

## **1.0 SUMMARY**

The Alaska Department of Transportation and Public Facilities (DOT&PF) and the Federal Aviation Administration (FAA) are developing a project to improve the Airport at Nightmute, to ensure safe and reliable air transportation. The Nightmute Airport, which was originally constructed in 1976, was recommended by the ADOT&PF Yukon-Kuskokwim Transportation Plan (Y-K Plan) to be classified as an Airport Reference Code (ARC) A-I Airport. The existing airport does not meet current FAA design criteria for this classification. Improvements to the airport to fulfill the A-I classification will still be deficient in wind coverage, therefore the project will be designed to meet B-II standards. Improvements to the airport will ensure safe and efficient air transportation to Nightmute.

The DOT&PF initially considered several build alternatives to meet the needs of the airport. From these alternatives, a build alternative (proposed action) and a no-build (no action) alternative have been selected for analysis in this environmental document.

Since the proposed airport improvements at Nightmute would be federally funded, an analysis is required to ensure that the project is consistent with existing national environmental policies and objectives set forth in Section 101 (a) of the National Environmental Policy Act (NEPA) of 1969, and that the project will not significantly affect the quality of the environment or otherwise include any condition requiring consultation pursuant to Section 102 (2)(C) of NEPA.

This environmental Assessment (EA) presents an analysis of the potential environmental impacts of the proposed action, with intent to meet the objectives of NEPA. The EA was prepared with guidelines from the FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures* (June 8, 2004). Table 1 summarizes the environmental factors that were considered during the preparation of the EA. The table also indicates environmental factors potentially impacted by the build (action) alternative.

**Table 1 – Summary of Factors Considered in the EA**

<b>Environmental Element</b>	<b>Description of Impact</b>
Noise	No Significant Impacts
Compatible Land Use	Compatible
Social Impacts	None
Induced Socioeconomic Impacts	Short term economic benefits
Air Quality	No long term impacts
Water Quality	None
Section 4(f) / Section 6(f)	None
Historic, Archeological, & Cultural Resources	No Adverse Effect
Biotic Communities	No Significant Impacts
Essential Fish Habitat	No Significant Impacts
Endangered & Threatened Species	None
Wetlands	19 acres to be filled
Floodplain	Parts of the project are within floodplain, no increase in flooding potential to the community of Nightmute
Coastal Zone Management Program	No Significant Impacts
Coastal Barriers	None
Wild & Scenic Rivers	None
Farmlands	None
Light Emissions	None
Energy Supply & Natural Resources	No significant impact
Solid Waste	None
Hazardous Waste and Materials	No significant impact
Construction Impacts	Temporary, minor positive. & negative impacts

## **2.0 PROPOSED ACTION**

The Alaska Department of Transportation and Public Facilities (DOT&PF) and the Federal Aviation Administration (FAA) are developing a project to improve the Nightmute Airport to ensure safe and reliable air transportation. Improvements at the airport will provide NPI approaches allowing a broader window of time for enplanements at the airport. Global Positioning System Approaches will be useable in conjunction with visual contact. The project will provide a B-II airport with 24-hour Visual Flight Rules.

### **2.1 PROPOSED IMPROVEMENTS**

The proposed project will:

- Expand the existing 50 ft by 1,600 ft runway to 75 ft by 3,200 ft
- Extend the existing 100 ft by 2,000 ft runway safety area to 150 ft by 3,800 ft
- Provide a 50 ft by 260 ft taxiway on a 79 ft wide safety area.
- Provide a new 150 ft by 255 ft parking apron.
- Provide a 100 ft by 100 ft pad for two single bay Snow Removal Equipment Buildings.
- Install insulation under the runway extension to prevent permafrost thaw.
- Install a medium intensity lighting system.
- Install a lighted wind cone and segmented circle on a 125 ft by 125 ft pad.
- Provide a 30 ft by 60 ft Automated Weather Observation System (AWOS) Pad, two Precision Approach Path Indicator (PAPI) Pads, four Runway Edge Identifier Lighting (REIL) Pads and install an unlighted wind cone.
- Extend the power line from the village to the airport.
- Rehabilitate the existing 4,800 ft by 15 ft airport access road to repair the extreme differential settlement of the road and also to shift the road further away from the Toksook River and realign it within the right of way (ROW), while maintaining the width of the road at 15 ft.
- Provide erosion protection along the airport access road.
- Acquire airport property. The current property lease has expired.

### 3.0 PURPOSE AND NEED.

#### 3.1 PURPOSE AND NEED

The purpose of the Nightmute Airport Improvements project is to provide facility improvements that would resolve current safety and operational issues. The Nightmute airport currently provides the only year round means of transportation for the village of Nightmute, and it is the only means of medical evacuation. Although barge companies transport consumer goods to the community during the summer months and early fall (the Toksook River is typically frozen between November and May), air transportation provides the only year round connection for routine travel, shipment of goods, mail, and emergency medical evacuations (ADCED Community Profile 1990 Census).

#### 3.2 BACKGROUND

Nightmute is a traditional Eskimo community on Nelson Island, located on the Bering Sea coast of the Yukon-Kuskokwim Delta, in western Alaska. It is 18 miles upriver from Toksook Bay and 100 miles west of Bethel. The community lies within Section 33, Township 5N, Range 88W, Seward Meridian, (approximately at Latitude 60.479440° N, and Longitude 164.72389° W). Nightmute is located in the Bethel Recording District. (See Appendix A-Figure 1).

The community is accessible by riverboat or barge in the summer and snow machine in the winter. During spring breakup and early freeze up, access is limited to air travel. The community heavily relies on the airport for year round transportation. Although the DOT&PF in conjunction with the Federal Highway Administration (FHWA) is developing a project to construct a road that would connect Nightmute to the village of Toksook Bay and Tununak, improvements to the existing airport are needed to provide safe and reliable air transportation.

#### 3.3 EXISTING FACILITIES

The Nightmute Airport was originally constructed in 1976. The airport is owned and operated by the DOT&PF on leased property that expired in 1998. The existing airport consists of an unlighted 50 ft by 1,600 ft gravel surface runway within a 100 ft by 2,000 ft safety area. The runway is aligned at 40 degrees. This runway orientation provides 74.7 percent wind coverage for airplane design group (ADG) I and 82.4 percent wind coverage for ADG II aircraft— well below the 95 percent required by FAA advisory circulars. The existing parking apron is 70 ft by 100 ft, without a taxiway and taxiway safety area. An equipment storage building is located north west of the runway. A 0.9 mile, 15-foot wide access road connects the airport to the village of Nightmute (Appendix A-Figure 1).

The Nightmute Airport is primarily served by single engine aircraft such as the Cessna 206 Skywagon Airport Reference Code (ARC) A-I and the Cessna 208 Caravan (ARC A-II). Some twin-engine aircraft such as the Piper Navajo (ARC B-I) and Dehavilland Twin Otter occasionally operate at the airport. Aeromed International provides air ambulance service to the community with a Cessna 208 Caravan (DOT&PF, *Airport Layout Plan Narrative*, November 2005).

### 3.4 AIRPORT DEFICIENCIES

The Nightmute Airport does not meet the current FAA design criteria for an ARC A-I airport as recommended by the DOT&PF Y-K Plan. Several changes have occurred during the airport's twenty-nine years of service. Community needs and types of aircraft have changed, and the FAA design criteria have advanced to address safety concerns. The following deficiencies were identified at the Nightmute Airport:

- The runway length and width, undersized apron, lack of taxiway, and proximity of the snow removal equipment building (SREB) to the runway do not meet FAA design standards.
- The differential subsidence exhibited by the airport and access road presents a hazard to users of the airport.
- There is no electrical power at the airport, therefore, no runway lighting, thereby limiting operational hours.
- The Toksook River bank erosion threatens the airport access road.
- Crosswinds jeopardize landings on the existing runway, as the existing facility does not provide the desired 95 percent wind coverage.

### DISCUSSION

**The runway length and width, undersized apron, lack of taxiway, and proximity of the SREB to the runway, do not meet FAA design standards.**

The Nightmute Airport is designated as an Aircraft Approach Category A, Airplane Design Group I (ARC A-I) Airport and does not meet the current FAA design criteria for this airport reference code. In addition, design considerations to improve the airport to the A-I designation will still be deficient in wind coverage. The runway and runway safety area display extreme differential settlement, a result of permafrost thaw. The existing apron is too small and the airport has no taxiway. Operators manually maneuver their planes when more than one aircraft occupies the apron. Pilots report "holding" in the aircraft traffic pattern while awaiting space on the apron. The existing snow removal equipment building is dilapidated, located too close to the runway, and does not adhere to current design standards. Drifting snow on the undersized apron creates serious problems for airport operations in the winter. Table 4 lists the dimensions of the existing facilities and the proposed improvements. Table 5 lists the current aircraft serving the Nightmute airport and the projected fleet.

The current population trends at Nightmute have shown an increase of 2.8% a year as estimated in the Airport Layout Plan. Because the only year-round transportation out of Nightmute is through the airport, it is reasonable to assume that aircraft operations will increase at the same rate. Using information from the T-100 Transportation Database, the table below illustrates predicted airport operations.

**Table 2-Aeronautical Forecasts (derived from the Nightmute Airport Layout Plan)**

Activity	2004 (actual)	2009	2014	2024
Operations	1,568	1,800	2,067	2,727

The Y-K Plan used existing enplanement data and a model to estimate future enplanements. Table 3 presents the known enplanement activities between 1990 and 2000, and the forecasted enplanements between 2005 and 2020. Increased public use represents more trips by commercial and private aircraft, and a gradual growth in the size of aircraft used.

**Table 3 – Enplanement Activity at Nightmute Airport\***

	1990	1995	1996	1997	1998	1999	2000	2005	2010	2015	2020*
<b>Passengers</b>	1009	1644	1808	1256	1410	1537	1,311	2,000	2,600	3,400	4,300
<b>10 year increase</b>	-	-	-	-	-	-	29.9%	-	98.3%	-	65.4%

**Total Estimated 30 year increase (1990-2020) = 326%**

\*Projected in the Y-K plan.

The Y-K plan recommends an airport designed to ADG-I standards for Nightmute. However, because the runway orientation at Nightmute only provides 74.7 percent wind coverage for ADG I aircraft, the runway width was increased to 75 feet (ADG II) to allow additional room of error for landings during crosswind conditions and to accommodate the increasing numbers of ADG II aircraft using Nightmute airport.

The Y-K Plan also recommends an aircraft approach category A for Nightmute. Aircraft approach category B will be used to accommodate larger aircraft forecasted to start utilizing the airport and to also increase the wind coverage for the airport. Therefore, the airport will be designed using B-II standards, as listed below in the Proposed Action column.

**Table 4 – Existing Facilities and Proposed Action**

COMPONENT	EXISTING AIRPORT	PROPOSED ACTION
RUNWAY DIMENSIONS	50 FT X 1,600 FT	75 FT X 3,200 FT
RUNWAY SURFACE	GRAVEL	GRAVEL
RUNWAY SAFETY AREA	100 FT X 2,000 FT	150 FT X 3,800 FT
TAXIWAY	NONE	50 FT X 260 FT
TAXIWAY SAFETY AREA	NONE	79 FT WIDE
RPZ		
INNER WIDTH	250 FT	500 FT
OUTER WIDTH	450 FT	700 FT
LENGTH	1,000 FT	1,000 FT
RUNWAY OFA	250 FT X 2480	500 FT X 3,800
RUNWAY OFZ	240 FT X 2,400 FT	250 FT X 3,600 FT
APRON	70 FT X 200 FT	NEW 150 FT X 255 FT
BUILDING PAD	35 FT X 50 FT	NEW 100 FT X 100 FT

RPZ = runway protect zone  
 OFA = object free area  
 OFZ = object free zone

**Table 5 – Current and Projected Class of Aircraft Serving Nightmute**

CURRENT AIRCRAFT	AIRPORT REFERENCE CODE
CESSNA 172	A-I
CESSNA 206	A-I
CESSNA 207	A-I
CESSNA 208	A-II
DE HAVILLAND "TWIN OTTER"	A-II
SHORTS "SKYVAN"	A-II
PROJECTED AIRCRAFT	AIRPORT REFERENCE CODE
BEECH 18	A-II
CASA C-212 "AVIOCAR"	A-II
CESSNA 402	B-I
PIPER PA-31 "NAVAJO"	B-I
PIPER PA-32 "SARATOGA"	B-I

**Differential subsidence exhibited by the airport and access road.**

Several areas within the airport and access road exhibit permafrost-related damage. The permafrost beneath the runway embankment has thawed and consolidated; this differential settlement has led to severe depressions in the runway. The access road also suffers from differential settlement of the embankment. Overtime, the gravel surface on the access road has become deteriorated and in many sections has become un-useable to the public. As part of the proposed project, the road will be resurfaced and re-graded for access use.

**No electrical power at the airport.**

The Nightmute Airport currently does not have electrical power to operate lighting, navigational aids, or heat the SREB. The airport is limited to visual flight rules during daylight hours only. Aircraft operations are reduced during the winter due to decreased daylight and low visibility. Operating the airport under these conditions greatly compromises safety. Installation of runway lights and navigational aids will increase the level of safety for airport operations and permit reliable emergency medical evacuation service.

**The Toksook River bank erosion threatens the airport access road.**

The riverbank supporting the airport access road, which connects the airport to the community of Nightmute, exhibits signs of severe erosion from the Toksook River. The river flows through unconsolidated silt and very fine sand in this area and is prone to erosion (Selkregg 1974 and DOT&PF 1995). Realignment of several short sections of the airport access road and erosion protection measures are necessary. These will be minor alignments of the road bed surface within the existing ROW.

**Crosswinds jeopardize landings on the existing runway.**

The Climate Center at the University of Alaska-Anchorage collected wind data for two consecutive years from May 1995 through May 1997. The data was processed and analyzed using software recognized by the FAA, and the preferred runway alignment was determined. Currently the Nightmute Airport provides 74.7 percent wind coverage for ADG I aircraft. Although building a crosswind runway is planned for the "Ultimate Development" stage of the

Nightmute Airport, this is beyond the scope of the proposed project and projected dates for this stage are undetermined. Widening the existing runway to B-II standards would promote additional safety for aircraft landing during crosswind conditions.

## 4.0 ALTERNATIVES

### 4.1 BACKGROUND

When developing airport alternatives, many factors are taken into consideration: engineering and design requirements, serviceability to the community, property ownership, maintenance, potential conflict with existing uses and environmental concerns. Potential sites must be able to accommodate a runway of sufficient length and width, maximize prevailing wind conditions, and provide safe and reliable service during low visibility. The site should be geotechnically sound, reflect the community's need for safe operations and easy access, and support the community's long-term development goals.

### 4.2 ALTERNATIVES CONSIDERED BUT DROPPED

Department design staff explored several alternatives to address the purpose and need of the project (See Appendix A-Figure 2). Each of the following alternatives were examined with respect to cost, technical advantages, environmental impacts, and level of service to the community of Nightmute. Several alternatives were dismissed as unreasonable, or lacking community support.

#### 4.2.1 Alternative one: No Action

This would leave the existing airport in its current condition and not address the safety concerns expressed by residents and pilots. This alternative will not meet the purpose and need of the project. Deficiencies at the airport would remain. Safety issues with sub-standard operational conditions would not be addressed. No land acquisition or construction costs are associated with this alternative. There would be no environmental impacts due to construction.

#### 4.2.2 Alternative Two: Abandon Existing Airport

Abandon the airport facility and allow the village to rely on other means of transportation. The river is open to marine travel during the summer months and the winter trails afford some snowmachine and dogsled travel. Medical evacuation could be accomplished by helicopter traveling from Anchorage, location of the nearest full service medical facilities. Nightmute is about 500 miles by air, west of Anchorage. This alternative will not meet the purpose and need of the project. Fast, safe and economical transport of people, goods and fuel would not be possible.

#### 4.2.3 Alternative Three: Alternate Location (Relocate Airport).

Abandon the existing airport site and develop a new airport at another site. All sites investigated would require development of a new airport, an access road and powerline for proper operation of the facility. A new airport sited atop Toksook Mountain was examined (Alternative 3a). This would minimize the environmental concern over destruction of wetlands and eliminate airspace penetrations. However, it was eliminated due to considerable cost, and distance from the community.

In order to provide adequate airspace, the airport would have to be relocated away from Toksook Mountain. Relocating the airport to another site would require increased wetlands impacts. In addition, the airport would have to avoid the river's floodplain. This would require the airport to be sited a considerable distance from the village, (Alternative 3B), increasing construction costs

due to a new airport access road. This alternative was eliminated due to economic and environmental concerns.

Although either version of this alternative would meet the purpose and need of the project, they both have prohibitively high construction and maintenance costs. In addition, both versions would take longer to design and construct. Alternative 3B would increase the wetlands involvement, thereby increasing the environmental impact. The purpose and need can be met by another alternative with lower economic and environmental costs.

**4.2.4 Alternative Four & Five: Realign at Current Site /Widen Embankment Eastward**  
Construct the runway embankment away from an encroaching bend in the Toksook River, and widen the embankment on only one side rather than both sides. Experience dictates this method of expansion often results in longitudinal differential settlement. Widening on both sides offers a stable core about the runway centerline. Any realignment at the existing site would impact high value, open water palustrine wetland habitats, and the Toksook Mountain limits the approaches to any runway other than the current alignment.

#### 4.3 PREFERRED ALTERNATIVE

##### 4.3.1 Alternative Six: Improve the Existing Airport.

Widen and lengthen the existing runway, and associated safety area, on the present alignment. Construct a taxiway, and associated safety area, using the existing apron embankment. Construct an apron and building pad from new material. Extend a powerline from the village to the airport and install a medium-intensity airport lighting system. Rehabilitate the existing access road, realigning several segments. Establish a new airport boundary through property acquisition, to allow future development of the airport and protect airspace. This alternative offers the greatest benefits, the lowest construction cost, and the least environmental impact of all the “build/action” alternatives.

Based on the critical aircraft projected to use the Nightmute Airport in the 20-year planning period, and the amount of wind coverage required, the airport will be improved to meet ARC B-II standards.

To develop the airport in accordance with the preferred alternative, (Alternative 6), and satisfy current FAA design criteria for an ARC B-II airport, the following is a list of proposed design features (See Appendix A. Figures 3a & 3b show areas of proposed improvements. Figure 4 shows the existing and proposed airport fill limits).

##### **Expand and extend the runway to 75 ft x 3,200 ft.**

- Satisfies the minimum recommended runway length in FAA Advisory Circular 150/5325-4B for current and anticipated aircraft and passenger loads.
- Provides improved safety for ADG I aircraft during crosswind conditions.

##### **Construct a 150 ft x 3,800 ft runway safety area.**

- Satisfies the minimum recommended runway safety area design standards for the proposed runway.

**Install insulation at the runway extension.**

- Counters differential settlement as a result of thaw of the permafrost beneath the new embankment.

**Construct a 50 ft x 260 ft taxiway on a 79 ft wide taxiway safety area.**

- Provides required separation between the runway environment and parked aircraft, and meets the design standards required to allow safe transition to and from the apron.

**Construct a 150 ft x 255 ft apron.**

- Keeps stationary aircraft from obstructing operations in the runway environment.
- Satisfies statewide aviation design criteria for rural airport aprons.

**Install a medium-intensity lighting system.**

- Improves airport operational safety (i.e. takeoffs, landings).
- Extends the hours for airport operation.

**Construct a 100 ft x 100 ft building pad.**

- Provides a suitable location upon which to construct a new snow removal equipment building and an electrical equipment enclosure.

**Install a lighted wind cone and segmented circle on a 125 ft x 125 ft pad.**

- Provides wind directional information to pilots for takeoff and landing.

**Construct two PAPI pads and one AWOS pad and install the instrumentation.**

- Provides visual approach slope guidance for obstruction clearance for landing aircraft.
- Provides weather information at the airport.

**Extend a powerline from the village to the airport.**

- Provides economical electricity for the medium-intensity lighting system and snow removal equipment building.

**Rehabilitate the airport access road.**

- Construct erosion protection along the airport access road.
- Address the subsidence of the 15 ft wide road.
- Regrade and Resurface with gravel

Figure 5 (Appendix A) shows the typical sections for each aspect of the preferred alternative.

The existing airport is located on properties once leased by the State of Alaska, but that lease expired in 1998. Airport property will be acquired.

Coordination with airport users, the City of Nightmute, the Nightmute Native Corporation, and all appropriate government agencies was initiated during the preliminary phase of the design process. Public involvement is documented in Appendix F.

## 5.0 AFFECTED ENVIRONMENT

### 5.1 LOCATION AND CLIMATE

Nightmute is located on Nelson Island, on the outer fringe of the Yukon-Kuskokwim Delta in western Alaska. The village lies between the base of Toksook Mountain (839 ft elevation) and the Toksook River that meanders extensively as it flows towards the Etolin Strait (Figure 1, Location and Vicinity Maps). The area is influenced by a maritime climate and receives an average of 22 inches of precipitation, with 43 inches of snowfall annually. The average temperatures range from 41 °F to 57 °F in the summer, and from 6 °F to 24 °F in the winter.

### 5.2 HISTORY AND POPULATION

Nelson Island has been inhabited by the Qaluyaarmiut, or "dip net people", for over 2,000 years. The area has been relatively isolated from outside contact, and has kept its traditions and culture alive. The current population of Nightmute is 208. Nightmute is predominately Native community. Alaska Native (Yup'ik Eskimo) make up 91.8% of the population (Table 6). The Native Village of Nightmute is a federally recognized tribe and exists alongside the City of Nightmute as a governing body (ADCED 2005).

**Table 6 - 2000 Population Ethnicity, Nightmute, Alaska.**

<b>Ethnic Group</b>	<b>Number of people</b>	<b>% of Population</b>
Caucasian	11	5.3
Alaska Native/ American Indian	191	91.8
Two or More Races	6	2.9

Source: ADCED, Alaska Community Database Online accessed 10/21/2005.

### 5.3 ECONOMY AND EMPLOYMENT

The economy of Nightmute consists of both subsistence and cash-based activities. Employment opportunities are limited to municipal, school, social services, commercial fishing, and construction jobs. Trapping and crafts also provide income. Almost everyone in the village fishes, and is involved in either subsistence or commercial fishing. Most families have a fish camp, while 31 residents hold commercial fishing permits for herring roe, salmon drift and net fisheries. Unemployment in Nightmute is approximately 16% (those unemployed and seeking work). About 43.7% of the potential work force (age 16+) are unemployed and not seeking work. Approximately 11% of the residents are living below the poverty level (ADCED, Alaska Community Database Online accessed 10/21/2005).

### 5.4 COMMUNITY & SERVICES

Nightmute is a second class city within an unorganized borough. Governance in the area is through several entities. There is a Bureau of Indian Affairs (BIA) recognized traditional council (Native Village of Nightmute), the City of Nightmute, and Chinuruk Incorporated which is the merged village corporation for Nightmute and Umkumiut.

The city operates a water treatment plant and a sewage haul service for the community's flush and haul sewage system. Water delivery service is also available, but it is not used very often (City of Nightmute, August 2004). Many residents still haul water and use honey buckets in an effort to reduce service cost. Each house is plumbed to an individual wastewater storage tank. Public facilities include a K-12 school for 67 students and a small health clinic. The village employs a Village Public Safety Officer. Electricity is supplied from the Nightmute Power Plant. The cost of electricity is subsidized under the power cost equalization program.

## 5.5 TRANSPORTATION

There are no roads between Nightmute and nearby villages. The DOT&PF and The Alaska Division of the FHWA are developing a project to construct a road that would connect Nightmute to the village of Toksook Bay and Tununak. The airport at Nightmute is used extensively for emergency medical evacuations, routine travel, and transportation of staples, perishable goods, and mail service. This state-owned, gravel airstrip is used by both commercial and private aircraft. There is also a landing area for floatplanes. Although there are no docking facilities, many residents use boats for fishing and traveling. Barge service is used for goods and mail delivery during the ice-free period of June to October. Freight and fuel barges currently experience difficulty navigating the Toksook River due to the presence of large boulders in the river at approximately 2.5 miles downstream of the off-loading area (City of Nightmute, August 2004). Snow machines and dog teams are the main forms of local transport during the winter months. Air service is the only year round transportation means for the village.

## 5.6 BIOTIC COMMUNITIES

### 5.6.1 Vegetation

Vegetated upland areas of alder thickets are located at the slope of the Toksook Mountain. Understory vegetation within the alder thicket consists of fireweed (*Epilobium Angustifolium*), Crowberry (*Empetrum nigrum*), Arctic Raspberry (*Rubus arcticus*), Horsetail (*Equisetum Silvaticum*), and grass (*Agrostis Spp*) (Ogbe Abigail, October 2005).

Vegetation along the low lying areas and the flat terrain along the Toksook River consist of Cotton grass (*Eriophorum Scheucheri*), Marsh Fivefinger (*Potentilla Palustris*), Horsetail (*Equisetum Hiemale*), Labrador Tea (*Ledum L.*), Dwarf Birch (*Betula Nana*), Lingoberry (*Vaccinium Vitis-idaea*). These low lying areas are classified as wetlands (Ogbe Abigail, October 2005). Thin-leaf alder (*Alnus Tenuifolia*) lines the edges of the disturbed sections of the runway and the airport access road. A full discussion of wetlands found within the project area and a detailed description of the vegetation is located in Appendix B.

### 5.6.2 Fish

A September 2005 search of the Alaska Department of Fish & Game (ADF&G) Fish Distribution database for the Toksook River reveals the presence of Artic char, Chinook, Coho, Pink, and Chum salmon. According to a September 2005 email correspondence with Nancy Ihlenfeldt, Alaska Department of Natural Resources - Office of Habitat Management and Permitting (ADNR-OHMP), "the Toksook River is designated as waters important for the

spawning, rearing or migration of anadromous fish, as it supports Chinook, Coho, pink and chum salmon, Arctic char and whitefish.”

Local residents acknowledged the presence of Blackfish in the lake below material site 5 during a November 15, 2004 DOT&PF project staff visit to Nightmute.

### 5.6.3 WILDLIFE

Nightmute is located on the outer fringes of the Yukon-Kuskokwim Delta. This area supports a high diversity of migratory wildfowl providing excellent breeding and nesting habitat for large numbers of these birds during the summer months. Emergent vegetation, inundation and numerous ponds within Nightmute make the area a very suitable habitat for many bird species. Several birds have been observed nesting in Nightmute. Birds observed nesting during a June 2000 site visit by DOT&PF staff include: Pacific Loon (nest with 2 eggs); Short-billed Dowitcher (nest with 4 eggs); Greater White-fronted Goose (nest with 2 eggs); Red-throated Loon (nest with 2 eggs); and Red-necked Phalarope (nest with 3 eggs). Possible birds present as identified by USF&WS in the project vicinity are listed in Appendix E.

A variety of animals including moose, musk ox, river otter, arctic fox, red fox, weasel species, arctic ground squirrel, arctic hare, lemming species, beaver, muskrat, and mink may be present in the Nightmute area (Rappoport Ann, 04/19/2000).

### 5.7 SUBSISTENCE

Nightmute is listed as a subsistence area by the Cenaliulriit Coastal Resource Service Area (CRSA) for fish, waterfowl and eggs; berries and other edible plants; clams, shellfish, herring; moose, caribou, bear and marine mammals (<http://www.cenaliulriit.org/Cenaliulriit%20Files/Subsistence%20Maps.htm> accessed on 01/06/06). The airport improvements are not located in a subsistence use area as designated by the Alaska Department of Natural Resources.

### 5.8 HISTORIC, CULTURAL AND ARCHAEOLOGICAL RESOURCES

In September of 2004, the DOT&PF contracted with the Alaska Department of Natural Resources—Office of History and Archaeology (ADNR-OHA) to conduct a survey to identify any historic, archaeological and cultural resources that may be present in the area of potential effect. The report (Cultural Resource Survey of the Proposed Nightmute Airport Improvements, Material Site, and Haul Road Report, prepared by Alan DePew and Will Schneider, March 2005) recorded a single archaeological site the “Nightmute Pingo” approximately 32 feet from some sections of the existing airport access road.

The site was previously identified by Karen Workman in 1974 (as XBI-031) and the Bureau of Indian Affairs (BIA) in 2002 (as XBI-181). Nightmute Pingo contains a village site, with seven to nine house pit depressions, and a series of pingo mounds reported as a Nightmute and Nunivak Island battle site. The overall site, now formally recorded as XBI-031 in the Alaska Heritage Resources Survey database, was not previously evaluated for eligibility in the National Register of Historic Places (NRHP). The Cultural Resource Survey report concluded that the site is eligible for listing in the NRHP under Criterion "D" for its potential to provide information about the prehistoric and/or historic people of Nelson Island (DePew, Alan and Schneider, Will,

March 2005). The DOT&PF on behalf of FAA concurred with recommendation that the site qualifies for listing in the NRHP under Criterion D.

#### 5.9 FLOODPLAIN

No floodplain mapping exists for Nightmute (FEMA <http://www.fema.gov/> accessed 02/02/06). However, the USACE Floodplain Management Services website indicates that the last flood event in Nightmute occurred in 1985 as a result of coastal flooding. The USACE survey information reported the highest flood level at 90 feet. The recommended building elevation for Nightmute is 93 feet. The highest floods were thought to have occurred in 1979 and 1985 (USACE 2006).

## 6.0 ENVIRONMENTAL CONSEQUENCES

This section provides a discussion of the consequences of the proposed action and the no action alternatives on selected resources and environmental impact categories.

### 6.1 NOISE

Based on the T-100 Transportation Database, 1,568 operations occurred at Nightmute in 2004 (DOT&PF *Nightmute Airport Layout Plan*, November 2005). This estimate is well below the FAA's threshold of 90,000 propeller operations for noise analysis.

#### **Proposed Action.**

Noise is one of the most common effects of aviation operations encountered in the vicinity of an airport. Aviation noise extends beyond the boundary of the airport into areas over which neither the DOT&PF nor the FAA has authority. Airport operations with the new project are not forecasted to exceed 90,000 annual adjusted propeller operations. The proposed project is for Design Group I and II airplanes on a utility and transport type airport. There is no controversy regarding noise impacts at this site therefore a noise analysis is not necessary and was not conducted for the proposed project.

There will be a short-term noise increase associated with the use of heavy machinery during construction.

**No Action.** Under the no-action alternative, the current level of noise at the airport will continue. The community will continue to experience noise as airplanes approach and depart. The No Action alternative will have no additional construction related noise impact.

### 6.2 COMPATIBLE LAND USE

#### **Proposed Action.**

There has been no formal land use plan devised for the community of Nightmute. The present airport is located on properties owned by two Native Village Corporations of Toksook Bay and Nightmute, and the Regional Corporation, Calista. Nanakuiak Yupik Corp owns the surface rights for most of the airport area, and Chinuruk Inc. owns the northern third of the airport lands (City of Nightmute, August 2004). The proposed action would require the DOT&PF to purchase approximately 200 acres of property for the airport improvements and obtain approximately 32.3 acres of easements for the haul road and material site.

The community supports the Action alternative and recognizes the incompatibility of placing noise sensitive receptors adjacent to the airstrip. Section 511(a)(5) of the Airport and Airway Improvement Act of 1982 has been satisfied through several coordination efforts with the community (Appendix E: Public Coordination).

There is no ADEC permitted landfill at Nightmute. The nearest dumpsite (unpermitted landfill) named "New Summer Dump" by the community is located approximately 4,500 feet from the existing airport across the Toksook River from the school, and will lie within 4,100 feet of the airport upon completion of the proposed project. The City of Nightmute completed a Solid

Waste Management Plan & Feasibility Study in August 2004 and has passed a resolution selecting a preferred alternative site for a new landfill located 9,700 feet from the airport (City of Nightmute, 2004). (The preferred alternative is labeled “landfill site 2A” on the Landfill Alternatives and Existing Dump Site figure located on page A-9.) A sewage lagoon is located behind the community's school approximately 2,850 feet from the airport. These locations are shown on (Figure 2). An additional dumpsite “Winter Dump” was closed for dumping in 2003. No large flocks of gulls, geese, or other species were seen in the area of the dumpsite or sewage lagoon during site visits by DOT&PF design staff. Neither of these areas have been designated as a nuisance to the airport. Due to the nature of the surrounding area, i.e., ponds, lakes, and extensive acreage of wetlands and water bodies, these sites are not considered wildlife attractants. The National Transportation Security Board Aviation Accident database identified 10 reported accidents in Nightmute from 1962 to the present, none of these accidents involved wildlife. (website: <http://www.nts.gov/aviation/aviation.htm>) A U.S. Bird Avoidance Model, developed by the U.S. Air Force, also does not identify Nightmute Airport as a high risk airport for wildlife crashes. The airport expansion will not increase the risk of wildlife accidents, therefore a Wildlife Hazard Assessment is not required.

**No Action.**

Land use will remain the same if no action is taken. The community would still require air transportation. This site is already developed for that purpose. The airport would remain substandard. The airport lands would remain as a native corporation holding.

### 6.3 SOCIAL IMPACTS

**Proposed Action.**

The proposed project will not result in relocation of any residence or business. It will not alter surface transportation patterns, will not divide or disrupt established communities, disrupt orderly, planned development, or create a long-term appreciable change in employment.

**No Action.**

The no action alternative could have negative effects on local residence. Without improvements to the airport, air transportation may become unsafe and inefficient. The airport access road is heavily rutted and will continue to deteriorate. Movement on the road is wearisome. Without improvements, the extreme differential settlement on the road will get worse, the river will erode the road and cut off access to the airport.

### 6.4 INDUCED SOCIOECONOMIC IMPACTS

**Proposed Action.**

There will be no adverse impact on community growth or public service demand. Improvements to the airport would benefit the existing population and accommodate growth in the community. Rehabilitation of the airport will benefit the community by providing a more dependable link to emergency services. Project construction may provide short-term employment for residents. The presence of construction crews during the construction phase will temporarily boost local sales of goods and services and may provide income to those individuals with rental properties.

The longer, lighted runway, wider safety areas, taxiway and apron may allow larger aircraft with heavy payloads and seating capacity to serve Nightmute, thereby potentially lowering the cost of shipping goods and air travel.

**No Action.**

The no action alternative could have negative long-term direct and indirect effects on socioeconomic conditions in Nightmute. Without the improvements, the airport may not be able to continue to fulfill its function as a safe and efficient community transportation facility.

## 6.5 AIR QUALITY

**Proposed Action.**

There would be no significant air quality impacts as a result of the proposed airport improvements. The high winds in Nightmute provide the necessary rapid and complete mixing to thoroughly disperse air pollutants. The number of operations at the Nightmute Airport, and those projected to occur through 2010, are well below the number that would trigger an air quality analysis under FAA guidelines. Nightmute is not listed as a controlled area for air pollution in the State Implementation Plan for Air Quality, therefore a state air quality analysis is not required.

Project construction will require heavy equipment at the airport, and for the movement of materials to the construction area. These activities may create dust and may temporarily reduce local air quality during construction. Mitigation measures will include watering the haul route and all construction areas as necessary.

**No Action.**

There will be no change to the air quality in Nightmute.

## 6.6 WATER QUALITY

**Proposed Action.**

The traditional water source for the village of Nightmute is a spring located at the toe of the bluff southeast of the community church. The Alaska Department of Environmental Conservation (ADEC) Village Safe Water program installed a 30-foot deep well approximately 80 feet from the traditional collection site. The community's water source will not be affected by the proposed action.

No adverse impact on water quality is anticipated. There is no fuel available for private planes at Nightmute, therefore refueling operations will not occur. De-icers and other chemical compounds are not being used and are not planned to be used at the Nightmute Airport. There will be no risk to water quality from fuel or chemicals.

Prior to construction, the DOT&PF will develop an Erosion and Sediment Control Plan, and will require the contractor to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the National Pollutants Discharge Elimination Systems (NPDES) general permit for construction activities in Alaska.

The ADEC issued a Certification of Reasonable Assurance for the construction of the proposed project on February 28, 2006, in accordance with Section 401 of the Clean water Act and provisions of the Alaska Water Quality Standards. The Certificate is contained in Appendix G.

**No Action.**

The no action alternative will have no effect on water quality. A SWPPP and an NPDES permit will not be necessary.

#### 6.7 DOT ACT SECTION 4(F) RESOURCES

**Proposed Action.**

Section 4(f) of the Department of Transportation Act of 1966 as amended by 49 U.S.C. 303 was adopted to protect the natural beauty of the countryside, specifically public parks, public recreation lands, wildlife and waterfowl refuges, and historic sites. Federally funded transportation programs and projects requiring the use of any of these lands are allowed only if there is no other prudent and feasible alternative. Although Material site 5 is within the borders of the Yukon Delta National Wildlife Refuge, it is not located on Refuge land. The land was conveyed to NGTA<sup>2</sup> Incorporated by Interim Conveyance (IC) 624, as to the surface estate and to Calista Corporation by IC 625 as to the subsurface estate (Rappoport Ann, 2005). The proposed project would not impact any 4(f) resources, therefore, a 4(f) analysis is not required.

**No Action.**

There will be no impacts on 4(f) resources.

#### 6.8 HISTORIC, ARCHEOLOGICAL AND CULTURAL RESOURCES

**Proposed Action.**

The proposed project will have no adverse effect on historic, archeological or cultural resources.

Proposed improvements to the existing airport access road embankment requires placement of embankment fill and two guy lines with anchors for a power line at the approximate site boundaries of the Nightmute Pingo discussed in Section 5.8. The DOT&PF will commit to additional shovel testing by a qualified archaeologist along the perimeter of the site between involved sections of the airport access road during Project Design to determine the presence of any cultural features/materials, and to determine whether there is need for archaeological monitoring during construction.

Pursuant to 36 CFR 800.4(d)(1), implementing regulations of Section 106 of the National Historic Preservation Act, the DOT&PF, on behalf of the FAA, concluded that the proposed project would have no adverse effect on historic properties. The State Historic Preservation Officer (SHPO) concurred with the Findings of No Adverse Effect on April 17, 2006. SHPO concurrence and other correspondence between the DOT&PF and SHPO, and DOT&PF and the Tribes are included in Appendix E.

**No Action.**

This alternative will have no impact on cultural and archeological resources.

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<sup>2</sup> NGTA is a Federally Recognized Indian Tribe in Nightmute, Alaska.

## 6.9 BIOTIC COMMUNITIES

### **Proposed Action.**

The land near the Nightmute airport is characterized by nearly level topography dotted by a number of small ponds and lakes. These ponds are considered high value habitat for waterbirds. Plant and wildlife communities would be affected by the construction of the apron, haul road and material site extraction.

Impacts of the airport access road and runway extension will be minor because the types of communities that would be affected are widespread throughout the area and the affected area represents only a small fraction of the total habitat available.

Although loss of habitat would occur under the preferred alternative, this is not a significant impact. Impacts due to loss of habitat have been minimized by electing to expand the existing facility, rather than developing new ones. A Wetland Avoidance and Minimization Checklist is contained in Appendix B.

### **No Action.**

This alternative will have no impact on biotic communities.

## 6.10 ESSENTIAL FISH HABITAT

### **Proposed Action.**

The project will not impact essential fish habitat (EFH). An EFH Assessment was prepared for the proposed project because erosion protection work on the airport access road will require placement of riprap on the road within the ROW with eventual encroachment of the Toksook River. As the bank naturally erodes, and the riprap settles, it will eventually fall below ordinary high water (OHW) of the river. Riprap cannot be directly placed on the banks of the Toksook River, as the land between the road and the OHW line is a native holding, and cannot be encroached. The Toksook River is designated as waters important for the spawning, rearing or migration of anadromous fish by ADF&G and supports Chinook, Coho, Pink and Chum salmon as well as Arctic char and Whitefish. The five Pacific salmon species are protected under EFH, and the Toksook River is considered EFH for these species. Therefore an EFH Assessment was necessary for the potential riprap encroachment, and was conducted by DOT&PF in accordance with the Magnuson-Stevens Fishery Conservation and Management Act. The DOT&PF on behalf of the FAA determined that there will be no substantial adverse individual or cumulative effects on EFH as a result of the proposed project. The EFH Assessment is in Appendix D.

On March 8, 2006, the National Oceanic & Atmospheric Administration (NOAA) - National Marine Fisheries Service (NMFS) concluded that the Nightmute Airport Improvement project will not result in any permanent adverse effect to EFH (see 3/8/06 email from John V. Olson, Fishery Biologist/GIS Analyst, NOAA, in Appendix D).

**No Action.**

An Essential Fish Habitat Assessment will not be required for the no-action alternative, however, the river will continue to erode the road and introduce fine soils and sediments into the river. This may result in an adverse impact to EFH.

## 6.11 ENDANGERED &amp; THREATENED SPECIES

**Proposed Action.**

An initial concern that spectacled eider (*somateria fisheri*) and steller's eider (*Polysticta stelleri*) may be present in the project area, prompted a field inspection, which was conducted by staff from the USFWS and the DOT&PF. No eiders were observed during the fieldwork. Reports from the USFWS indicate that the proposed project and related activities do not have the potential to adversely affect federally listed or proposed species and/or designated or proposed critical habitat within the action area of the proposed project. The USFWS did caution that the area does however, provide highly productive habitat for a number of other waterfowl as well as shorebirds and passerines (Rappoport Ann, 01/17/2002 and 10/3/2005).

**No Action.**

The no action alternative will not impact threatened and endangered species.

## 6.12 WETLANDS

**Proposed Action.**

The proposed action would impact approximately 19 acres of wetlands and would require about 155,000 cubic yards of fill (Table 7).

As described in Section 5.6.1, the wetlands vegetation consist of Cotton grass (*Eriophorum Scheucheri*), Marsh Fivefinger (*Potentilla Palustris*), Horsetail (*Equisetum Hiemale*), Labrador Tea (*Ledum L.*), Dwarf Birch (*Betula Nana*), Lingoberry (*Vaccinium Vitis-idaea*). The edges of the disturbed section of the runway and the airport access road are lined by Thin-Leaf alder (*Alnus Tenuifolia*) (Ogbe Abigail, October 2005). A detailed wetland report including wetland function and values is contained in Appendix B.

**Table 7 - Wetland Impacts and Fill Quantities**

Description	Acres of wetland impacted					Total
	Runway	Apron & Taxi	Access Road	Haul Road	Material Site 5	
Palustrine Emergent Wetlands	14.80	1.61	2.04	0.17	0	18.62
Palustrine Open Water	0	0.37	0	0	0	0.37
<b>Total wetland impact</b>	<b>14.80</b>	<b>1.98</b>	<b>2.04</b>	<b>0.17</b>	<b>0</b>	<b>18.99</b>
<b>Amount of fill need (cubic yard)</b>	<b>133,00</b>	<b>13,000</b>	<b>7,000</b>	<b>2,000</b>	<b>0</b>	<b>155,000</b>

In accordance with the 2002 multi-agency Memorandum of Agreement (MOA) regarding mitigation and wetland impacts (FAA et al 2003), the DOT&PF has documented the evaluation of avoidance and minimization options considered in the project analysis in Appendix B “Wetland Avoidance and Minimization Checklist”. Avoidance and minimization measures incorporated into the project are summarized below.

- Utilizing all parts of the existing airport facility including the use of the existing airport access road, rather than constructing a new airport on undisturbed ground. The width of the existing airport access road will be maintained at its current 15 feet, and all construction activities will be within the existing ROW.
- All construction activities will be conducted from the existing embankment to minimize impacts to adjoining wetlands.
- The material site and a major section of the haul road are located on non-wetland (upland).

Although a number of avoidance measures were taken, complete wetland avoidance was not possible due to the following reasons:

- Nearly all the areas surrounding the community except for the mountaintop, are wetlands. Complete avoidance of wetlands is not feasible. Construction of the airport on top of the Toksook Mountain is cost prohibitive and does not meet the purpose and need of the project because it would be too far from the community.
- Geotechnical conditions will not support an access road or airport facility on the side slope of the mountain.
- To further minimize impacts to adjacent wetlands, the DOT&PF Best Management Practices erosion and sediment control will be implemented during construction. The contractor will be required to develop and implement a Storm Water Pollution Prevention Plan. Appendix G contains the Section 404 permit obtained from the USACE for the proposed project.

\$9,500 will be paid to the Alaska Wetlands Conservation Fund, prior to construction, as compensation for the 19 acres of wetlands as required by the USACE Permit.

#### **No Action.**

The no action alternative will have no impact on wetlands and will not require a Section 404 permit.

### 6.13 FLOODPLAINS

#### **Proposed Action.**

Mapped Federal Emergency Management Authority flood boundaries do not exist for Nightmute. Flooding of the Toksook River does occur, and the proposed project is located beside areas of known flooding as recorded by the USACE. There is no flood gauge in Nightmute, however the worst recorded flood is believed to have occurred in 1985 as a result of coastal storms. Using a temporary benchmark of 100 feet at the powerhouse, the USACE estimates the highest flood level at approximately 90 feet. The three oldest buildings located along the river have never been flooded, and are listed at elevations between 89.8 and 91.7 feet.

([http://www.poa.usace.army.mil/en/cw/fld\\_haz/nightmute.htm](http://www.poa.usace.army.mil/en/cw/fld_haz/nightmute.htm)) As part of the Nightmute Solid Waste Management and Feasibility Study, mapping was completed using the National Geodetic Survey control station. Using this new control, the USACE temporary benchmark is

approximately 20 feet high, with a building elevation of 13 feet. (City of Nightmute, 2004, pg 16). The airport is located at an approximate elevation of 14 feet; areas of the airport access road are at 12 feet. There has been no recorded flooding at the airport. Given the topography of the immediate area it is not possible to locate the airport at higher elevations and have clear approaches to a runway. The proposed action will raise the existing runway and associated facilities by adding surfacing material, however, this will not impact the flood water elevation in Nightmute. The project will be designed and constructed to allow adequate flow circulation and preserve free, natural drainage, which will mitigate any possibility of damaging adjacent wetlands, or altering the flow regime of the region. The gravel surface of the runway, apron, and taxiway would allow percolation of water, rather than increase runoff.

To control any possible erosion and sedimentation, an Erosion and Sediment Control Plan will be completed during the design phase of the project. Public and agency review associated with the development of this EA did not raise any specific concerns regarding flooding at the airport. The airport improvements will not significantly encroach into the areas of known flooding, and the airport is located upstream of the village. The proposed project is unlikely to increase future damage from flooding.

**No Action.**

The existing airport facility is within the potential floodplain of the Toksook River. The no action alternative will keep the airport in the same location. There will be no additional impact on the floodwater elevation in Nightmute.

[http://www.poa.usace.army.mil/en/cw/fld\\_haz/floodplain\\_index.htm](http://www.poa.usace.army.mil/en/cw/fld_haz/floodplain_index.htm)

#### 6.14 COASTAL ZONE MANAGEMENT PROGRAM

**Proposed Action.**

Nightmute is located in the Cenaliurrit CRSA. Review of the relevant policies of the coastal management plan did not identify any conflicts with the airport relocation project.

As part of the permitting process associated with the preparation of this EA, a Coastal Zone Review was conducted by ADNR Office of Project Management and Permitting (ADNR-OPMP). The project was determined consistent with the Alaska Coastal Management Program (ACMP) by the ADNR-OPMP. A consistency determination was issued by the ADNR – OPMP (formerly Division of Governmental Coordination), on October 11, 2002. The consistency determination (State ID AK0205-09AA) is contained in Appendix G. However, as a result of project footprint changes after the consistency determination was issued, a new Coastal Project Questionnaire (CPQ) was submitted on January 13, 2006, to ADNR – OPMP to ensure consistency with the ACMP. The ADNR – OPMP responded with an “ACMP Review Not Required.” (See Appendix G.)

**No Action.**

The no action alternative will have no impact on coastal resources. A coastal consistency determination will not be necessary.

#### 6.15 COASTAL BARRIERS

**Proposed Action.**

There are no coastal barriers in the vicinity of this project, therefore, no impacts would occur.

**No Action.**

No Impact.

#### 6.16 WILD AND SCENIC RIVERS

**Proposed Action.**

The proposed improvements to Nightmute Airport will not impact any rivers with a wild and scenic designation.( <http://www.nps.gov/rivers/wildriverslist.html#ak>)

**No Action.**

No Impact.

#### 6.17 FARMLAND

**Proposed Action.**

The Natural Resources Conservation Service noted that at present there are no prime, or unique agricultural lands in Alaska, and none of statewide importance (Miller 2001). Therefore, this project will have no impact on these resources.

**No Action.**

No Impact.

#### 6.18 LIGHT EMISSIONS

**Proposed Action.**

The proposed improvements include a medium intensity lighting system at the airport. The REILs and PAPIs will be pilot controlled through radio contact, and will be lit at 15 minute intervals. The rotating beacon at the lighted windcone will be lit continuously, but will not significantly increase the light emissions towards the community. Resident houses are located in the village, over one mile from the airport. The project will primarily improve safety at the airport and should not lead to a significant increase in air traffic at night. Therefore, any increase in light emissions from the new lighting system and additional aircraft traffic will not cause significant impact.

**No Action.**

No change in light emissions near the community would occur.

#### 6.19 ENERGY SUPPLY AND NATURAL RESOURCES

**Proposed Action.**

No measurable effects to the nation's fuel supplies would result from the proposed action. The only natural resources required for the preferred alternative are building materials, such as borrow embankment material and aggregate surface course. However, the amount required by

the proposed action would not deplete the overall resource. Furthermore, if the constructed area is abandoned at a future time, the material resources can be reused.

**No Action.**

No impact.

## 6.20 SOLID WASTE

**Proposed Action.**

Currently, there are no ADEC permitted landfills located in Nightmute. The community disposes of waste at the "New Summer Dumpsite" located approximately 4,500 feet from the existing airport. This site also includes a burn box made of a 5,000 gallon fuel drum. During break-up and freeze-up the community is unable to cross the Toksook River to access the dumpsite and solid waste tends to build up in several areas of the community. (City of Nightmute, 2004.) After the proposed project, the airport will be 4,100 feet away from the dumpsite. The City of Nightmute is proposing to relocate the landfill away from the airport and near potential borrow sites and the Toksook Mountain. This dumpsite has not been designated as wildlife hazard. (See Section 6.2) Solid waste generated during construction may include structure debris from the removal of the existing SREB, waste from the day-to-day activities of the construction crew, and miscellaneous construction site debris. This waste will be disposed of in accordance with state and federal regulations and will be removed from the construction site. After construction, the proposed alternative is not expected to generate an increase in solid waste.

**No Action.**

No effect on solid waste generation.

## 6.21 HAZARDOUS WASTE AND MATERIALS.

**Proposed Action.**

A Phase I Environmental Site Assessment (ESA) (Appendix C) was completed for the proposed project. The report concluded that there is no evidence of contamination around or within the project area except in the interior of the existing snow removal equipment building (SREB). The interior of the SREB is determined to be a likely "*recognized environmental condition*" (Ogbe Abigail, December 2005). Recognized environmental condition is defined as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property (ASTM E-1527). Stains were found on the floor of the SREB during the phase 1 ESA.

Stains found on the floor of the SREB are likely from petroleum products (Ogbe Abigail, December 2005). Since the project will involve demolition of the SREB, it is recommended that construction contract includes provision for appropriate excavation and remediation of contaminated soils. The contractor must comply with the ADEC Contaminated Site Regulations for cleanup of contaminated soils.

**No Action.**

No impact.

## 6.22 CONSTRUCTION IMPACTS

### **Proposed Action.**

There will be minor, temporary localized impacts during construction. Operation of construction equipment will result in temporary increase in noise in the area, but this impact will not be significant.

Temporary reductions of air quality may occur during construction activities. This could be mitigated by watering the haul route and related areas. There should be no impacts on water quality either during, or after construction. An Erosion and Sediment Control plan will be developed, and the contractor will be required to prepare and maintain a Storm Water Pollution Prevention Plan. The plan will incorporate best management practices adhering to the DOT&PF's construction specifications and the NPDES permit.

The anticipated material haul route will result in construction equipment passing through the village. The contractor's traffic control plan will address timing and frequency of this construction traffic.

Prior to the contractor leaving the site following completion of the construction project, all trash will be collected and provisions made for disposal according to the ADEC solid waste regulations. The site will be walked and all evidence of construction activities (signs, flags, surveying tapes etc) will be removed.

There may also be some positive impacts associated with the construction of the preferred alternative. Employment opportunities may be available for qualified local residence, and an influx of contractors and their work force can provide a substantial short-term boost to the local economy.

### **No Action.**

No impacts due to construction.

## 7.0 ENVIRONMENTAL COMMITMENTS AND MITIGATION

### 7.1 COMMITMENTS

1. The project may result in minor discharges of storm water to waters of the U.S. during construction. To minimize erosion and sedimentation during construction, DOT&PF will utilize BMPs as described in the 2004 Alaska Storm Water Pollution Prevention Plan Guide. The construction Contractor will be required to prepare and implement a SWPPP in accordance with DOT&PF's contract specifications and the NPDES General Permit for Construction Activities in Alaska.
2. All exposed project slopes and fills that are susceptible to erosion will be permanently stabilized at the earliest practicable date. In accordance with the EPA NPDES General Permit, disturbed slopes and stockpile sites must be temporarily stabilized if work will not resume at the site within 14 calendar days.
3. Construction vehicles, equipment, and activities (stockpiling of materials, etc.) will be prohibited after break-up in wetland habitat outside of the permitted areas.
4. Refueling and servicing of equipment must be performed on top of the airport or access road embankment.
5. If cultural, archeological, or historical sites are discovered during project construction, the SHPO will be contacted at (907-269-8715) and any work that might impact these sites will be stopped. Work shall not resume in the vicinity of the site until a written clearance from the SHPO is issued to the Project Engineer.
6. Any spills of hazardous substances will be reported to ADEC. If contaminated or hazardous materials are encountered during construction, all work in the vicinity of the contaminated site will be stopped until ADEC is contacted and a corrective action plan is approved by ADEC and implemented. Storage of hazardous materials will be protected from the elements.
7. Any solid waste generated from this project will be removed from the site by the Contractor and disposed in accordance with ADEC regulations.
8. Vegetation clearing will be prohibited between May 5 and July 25 as recommended by the USF&WS to avoid bird nesting activities.
9. If threatened or endangered species such as the Steller's Eider or Spectacled Eider are discovered during construction, work at the site will be stopped, and the USF&WS will be contacted at 907-271-2778 prior to proceeding.

10. An archeologist will shovel test between stationing 33+70 and 36+80, left side, during project design.
11. All permit stipulations and conditions will be followed.

## 7.2 MITIGATION

1. An in-lieu fee of \$9,500 will be paid to The Conservation Fund to mitigate wetland habitat loss.

## 8.0 COORDINATION AND PERMITTING

### 8.1 PUBLIC INVOLVEMENT

The DOT&PF conducted a preliminary meeting with the Nightmute City Mayor, IRA council President and IRA members, on June 8, 1995 to discuss improvements to the airport. A public scoping meeting was conducted on September 13, 1995 to discuss airport improvement options. Approximately 20 residence, including the City Major and officers of both the traditional IRA council and Chinuruk, Inc attended the meeting. Also in attendance was a Legislative Aide. Pilots from most of the charter and air taxi services operating from Bethel were contacted for comments on the project.

Below is a summary of public comments received during the meetings and scoping activities:

- Crosswinds: They perceive that there is considerable problem with crosswinds.
- Airport Access Road: They were worried that the access road will be cut as a meander of the Toksook River works to the north and east.
- Navigation Hazard: They cautioned the use of large rocks for riverbank erosion protection, as it would create navigation hazard for boats and tugboats.
- Safety: Residents generally supported improvements to the existing airport because it would improve the safety of air travel in and out of the village and would be the least impacts on resources.
- Timing: They wanted to know how soon the improvements will take place.

The City of Nightmute passed a resolution that supports the proposed action (Alternative 6), on February 10, 2000.

An additional public meeting was held on November 15, 2004. 15 community members showed up, including the Nightmute City Mayor, the Chinuruk Incorporated Manager, and the Village Council Administrator. The two alternative material haul routes were discussed at this meeting.

- The first route would traverse the low-lying area, pass the archeological site, and cross a native allotment and natural drainage. Several suggestions were brought up by the community:
  - Not a good idea to cross the creek below the material site, as this is trapped for Blackfish.
  - Possible reutilization of existing material site behind the town? *This was dismissed due to landslide concerns.*
  - Possibility of moving the native allotment to accommodate. The Village Council Administrator was unsure of how long this would take. *This was later dismissed due to timing constraints and a better alternative.*
- The second route would avoid the low-lying area and native allotment, and travel through the town.
  - This was agreed by general consensus to be the preferred route.

This meeting was followed by a newsletter distributed in March 2005 to update locals on the project. All Meeting notes, Nightmute City Resolution and all other public involvement documentation are included in Appendix F.

## 8.2 AGENCY COORDINATION

The project was scoped several times due to project scope changes. The initial scoping letters were sent to agency representatives in January 2000. Project re-scoping letters were sent on August 13, 2003 and August 9, 2005. Follow-up correspondence and coordination occurred throughout the environmental process. Meeting notes, copies of scoping letters, scoping letters mailing list and written comments are included in Appendix E. Agency coordination, comments and concerns received are summarized in Table 8. The Table separates comments received during the 2005 scoping for the proposed project scope from comments received during previous scoping. The 2005 scoping updated the project scope and gave the resource agencies the opportunity to confirm or update their comments.

**Table 8 – Regulatory and Resource Agency Comments**

Agency	Comments received between 2000 – 2003	Response to Comments
Alaska Department of Natural Resources  Office of Habitat Management and Permitting (Formally Alaska Department of Fish and Game)	1) Methods, routes, time of year for movement of fill and Toksook River concern. 2) Concern on the location of the airstrip in relation to the Toksook River and the potential for erosion. 3) Title 41 authorization would be required for activities conducted below the ordinary high water mark of water bodies such as the Toksook River.	1) Material will be hauled from the mine site to the airport construction area via an existing road by the Toksook River and by a haul road constructed along the hillside; no impacts to the Toksook River are associated with this haul method. Hauling will take place in the summer, during construction. 2) Design assumptions will include erosion scour protection. 3) No activities will be conducted below the ordinary high water mark of any water body.
Alaska State Historic Preservation Officer (SHPO)	1) No historic properties would be affected by the project.	1) No response from DOT&PF. SHPO concurred to the findings of No Historic Properties Affected based on the project scope at that time. a) Due to project scope changes the Section 106 National Historic Preservation Act process was revised. See 2005 SHPO comments.
Alaska Department of Natural Resources  Office of Project Management and Permitting (OPMP) (Formally Alaska Division of Governmental Coordination)	1) Determine whether the project is consistent with the enforceable policies of the State of Alaska and the Cenaliulriit Coastal Management Program.	1) A final coastal zone consistency determination for the project was received from the Division of Governmental Coordination (now OPMP) on October 11, 2002. a) Due to project changes the DOT&PF submitted a revised CPQ on January 13, 2006.

U.S. Army Corps of Engineers (USACE)	1) More information is needed before the agency can respond to the scoping.	1) All requested information were submitted and the USACE issued a Section 404 permit (#4-200-0384, Toksook River 4) on November 7, 2002, for impacts to 14.14 acres of wetlands. a) Due to project scope change involving additional 5.86 acres of wetlands, a jurisdictional determination and permit modification was requested on November 8, 2005.
National Marine Fisheries Service (NMFS)	1) No concerns or comments.	1) No response required
U.S. Fish and Wildlife Service (USFWS)	<ol style="list-style-type: none"> <li>1) Impact to Spectacled and Steller's eiders (listed as threatened under the Endangered species act).</li> <li>2) Concern regarding tundra habitat and ponds in the area and requested that the runway extension be minimized to avoid impacts to productive habitat.</li> <li>3) Cautioned against re-vegetating the side slopes with grasses palatable to Geese as this may cause aviation hazard.</li> <li>4) Recommended silt fence at the toe of slope to prevent sediment from being washed into ponds and surrounding wetland areas.</li> <li>5) Concerns regarding the proximity of the Toksook River to the runway and the potential for erosion.</li> </ol>	<ol style="list-style-type: none"> <li>1) As a result of this concern a field trip was conducted with personnel from USFWS and DOT&amp;PF on June 14, 2000. No Spectacled or Steller's eiders nests were found. (Rappoport, Ann, 01/17/2002) reported that the project area did not appear to provide good nesting habitat for Spectacled or Steller's eiders.</li> <li>2) Efforts are being made to minimize impacts to productive habitat to the maximum extent possible. Due to the nature of the Nightmute terrain, all alternatives would impact tundra and ponds to certain extent. The following are steps taken to minimize the project impact on undisturbed land.             <ol style="list-style-type: none"> <li>a) The new taxiway will utilize the original apron footprint, thus reducing the impact to undisturbed ground.</li> <li>b) The rehabilitated airport access road will utilize much of the original access road footprint, thus reducing impact to undisturbed ground.</li> <li>c) The proposed haul route minimizes wetland impacts by traversing the hillside (upland) and by using the existing airport access road.</li> </ol> </li> <li>3) Seeding is a principal tool to prevent erosion. Appropriate site-specific seed mix will be utilized to activate vegetation that will stabilize the slopes and allow native vegetation to establish itself.</li> <li>4) Erosion &amp; Sediment Control Plan and Storm Water Pollution Prevention Plan will be prepared and all necessary erosion prevention measures, including silt fences, will be utilized.</li> <li>5) Design assumptions will include erosion scour protection.</li> </ol>
<b>Agency</b>	<b>Comments received after the 2005 scoping</b>	<b>Response to Comments</b>
Alaska Department of	1) Fish Habitat Permit not required	1) No activities will be conducted below the

<p>Natural Resources Office of Habitat Management and Permitting (OHMP)</p>	<p>if work is conducted above the ordinary high water line of the Toksook River.</p>	<p>ordinary high water mark of any water body.</p>
<p>National Marine and Fisheries Service (NMFS)</p>	<ol style="list-style-type: none"> <li>1) The project will involve the placement of riprap in an anadromous waterbody, therefore an EFH assessment is required.</li> <li>2) Project will not result in any permanent adverse effect to EFH.</li> </ol>	<ol style="list-style-type: none"> <li>1) Anadromous fish streams and EFH is discussed in Section 6.10. The EFH Assessment is contained in Appendix D.</li> <li>2) No response necessary.</li> </ol>
<p>U.S. Army Corps of Engineers (USACE)</p>	<ol style="list-style-type: none"> <li>1) A permit modification would be necessary.</li> <li>2) Issued a jurisdictional determination on 2/6/06 (contained in Appendix G).</li> </ol>	<ol style="list-style-type: none"> <li>1) A jurisdictional determination and permit modification was requested on November 8, 2005.                     <ol style="list-style-type: none"> <li>a) A Wetland Delineation and Wetland Functional Assessment Report was prepared for this project (Appendix B).</li> </ol> </li> <li>2) No response necessary.</li> </ol>
<p>Alaska Department of Environmental Conservation (ADEC).</p>	<ol style="list-style-type: none"> <li>1) An active contaminated site about 235 feet from the proposed haul road will not affect the project, however, if petroleum products are encountered during construction, contact DEC.</li> <li>2) Issued a Certificate of Reasonable Assurance.</li> </ol>	<ol style="list-style-type: none"> <li>1) Construction contract will include provision for appropriate excavation and remediation of contaminated soils. The contractor must comply with the ADEC Contaminated Site Regulations. A Phase I Environmental Site Assessment was prepared (Appendix C).</li> <li>2) No response necessary.</li> </ol>
<p>U.S. Fish and Wildlife Service (USFWS)</p>	<ol style="list-style-type: none"> <li>1) Right of Way and “cut and fill” material usage.</li> <li>2) Map and delineate wetland impacts.</li> <li>3) Need to confirm from the DOT&amp;PF that the environmental review will be conducted under the terms of the Airport 2002 MOA.</li> <li>4) Placing the parking apron, and maintenance and operation pad on high value wetlands.</li> <li>5) Concerned about the potential for the Toksook River to erode and threaten the runway extension.</li> <li>6) Migratory Birds and other Avian Resources: The Service’s bald eagle nest database does not contain any known nests for the project area. However, the lack of such data does not mean no bald eagles or nests are present.</li> <li>7) Conduct bald eagle nest survey to a distance of ¼ mile of the outer boundaries of the overall newly reconfigured project area to determine if bald eagle nests are present.</li> <li>8) Airport lighting and effect on migratory birds and eiders.</li> </ol>	<ol style="list-style-type: none"> <li>1) The DOT&amp;PF will not excavate any material within the airport property boundary.</li> <li>2) A Wetland Delineation and Wetland Functional Assessment Report was prepared for this project (Appendix B). Impacts to wetlands are described in Section 6.12.</li> <li>3) The project will conform to the 2002 multi-agency MOA. In accordance with the 2002 MOA regarding mitigation and wetland impacts, the DOT&amp;PF has documented the evaluation of avoidance and minimization options considered in the project analysis in Appendix B.</li> <li>4) Due to the current right of way constraints (native allotments), the only area available for siting the apron and the maintenance and operations pad is to the Northwest of the runway where the airport access road approaches. An access road to the east side of the runway would require a penetration of the FAA part 77-airspace surfaces, resulting in an unsafe condition. This configuration would also lend itself to traffic taking a “short-cut” across the runway. This would also be an unsafe condition. Siting the apron to the northwest allows for utilizing the existing embankments to the maximum extent possible. The existing apron and taxiway will be incorporated into the proposed taxiway, thus minimizing the</li> </ol>

	<p>9) Proposed Power Line Extension from the village to the airport and raptor protection.</p> <p>10) Revegetation and Buffer Strips</p> <p>11) Endangered and Threatened Species: Our records indicate that the proposed airport improvements and related activities do not have the potential to adversely affect federally listed or proposed species and/or designated or proposed critical habitat within the action area of the proposed project. In view of this, requirements of section 7 of the Endangered Species Act have been satisfied. However, obligations under section 7 of the Act must be reconsidered if new information reveals project impacts that may affect listed species or critical habitat in a manner not previously considered or if this action is subsequently modified in a manner which was not considered in the assessment.</p> <p>12) <u>Comments in response to the USACE's public notice for the Section 404 Permit.</u></p> <p>In accordance with the 2002 MOA, appropriate compensation is required to address the loss of the entire 19 acres of wetlands. We have contacted the DOT&amp;PF and have received their commitment to this level of compensation. Therefore the Service has no objection to issuance of this permit, subject to:</p> <p>a) The receipt of the agreed upon compensation to the Conservation Fund.</p> <p>b) The incorporation into this project's work plan of the Service's recommended time periods for avoiding vegetation clearing in Alaska to protect migratory birds.</p>	<p>impact to wetlands.</p> <p>5) DOT&amp;PF has examined historical photographs, performed a site visit and interviewed local residents to determine the rate of lateral erosion that occurs in the Toksook River. It is estimated that the Toksook River erodes the outside bend of the river in the vicinity of the runway at approximately 1 to 2 ft per year. The closest point between the river and the proposed runway is approximately 143 ft. Most sections of the access road are general greater than 32 ft from the river except in a few locations where the road is within 17 ft. The DOT&amp;PF will provide erosion protection at such locations where the road is within 17 ft from the river. In the future when the Toksook river cutoff occurs at the necking area near the village, the section of river adjacent to the airport will become an oxbow lake with improved bank stability.</p> <p>6) This DOT&amp;PF will comply with the USFWS recommended time periods for avoiding vegetation clearing in the Yukon Kuskokwin Delta region. No vegetation clearing, fill placement, excavation, or other construction activities shall be conducted between May 5 – July 25, except at sites which have been sufficiently disturbed or altered. The DOT&amp;PF will consult with the USFWS if any bald eagles or nests are found in the project area.</p> <p>7) No bald eagle nests were observed during fieldwork for the Wetland Delineation and Functional Assessment conducted on August 8, 2005.</p> <p>8) The project will include design of an airport lighting system that is 'on-demand' thus reducing the impact of lights to migratory birds. Utilization of airport lighting will be significantly less during the summer months when longer days allow for increased hours of normal daytime operations. Nighttime operations will be minimal during the summer months.</p> <p>9) The electric utility company will to the extent practicable follow the guidelines for Raptor protection. The utility company shall work with the USFWS to apply specific modifications to designs such as the use of insulated jumpers on transformer and dead end poles.</p> <p>10) Slopes shall be re-vegetated according to the Alaska Seeding Design Guidelines and recommendations from the State of Alaska Plant Materials Center. Native plant species</p>
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		<p>will be used to re-vegetate fill and cut slopes as directed by the Alaska Seeding Design Guide. An Erosion and Sediment Control plan will be developed, and the contractor will be required to prepare and maintain a SWPPP.</p> <p>11) No response necessary.                  12) \$9,500 will be paid to the Alaska Wetlands Conservation Fund, prior to project construction. Clearing will be avoided between May 5<sup>th</sup> and July 25<sup>th</sup> as required by the Section 404 Permit.</p>
Alaska State Historic Preservation Officer (SHPO)	1) No Adverse Effect on Historic Properties.	1) No response necessary

8.3 PERMITS

Permits required for the completion of the proposed action are summarized in Table 9. A Section 404 Permit and wetland Jurisdictional determination have been obtained from the USACE. A Section 401 Water Quality Certification was approved by ADEC on February 28, 2006. A Coastal Consistency Determination was approved for the project on October 11, 2002. ADNRP-OPMP did not require an additional consistency review for the design changes. Since more than an acre of ground will be disturbed by this project, the Contractor will be required to obtain coverage under the EPA National Pollutant Discharge and Elimination System (NPDES) permit. Permit Applications and Permits obtained for the proposed project are included in Appendix G.

**Table 9 – Permits Required for the Project**

Permit Type	Issuing Agency	Date Approved	Purpose	Regulatory Authority
Coastal Zone Consistency	ADNR OPMP	10/11/2002, email confirmation on 3/3/2006.	Coastal Resource Protection	Coastal Zone Management Act
Section 404 (Wetlands)	USACE	4/7/2006	Wetland Areas	Section 404, Clean Water Act
Section 401 Water Quality Certification	ADEC	2/28/2006	Water Quality	Section 401, Clean Water Act
Storm Water NPDES General Permit for Construction Activities	EPA	Obtained by Contractor	Runoff / water quality	Section 402, Clean Water Act

**9.0 LIST OF PREPARERS**

Project Manager	Gary Lincoln PE, DOT&PF
Design Engineers	Crane Johnson PE, DOT&PF Ralph Kiehl PE, DOT&PF
Environmental Coordinators	Chuck Howe, DOT&PF Jerry O. Ruehle, DOT&PF
Environmental Impact Analysts	Abigail Ogbe, DOT&PF Megan Costello, DOT&PF
Environmental Team Leader	Brian Elliott, DOT&PF
Environmental Scoping	Abigail Ogbe, DOT&PF Patricia Wightman, DOT&PF John Mazzitello, DOT&PF
Wetlands Analysis	Abigail Ogbe, DOT&PF
Phase 1 Site Assessment	Abigail Ogbe, DOT&PF
Geotechnical Report	Gary Fitch, DOT&PF Diana Solie, DOT&PF David Stanley, DOT&PF
Archaeological Survey	Alan DePew, ADNR-OHA Will Schneider, ADNR-OHA

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