred Alternative site, has a northern boundary on the opposite side of the Sterling Highway from the Mystery Creek Unit, and is 5.5 miles from the Preferred Alternative site (Figure 2-2).

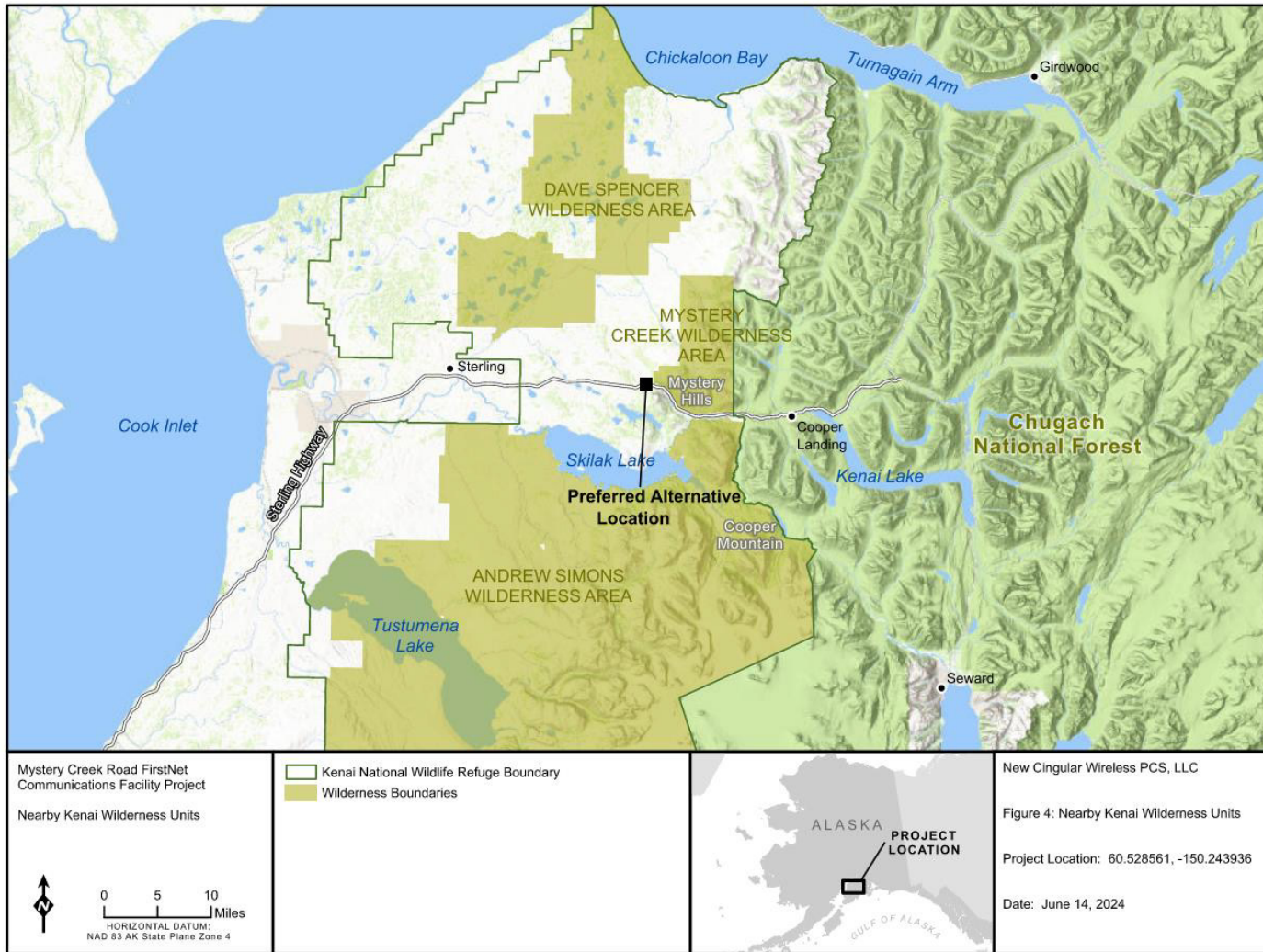


Figure 2-2. Nearby Kenai Wilderness Area units.

2.2 Visitor Use and Experience

Approximately 1.2 million people travel through the Refuge each year on the Sterling Highway (USFWS 2010). The Refuge hosts approximately 1 million visitor use days annually. Common reasons visitors frequent the Refuge are freshwater fishing; waterfowl, upland game, and big game hunting; hiking; wildlife observation; photography; environmental education and interpretation; canoeing; camping and public use cabins; and the visitor center and historical sites. The Refuge offers educational opportunities; between 1983 and 2011, more than 1,800 schoolteachers and youth leaders have participated in Refuge-sponsored environmental education activities.

The last visitor survey report for the Refuge, published in 2011, analyzed visitor use and tendencies in Refuge between 2010 and 2011. A survey conducted for the report discovered 60 percent of visitors had been to the Refuge once in the previous 12 months. Repeat visitors (40 percent) went to the Refuge an average of nine times over the previous 12 months. Of that same survey pool, 76 percent of visitors used the Refuge during only one season, while 17 percent used it in multiple seasons, and 8 percent used it year-round. Visitors were made aware of the Refuge by signs on highways (64 percent), previous knowledge (33 percent), directions from acquaintances (19 percent), or a map (19 percent). Most visitors (80 percent) were nonlocal (Sexton et al. 2011).

Visitors spend, on average, 5 hours at the Refuge during a 1-day trip, with a most frequently reported visit duration being 8 hours. The most common activities visitors participated in were hiking (57 percent), wildlife observation (57 percent), photography (57 percent), and freshwater fishing (45 percent). The primary reason for their most recent visit was fishing (24 percent), wildlife observation (18 percent), and hiking (14 percent). The visitor center was used by 62 percent of visitors (Sexton et al. 2011).

Surveyed visitors were asked about their experience and satisfaction with various aspects of the Refuge. Of those surveyed, 93 percent were satisfied with recreational activities and opportunities; 90 percent were satisfied with information and education provided by the Refuge; 92 percent were satisfied with services provided by employees or volunteers; and 91 percent were satisfied with the Refuge's job of conserving fish, wildlife, and their habitat (Sexton et al. 2011).

The Refuge has numerous places that are set aside for their special values and receive additional management considerations. The site is immediately adjacent to two special management areas, the Skilak Wildlife Recreation Area (which lies immediately south of the Sterling Highway), and the Mystery Creek Unit of the Kenai Wilderness.

USFWS owns and maintains Mystery Creek Road, a 13.7-mile road that allows access to the pipeline corridor. Motor vehicle use is permitted on the road for pipeline maintenance year-round but is only open to the public for motor vehicle access from August through November, corresponding to the fall hunting season. The road is open to pedestrian use year-round. When the road is closed to vehicle traffic, visitors park in the large gravel area where the Preferred

Alternative is located. Once the Refuge Manager opens the Refuge for snowmachine use, the parking area and road are heavily used by snowmachiners.

2.3 Cultural Resources

Although NEPA does not define “cultural resources,” the term is generally understood to include evidence or loci of past human activities, such as prehistoric- or historic-age sites, buildings, structures, districts, objects, sacred sites, and cultural or ethnographic landscapes (NPS 1998). Cultural resources under NEPA may also include, but are not limited to, historic properties as defined by Section 106 of the National Historic Preservation Act, which refers to any prehistoric or historic district, site, building, structure, object, or traditional cultural property included or eligible for inclusion in the National Register of Historic Places (NRHP; 36 CFR 800.16(l)(1)).

To identify cultural resources that may be affected by the Preferred Alternative, a desktop study for the Proposed Action defined a 6,993-acre study area consisting of the Preferred Alternative footprint and the viewshed of the proposed tower. This viewshed is separate from the one created for this EA and is defined as “the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historical properties, if any such properties exist” (36 CFR 800.16(d)). The cultural resources viewshed includes lowland areas of the Mystery Hills near Jean Creek, extends just north and east to Browse Lake, and includes a small area near Mox Lake. Sources consulted regarding cultural resources within the study area include the Alaska Heritage Resources Survey (AHRs) database (OHA 2024), the Revised Statute 2477 trail database (ADNR 2017), United States Geological Survey topographic maps, and lists of Indigenous Dena’ina place names (Smith and Kari 2023). Four AHRs sites and three Dena’ina place names were identified within the study area (Table 2-1 and Table 2-2). All identified AHRs sites are located within the proposed tower viewshed and are not within the Proposed Action footprint. The three Dena’ina place names refer to broad geographic regions rather than specific localities.

Table 2-1. AHRs sites within the cultural resources study area.

AHRs Number	Site Name	Description	NRHP Eligibility (Year, Criteria)
KEN-00518	Alaska Road Commission Route 55	Winter trail constructed between 1921 and 1924 between Kenai and Moose Pass	Not evaluated
KEN-00520	Alaska Road Commission Route 55 Historic District	Historic district with three contributing properties: the Alaska Road Commission Route 55 trail (KEN-00518) and two shelter cabins (KEN-00427 and KEN-00437)	Not evaluated
KEN-00653	Sterling Highway	A 138-mile-long highway built in 1947 to connect the western and central Kenai Peninsula to the Seward Highway; the Interstate portion of the highway (MPs 37–94) is exempt from Section 106 review	Not eligible (2019; non-Interstate portion only)
KEN-00818	Power Transmission Line	A portion of a 115-kilovolt transmission line built in 1969 between the Bernice Lake substation near Nikiski and the Quartz Creek substation in Cooper Landing	Not evaluated

Source: OHA 2024

Table 2-2. Dena’ina place names within the cultural resources study area.

English Name	Dena’ina Name	Translation
Kenai Peninsula	<i>Yaghanen</i>	Good land
Kenai Mountains	<i>Yaghanen Dghili</i>	Good land mountains
Upper Kenai River	<i>Sqilantnu</i>	Ridge place stream

Source: Smith and Kari 2023

2.4 Subsistence

ANILCA, Title VIII, Section 810 requires federal agencies with jurisdiction over lands in Alaska to evaluate the potential effects of Preferred Alternatives on subsistence uses and needs. A draft of this document is completed and included in Appendix A.

2.5 Visual Resources

Visual resource management within the Refuge is intended to manage the quality of the visual environment and to reduce the visual impact of development activities. To achieve this task, USFWS management intends to organize all activities and facilities on the Refuge to blend into the landscape to the extent practical. Where the Sterling Highway bisects the Refuge is considered an important scenic access route (USFWS 2010). Locations within the Refuge, such as the Upper Kenai River drainage, including the Kenai Mountains and lowlands, are valued for their scenic properties.

2.6 Noise

Human-generated noise is primarily limited to roadways, trails, and waterbodies near the Preferred Alternative site. The Sterling Highway runs east-west, bisecting the center of the Refuge, and the Refuge is bordered on the west by urban development. Additionally, 17 small airports servicing commuter, charter, emergency, and personal aircraft operations as well as one commercial airport supports flights over the Refuge’s airspace. During winter, snowmachining is a popular activity that occurs on more than 1.2 million acres of the Refuge between December and April.

An acoustic study found the most common sounds produced within the Refuge during winter were those originating from geophony (i.e., geophysical sounds such as wind and water; identified in 84 percent of recordings) (Mullet et al. 2015). Technophonic sounds (i.e., sounds generated from machines and technology; 15 percent of recordings) were primarily from road traffic, which comprised 42 percent of recorded technophony; followed by airplane and snowmachine sound, which comprised 29 and 18 percent, respectively; while oil and gas compressors comprised 10 percent. More than 75 percent of sites recorded at least one instance of airplane noise, while nearly 50 percent had recordings of snowmachines. Technophony was primarily within the 1- to 2-kilohertz (kHz) frequency range. On occasion, noise recorded from revving snowmachine engines and propellers from low-flying aircraft peaked between 3 to 4 kHz.

In the same study, corvids (e.g., ravens, crows, jays, magpies) comprised 42 percent of biophonic sounds (i.e., animal generated sound; 1 percent of recordings), followed by other passerines (30 percent), while the remaining 28 percent was composed of raptors such as owls (strigiformes), bald eagles, ducks (Anatidae), woodpeckers (*Picoides* sp.), wolves, coyote, ptarmigan (*Lagopus* sp.), and red squirrels (Mullet et al. 2015).

Mullet et al.'s (2021) study of acoustical noise within the Refuge and Kenai Wilderness on the presence of snowmachines found wildlife- and human-produced sounds were more prevalent during daytime than nighttime. Additionally, natural quiet (i.e., a period when noise does not disturb natural sounds) was prevalent in 51 percent of the wilderness areas, and nearly half of all quiet areas within the wilderness were in coniferous forests. Naturally quiet areas were predominately more than 20 kilometers from snowmachine trails and 500 meters from rivers (Mullet et al. 2021).

2.7 Greenhouse Gas Emissions

Greenhouse gas emissions within the Refuge are largely limited to transportation along the Sterling Highway. Transportation is a common means of emitting greenhouse gas emissions. Transportation emissions are generated by burning fossil fuels in the operation of motor vehicles. Common greenhouse gas emissions associated with transportation are carbon dioxide (CO₂), ammonium, and nitrous oxide (N₂O). Methane and N₂O emissions are dictated by equipment and fuel type, while CO₂ is proportional to the amount of fuel consumed. As of 2018, the average annual light duty truck emissions are 500,000 tons of CO₂ (ADEC 2023).

2.8 Refuge Management and Operation

USFWS manages the operations within the Refuge. It owns and maintains the 13.7-mile Mystery Creek Road and gravel pad, which provides access to the Preferred Alternative site and pipeline corridor. Discussion on road management can be found in Section 2.2. USFWS also manages wildfire response planning within the Refuge in cooperation with the Alaska Division of Forestry and Fire Protection. The Refuge's fire management is guided by a Fire Management Plan that outlines responses that the protecting agency (State of Alaska Division of Forestry) will take and the assets to protect in each fire management unit when a wildland fire occurs (Refuge, pers. comm.). Additionally, USFWS maintains a helipad that supports wildlife and Refuge management operations approximately 0.5 mile east of the Preferred Alternative location.

2.9 Socioeconomics

The tourism and seafood/fishing industries of the Refuge are the largest contributors to the Kenai Peninsula Borough (KPB) economy. The Refuge provides abundant sport fishing and hunting opportunities as well as non-consumptive recreation such as hiking, rafting, and bird watching (Goldsmith and Hill 2000).

It is estimated that several hundred individuals make some or all of their salary directly from Refuge lands, including permitted guides or outfitters. Thousands of other Alaskans benefit

indirectly from the economic inputs of the Refuge's many visitors. Others, such as those in the commercial fishing industry, benefit from the habitat provided by the Refuge (Goldsmith and Hill 2000).

Cooper Landing is the nearest town to the Preferred Alternative. In 2021, Cooper Landing had a median household income of \$109,107, a median age of 42.8 years, and a population of 217. The largest ethnic groups in Cooper Landing are White (non-Hispanic; 99.1 percent), Asian (non-Hispanic; 0.922 percent), and White (Hispanic; less than 0.1 percent). The industries that employ the most people in Cooper Landing are accommodation and food services; real estate, rental, and leasing; and administrative, support, and waste management services (DATAUSA 2024).

In contrast, the total population of the KPB is 58,799 individuals. The median annual household income is \$76,272, which is below the state median household income (\$88,121). The KPB's employment rate is approximately 53 percent. The three largest employing industries in the KPB are:

- Educational services and health care and social assistance (26.2 percent);
- Retail trade (9.8 percent);
- Public administration (9.3 percent); and
- Arts, entertainment, recreation, and accommodations and food services (9.3 percent).

The median gross rent in the KPB is \$1,126 (\$1,329 statewide). Housing values for the KPB are primarily \$300,000 to \$499,999 (30 percent) and \$200,000 to \$299,999 (28.4 percent).

2.10 Public Health and Safety

The ADEC manages the Contaminated Sites Program in Alaska. This program is responsible for protecting human health and the environment by identifying, overseeing, and conducting timely, science-based cleanup and defensible characterization, cleanup, redevelopment, and management of contaminated sites in Alaska. There are no contaminated sites within 5 miles of the Preferred Alternative location (ADEC 2024b).

Emergency services in the Preferred Alternative vicinity are provided in both Cooper Landing and Sterling. Cooper Landing Emergency Services provides emergency medical services and hosts a volunteer fire department. Central Emergency Services Fire Department operates a substation in Sterling. Central Emergency Services provides emergency medical services and fire response to the Sterling area and other communities on the Kenai Peninsula.

2.11 Environmental Justice

No communities are in the immediate Mystery Creek Road vicinity. It is approximately 18 miles from Sterling, 16 miles from Cooper Landing, and is surrounded by the Refuge. The Environmental Protection Agency's (EPA's) Environmental Justice screening tool (EJScreen; Appendix B) was used to assess environmental justice concerns within the Proposed Action

area. According to EJSscreen, no environmental justice populations occur within the Mystery Creek Road vicinity.

3 Environmental Consequences

The Proposed Action alternatives outlined in Section 1 may cause changes in the human and natural environment. Section 3 assesses and analyzes these potential changes to the affected environment described in Section 2, and discloses these effects to the decision makers and public. This process of disclosure is one of the fundamental aims of NEPA.

“Effect” means changes to the human environment from the Proposed Action alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the Proposed Action alternatives. These include those effects that occur at the same time and place as the alternatives and may include effects that are later in time or farther removed in distance from the Preferred Alternative. Effects include ecological (e.g., effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic (e.g., effects on employment), social, or health effects. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if the agency believes that the effect would be beneficial (40 CFR 1508.1).

Intensity refers to the severity or level of magnitude of impact. Public health and safety, proximity to sensitive areas, level of controversy, unique risks, or potentially precedent-setting effects are all factors to be considered in determining intensity of effect. This section primarily uses the terms major, moderate, minor, or negligible in describing the intensity of effects. Context means that the effect(s) of an action must be analyzed within a framework, or within physical or conceptual limits. Resource location, type, or size of area affected (e.g., local, regional) and affected interests are all elements of context that ultimately determine significance. Both long- and short-term effects are relevant. Unless stated otherwise, the effects discussed in this section are negative.

3.1 Natural Resources

3.1.1 Alternative A: No Action Alternative

If the No Action Alternative is selected, the new wireless communications facility would not be built. The natural resource conditions would not be altered as proposed, and no Proposed Action-related effects to the natural resources detailed in Section 2.1 would occur. The No Action Alternative would result in no short- or long-term effects for natural resources.

3.1.2 Alternative B: Propane and Solar Alternative (Preferred Alternative)

3.1.2.1 Terrestrial Wildlife and Aquatic Species

Environmental effects may occur during construction, operations, maintenance, and modifications over the life of the Preferred Alternative. The operation of construction equipment during the construction phase of the Preferred Alternative may have a short-term, minor effect



on wildlife. Construction operations are likely to deter wildlife near the Preferred Alternative site because of noise produced from construction activities and physical presence. This impact is expected to be short term and only during the construction phase (3 to 6 months), on a previously disturbed site.

The Preferred Alternative would incorporate solar power generation. This would limit propane generator use. Propane generators would incur more noise effects than solar power generation. Noise produced from the generators is anticipated to reach background levels before reaching the Sterling Highway and would be mostly restricted to the gravel pad (Section 3.6). Given the gravel pad is not preferred habitat for terrestrial wildlife, effects from noise on terrestrial wildlife is anticipated to be long-term and minor.

Generators will use propane instead of diesel for operations, reducing the potential for spill contamination. Additionally, the Preferred Alternative will implement stormwater prevention and preparedness plans to limit water contamination from construction activities. The nearest surface waterbody is 0.8 mile from the Preferred Alternative; therefore, no impact is anticipated for aquatic species.

3.1.2.2 Migratory Birds

Many birds in Alaska nest near the ground, in brush, and along edges of vegetated areas. Unintentional destruction of active nests, eggs, or nestlings can result during vegetation clearing, grubbing, brush hogging, and mowing during construction, maintenance, operations, and modification activities. Human disturbance and repeated loud noises near nest sites can cause egg abandonment and nest failure. Using existing disturbance areas and avoiding nesting season for vegetation clearing minimizes the risk of encountering active nests or inadvertently causing nests to fail. Primary nesting season on the Kenai Peninsula begins in May and continues through mid-July. Avoidance of vegetation clearing during nesting season would also be incorporated in the 390-foot utility corridor, if it is constructed in the future. Conducting ground-disturbing activities following USFWS' BMPs would reduce the likelihood of impacts to nesting birds.

Bird, particularly raptors, are known to nest on utility structures. The presence of a new nesting structure may attract them to the Preferred Alternative tower (Manville 2005). Additionally, raptors are known to use utility structures to perch and hunt, which has the potential to increase predation within an area (Reinert 1984). Broadband towers pose risks to bird health, resulting from birds colliding with towers. Cellular communication towers are known to pose collision risks to birds, especially during migration and at night. Nearly seven million birds die annually from collisions with communication towers. These risks are higher for communication towers that have lights, guywire supports, are taller than 350 feet, are located within areas of inclement weather, are located within areas subject to high densities of migratory birds and are located along ridgelines (USFWS 2024c). As stated by USFWS (2024c), lights are a primary source of bird aggregation around towers, which can lead to fatalities due to birds colliding with the structure. For this reason, USFWS (2024c) recommends minimizing all light. USFWS (2024c) also recommends incorporating motion detector-type lighting and shielding lights downward on facility exteriors. Incorporating USFWS' guidance would reduce, but not eliminate, the risk of

bird fatalities from collisions with the tower. Given the permanence of the tower and the persisting risk of collisions, the Preferred Alternative is anticipated to have a long-term, minor impact on migratory birds.

Noise effects on birds would be long-term. However, given the limited anticipated dispersal of noise and because the noise producing generators are near a highway, effects from noise are anticipated to be minor.

3.1.2.3 Bald and Golden Eagles

Surveys may need to be conducted prior to new disturbance for construction. If eagles are found near the Preferred Alternative site, and the recommend 660-feet of disturbance distance buffers cannot be incorporated into the action, an eagle take permit may be necessary. USFWS provides guidance for working near eagles (<https://www.fws.gov/program/eagle-management/living-and-working-near-eagles>). For the same reasons stated for migratory birds, the Preferred Alternative is anticipated to have a long-term, minor impact on bald and golden eagles.

3.1.2.4 Threatened and Endangered Species, and Other Special Status Species

No threatened or endangered species have ranges that overlap with the Preferred Alternative's affected environment (Appendix C). As a result, it is anticipated that the Preferred Alternative would have no impact on threatened or endangered species.

3.1.2.5 Habitat and Vegetation

Clearing for the fire buffer would result in up to 17,700 ft² (0.41 acre) of tree removal. The utility easement would result in another 3,400 ft² (0.08 acre) of vegetation removal. Maintenance of the buffer and easement would occur semiannually. The clearing footprint is small, and the Preferred Alternative site is adjacent to areas of existing human disturbance.

Exotic and invasive species exist throughout the Refuge. The Sterling Highway acts as a common introductory pathway for these species. The Preferred Alternative will require site visits (approximately once per month) throughout the year for the maintenance of the tower and communications facility. This increased vehicle access to the Refuge has the potential to result in introducing exotic or invasive species to the Sterling Highway and Mystery Creek Road. However, given the limited number of monthly visits required for servicing the Preferred Alternative, effects to habitat and vegetation would be long term and minor, and can be met by surveying and treating for terrestrial invasives following the Refuge's standard operating procedures. Construction for the Preferred Alternative is anticipated to occur during winter months. Due to snow cover and limited seed dispersal during this time, construction vehicle access to the site is not anticipated to increase the potential for exotic or invasive species to affect habitat and vegetation. Effects to habitat and vegetation from the Preferred Alternative are anticipated to be long term and minor.



3.1.2.6 Geology and Soils

The Preferred Alternative would be sited on an existing gravel pad. It is anticipated the Preferred Alternative would result in minor and long-term physical and direct alterations to geology primarily due to soil compaction from foundations and the conversion of non-impervious surfaces to impervious surfaces. The introduction of impervious surfaces for the concrete foundations would alter soil permeability at the Preferred Alternative site. Impervious surfaces would total approximately 651 ft². However, given the relatively small footprint of impervious surfaces, the permeability of the surrounding gravel pad and natural environment is anticipated to suffice for water infiltration needs. As such, the Preferred Alternative is anticipated to have a long-term, negligible effect on geology and soils.

3.1.2.7 Air Resources

The construction of the Preferred Alternative may result in a temporary increase of fugitive dust and localized emissions from construction activities and equipment. Emission effects are discussed in Section 3.7. Mitigation measures would reduce the potential effects from the Preferred Alternative on air resources. BMPs, such as dampening the roadway and site surfaces with sprayed water, would reduce the potential for fugitive dust. As a result of construction BMPs and limited maintenance required at the communication facilities, the Preferred Alternative would have a long- and short-term, negligible impact on air resources.

3.1.2.8 Water Resources

As described in Section 2.1.5, the nearest waterbody to the Preferred Alternative is Dog Team Lake (0.8 mile east). No drinking water protection areas overlap with the Preferred Alternative site (ADEC 2024c). Storm water prevention and preparedness mitigation measures identified as BMPs are intended to subdue potential effects from construction site runoff to nearby water resources. Additionally, using propane-powered generators in lieu of diesel as a fuel source mitigates the risk of fuel spillage and contamination during operations. As such, the Preferred Alternative is not anticipated to affect water resources.

3.1.2.9 Wilderness or Other Special Designation

The site of the Preferred Alternative is 0.65 mile west of the Mystery Creek Wilderness Area. Viewshed effects for the Refuge are discussed in Section 3.5.

3.1.3 Alternative C: Propane Only Alternative

Under Alternative C, effects on threatened and endangered species, habitat and vegetation, geology and soils, water resources, wilderness or other special designation, and air resources are anticipated to be the same as the Preferred Alternative. The remaining resource categories and their proposed impact under Alternative C are discussed below.

3.1.3.1 Terrestrial Wildlife and Aquatic Species

All effects on terrestrial wildlife, including migratory birds and aquatic species from the Preferred Alternative, are anticipated to be present under the Propane Only Alternative. Generators are anticipated to be in use 2,891 hours, 867 hours more per year under Alternative C than the

Preferred Alternative. The additional hours of noise produced from the generator under Alternative C may result in additional effects from noise on terrestrial wildlife, resulting in wildlife deterrence. However, given the limited noise pollution anticipated to result from generator use (Section 3.6), noise effects from generators are anticipated to have a long-term, minor impact on terrestrial wildlife.

3.2 Visitor Use and Experience

3.2.1 Alternative A: No Action Alternative

Under Alternative A, wireless communications would continue to be underserved within the area along the Sterling Highway surrounding Mystery Creek Road. First responders would continue to have communication difficulties, and AT&T users would be subject to poor cellular service along the Sterling Highway between Cooper Mountain, Mystery Hills, and Sterling. Parking would remain the same for the No Action Alternative.

3.2.2 Alternative B: Propane and Solar (Preferred Alternative)

The Preferred Alternative would result in increased cellular communications within the Refuge. The result may alter visitor traffic within certain areas of the Refuge, alter recreation type statistics, and change the reasons for individuals visiting the Refuge. Increased cellular coverage would enhance public safety by improving communications for emergency response, may provide an increased sense of security within the Refuge, and may potentially reduce emergency situations when Refuge users are better prepared and informed of weather and other hazardous conditions.

Visitors may be positively impacted by improved communications if the lack of cellular service within the area limits their enjoyment or ability to recreate within the Refuge. Other visitors may be negatively impacted if the presence of the 198-foot tower impedes their ability to visually enjoy the view along the Sterling Highway or their view from elsewhere within the Refuge. Depending on an individual's reason for visiting the Refuge and their perceived risks, effects on visitor use and experience are anticipated to be either long-term, minor, and negative, or long-term, moderate, and beneficial. Effects related to visual resources and noise are discussed in Sections 3.5 and 3.6, respectively.

3.2.3 Alternative C: Propane Only Alternative

The Propane Only Alternative would have the same beneficial and negative effects on visitor use and experience as proposed under Alternative B.

3.3 Cultural Resources

3.3.1 Alternative A: No Action Alternative

Alternative A would not impact the current state of cultural resources. No impact on cultural resources is anticipated from the No Action Alternative.

3.3.2 Alternative B: Propane and Solar Alternative (Preferred Alternative)

Based on the 6,993-acre cultural resources study area, consisting of the Preferred Alternative footprint and the viewshed analysis of the proposed tower, a potential exists for archaeological resources to be present within the Preferred Alternative vicinity. However, ground disturbances would only occur within the previously disturbed area. Furthermore, the State Historic Preservation Officer (SHPO) concurred with USFWS' proposed finding of No Historic Properties Affected for the Proposed Action (Appendix D). Therefore, the Preferred Alternative would result in no effects to cultural resources.

3.3.3 Alternative C: Propane Only Alternative

For the same reasons stated for Alternative B, the Propane Only Alternative is anticipated to have no effects on cultural resources.

3.4 Subsistence

3.4.1 Alternative A: No Action Alternative

Alternative A would not impact the current state of subsistence. No impact on subsistence is anticipated from the No Action Alternative.

3.4.2 Alternative B: Propane and Solar Alternative (Preferred Alternative)

Noise generated from construction and operations of the communication facility has the potential to alter wildlife movement. However, due to the limited effects anticipated to occur to wildlife from noise (Section 3.1.2), the Preferred Alternative is anticipated to have short-term (construction) and long-term (operations), minor impacts on subsistence.

3.4.3 Alternative C: Propane Only Alternative

For the same reasons stated for Alternative B, the Propane Only Alternative is anticipated to have short- and long-term minor effects on subsistence.

3.5 Visual Resources

3.5.1 Alternative A: No Action Alternative

Under Alternative A, no change would occur to visual resources of the region. The No Action Alternative would result in no impact on visual resources.

3.5.2 Alternative B: Propane and Solar Alternative (Preferred Alternative)

Under Alternative B, the communications facility would be built within the Refuge. Visual renderings of the Preferred Alternative build were created to assess visual resource effects to nearby areas. Renderings were created at locations within the Refuge that are frequently visited to provide a visual of what visitors may see while using the Refuge. These renderings were taken at the gravel pad, a roadway pullout east of the Preferred Alternative site, the Sterling

Highway south of the Preferred Alternative site, Skyline Ridge Trail, and Kelly Lake Campground. Visual renderings are provided in Figure 3-1 through Figure 3-5. A red oval has been provided in Figure 3-1 through Figure 3-3 to show where the tower would be located. Figure 3-6 shows where each photograph was taken in relation to the Preferred Alternative.

The Preferred Alternative is visible at each visual rendering photograph location. However, based on the visual renderings, it is likely difficult to see the Preferred Alternative from the Kelly Lake Campground and Skyline Ridge Trail. This is particularly true given the Kelly Lake Campground site was recently impacted by the 2019 Swan Lake Fire. Under typical conditions, the tree canopy (approximately 50 feet in places near the Preferred Alternative location) would likely obscure the tower from view. The Skyline Ridge Trail is within the Mystery Hills Wilderness Area. Recreators may have the potential to see the Preferred Alternative from other locations within the wilderness area. However, given how minor the tower appears on the Skyline Ridge Trail rendering, and considering the surrounding size, topography, and tree canopy within the wilderness area, the impact of the Preferred Alternative on the viewshed of the Mystery Hills Wilderness area is anticipated to be long term and minor.

It is anticipated that within most areas in closer proximity to the tower than Kelly Lake Campground and Skyline Ridge Trail, natural topography and foliage would block the tower from the viewshed. In the more heavily impacted areas along the Sterling Highway and Mystery Creek Road, such as the roads themselves, the tower would be visible. Most of these areas are already disturbed, but the presence of the Preferred Alternative may distract individuals from the surrounding natural setting outside the Sterling Highway, campgrounds, and other disturbed places. The Preferred Alternative is anticipated to have a long-term, minor effect on visual resources.



Figure 3-1. Visual rendering of the view from road pullout during early summer conditions.



Figure 3-2. Visual rendering of the view from the Kelly Lake Campground during early summer conditions.



Figure 3-3. Visual rendering of the view from the Skyline Ridge Trail during summer.



Figure 3-4. Visual rendering of the view from across the Sterling Highway.



Figure 3-5. Visual rendering of the view from the gravel pad.

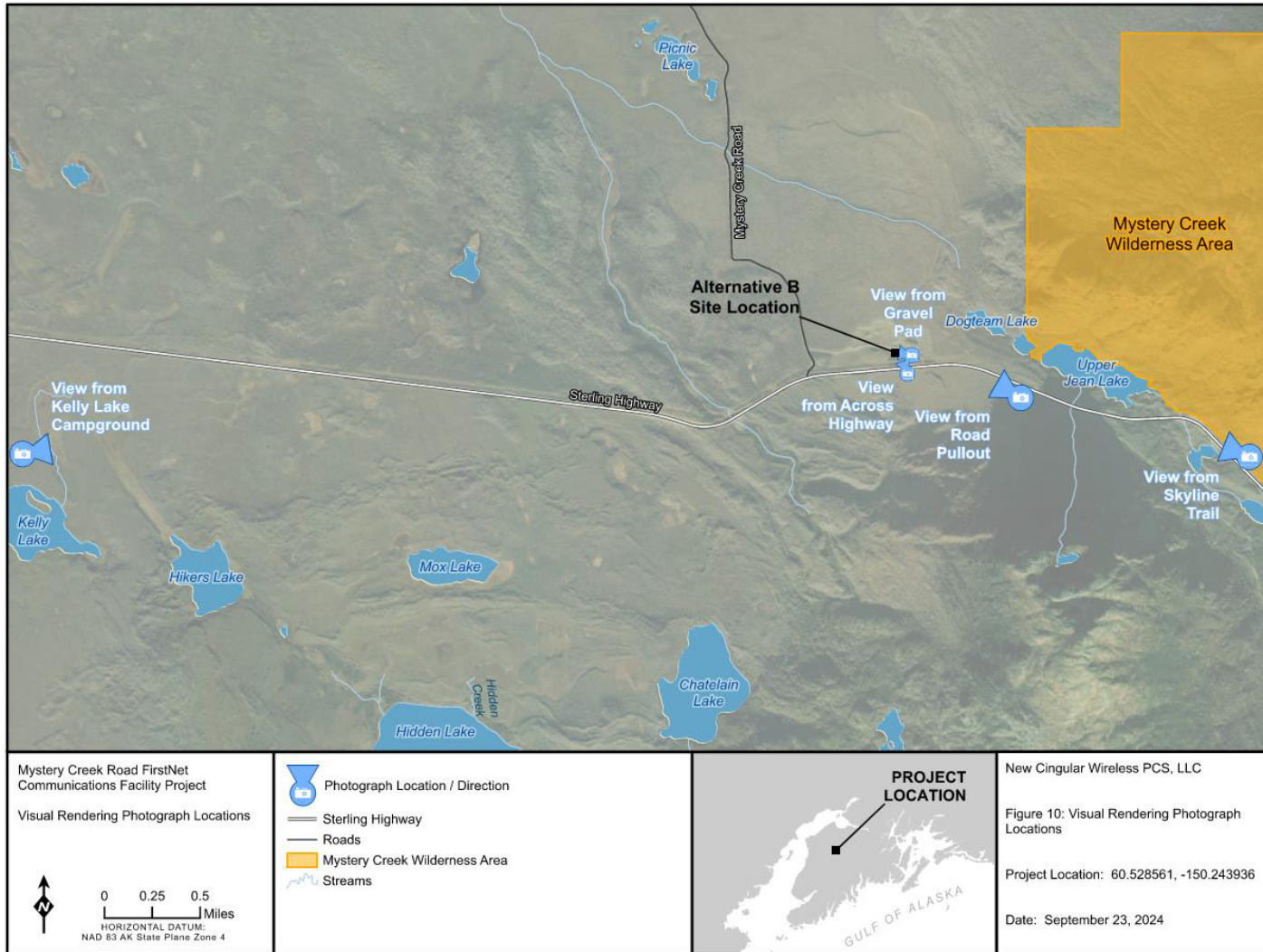


Figure 3-6. Visual rendering photograph locations.

3.5.3 Alternative C: Propane Only Alternative

For the same reasons stated for Alternative B, effects on visual resources from Alternative C are anticipated to minor and long-term.

3.6 Noise

3.6.1 Alternative A: No Action Alternative

The No Action Alternative would not result in an impact on noise within the Proposed Action area because it would not cause any changes from the current setting.

3.6.2 Alternative B: Propane and Solar (Preferred Alternative)

Noise produced from construction equipment would be temporary and limited to the 3- to 6-month construction period. MD Acoustics, LLC conducted a noise assessment to understand the effects of the Preferred Alternative on nearby sound receptors during normal operations. The assessment evaluated the future propane generator noise level to nearby sensitive receptors. The generator noise level was modeled using SoundPlan 3D acoustic modeling software (SP). SP used a 27-kW Generac propane generator with a reference noise level of 62 A-weighted decibels (dBA) at 23 feet for the noise level model. Three receptors were modeled to accurately evaluate the operational noise levels of the facility at and adjacent to the Preferred Alternative site. Receptors 1 (north) and 2 (east) were used to evaluate noise levels approximately 50 feet from the generator. Receptor 3 (south) represents the noise level approximately 300 feet from the Sterling Highway. Receptors 1 and 2 resulted in noise levels at approximately 53 dBA. A noise level of 53 dBA is typical of an urban daytime. Receptor 3 has been approximated at 32 dBA; a noise level typical of a bedroom at night.

As seen in Figure 3-7, noise produced from the communications facility is anticipated to reach background levels at the edge of the gravel pad and fire buffer. Generators will act as a power supply for Alternative B and are only anticipated to be in use for 2,024 hours per year. Noise generation from within the shelter would be the result of cooling unit operations and is anticipated to be minimal. Due to the relatively small footprint of noise pollution from the use of generators for the Preferred Alternative, and given the site is adjacent to the Sterling Highway, which produces sound levels in excess of the generator, Alternative B is anticipated to result in a long-term, minor effect from noise. If site access to power becomes available in the future, the generators would no longer be in use, and generator noise would no longer be present. Due to the limited duration of generator use and the small scope of potential generator effects to sensitive noise receptors combined with the option for them to be decommissioned in the near future, Alternative B is anticipated to result in long-term, minor effects from noise.

If a second provider is added, one additional generator and additional interior equipment would be present at the site. A doubling of the quantity of identical noise sources would result in an approximately 3-dBA increase in noise levels, assuming the noise sources are operating simultaneously. If the generators are not operating simultaneously, the total duration of

operational noise would increase. Under this scenario, Alternative B is still anticipated to result in long-term, minor effects from noise due to the minor increase in noise.

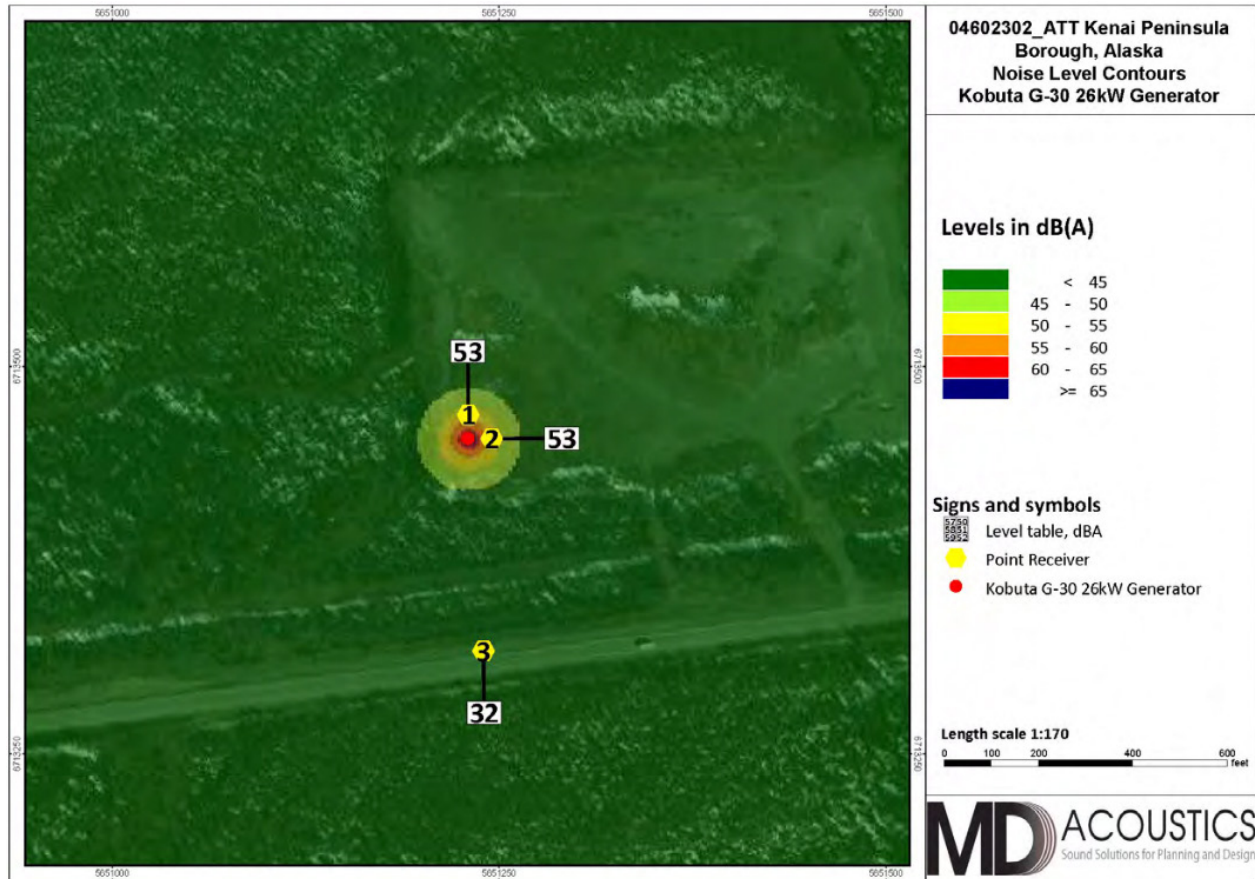


Figure 3-7. Preferred Alternative noise modeling results.

3.6.3 Alternative C: Propane Only Alternative

Under Alternative C, disturbance effects would be similar to, but in excess of, Alternative B. In the absence of solar panels, the site would operate solely off generators and produce noise when the generators are in use. Generators are anticipated to be in use 2,891 hours per year (7.92 hours per day; 43 percent increase from Alternative B) under Alternative C. If site access to power becomes available in the future, the generators would no longer be in use, and generator noise would no longer be present. Due to the limited duration of generator use (33 percent of the time) and the small scope of potential generator effects to sensitive noise receptors combined with the option for them to be decommissioned in the near future, Alternative C is anticipated to result in long-term, minor effects from noise. As with Alternative B, adding a second provider to the site would result in a minor increase in noise. Under this scenario, Alternative C would still result in long-term, minor effects to noise.

3.7 Greenhouse Gas Emissions

3.7.1 Alternative A: No Action Alternative

Alternative A would not result in any changes to greenhouse gas emissions.

3.7.2 Alternative B: Propane and Solar Alternative (Preferred Alternative)

When solar generation is inadequate, the communications facility would rely on one AIE G-30 or equivalent generator for power (22.3 kW). The generator would be propane powered, with one generator consuming 3.7 gallons of liquified propane per hour (Boris 2024). The generator used meets EPA Tier 2 emission standards. EPA Tier 2 emission standards allow for 4.7 g/kWh (grams per kilowatt-hour) NMHC (nonmethane hydrocarbons) + NO_x (nitrogen oxide), 0.03 PM (particulate matter) g/kWh, and 5.5 CO (carbon monoxide) g/kWh. Under the Preferred Alternative, the generator would run for 2,024 hours each year (Boris 2024). The runtime under the Preferred Alternative would result in 212,135 g/kWh NMHC + NO_x, 1,354 g/kWh PM, and 248,243 g/kWh CO. Over the course of a year, trips to the Preferred Alternative site for refueling would result in 200,000 g of CO₂ emissions (Table 3-1). This is relative to the 2018 light duty truck in Alaska emissions of 500,000 tons of CO₂ and 90,000 tons of NO_x and methane emissions for all transportation (ADEC 2023).

Table 3-1 Greenhouse gas emissions for each alternative.

Alternative	NMHC + NO _x (g)	PM (g)	CO (g)	Generator Hours
No Action	0	0	0	0
Alternative B	212,135	1,354	200,000	2,024
Alternative C	303,005	1,934	354,581	2,891

Nitrogen dioxide, a component of NO_x, can have adverse effects on human health. In high concentrations, nitrogen dioxide can cause inflammation of the airways and reduced lung function. NO_x also contributes to the formation of secondary inorganic PM and tropospheric ozone with associated climate effects. CO over long periods in low concentrations can result in neurological problems. CO can react with other pollutants to produce tropospheric ozone. Elevated levels of ozone can cause respiratory health problems and other health risk factors. PM has the potential to penetrate sensitive regions in the respiratory system, causing health problems, and has a significant global warming potential (UNECE 2013).

Under the Preferred Alternative, solar panels are anticipated to provide power to the site 30 percent of the time, or approximately 6,132 hours annually. Generator runtime would be 33 percent daily runtime when in use (66 percent of the total time). The generator would run off the super capacitors. This would result in approximately 2,024 hours of generator runtime annually with a total consumption of 7,489 gallons of liquified propane per year (Boris 2024). Limited use in generators under the Preferred Alternative would result in limited pollutants (i.e., NO_x, CO, PM) expelled into the atmosphere. As such, effects on greenhouse gas emissions from the Preferred Alternative are expected to be long term and negligible.

3.7.3 Alternative C: Propane Only Alternative

Alternative C would use the same generator that meets EPA Tier 2 emission standards as Alternative B. Under Alternative C the generator would be in use 2,891 hours per year, a 43 percent increase from Alternative B. Alternative C would emit 303,005 g/kWh NMHC + NO_x, 1,934 g/kWh PM, and 354,581 g/kWh CO (Table 3-1). For the same reasons stated for Alternative B, Alternative C would have long-term, negligible effects on greenhouse gas emissions. Due to the increased emissions associated with the Propane Only Alternative, these effects would be in excess of the Preferred Alternative.

3.8 Refuge Management and Operation

3.8.1 Alternative A: No Action Alternative

The No Action Alternative is not anticipated to impact Refuge management and operations, and would not result in any changes to Refuge management or use.

3.8.2 Alternative B: Propane and Solar Alternative (Preferred Alternative)

USFWS has prepared a draft compatibility determination for the Preferred Alternative with a preliminary determination that Alternative B would not rise to a level so as to materially interfere or detract from achieving Refuge purposes of fulfilling the NWRS mission.

The Preferred Alternative will impact Refuge management and operations by creating infrastructure susceptible to fire within an area that currently has no such infrastructure. Fire protection plans will need to be updated and tactics to suppress fires within this area will need to be adjusted. Additionally, a Refuge helicopter landing zone is located 0.5 mile west of the Preferred Alternative area. This landing zone is used multiple times per year to access radio repeater sites for maintenance, and to support firefighting activities and general Refuge studies. The presence of a new navigation hazard within the area would negatively impact these operations. This would cause long-term, minor impacts to Refuge management and operations. The Preferred Alternative would have a beneficial impact on Refuge operations should it provide better cellular coverage than is present within the area now.

3.8.3 Alternative C: Propane Only Alternative

The Propane Only Alternative will have the same impact as the Preferred Alternative on Refuge management and operations.

3.9 Socioeconomics

3.9.1 Alternative A: No Action Alternative

The No Action Alternative is not anticipated to impact socioeconomics.

3.9.2 Alternative B: Propane and Solar Alternative (Preferred Alternative)

Under the Preferred Alternative, increased cellular reception is not anticipated to increase visitation within the Refuge or promote business in a way that would change dollars spent within the region. Additionally, money spent on operations and maintenance of the site is not anticipated to increase enough to have an appreciable impact on local socioeconomics. No impact on socioeconomics is anticipated to occur from the Preferred Alternative.

3.9.3 Alternative C: Propane Only Alternative

For the same reasons stated for the Preferred Alternative, no impact on socioeconomics is expected to occur from the Propane Only Alternative.

3.10 Public Health and Safety

3.10.1 Alternative A: No Action Alternative

Under Alternative A, no change in the current first responder services would occur, and the area between Mystery Creek, Cooper Mountain and Sterling would continue to operate outside the FirstNet network and unified standalone 5G core. The No Action Alternative would result in the continuation of public health and safety current conditions.

3.10.2 Alternative B: Propane and Solar Alternative (Preferred Alternative)

New cellular reception to areas not currently serviced may provide a sense of security within the Preferred Alternative area. Alternative B would provide recreational users within the proposed coverage area access to internet services such as geographic positioning systems that can allow for safer navigation within wilderness areas. A study of backcountry skiers and snowboarders in Hatcher Pass, Alaska, revealed that 72 percent of respondents used their cell phones to check weather-related conditions while recreating (Ortega et al. 2018). An additional study on cell phone use while recreating found that most recreators used their cell phones within a wilderness setting for taking pictures, social network access, and sending texts. These variables resulted in a positive experience. Besides cellular phones being a modern or essential tool or accessory, hikers were found to bring their phone on recreational activities specifically for the purpose of maintaining safety and taking pictures (Lindell 2014).

Generator use results in air pollution and has effects on human health (Section 2.1.4). However, given the size of the generator and limited time it would be in use, air quality effects on human health are anticipated to be minor.

The presence of the tower in the Preferred Alternative can pose a risk to airspace safety for helicopters. There is a helipad 0.42 mile west of the Preferred Alternative footprint. It is used to service a nearby radio repeater and during wildfire response. The Preferred Alternative creates an obstruction in the airspace that will have to be safely navigated by helicopter pilots to ensure the safety of the helicopter, crew, and operations. The Preferred Alternative poses a long-term minor impact to the health and safety of nearby helicopter operations.

The ability for first responders to more readily react and communicate in addition to providing AT&T commercial customers with increased cellular coverage through the Preferred Alternative would result in a long-term, substantial, beneficial effect.

3.10.3 Alternative C: Propane Only Alternative

The design differences between Alternatives B and C would not result in appreciably different outcomes for public health and safety. The ability for first responders and AT&T commercial users to access cellular coverage would provide the same human health and safety benefits between the two alternatives.

Air quality would be impacted by generator use and result in adverse human health implications (Section 2.1.4). Without renewable energy as a source of energy generation, and in the absence of commercial power, air quality effects on human health and safety under Alternative C would have a minor increase over Alternative B. However, air quality effects on human health and safety are anticipated to be minimal due to relatively low power generation needs, minimal power generation infrastructure, and resulting emissions.

The same helicopter health and safety effects discussed under the Preferred Alternative would be present under the Propane Only Alternative. As such, the Propane Only Alternative is anticipated to have both a long-term, minor, negative impact on airspace and a long-term, substantial, beneficial effect for first responders and civilian use.

3.11 Environmental Justice

3.11.1 Alternative A: No Action Alternative

Alternative A would not have an impact on environmental justice populations.

3.11.2 Alternative B: Propane and Solar Alternative (Preferred Alternative)

Alternative B would not have a disproportionate impact on low-income or minority populations as none have been identified within the area surrounding the Preferred Alternative location. Increased cellular reception would provide equal benefits to any individual (including those from an environmental justice population) along the Sterling Highway or within the Refuge.

3.11.3 Alternative C: Propane Only Alternative

Alternative C would have no effect on environmental justice populations for the same reasons discussed for Alternative B.

3.12 Cumulative Effects

Cumulative effects analysis considers past, present, and reasonably foreseeable future action effects in conjunction with the Proposed Action. While effects from the Proposed Action or other individual projects may be minor, the cumulative effects may amount to significance. A reasonably foreseeable future action is defined as a project for which there is an existing proposal or a project for which a commitment of resources has been made. The geographic

scope of this analysis considers where both direct and indirect effects may occur. Table 3-2 provides reasonably foreseeable future actions within the Proposed Action area that may result in cumulative effects.

Table 3-2. Reasonably foreseeable future actions within the Proposed Action area that may result in cumulative effects.

Project Name	Community or Location	Description	Status
Sterling to Quartz Creek Transmission Line Rebuild	Between Sterling and Quartz Creek, including the Refuge	Rebuild within the existing transmission alignment of a 40-mile, 230-kilovolt transmission line	Funded
Sterling Highway MP 45–60	Cooper Landing	Rebuild of the Sterling Highway between MPs 45–60, north of the current alignment	Funded – in construction

Cumulative effects are anticipated to be long term and minor. The physical Proposed Action footprint for each project listed in Table 3-2 does not overlap with the Preferred Alternative. Visual resource effects are the only effects that have the potential to be noticeable from another project site. However, because of the determination of long-term, minor effect on visual resources for both the Preferred Alternative and Alternative C due to the limited areas the tower is anticipated to be visible from, cumulative visual effects are anticipated to be long term and minor.

4 Mitigation Measures

In addition to mitigation measures NCW has committed to, USFWS offers additional BMPs to reduce effects to resources.

4.1 Applicant Committed Measures

NCW is committed to the following mitigation measures to limit potential effects on environmental resources.

4.1.1 Natural Resources

- Temporary work areas will be within the existing gravel pad.
- Temporary staging areas and material stockpile will be returned to its original condition at the completion of construction. No additional temporary work areas will be constructed outside the Proposed Action footprint.
- The Preferred Alternative will be accessed from existing roads.
- Preferred Alternative construction methods will include standard erosion control measures and not release any contaminants into the surface or groundwater.
- Because it will be sited on an existing gravel pad, the Proposed Action will require minimal grading and clearing.
- Soil will be replaced with native soil from the area.
- All landscaping added around the facility will be composed of native flora.
- The Proposed Action area will be surveyed and treated for terrestrial invasive species.

4.1.2 Visitor Use and Experience

A second entrance will be created to access the parking area to allow easier ingress and egress to the parking area for the public.

4.1.3 Visual Resources

- The color used for the microwave dish antennas may be pre-approved by USFWS.
- All tower-mounted antennas and equipment will be treated to reduce or eliminate reflective glare.
- All exterior buildings and/or shelters will be treated to reduce or eliminate glare, and any exterior paint proposed will be pre-approved by USFWS.
- All ground-mounted equipment will be housed within privacy slats or be visually blocked by natural vegetation to screen it from public view.

4.1.4 Noise

- Electronic noise-producing equipment will be stored in the communications shelter to reduce noise pollution.
- If a second provider is added, generators should be operated simultaneously to the extent possible to reduce the duration of generator noise.

4.1.5 Greenhouse Gas Emissions

NCW would implement solar power when possible in the Preferred Alternative to reduce greenhouse gas emissions.

4.1.6 Refuge Management and Operation

- A second entrance will be created to access the parking area to allow easier ingress and egress to the parking area for Refuge management.
- All design factors will adhere to USFWS and jurisdictional requirements.

4.1.7 Public Health and Safety

- The Preferred Alternative will use a combination of solar and propane generators to reduce air quality effects.
- Fuel and batteries for the communications equipment will be stored in accordance with applicable regulations to prevent any spills or leaks.
- NCW will maintain a fire buffer around the communications facility consistent with industry standards and approval by the Refuge Manager.
- Safety signage will be placed around the communications facility and made visible to the public.

4.2 USFWS Suggested Mitigation Measures

USFWS suggests mitigation measures by resource to reduce the potential for effects from the action alternatives. Many of the mitigation measures listed in Section 4.1 and committed to

previously by NCW were done in coordination with USFWS prior to submission of the application for the Proposed Action.

4.2.1 Natural Resources

- Intentional take of migratory birds may be permitted in limited situations (fws.gov/program/migratory-bird-permit).
- Incidental take (i.e., unintentional take from an otherwise lawful activity) of migratory birds cannot be permitted. The best way to avoid incidental take and comply with the MBTA is to avoid vegetation clearing, ground disturbance, and other site construction activities during the nesting season. Visit fws.gov/alaska-bird-nesting-season to view nesting season dates for migratory birds based on location, habitat, and bird species.
- If construction activity time restrictions are not possible, use down shielding or directional lighting to avoid light trespass into bird habitat (i.e., use a 'Cobra' style light rather than an omnidirectional light system to direct light down to the roadbed). To the maximum extent practicable, while allowing for public safety, low-intensity, energy-saving lighting (e.g., low pressure sodium lamps) should be used.
- Minimize use of high-intensity lighting, steady-burning, or bright lights such as sodium vapor, quartz, halogen, fluorescent, or other bright spotlights.
- Minimize illumination of lighting on associated construction or operation structures by using motion or heat sensors. Use switches to keep lights off when not required.
- Cap pipes, and cover and seal all small dark spaces where birds may enter and become trapped.
- Install anti-perching devices on facilities and equipment where birds may commonly nest or perch.
- Cover or enclose all potential nesting surfaces on the structure with mesh netting, chicken wire fencing, or other suitable exclusion material prior to the nesting season to prevent birds from establishing new nests. The netting, fencing, or other material should have no opening or mesh size greater than 19 millimeters and should be maintained until the structure is removed.
- Prevent increase in lighting of native habitats during the bird breeding season.
- To the maximum extent practicable, limit construction activities to the time between dawn and dusk to avoid the illumination of adjacent habitat areas.

5 Public Outreach

Public notices on the draft EA were advertised in the *Anchorage Daily News* and *Peninsula Clarion* on July 14 and August 2, 2024, respectively.

Letters were sent to the following Tribes and ANCSA Corporations on April 10, 2024:

- Cook Inlet Region, Inc.
- Kenaitze Indian Tribe
- Native Village of Nanwalek

- Native Village of Port Graham
- Native Village of Tyonek
- Ninilchik Native Association
- Ninilchik Village
- Port Graham Corporation
- Salamatof Native Association
- Seldovia Native Association
- Seldovia Village Tribe
- Tyonek Native Corporation
- Village of Salamatof

6 List of Preparers, and Persons and Agencies Consulted

NCW and its contractor, HDR Engineering, Inc. (HDR), prepared this EA in cooperation with USFWS. Table 6-1 lists the individuals responsible for the preparation and management of this EA as well as those who provided technical assistance.

Table 6-1. Preparers and persons consulted.

Name	Organization	Role
Hannah Boris	Wireless Policy Group	—
Cathy Waghdhare	AT&T	Project Manager
Alexys Gutteridge	—	Project Manager
Jennifer Spegon	USFWS	Senior Fish and Wildlife Biologist
April Sanders	USFWS	Realty Specialist
Emily Yurcich	USFWS	Conservation Planner
Tracy Fischbach	USFWS	Conservation Planner
Andy Loranger	USFWS	Refuge Manager
Todd Eskelin	USFWS	Wildlife Biologist
Kristine Inman	USFWS	Supervisory Wildlife Biologist
Steve Miller	USFWS	Deputy Refuge Manager
Melissa Becker	HDR	Project Manager MS Environmental Science BS Environmental Science BA Environmental Studies Years of Experience: 25
Cody Keen	HDR	GIS Specialist BS Environmental Studies Years of Experience: 1
Josh Buza	HDR	Resources Specialist MS Natural Resource Management BS Ecology Years of Experience: 9
Kaitlyn Hosken	HDR	Cultural Resources Specialist MS Anthropology Years of Experience: 10

Name	Organization	Role
Stephanie Larson	HDR	Technical Editor MA Linguistics BS Biology BA Comparative Literature Years of Experience: 23
Elizabeth Grover	HDR	Technical Editor MA Anthropology BA Anthropology Years of Experience: 23
Dennis Ekk	HDR	Visual Resources Specialist BAsc Civil Engineering Years of Experience: 21
Summer Hudson	HDR	508 Compliance Specialist BA Advertising AS Graphic Design and Multi-Media Years of Experience: 22

DRAFT

7 References

- Alaska Department of Environmental Conservation (ADEC). 2023. Alaska Greenhouse Gas Emissions Inventory 1990 – 2020. Division of Air Quality.
- _____. 2024a. ADEC Water Quality Map. Accessed on May 13, 2024, at <https://www.arcgis.com/home/webmap/viewer.html?webmap=f7e8ca8c14fe4520b9e2e1498e3cdee3>.
- _____. 2024b. Alaska DEC Contaminated Sites. Accessed on May 13, 2024, at <https://www.arcgis.com/apps/mapviewer/index.html?webmap=315240bfbaf84aa0b8272ad1cef3cad3>.
- _____. 2024c. Drinking Water Source Protection Areas Map. Accessed on May 13, 2024, at <https://dec.alaska.gov/eh/dw/dwp/protection-areas-map/>.
- Alaska Department of Fish and Game (ADF&G). 2024a. Bald Eagle (*Haliaeetus leucocephalus*). Accessed on February 20, 2024, at <https://www.adfg.alaska.gov/index.cfm?adfg=baldeagle.main#:~:text=Size-,The%20bald%20eagle%20is%20Alaska%27s%20largest%20resident%20bird%20of%20prey,females%20are%20larger%20than%20males.&text=Range%2FDistribution-Bald%20eagles%20are%20often%20found%20along%20Alaska%27s%20coast%2C%20offshore%20islands,and%20Interior%20lakes%20and%20rivers.>
- _____. 2024b. Alaska Fish Resource Monitor. Accessed on May 13, 2024, at <https://experience.arcgis.com/experience/1a4eb07b42ff4ebb8c71ba45adaedf0c/>
- Alaska Department of Natural Resources (ADNR). 2017. Historic Transportation Routes. State of Alaska Open Geoportal. Accessed on February 20, 2024, at <https://gis.data.alaska.gov/maps/SOA-DNR::rs2477-trails-1/>.
- Alaska Department of Transportation and Public Facilities (DOT&PF). 2024. Sterling Highway @ Jean Lake Hill MP 62.2. Accessed on May 16, 2024, at <https://roadweather.alaska.gov/sites/106>.
- Aycrigg, J. L., A. G. Wells, E. O. Garton, B. Magipane, G. E. Liston, L. R. Prugh, and J. L. Rachlow. 2021. Habitat selection by Dall's sheep is influenced by multiple factors including direct and indirect climate effects. *PLOS One* 16(3): e0248763. doi.org/10.1371/journal.pone.0248763
- Boris, Hannah. 2024. Wireless Policy Group estimate of generator runtime. Personal communication. Email received on June 20, 2024.
- DATAUSA. 2024. Cooper Landing, AK, Census Place. Accessed on May 14, 2024, at <https://datausa.io/profile/geo/cooper-landing-ak#:~:text=About,median%20household%20income%20of%20%24109%2C107.>
- Federal Emergency Management Agency (FEMA). 2024. FEMA Flood Map Service Center. Accessed on May 14, 2024, at <https://msc.fema.gov/portal/search?AddressQuery=mystery%20creek%20road%2C%20alaska>.

- Goldsmith, S., and A. Hill. 2000. *The Kenai National Wildlife Refuge: Economic Importance*. USFWS. Institute of Social and Economic Research, University of Alaska Anchorage. Anchorage, Alaska.
- Herreman, J. 2018. *Dall Sheep Management Report and Plan, Game Management Units 7 and 15: Report Period 1 July 2011-30 June 2016, and Plan Period 1 July 2016-30 June 2021*. Species Management Report and Plan ADF&G/DWC/SMR&P-2018-34. Alaska Department of Fish and Game. Juneau, Alaska.
- _____. 2020a. *Caribou Management Report and Plan, Game Management Units 7 and 15: Report Period 1 July 2012-30 June 2017, and Plan Period 1 July 2017-30 June 2022*. Caribou Management report and Plan ADF&G/DWC/SMR&PP-2020-19. Alaska Department of Fish and Game. Juneau, Alaska.
- _____. 2022a. *Mountain Goat Management Report and Plan, Game Management Units 7 and 15: Report Period 1 July 2013-30 June 2018, and Plan Period 1 July 2018-30 June 2023*. Species Management Report and Plan ADF&G/DWC/SMR&P-2022-8.
- _____. 2022b. *Moose Management Report and Plan, Game Management Unit 15: Report Period 1 July 2015-30 June 2020, and Plan Period 1 July 2020-30 June 2025*. Species Management Report and Plan ADF&G/DWC/SMR&P-2022-24. Alaska Department of Fish and Game. Juneau, Alaska.
- Lindell, S. K. 2014. Reconciling Technology and Nature: The Use of Mobile Technology in Outdoor Recreation. *Western Washington University Graduate School Collection*, 346. cedar.wwu.edu/wwuet/346.
- Loranger, A. J., T. N. Bailey, and W. W. Larned. 1991. Effects of forest succession after fire in moose wintering habitats on the Kenai Peninsula, Alaska. *ALCES* 27:100–109.
- Manville, A. M. III. 2005. Bird Strikes and Electrocutions at Power Lines, Communication Towers, and Wind Turbines: State of the Area and State of Science – Next Steps Toward Mitigation. U.S.D.A. Forest Service General Technical Report PSW-GTR-191. Bird Conservation Implementation in the Americas: Proceedings 3rd International Partners in Flight Conference 2002. Albany, California.
- MasTec Communications Group (MasTec). 2024. *Mystery Creek Tower Geotechnical Recommendations*. May 10, 2024.
- Morton, J. M., M. Bowser, E. Berg, D. Magness, and T. Eskelin. 2009. Long Term Ecological Monitoring Program on the Kenai National Wildlife Refuge, Alaska: AN FIA Adjunct Inventory. Prepared for 2008 Forest Inventory and Analysis (FIA) Symposium. Department of Biology and Wildlife, University of Alaska Fairbanks.
- Morton, J. M., G. C. White, G. D. Hayward, D. Paetkau, and M. P. Bray. 2016. Estimation of the brown bear population on the Kenai Peninsula, Alaska. *Journal of Wildlife Management* 80:332–346.
- Mullet, T. C., S. H. Gage, J. M. Morton, and F. Huettmann. 2015. Temporal and spatial variation of a winter soundscape in south-central Alaska. *Landscape Ecology* 31:1117–1137. doi.10.1007/s10980-015-0323-0.



- _____. 2021. Acoustic footprint of snowmobile noise and natural quiet refugia in an Alaskan wilderness. *Natural Areas Journal* 37(3):332–349. doi.org/10.3375/043.037.0308.
- National Audubon Society. 2024a. Olive Sided Flycatcher. Accessed at <https://www.audubon.org/field-guide/bird/olive-sided-flycatcher>.
- _____. 2024b. Lesser Yellowlegs. Accessed at <https://www.audubon.org/field-guide/bird/lesser-yellowlegs>.
- _____. 2024c. Rusty Blackbird. Accessed at <https://www.audubon.org/field-guide/bird/rusty-blackbird>.
- National Marine Fisheries Service (NMFS). 2024. National NMFS ESA Critical Habitat Mapper. Accessed at <https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=68d8df16b39c48fe9f60640692d0e318>.
- National Park Service (NPS). 1998. NPS-28: Cultural Resource Management Guideline. National Park Service, Washington, D.C. Accessed on June 24, 2024, at https://www.nps.gov/parkhistory/online_books/nps28/28contents.htm.
- Office of History and Archaeology (OHA). 2024. Alaska Heritage Resources Survey. Alaska Department of Natural Resources, Office of History and Archaeology, Anchorage, Alaska.
- Ortega, C., R. Wollgast, and E. Latosuo. 2018. Presence of Social Media use and Smartphone Technology Among Backcountry Skiers and Snowboarders, Hatcher Pass, Alaska. Alaska Pacific University. Proceedings from the International Snow Science Workshop, Innsbruck, Austria 2018.
- Peterson, R. O., J. D. Woolington, and T. N. Bailey. 1984. Wolves of the Kenai Peninsula, Alaska. *Wildlife Monographs*, 88, 3–52. Accessed at <http://www.jstor.org/stable/3830728>.
- Peterson, R. O., and J. D. Woolington. 1982. The apparent extirpation and appearance of wolves on the Kenai Peninsula, Alaska. In *Wolves of the World*, F. H. Harrington and P. C. Paquet, eds., pp. 334–344. Noyes Publ., Park Ridge, New Jersey.
- Reinert, S. E. 1984. Use of introduced perches by raptors: experimental results and management implications. Northwest Nazarene College. Nampa, Idaho.
- Schwartz, C. C., and A. W. Franzmann. 1991. Interrelationship of black bears to moose and forest succession in the northern coniferous forest. *Wildlife Monographs* 113:1–58.
- Sexton, N. R., A. M. Dietsch, A. W. Don Carlow, L. Koontz, A. N. Solomon, and H. M. Miller. 2011. *National Wildlife Refuge Visitor Survey 2010/2011: Individual Refuge Results for Kenai National Wildlife Refuge*. U.S. Geological Survey.
- Smith, Gerad, and James Kari. 2023. Web Atlas of Alaska Dene Traditional Place Names. ArcGIS Story map published online November 15, 2023. Accessed on May 21, 2024, at <https://storymaps.arcgis.com/stories/b31fc761a8ea4d7da349985d6932d58c>.

- United States Department of Agriculture (USDA). 2024a. Web Soil Survey Area of Interest Interactive Map. Accessed May 14, 2024, at <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>.
- _____. 2024b. Alaska and a Changing Climate. Accessed on May 14, 2024, at <https://www.climatehubs.usda.gov/hubs/northwest/topic/alaska-and-changing-climate>.
- United Nations Economic Commission for Europe (UNECE). 2013. *Emissions of Air Pollutants in Transport: an Overview*. WP.29-160-19-Rev.1. June 2013.
- United States Fish and Wildlife Service (USFWS). 2010. *Comprehensive Conservation Plan*. Kenai National Wildlife Refuge. June 2010. U.S. Fish and Wildlife Service Region 7. Anchorage, Alaska.
- _____. 2021. Birds of Conservation Concern 2021 Migratory Bird Program. Accessed at <https://www.fws.gov/sites/default/files/documents/birds-of-conservation-concern-2021.pdf>.
- _____. 2024a. IPAC Information for Planning and Consultation. Accessed on June 6, 2024, at <https://ipac.ecosphere.fws.gov/>.
- _____. 2024b. Technical Assistance for Broadband Projects. Accessed on September 20, 2024, at <https://www.fws.gov/service/technical-assistance-broadband-projects>.
- _____. 2024c. Incidental Take Beneficial Practices: Communication Towers. Accessed on May 24, 2024, at <https://www.fws.gov/story/incidental-take-beneficial-practices-communication-towers#:~:text=How%20do%20communication%20towers%20impact,warmers%20climates%20for%20the%20winter>.
- Van de Kerk, S. Arthur, M. Bertram, B. Borg, J. Herriges, J. Lawler, B. Mangipane, C. Lambert Koizumi, B. Wendling, and L. Prugh. 2020. Environmental influences on Dall's sheep survival. *Journal of Wildlife Management*. Accessed at <https://doi.org/10.1002/jwmg.21873>.
- Wilson, F. H., C. P. Hults, C. G. Mull, and S. M. Karl. 2015. Geological Map of Alaska: U.S. Geological Survey Scientific Investigations Map 3340. doi.org/10.3133/sim3340.

Appendix A. Subsistence Evaluation

DRAFT

**ANILCA Section 810 Evaluation
of
Cell Phone Tower near MP 63 at Mystery Creek Road
on
Kenai National Wildlife Refuge**

Finding of No Significant Restriction to Subsistence Uses

The U.S. Fish and Wildlife Service, acting for the Secretary of Interior, 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 would result in significant restriction to subsistence uses and needs, and we wish to proceed, we must initiate further procedural requirements of Section 810.

Proposed Action/Use

The US Fish and Wildlife Service (Service or USFWS) is evaluating a proposal to erect a cell phone tower near MP 63 of the Sterling Highway along Mystery Creek Road. The proposed project includes the following:

Construction

The approximately 12,950 square foot (0.30-acre) compound will be secured with a chain link fence topped with barbed wire. Within this compound the following are proposed to be constructed; cellular tower, equipment shelter, generators, propane tanks, buried fuel lines and a solar array. A new access point is proposed to be created on the eastern end of the parking lot to ease congestion for visitors. All ground mounted equipment will be housed inside an equipment shelter within the proposed fenced area. A 0.41-acre area surrounding the site will be mowed and kept free of larger trees to assist in protecting the site from wildfire.

Access to and from the site would be via Mystery Creek Road, an existing gravel road. Temporary work areas needed for construction would be within the existing gravel parking lot area. Staged materials include light and heavy-duty trucks, crane and other construction equipment. The temporary staging area/material stockpile will be returned to its original condition at the completion of construction.

The facility has been designed to accommodate future co-location of cellular services by another cellular provider if first approved and permitted by the U.S. Fish and Wildlife Service. The Applicant's antennas would be placed at the highest centerline height on the tower, and there would be available space below the Applicant's antennas to accommodate the antennas and tower mounted equipment for co-locators. Ground space has been provided for the equipment needed for an additional, single co-locator.

Maintenance and Operations

Commercial power is not currently a feasible solution for the proposed location. While there is an electric transmission line in close proximity, a substation capable of transforming the power to a lower voltage capable of powering the site is not currently available. Generators will be the primary power source during initial operation although planned solar panels may contribute up to 30% of the energy needed to power the site. Should distributed power become available at this site, a utility easement has been planned, and has also been evaluated within this analysis, to run south from the 0.71-acre site to a future substation or power pole.

During the life of the permit, the facility would remain unstaffed except for scheduled operation, maintenance and inspection trips which would occur approximately one to two times per month. A fuel break will be maintained for the duration of the permit around the site. Signage would be posted at the site.

Evaluation

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

Hunting and trapping opportunities for several species are available for Federally-qualified subsistence users within the KNWR in general proximity to this tower. Black bear, brown bear, caribou, coyote, hare, lynx, wolverine, grouse, ptarmigan, Dall sheep, goat, and moose are among species harvested in the area.

Several federal subsistence fishing opportunities are provided within the KNWR Refuge. None of these subsistence fisheries are located near the proposed tower.

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

None

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

The proposed action would not impact subsistence uses or detract from subsistence needs being met because direct effects on wildlife or habitat resources would be minor and availability or resources for subsistence uses would not be reduced. The proposed action would not increase competition for resources among users. The preferred alternative would not change the availability of resources by altering their distribution or location. Finally, the proposed action would not reduce subsistence uses and opportunity for such uses because of limitations on access to harvestable resources.

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

No other suitable sites which would meet the project purpose are available.

5. Other Alternatives Which Would Reduce or Eliminate Use of Public Lands Needed for Subsistence Purposes:

None. No other landowners are near the proposed site.

Finding

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

Supporting Documentation

Draft Environmental Assessment, Mystery Creek Road FirstNet Communications Project, Kenai National Wildlife Refuge.

Alaska National Interest Lands Conservation Act (ANILCA), 1980.

Subsistence Management for Federal Public Lands in Alaska, Final Environmental Impact Statement. 1992.

Agency Decision

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

Consultation and Coordination

The USFWS invited the Alaska Native Claims Settlement Act (ANCSA) Corporation and Tribal Leaders to comment on or participate in the pre-NEPA scoping (letter dated April 10, 2024) and to participate in formal or informal consultation for this project throughout the planning processes.

Andy Loranger, Refuge Manager
Kenai National Wildlife Refuge

Date

Appendix B. EJScreen

DRAFT

EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

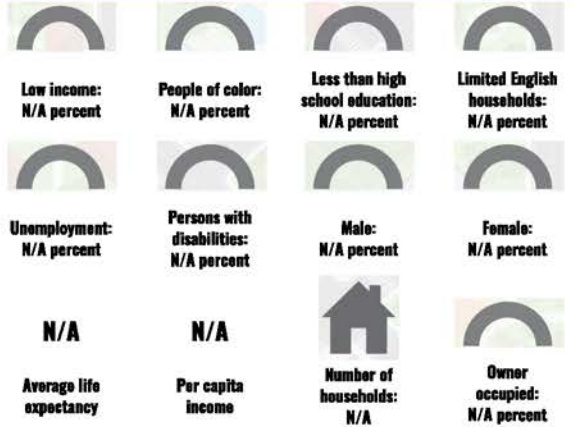
The area is too small or sparsely populated, or these data are not available in the national dataset. Cannot generate an EJScreen chart or report.



September 23, 2024
 EJ Screen Report Mystery Creek
 Particulate Matter 2.5 (National Percentiles)
 Data not available
 Project 1

1:30,112
 0 0.20 0.40 0.80 1.60
 0 0.20 0.4 0.8 1.6 km
 Map Source: Esri, DeLorme, Garmin

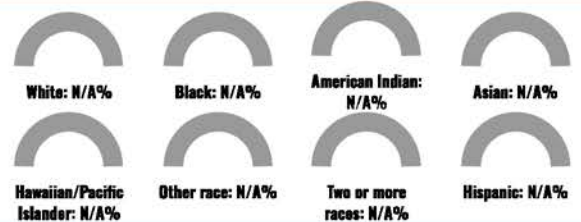
COMMUNITY INFORMATION



LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
No language data available.	

BREAKDOWN BY RACE



BREAKDOWN BY AGE



LIMITED ENGLISH SPEAKING BREAKDOWN



Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race. Source: U.S. Census Bureau, American Community Survey (ACS) 2018-2022. Life expectancy data comes from the Centers for Disease Control.

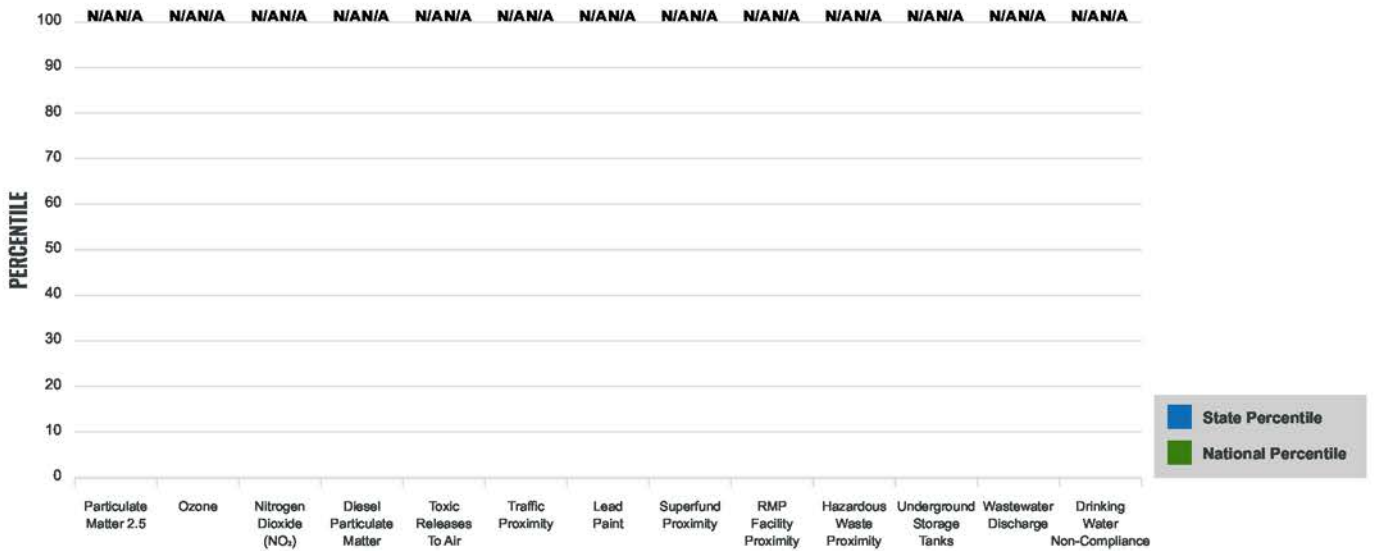
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the [EJScreen website](#).

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

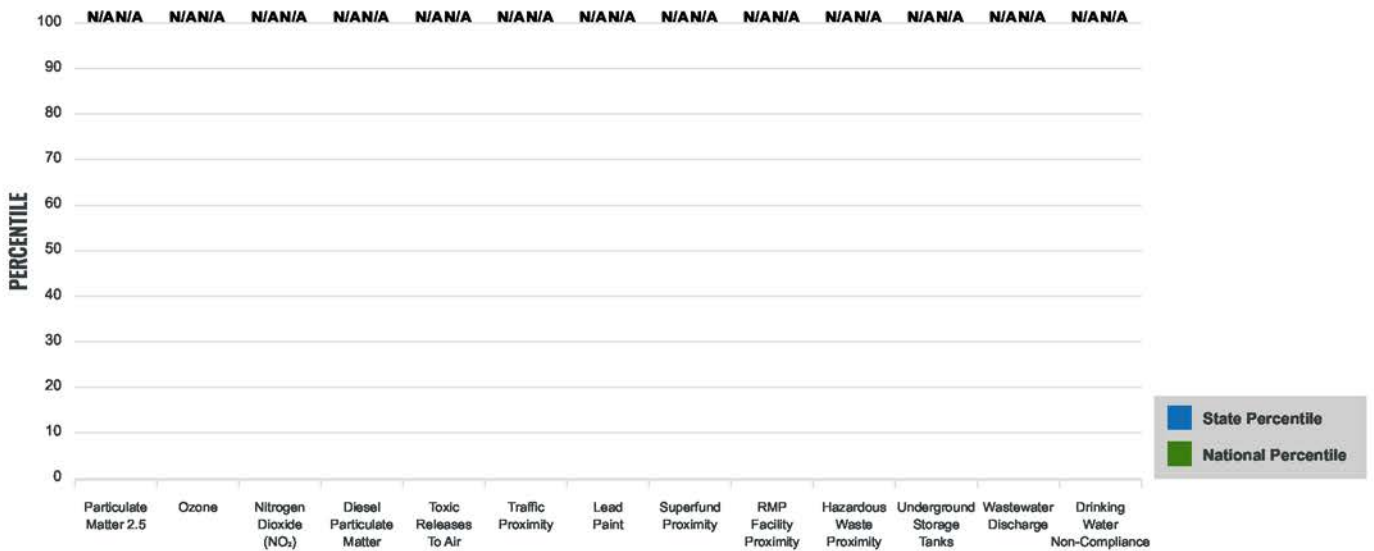
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low income, percent persons with disabilities, percent less than high school education, percent limited English speaking, and percent low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



Report for 5 miles Ring Centered at 60.528613,-150.243786

Report produced September 23, 2024 using EJScreen Version 2.3

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
ENVIRONMENTAL BURDEN INDICATORS					
Particulate Matter 2.5 ($\mu\text{g}/\text{m}^3$)	XX	XX	XX	XX	XX
Ozone (ppb)	XX	XX	XX	XX	XX
Nitrogen Dioxide (NO_2) (ppbv)	XX	XX	XX	XX	XX
Diesel Particulate Matter ($\mu\text{g}/\text{m}^3$)	XX	XX	XX	XX	XX
Toxic Releases to Air (toxicity-weighted concentration)	XX	XX	XX	XX	XX
Traffic Proximity (daily traffic count/distance to road)	XX	XX	XX	XX	XX
Lead Paint (% Pre-1960 Housing)	XX	XX	XX	XX	XX
Superfund Proximity (site count/km distance)	XX	XX	XX	XX	XX
RMP Facility Proximity (facility count/km distance)	XX	XX	XX	XX	XX
Hazardous Waste Proximity (facility count/km distance)	XX	XX	XX	XX	XX
Underground Storage Tanks (count/ km^2)	XX	XX	XX	XX	XX
Wastewater Discharge (toxicity-weighted concentration/m distance)	XX	XX	XX	XX	XX
Drinking Water Non-Compliance (points)	XX	XX	XX	XX	XX
SOCIOECONOMIC INDICATORS					
Demographic Index USA	XX%	N/A	N/A	XX%	XX
Supplemental Demographic Index USA	XX%	N/A	N/A	XX%	XX
Demographic Index State	XX%	XX%	XX	N/A	N/A
Supplemental Demographic Index State	XX%	XX%	XX	N/A	N/A
People of Color	N/A	XX%	XX	XX%	XX
Low Income	XX%	XX%	XX	XX%	XX
Unemployment Rate	XX%	XX%	XX	XX%	XX
Limited English Speaking Households	XX%	XX%	XX	XX%	XX
Less Than High School Education	XX%	XX%	XX	XX%	XX
Under Age 5	XX%	XX%	XX	XX%	XX
Over Age 64	XX%	XX%	XX	XX%	XX

*Diesel particulate matter index is from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>.

Sites reporting to EPA within defined area:

Superfund	XX
Hazardous Waste, Treatment, Storage, and Disposal Facilities	XX
Water Dischargers	XX
Air Pollution	XX
Brownfields	XX
Toxic Release Inventory	XX

Other community features within defined area:

Schools	XX
Hospitals	XX
Places of Worship	XX

Other environmental data:

Air Non-attainment	XX
Impaired Waters	XX

Selected location contains American Indian Reservation Lands*	XX
Selected location contains a "Justice40 (CEJST)" disadvantaged community	XX
Selected location contains an EPA IRA disadvantaged community	XX

Report for 5 miles Ring Centered at 60.528613,-150.243786
 Report produced September 23, 2024 using EJScreen Version 2.3

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	XX	XX	XX	XX	XX
Heart Disease	XX	XX	XX	XX	XX
Asthma	XX	XX	XX	XX	XX
Cancer	XX	XX	XX	XX	XX
Persons with Disabilities	XX	XX	XX	XX	XX

CLIMATE INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	XX	XX	XX	XX	XX
Wildfire Risk	XX	XX	XX	XX	XX

CRITICAL SERVICE GAPS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	XX	XX	XX	XX	XX
Lack of Health Insurance	XX	XX	XX	XX	XX
Housing Burden	XX	N/A	N/A	N/A	N/A
Transportation Access Burden	XX	N/A	N/A	N/A	N/A
Food Desert	XX	N/A	N/A	N/A	N/A

Report for 5 miles Ring Centered at 60.528613,-150.243786

Report produced September 23, 2024 using EJScreen Version 2.3

Appendix C. USFWS IPaC

DRAFT

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as trust resources) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Kenai Peninsula County, Alaska



Local office

Anchorage Fish & Wildlife Field Office

(907) 271-2888

(907) 271-2786

4700 Blm Road
Anchorage, AK 99507

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries¹).

Species and critical habitats under the sole responsibility of NOAA Fisheries are not shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

² [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

There are no listed species or critical habitats expected to occur at this location.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below.

Specifically, please review the ["Supplemental Information on Migratory Birds and Eagles"](#).

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

Please refer to [Alaskas Bird Nesting Season](#) for recommendations to minimize impacts to migratory birds, including eagles.

NAME

BREEDING SEASON

Bald Eagle *Haliaeetus leucocephalus*

Breeds Mar 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <https://ecos.fws.gov/ecp/species/1626>

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (I)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

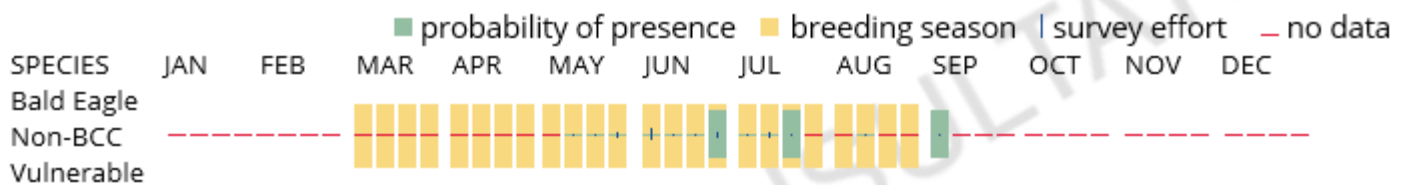
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

There are migratory birds in your project area. Please refer to [Alaska's Bird Nesting Season](#) for recommendations to minimize impacts to migratory birds, including eagles.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date

NOT FOR CONSULTATION

range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Mar 1 to Aug 31
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events

for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

- To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
- The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

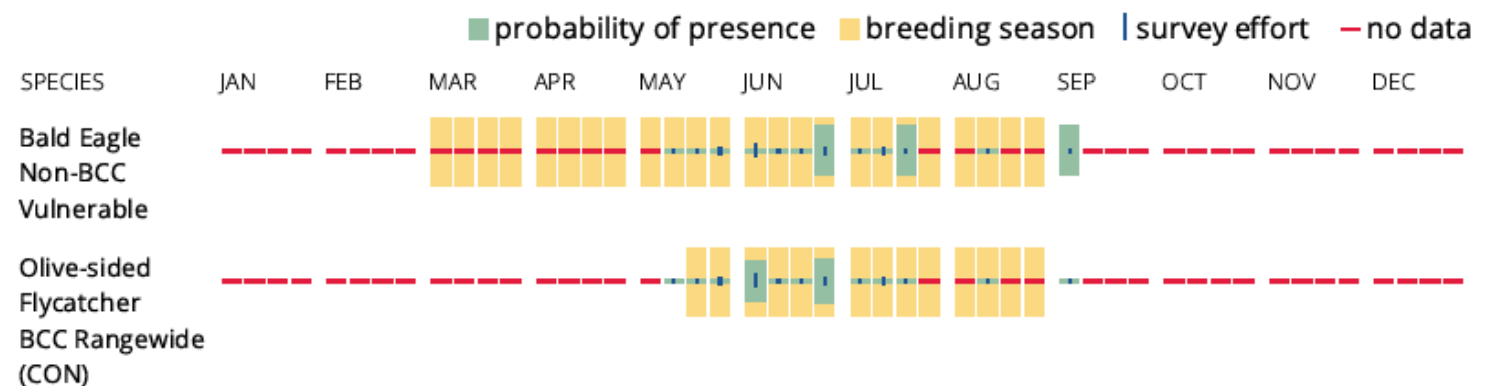
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);

2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint.

On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

This location overlaps the following National Wildlife Refuge lands:

LAND	ACRES
KENAI NATIONAL WILDLIFE REFUGE	1,829,230.54 acres

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies.

Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix D. SHPO Concurrence

DRAFT

9.19.24

3130-1R FWS
2024-00926



United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
1011 East Tudor Road
Anchorage, Alaska 99503-6199



IN REPLY REFER TO:

Judy Bittner, State Historic Preservation Officer
State Office of History and Archaeology
550 W. 7th Avenue, Suite 1310
Anchorage, Alaska 99501-3565

MSH No Historic Properties Affected
Alaska State Historic Preservation Officer
Date: 9.19.24 File No.: 3130-1R FWS
2024-00926
Please review: 36 CFR 800.13 A.S. 41.35.070(d)

Dear Ms. Bittner:

New Cingular Wireless (NCW), a subsidiary of AT&T, is proposing to construct a FirstNet Communication Facility within the Kenai National Wildlife Refuge in the Kenai Peninsula Borough, Alaska. The project will consist of construction of a 198-foot-tall communications tower and associated facility to be built on an existing gravel pad. With the project occurring on lands managed by the United States Fish and Wildlife Service (Service) it is considered an undertaking per 36 CFR 800.16 (y). HDR was contracted to produce a report for the project and identify cultural resources in the area (Enclosure 1).

The tower will be constructed on a gravel pad on Mystery Creek Road approximately 405 feet from the Sterling Highway. It will be outfitted with antennas, remote radios, a microwave dish, ice shield, and supporting cables and mounting equipment. Two generators will power the tower and will be placed on a 10 by 12-foot concrete foundation. Two additional concrete foundations will be constructed to support propane tanks and a 53-foot by 4-inch fuel line will be buried between the propane tanks and generators. The 12,950 square foot site will be surrounded by an 8-foot-tall fence.

The Area of Potential Effects (APE) consists of an area that takes into account potential physical and visual effects associated with the project. For this project the APE consists of 6,993 acres encompassing the project footprint which would occur exclusively within the existing gravel pad and the visual effects of the proposed 198-foot-tower (Figure 1-1 and 1-2 in attached report).

To account for the height of the tower the viewshed analysis tool in ArcGIS Pro was utilized and four sites were identified in the APE. KEN-000818, a power transmission line, determined not eligible for the National Register of Historic Places (NRHP); KEN-00653, the Sterling Highway, not eligible for the NRHP; KEN-00520, the Alaska Road Commission Route 55 Historic District, not evaluated for the NRHP; and KEN-00518, Alaska Road Commission Route 55, a winter trail, that has not been evaluated for the NRHP.

For the project the Service consulted with 13 Tribes and Alaska Native corporations. The two unevaluated sites fall within the project viewshed, and no historic properties were identified within the project footprint that is occurring in an area of a disturbed, existing gravel pad. Based on this the Service recommends a finding of no historic properties affected per 36 CFR 800.4(d)(1). If you have any questions or concerns, please contact Jake Adams at jacob_adams@fws.gov.

Sincerely,

JACOB ADAMS

Digitally signed by JACOB
ADAMS
Date: 2024.09.10 07:37:54 -08'00'

Archaeologist, USFWS

Enclosures (1)