

Appendix B  
Wetlands Avoidance and Minimization Analysis



## Wetland Avoidance and Minimization Analysis

*Project Name: Ambler Airport Improvements*  
*Project Number: 61303*

### **I. Project Scope:**

#### **Background**

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA), is planning a number of needed improvements to the Ambler Airport. The purpose of this project is to meet FAA standards, as well as improve safety, reliability, and operational efficiency of the airport.

Ambler is an Inupiat community located on the north bank of the Kobuk River, near the confluence of the Ambler and the Kobuk Rivers, 45 miles north of the Arctic Circle (Figure 1). It is 138 miles northeast of Kotzebue, 30 miles northwest of Kobuk, and 24 miles northwest of Shungnak. The airport lies at approximately 67°06'04.41" North Latitude and 157°51'33.60" West Longitude (Township 20 North, Range 5 East, Sections 19, 20, 21, 29, 30, and 31, Kateel River Meridian). The major means of transportation to and from Ambler are by airplane, barge, small boat, and snowmachine. There are no roads connecting Ambler to other parts of the state, and the Kobuk River is navigable by boat only from early July to mid-October. Fuel and cargo can be delivered by barge during spring high-water events if barge services are available, but must often be transported by aircraft.

The Ambler Airport (AFM) is one of 256 airports owned by the State of Alaska and operated by the DOT&PF. Airport construction began in 1978, and the facility occupies 272 acres one mile north of town (Figure 1). The airport is unattended, and the DOT&PF airport manager operates out of Kotzebue. There is a local airport maintenance worker that keeps the runway clear of snow and ensures the lighting systems are functioning as required. Daily schedule and charter services are provided out of Kotzebue, and an air taxi service is based at the airport.

The facility consists of two runways. Runway 18/36, the main runway, is a 3,000-foot (ft) long by 60-ft wide lighted gravel runway, and Runway 9/27 is a 2,400-ft long by 60-ft wide gravel crosswind runway (Figure 2). A 200 ft x 400 ft apron is located just east of the R/W 9 threshold. The surfaces are considered to be in 'fair' condition, with ruts and soft spots.

#### **Purpose and Need**

The purpose of this project is to meet FAA standards, as well as improve safety, reliability, and operational efficiency of the airport. The following paragraphs document the need to improve those facilities.

*Deficient Runway Length.* The Ambler Airport does not meet current FAA Safety standards for aircraft currently using and forecasted to use the runway. Runway 18-36, the main runway, was designed and constructed to meet A-I standards. Aircraft currently utilizing the runway meet a runway design code of B-II which reflects the need for a longer and wider runway, and longer and wider safety areas.

The primary need for lengthening the runway to 4,000 ft is to accommodate fuel and cargo deliveries that are only available by air, as well as Beech 1900 aircraft that currently serving nearby communities. Larger aircraft such as the DC-6 or C-130 Hercules, in order to more efficiently fly fuel and equipment into the community. Problems delivering fuel by barge on the shallow Kobuk River are substantial, and the community has a critical dependence on air transport as the only reliable transportation mode for bringing fuel, cargo, and building supplies into the community. Currently these large aircraft fly 2-5 times per month into Ambler at reduced loads to accommodate the shorter runway length. A 4,000-ft runway would allow these aircraft to be loaded more heavily, and could decrease the cost of shipping fuel and supplies to the community by as much as 75%.

Additionally, the Northwest Arctic Transportation Plan (NWATP) identifies four main routes serving eleven communities from the Kotzebue Airport in the Northwest Arctic subregion. Kotzebue–Ambler–Kobuk–Shungnak is identified as the longest routes at 315 miles roundtrip. The NWATP identifies the Beech 1900 as the design aircraft for future planning purposes, and recommends a 4,000 ft runway design objective for all three upper Kobuk communities. Since both Kobuk and Shungnak have 4,000 ft runway lengths and documented Beech 1900 utilization, it is anticipated that Beech 1900 aircraft would utilize the Ambler runway if it was lengthened to 4000 ft.

DOT&PF proposes a 4,000 ft runway length to accommodate the DC-6 as a critical design airplane. The DC-6 would remain an occasional use aircraft for the purposes of designating the Airport Reference Code, and the B-II reference code would be used for all other components of the runway design.

The new Runway Protection Zone (RPZ) that would be designated for the extended runway would extend 1,700 ft beyond each runway end to meet visibility minimums not lower than  $\frac{3}{4}$  mile, per Table 3-8 in Advisory Circular 150/5300-13A. The new RPZs would extend beyond the existing airport property boundary. DOT&PF would need to acquire additional property in order to ensure these lands are not developed in ways incompatible to the proposed airport improvements. Selecting the larger dimension does not limit the airport's ability to upgrade approach visibility minimums in the future.

*Terrain and Site Obstructions.* Runway 18/36 exhibits a vertical rise midway in its length, resulting in a line-of-sight obstruction between the runway ends. Meeting an unimpeded line of sight requirement is an Airport Design Standard, as outlined in Advisory Circular 150/5300-13A, Chapter 3 Runway Design, Section 3.05. For optimal safety, pilots in aircraft operating at opposite ends of the same runway should be able to maintain visual contact to avoid conflicts. The existing vertical rise in the main runway also blocks incoming and departing pilots from seeing the full extent of the runway lighting, and thus creates a condition that provides an inaccurate representation of the full runway length.

In addition, terrain obstructions adjacent to the main runway, and proximate to its intersection with the crosswind runway, block the line-of-sight between these two runways. Achieving this Runway Visibility Zone (RVZ) is an Airport Design Standard, and is outlined in Advisory Circular 150/5300-13A, Chapter 3 Runway Design, Section 3.05. Removing the vision-obstructing vegetation and terrain would improve safety for pilots and aircraft and prepare the airport for implementation of future instrument approach flight procedures.

*Drainage Issues.* Poor surface structure and drainage commonly contribute to seasonal runway closures due to muddy conditions that are unsafe for landings and take-offs. There is typically a two week window during spring thaw when Runway 18-36 must be closed 3-10 different days. During rainy seasons, Runway 18-36 often closes to low-wing, twin engine aircraft, depending on surface conditions. Runway 9-27, the crosswind runway, is closed from spring to fall freeze-up due to soft spots.

*Failing Lighting System and Navigational Aids.* The airport lighting system is more than 20 years old and has surpassed its useful life. Any one of the proposed runway improvements—widening, extending, regarding, and resurfacing—would require the medium intensity runway lighting (MIRL) system to be removed and replaced in a new location. The runway end indicator lights (REILs) would also need to be relocated. In addition, the Vertical Approach Slope Indicator (VASI) may need to be relocated or replaced, depending on future FAA siting studies or availability of equipment.

### **Proposed Action**

To address existing deficiencies, DOT&PF proposes the following improvements

1. Lengthen main runway 18/36 to 4,000 ft and widen it to 75 ft
2. Lengthen the main runway safety area (RSA) to 4,600 ft and widen it to 150 ft
3. Improve site visibility by leveling uneven terrain and clearing vegetation
4. Grade and overlay operational surfaces and embankments
5. Install airport lighting and navigational aids (NAVAIDS)
6. Realign 1,240 ft of airport access road (Waring Street) to accommodate the new, extended RSA
7. Rehabilitate and resurface 2,750 ft of Waring Street
8. Acquire approximately 160 acres of land for airport expansion
9. Expand the existing apron and construct a new Snow Removal Equipment Building (SREB)
10. Construct a material site access road and develop a material site

### **II. Avoidance Measures:**

1. Can the proposed project or project components be located in a non-wetland area? If not, explain in detail why not? (Refer to preliminary jurisdictional wetland determination.)

**No. The proposed project is tied to the existing Ambler Airport facilities. The material site identified for use is predominantly upland, however it was selected primarily for its potential to yield non-Naturally Occurring Asbestos (NOA) material for the project. Wetlands are common throughout the vicinity, so there is no access route to the proposed material site that would avoid wetlands.**

1.a. If yes, does this non-wetland area provide unique habitat to the area or contain other protected resources (e.g., cultural resource, federally listed or candidate species, bald eagles or other raptors)? Consult with the agency with jurisdiction or expertise if appropriate (e.g., Corps, Service, NMFS, ADNR/OHMP).

**N/A.**

1.b. Are there other project related impacts to the non-wetland area that are considered substantial (e.g., subsistence use or other socio-economic factors)? Consult with the agency with jurisdiction or expertise if appropriate (e.g., Corps, Service, NMFS, ADNR/OHMP).

N/A.

1.c. Can impacts to active nests of migratory birds be avoided through adherence to construction timing windows (as identified in the USF&WS guidelines “Advisory: Recommended Time Periods for Avoiding Vegetation Clearing in Alaska to Protect Migratory Birds”)? If not, consult the Service.

**Yes, the project will comply with the Migratory Bird Treaty Act by either adhering to the recommended bird timing window for the project area or by sufficiently altering vegetated sites before migratory birds arrive so that they do not provide nesting habitat. Ambler does not provide habitat for eagles, and there are no eagle nests in the project vicinity. (Alaska Bald Eagle Nest Atlas website, accessed February 6, 2013).**

2. In consideration of forecast changes in aircraft use, future airport projects, expected community growth and maintenance considerations, have facilities been sited to avoid wetland impacts? Has this been applied to all individual components of the airport (e.g., the runway, taxiways, aprons, lease lots, navigational aids)?

**Yes. The above considerations were included in the design process and project components have been sited to avoid impacts to wetlands by using existing embankments, roads, and disturbed areas where practicable.**

Describe the alternatives addressing the project purpose and need that have been evaluated to avoid wetland impacts. (Describe below or reference the applicable section in the NEPA document). If alternatives that avoid wetland impacts are not practicable, explain technical, financial, maintenance or other environmental reasons, and address the following:

**Alternatives considered are discussed in Section 4 of the EA.**

2.a. Can dimensions of facilities be traded off; i.e., length vs. width of the apron in order to lessen impacts?

**No. The proposed improvements have already been designed at the minimal dimensions to serve the subject function.**

2.b. Can the footprint of specific project components be reduced to avoid wetlands i.e., steeper side slopes on support facilities?

**The footprint has been reduced as much as possible.**

2.c. Can facilities be consolidated to avoid impacts?

**Not completely. A north only extension for the main runway was eliminated from consideration early in design because the terrain drops off towards a drainage and the greater fill and footprint would impact wetlands. A south-only extension for the main runway would have encountered similar terrain changes, increasing the project fill needs and impacts to wetlands.**

2.d. Have existing roads, pads, runways and other facilities been incorporated into the design of the proposed project to avoid wetland impacts?

**Yes, wherever feasible. The proposed access road to the material site would use an existing road as much as possible.**

2.e. Can the runway location or alignment be adjusted to avoid wetland impacts?

**No. Any change in location would result in increased wetland impacts.**

3. Have crossings of fish streams been avoided? (Consult the Anadromous Fish Catalog for anadromous streams and contact ADNR/OHMP for information on resident fish bearing waters.)

**Yes. A southern route alignment from the Airport to the proposed material site would have crossed a probable anadromous fish stream, providing juvenile salmon rearing habitat. In coordination with Alaska Department of Fish and Game, this alignment was dismissed from consideration to avoid such a crossing.**

4. If the Regional Environmental Coordinator has determined that the project may adversely affect Essential Fish Habitat (EFH) list the preliminary EFH conservation measures.

**N/A.**

5. Are bald eagle nest trees at least 330 feet from the project? If not, consult the Service.

**There are no bald eagle nest trees within 330 feet from the project.**

6. Have abandoned pads, roads, runways and other fills associated with the airport project been considered for gravel re-use, rehabilitation, and/or restoration?

**No abandoned pads or roads are available for use. Existing development likely contains NOA-bearing materials. Runway re-grading and terrain obstruction removal actions will be used to provide fill for subbase and embankments, and all surfaces would be covered with non-NOA containing cover material.**

**III. Minimization Measures (If the impacts can't be avoided continue):**

1. Can the proposed project or project components be located in a lower value wetland area? If not, explain in detail why not? (Refer to appropriate resource mapping or functional value assessment.)

**The project has already minimized impacts by locating the material site access road along a corridor impacting lower value wetlands.**

1.a. If yes, would construction affect other protected resources (e.g., cultural resource, federally listed or candidate species, bald eagles or other migratory birds)? Consult with the agency with jurisdiction or expertise if appropriate (e.g., Corps, Service, NMFS, ADNR/OHMP, and SHPO).

**N/A.**

1.b. Are there other project related impacts to this lower value wetland considered substantial (e.g., cultural resource, subsistence use or other socio-economic factors)? Consult with the agency with jurisdiction or expertise if appropriate.

**N/A.**

2. In consideration of forecast changes in aircraft use, future airport projects, expected community growth and maintenance considerations, have facilities been sited to minimize wetland impacts? Has this been applied to all individual components of the airport (e.g., the runway, taxiways, aprons, lease lots, navigational aids)?

**Yes. The project components have been sited to minimize impacts to wetlands by using existing embankments, roads and disturbed areas where practicable. The selected route to the material site minimizes overall impacts to wetlands by avoiding high value wetlands and an anadromous fish crossing.**

Describe the alternatives addressing the project purpose and need that have been evaluated to minimize wetland impacts. (Describe below or reference the applicable section in the NEPA document). If alternatives that minimize wetland impacts are not practicable, explain technical, financial, maintenance or other environmental reasons, and address the following:

2.a. Can dimensions of facilities be traded off; i.e., length vs. width of the apron in order to lessen impacts?

**No. The extension length on each end of the runway was optimized to even out fill and excavation quantities.**

2.b. Can the footprint of specific project components be a reduced i.e., steeper side slope on support facilities?

2.c. Can facilities be consolidated to minimize impacts?

2.d. Have existing roads, pads, runways and other facilities been incorporated into the design of the proposed project to minimize wetland impacts?

2.e. Can obstruction removal for FAR Part 77 purposes be accomplished by methods that do not disturb the root mass or soil surface to minimize vegetation loss? [Note: Any associated chipping of stumps and limbs may result in a regulated discharge if the wood chips are "piled" in waters of the U.S. including jurisdictional wetlands.]

**Yes. These methods have already been included in the design where possible. Clearing in most areas will be limited to above the vegetative mat during the winter. Chipped stumps and limbs will likely be used as embankment cover.**

3. Have crossings of fish streams been located to minimize adverse impacts to the extent practicable? (Contact agencies with jurisdiction or special expertise as appropriate.)

**Yes. The access road to the material site has been sited to avoid any crossing of a fish stream. This decision was done in consultation with Alaska Department of Fish and Game.**

3.a. Has adverse affects to fish spawning habitat been minimized? **N/A**

3.b. Have stream crossings been designed in accordance with the ADOT&PF/ADF&G culvert design and construction memorandum of agreement?

**Yes.**

4. If the Regional Environmental Coordinator has determined that the project may adversely affect Essential Fish Habitat (EFH) list the preliminary EFH conservation measures.

**N/A.**

5. Have abandoned pads, roads, runways and other fills associated with the airport project been considered for gravel re-use, rehabilitation, and/or restoration?

**Yes. Proposed embankments would be extensions of existing runway embankments. Material haul routes would extend the existing road to the (now abandoned) Airport material site. The realignment of Waring Street would incorporate the existing road as much as feasible to limit additional wetland and water body impacts.**

#### **IV. Material Site Considerations:**

Contractor supplied and commercial material sites are not to an avoidance and minimization review.

1. Has a material site been identified for the project? If yes continue, if no go to V.

**Yes. Extensive material site investigations have identified Area B, about 2 miles northwest of the airport, as a site that may provide sufficient quantities of non-NOA material for this project.**

1.a. If a new material site is required, have you considered locating and accessing material an adequate distance from the airport so that it can be reclaimed as wetlands or other wildlife habitat?

**There have been some discussions with the property owner of reclaiming the material site area as a pond to support resident fish. The material site would be used for this project as well as other present and future community projects before reclamation would occur.**

1.b. Would a new site, located a safe distance from the airport, require a new road, resulting in additional wetland resource or community use impacts? Are there means to avoid a new access road? Would development of this new site result in more or less wetland impacts than a new or existing material site located closer to the airport?

**Yes. A new access road would be required to access Area B. An additional 8.82 acres of wetlands would be permanently impacted and 4.56 acres of wetlands would be temporarily impacted for the access road construction. These impacts are discussed as part of the project and within the permit application. An ice road could access the material site, however since the proposed project would span multiple construction seasons, the ice road would need to be rebuilt several times. In addition, it would mean that other community projects would be left without access to a material site containing non-NOA material. Development of this new site and the access road results in wetland impacts, however the existing material site adjacent to the airport contains unacceptable levels of NOA.**

1.c. If a new or existing material site has been selected that would be located a safe distance from the airport and requires minimal additional road building, has a mine reclamation plan? If located an appropriate distance from the airport can the material site be reclaimed to provide open water habitat such as, shallows, islands, and irregular shorelines? (Consult agencies with jurisdiction or special expertise.)

**There have been preliminary discussions with the property owner and resource agencies of reclaiming the material site area as open water habitat.**

1.d. Has geotechnical and hydrological information been collected and used to maximize gravel exploitation while minimizing wetland impacts (e.g., mining deeper, adjusting material site boundaries, and using portions of the pit for temporary stockpiling of material)?

**Material extraction plans for this project focus on identifying material of suitable quality and containing the minimum concentrations of NOA. The extraction plans are deliberately flexible to allow the contractor the ability to explore different areas of the material site. Other, future projects may have needs and interests for other material types.**

1.e. Has a long-term material site been considered? If so, can a portion of the site be closed and reclaimed at the end of this project?



**A long term material site is considered. It is unknown at this time if portions of the site can be closed at the completion of this project for reclamation. It will depend on the quantity of clean material that can be accessed.**

**V. Additional Material Site Considerations:**

1. Will project overburden be stockpiled (preferably in uplands) for use as “top soil” or in reclamation of material sites or previously disturbed areas?

**Yes. Project overburden will be stockpiled along the site perimeter, and will be used to cover or reclaim closed cells of the material site.**

2. How will access roads and other fills associated with the material site be restored upon project completion?

**The access road and other fills associated with the material site would be left in place upon project completion, allowing other community or vicinity projects an accessible source of material.**

3. Can development of the material site be timed to avoid or minimize affects during spawning, migration and nesting periods? (Consult agencies with jurisdiction or special expertise)

**The development of the material site will be timed to avoid or minimize affects on fish and wildlife and their habitat. Much of the development will occur during the winter. The project will comply with the Migratory Bird Treaty Act by either adhering to the recommended bird timing window for the project area or by sufficiently altering vegetated sites before migratory birds arrive so that they do not provide nesting habitat.**