



# Wiley Post/Will Rogers Memorial Airport MASTER PLAN UPDATE

**Chapter 2  
Existing Conditions  
and Issues**

**DRAFT**

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## 2 Existing Conditions and Issues

The first step in the airport master planning process involves gathering information about the airport and its environment from a variety of sources. An inventory of current conditions is essential to the success of a master plan, since the information also provides a foundation, or starting point, for subsequent evaluations.

The inventory of existing conditions for the Barrow Airport Master Plan Update includes the following:

- ➔ Information pertaining to airport ownership and management, the general airport setting, transportation access, the airport's role in regional transportation, and airport history
- ➔ An overview of the area's airspace and navigational aids and procedures
- ➔ Descriptions of facilities and services now provided at the airport including a general description of airside, terminal, landside, and support facilities, as well as utilities and other infrastructure
- ➔ A summary of environmental and meteorological conditions at the airport
- ➔ Population and socioeconomic information for the geographic area where most of the passengers are coming from (Chapter 3)
- ➔ A review of historic and current airport activity (Chapter 3)

### 2.1 Issues

Several issues were raised during the initial phase of the project. These issues surfaced during discussions with airport users including air taxis, commercial operators, and lease lot owners, as well as Barrow businesses and residents; additionally, site inspections were conducted and previous airport studies reviewed. Comments came primarily through personal telephone conversations, e-mail correspondence, public meetings, and responses to questionnaires/online survey.

The following issues at the Barrow airport (BRW) were brought up during the investigation phase of the master plan. This is not an exhaustive list, but represents the major themes encountered.

- ➔ Development along the south side of the runway
- ➔ Proposed U.S. Coast Guard (USCG)/Department of Military & Veterans Affairs (DMVA) facilities
- ➔ Material source(s)
- ➔ Approach minimums
- ➔ Community expansion and continued access to areas south of the airport
- ➔ Lease lot demand
- ➔ Potential changes to fleet mix
- ➔ Congestion along Ahkovak Street
- ➔ Highest and best use of airport land
- ➔ Maintenance and operations (M&O) facilities
- ➔ Noise from increased helicopter operations

Barrow residents expressed the greatest concern with maintaining access to areas south of the airport for subsistence activities, recreation, and possible community expansion. Additionally, many residents commented on the vehicle congestion along Ahkovak Street during times when Alaska Airlines' flights are arriving. They were also concerned about noise from helicopters, particularly after the increased number of helicopter operations during 2012.

Air taxis and air carriers were most interested in obtaining additional lease space to accommodate their operations. Likewise, the USCG and DMVA are interested in developing a joint base of operations in Barrow but do not currently have a lease lot.

## 2.2 Regional Setting

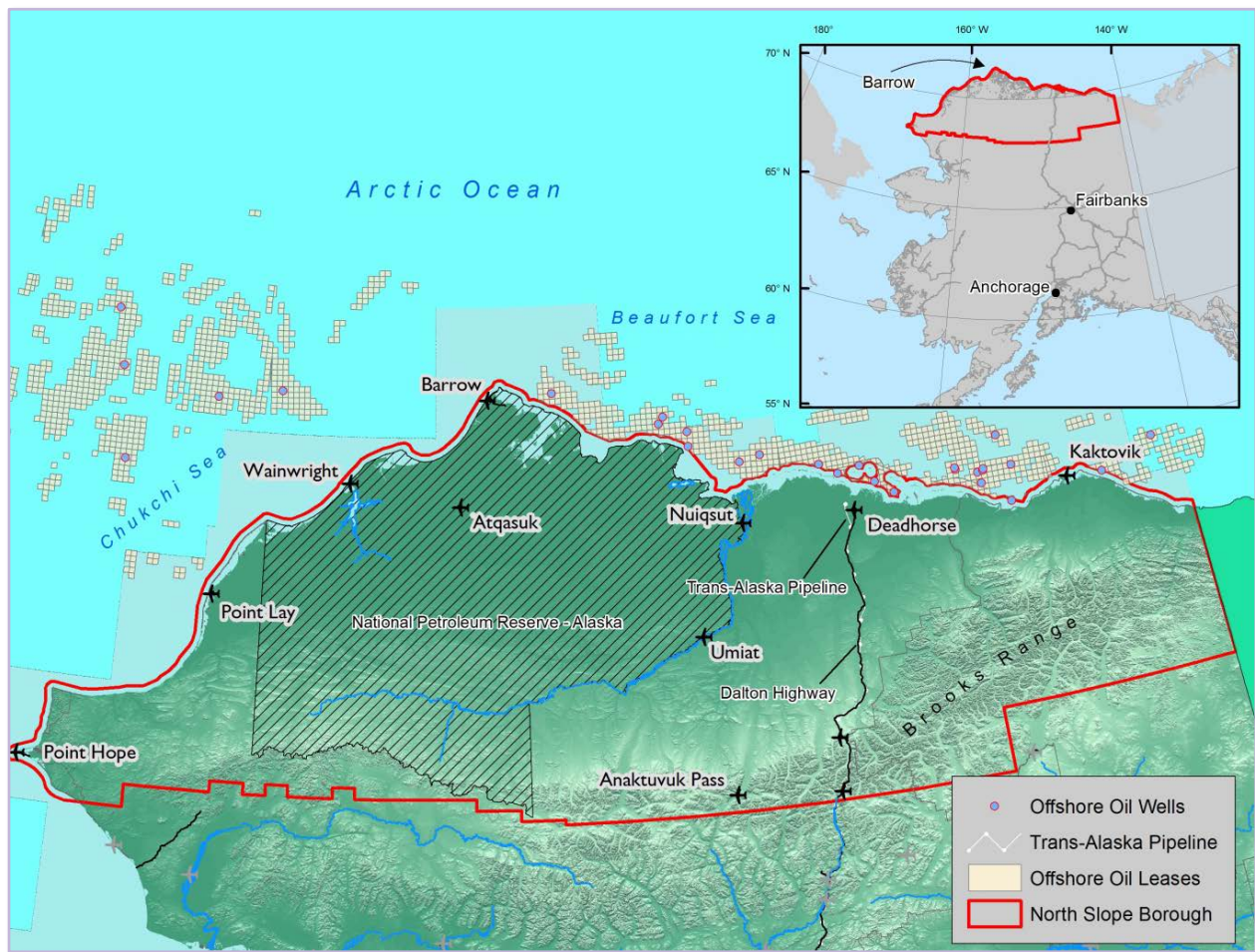


Figure 2-1 – Barrow and the North Slope Borough

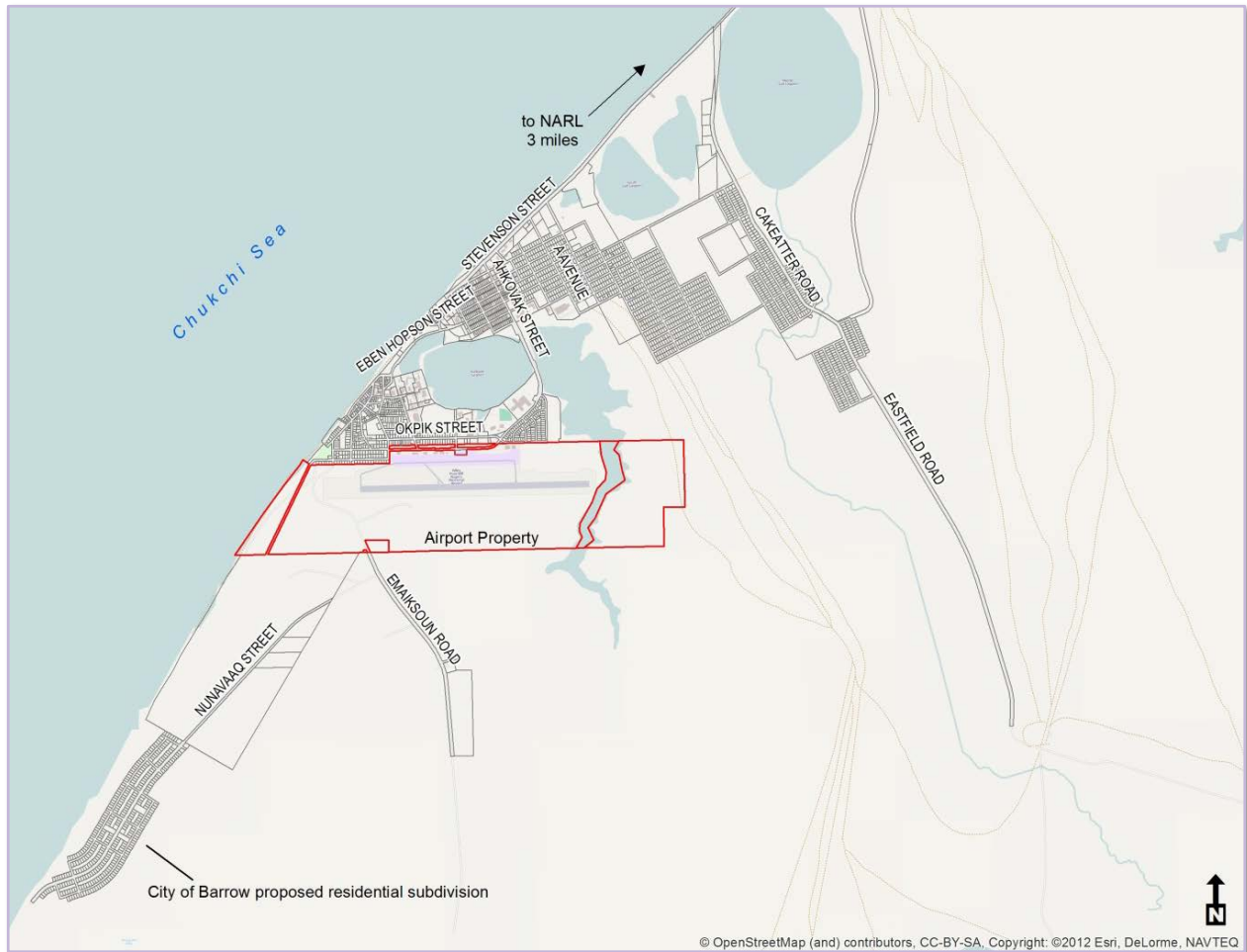


Figure 2-2 – Barrow Airport Location

The city of Barrow, population 4,974, is the northernmost city in the U.S. Situated on the shores of the Chukchi Sea (Figure 2-1), Barrow has been inhabited since 500 A.D. During the late nineteenth century, commercial whalers set up a station there, and in the 1940s and 1950s, the U.S. military installed a radar station and research center north of town. The Naval Arctic Research Laboratory (NARL) included an airstrip, laboratory facilities, and personnel housing. Today, the remaining former NARL facilities are used to support Iisagvik College and Barrow-based research activities.

Barrow is on the Arctic Coastal Plain, an area of low tundra that stretches along the northern coast of Alaska and into Canada. The region is underlain by thick, continuous permafrost which creates a rich mosaic of thaw lakes during the short, cool summer. Precipitation is relatively low in this region. At 71° North, Barrow is above the Arctic Circle and experiences harsh winter weather, extended periods of daylight in summer and darkness in winter, and conditions typical of high-latitude communities.

Barrow's location and existing infrastructure have made it a hub of arctic research. The Barrow Arctic Science Consortium provides research facilities and field logistics for visiting scientists. Likewise, Barrow is seeing increased offshore oil and gas exploration in the Chukchi Sea as part of the Bureau of Ocean Energy Management's (BOEM) Outer Continental Shelf (OCS) leasing program. As such, Barrow's importance to the nation in supporting domestic oil production is growing.

In recent years, a relatively ice-free Arctic has meant more marine traffic in the region. This, coupled with the increased offshore oil exploration, has prompted the USCG to increase their presence in the Arctic. In 2012, the USCG kicked off Operation Arctic Shield by staging assets at Barrow Airport and conducting maneuvers out of Barrow.

Also due to its location, Barrow has seen several aviation pioneers and explorers pass through:

- Roald Amundsen, 1926 blimp flight to the North Pole
- Ben Eielson, 1928 trans-arctic flight
- Charles and Anne Lindbergh, 1931 Orient surveying expedition
- Wiley Post and Will Rogers (for whom the airport is named), 1935 Alaska tour that ended in a fatal airplane crash near Barrow

Following several years of flat or declining population, since 2007 Barrow has experienced net population growth of 1.7% (see Chapter 3).

## **2.2.1 Government**

Barrow is the seat of government for the North Slope Borough (NSB). Incorporated in 1972, the NSB includes eight villages and over 89,000 square miles of land, making it the largest municipal subdivision in the United States.

The City of Barrow was incorporated in 1958 as a first-class city. Both the City of Barrow and the NSB are mayor-strong forms of government.

Barrow is also the administrative center of the North Slope Borough School District, which comprises 11 schools in eight communities.

Barrow is the corporate headquarters for the Arctic Slope Regional Corporation (ASRC), the regional Native corporation established under the Alaska Native Claims Settlement Act of 1971 (ANCSA). The ANCSA village corporation, Ukepeagvik Inupiat Corporation (UIC), and the regional Native non-profit corporation, Arctic Slope Native Association, are also headquartered in Barrow.

Two federally recognized tribes are located in Barrow: the Inupiat Community of the Arctic Slope and the Native Village of Barrow Inupiat Traditional Government.

## **2.2.2 Economy**

Barrow is the supply, service, education, and transportation center of the North Slope. The local economy relies heavily on government employment; the NSB is the city's largest employer. The school district and Ilisagvik College also contribute significantly to the local workforce (see Figure 2-3).

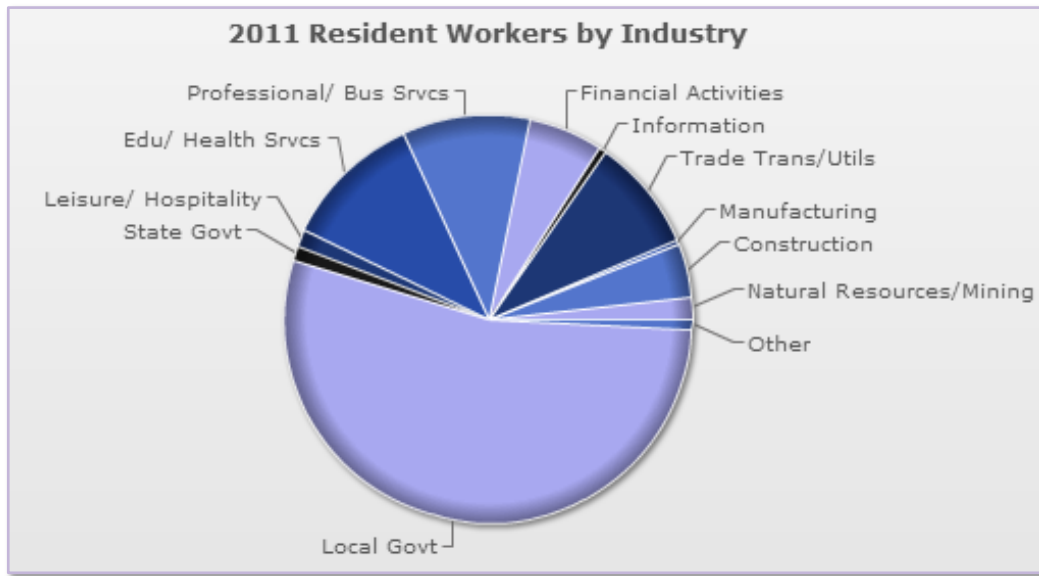


Figure 2-3 – 2011 Resident Workers by Industry

Source: Alaska Department of Labor and Workforce Development (ADOL&WD)

Much of the borough’s wealth comes from oil and gas taxes. As North Slope oil production has decreased in recent years, the NSB’s revenues have also diminished.

Barrow serves as a staging ground for offshore oil and gas development in the Chukchi Sea and western Beaufort Sea, and consequently, the number of jobs in the support industry has grown. There is potential for future oil and gas exploration in the western portion of the National Petroleum Reserve – Alaska (NPR-A) that could be supported from Barrow (see Figure 2-1). See Chapter 3 for a discussion of current on-shore and nearshore oil and gas exploration activities.

Tourism also provides economic opportunities to residents. Tourists visit Barrow in the spring and summer to view migrating birds and other wildlife and to experience the midnight sun and cultural events. In 2012, 17 cruise ships passed offshore of Barrow. While none of the passengers came ashore, there is potential for onshore excursions from future cruise ships and increasing USCG presence in the Arctic to monitor marine traffic.

Residents rely on subsistence food sources such as waterfowl, seals, whales, and caribou, which are harvested locally.

There is no sales tax in Barrow. However, the City collects a 5% bed tax, \$1/pack cigarette tax, 12% tobacco tax, and 3% alcohol tax. The NSB collects a property tax of 18.5 mills.

### 2.2.3 Transportation

Several air carriers provide scheduled service to Barrow from the outlying communities and the population centers of Fairbanks and Anchorage. Chapter 3 discusses in detail the current air carriers serving the region, as well as the trends in passenger and freight volumes.

Barrow is the transportation hub for several villages in the northwest Arctic, providing air links to the following communities:

- Atqasuk
- Wainwright
- Point Lay
- Nuiqsut

Point Hope is generally served by air out of Kotzebue, while Anaktuvuk Pass and Kaktovik are served out of Fairbanks. Some flights between Fairbanks and Barrow include a stop in Deadhorse.

Marine transportation of goods to Barrow is limited to ice-free months in the summer. Barges land at a location north of town.

## Barrow Airport (BRW)

The Barrow airfield was constructed in 1964. It was originally a dirt and gravel strip long enough to accommodate small aircraft. Today it is a 7,100-foot-long paved runway that supports daily passenger and cargo flights utilizing jet and propeller aircraft.

Major milestones in the airport's development include:

- 1960 – Gravel runway construction begins
- 1964 – Gravel runway completed (5,000 feet x 150 feet)
- 1968 – Runway extended to 6,500 feet and paved
- 1974 – Apron expanded
- 1983 – Runway resurfaced and east end painted white to reduce permafrost thaw
- 2003 – Gravel apron between Taxiways B and C expanded
- 2012 – Major runway and apron reconstruction completed

The recent reconstruction project included a new rotating beacon, new localizer, a shift of the runway 210 feet south, and displacement of the thresholds at each end. When complete, it brought the airport into substantial compliance with safety area standards.

Today, the Barrow Airport supports regional oil and gas exploration and development. Royal Dutch Shell began using the airport in 2012 to transfer crews to offshore exploratory drilling platforms. Other oil and gas companies may begin offshore exploration as soon as 2014, although this is subject to change.

The USCG is considering the airport as a seasonal base of operations to monitor Arctic marine traffic and offshore oil and gas exploration.

## North Slope Aviation Infrastructure

Barrow's airport serves as the regional hub for four outlying communities: Wainwright, Point Lay, Atqasuk, and Nuiqsut (although Nuiqsut is occasionally served directly out of Fairbanks). These four community airports, as well as the airports in Anaktuvuk Pass and Kaktovik, are managed by the NSB. None of these communities is connected to the contiguous road system, so access is limited to air or marine/river transportation.



Passengers, cargo, and bypass mail destined for Wainwright, Point Lay, and Atqasuk are routed through Barrow. The table below summarizes the estimated bypass mail volumes for Barrow and associated communities. Roughly 8.7 million pounds of mail flows into Barrow annually. Most of that mail stays in Barrow, while approximately 1.8 million pounds continues on to outlying villages. Historic passenger and cargo volumes are presented in Chapter 3.

**Table 2-1 – Bypass Mail Volumes for BRW, 2010**

Source: Northern Economics, Inc.

Community	Volume (lbs )	Volume per capita (lbs.)
Atqasuk	401,000	1,721
Point Lay	436,000	2,307
Wainwright	971,000	1,746
Barrow	6,934,000	1,646
<b>Total</b>	<b>8,742,000</b>	<b>1,684</b>

Additionally, the Barrow airport is a staging area for offshore oil development in the Chukchi Sea. During the summer of 2012, Royal Dutch Shell stationed three helicopters in Barrow to support crew changes and search-and-rescue efforts and chartered Boeing 737-400 aircraft to transport crews between Anchorage and Barrow. The USCG also utilized Barrow Airport during 2012 to provide 24-hour search-and-rescue operations in the region and reduce response times to incidents in the Beaufort and Chukchi Seas. Before 2012, Royal Dutch Shell and other oil companies had been conducting activities necessary to obtain permits for the exploration work, including public outreach and scientific studies in the region.

Wainwright also plays a role in offshore oil development along the North Slope. Conoco Phillips and Statoil have indicated that they will use Wainwright as a base of operations for accessing their Chukchi Sea leases (see Chapter 3 for additional discussion).

The NSB also provides search-and-rescue and medevac services for the North Slope from a base at Barrow Airport. With two helicopters, a twin-engine airplane, and a jet-engine airplane, the NSB Search and Rescue (SAR) is a critical user of the region’s aviation infrastructure.

In addition to the public airports listed above, there are also several private airstrips and airports that are maintained and operated by oil companies. Most notable are the Alpine Airstrip and the Kuparuk Airport. Alpine is located 53 nautical miles west of Deadhorse and is owned by ConocoPhillips Alaska. Kuparuk Airport, located 28 nautical miles west of Deadhorse, has a 6,551-foot-long, 150-foot-wide asphalt runway.

## 2.2.4 Land Use and Ownership

### Ownership

The bulk of the airport property (668.42 acres) was conveyed to the State of Alaska from the U.S. Bureau of Land Management (BLM) on February 13, 1968, under Patent No. 50-68-0175 (Lot 1, US Survey 4227). This parcel was conveyed pursuant to Section 16 of the Federal Airport Act of 1946. Additionally, the ADOT&PF has management rights for Tract I, Parcels A and C, of US Survey 4227 (see Figure 2-4).

## Surrounding Property Land Uses

The airport property is zoned Industrial by the NSB. Adjacent to the north side of the airport property are areas zoned as Suburban and Multi-Use (Figure 2-4). The suburban area abuts the eastern end of the existing airport lease lots, including the NSB's SAR hangar and the airport's undeveloped Parcel E.

The airport property south of the runway contains extensive wetlands and is mostly undeveloped. There are an abandoned gas line (Figure 2-4) and potentially several cultural sites in this area. The National Weather Service (NWS) maintains a facility on the south edge of the airport property, adjacent to Emaiksoun Road.

Land south of the airport boundary is owned by UIC. UIC is currently developing a 75-man camp on their property south of the airport, with additional plans to develop industrial support facilities on this property. Proposed development includes offices, warehouses, fuel storage, and a "command campus" with 288 bunk rooms. Primary access to this property is from Emaiksoun Road, with development plans showing a central access road running through the property (see Figure 2-4).

The City of Barrow has long-term plans to develop an 85-acre residential subdivision southwest of the airport, off Nunavaaq Street approximately 1.5 miles east of the intersection with Emaiksoun Road (see Figure 2-2).

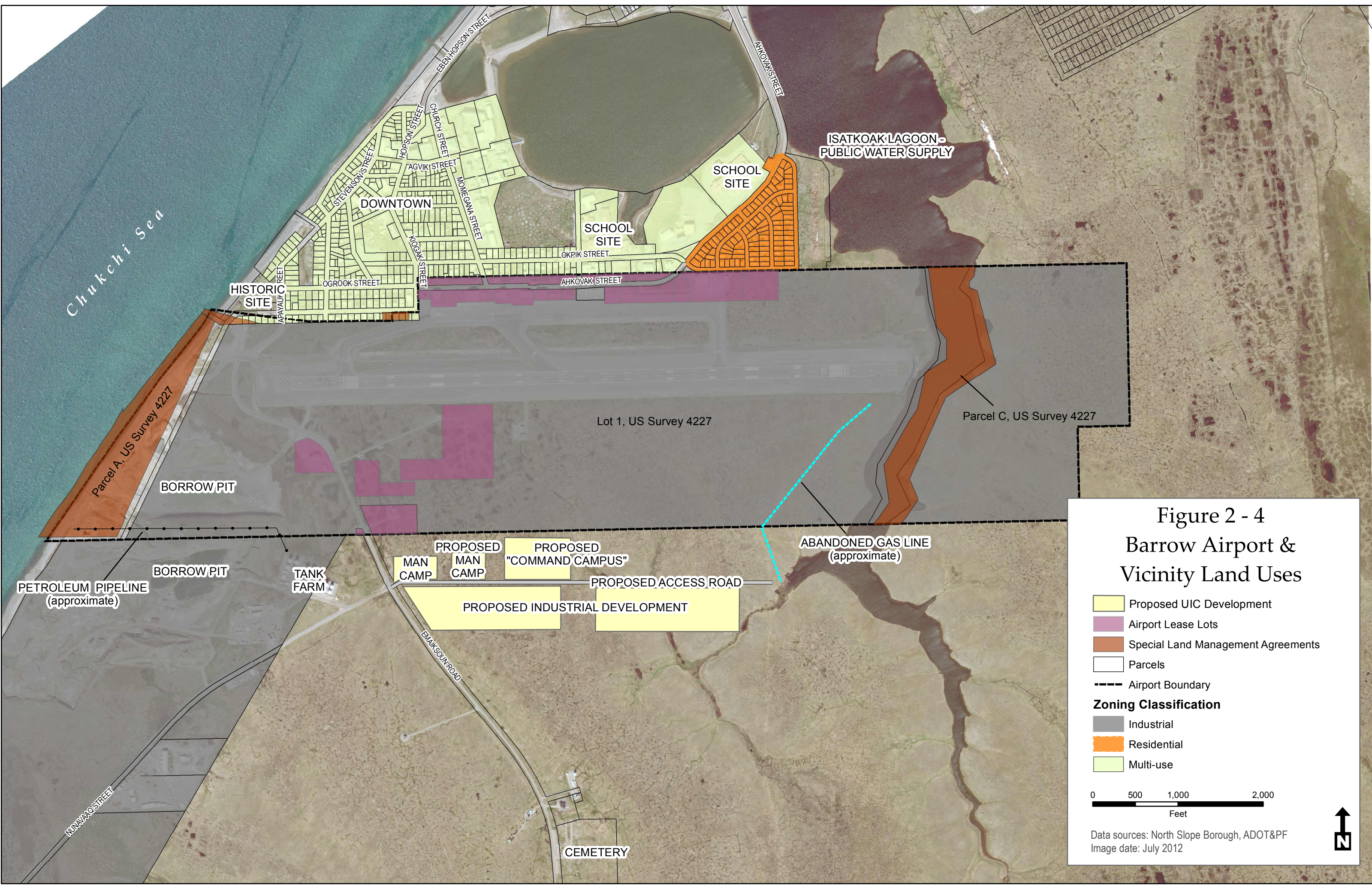
Directly east of the runway, bisecting undeveloped airport property, is the community's water supply, Isatkoak Lagoon. During the winter, the lagoon's frozen surface serves as an access corridor for subsistence activities to the south.

There are two active material sites west-southwest of the airport, one on airport property and one owned by UIC. Both are in an area zoned as Industrial. ADOT&PF is currently investigating additional sources of material.

## On-Airport Land Uses

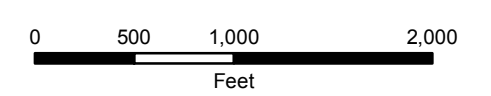
### *Aviation*

Except for lots reserved by ADOT&PF, all existing lease lots with apron frontage are leased. Total lease revenues in 2012 were \$145,358. Figure 2-5 shows the lease lots and Table 2-2 lists the current lessees and sublessees.

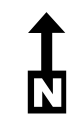


**Figure 2 - 4**  
**Barrow Airport &**  
**Vicinity Land Uses**

- Proposed UIC Development
  - Airport Lease Lots
  - Special Land Management Agreements
  - Parcels
  - Airport Boundary
- Zoning Classification**
- Industrial
  - Residential
  - Multi-use



Data sources: North Slope Borough, ADOT&PF  
 Image date: July 2012





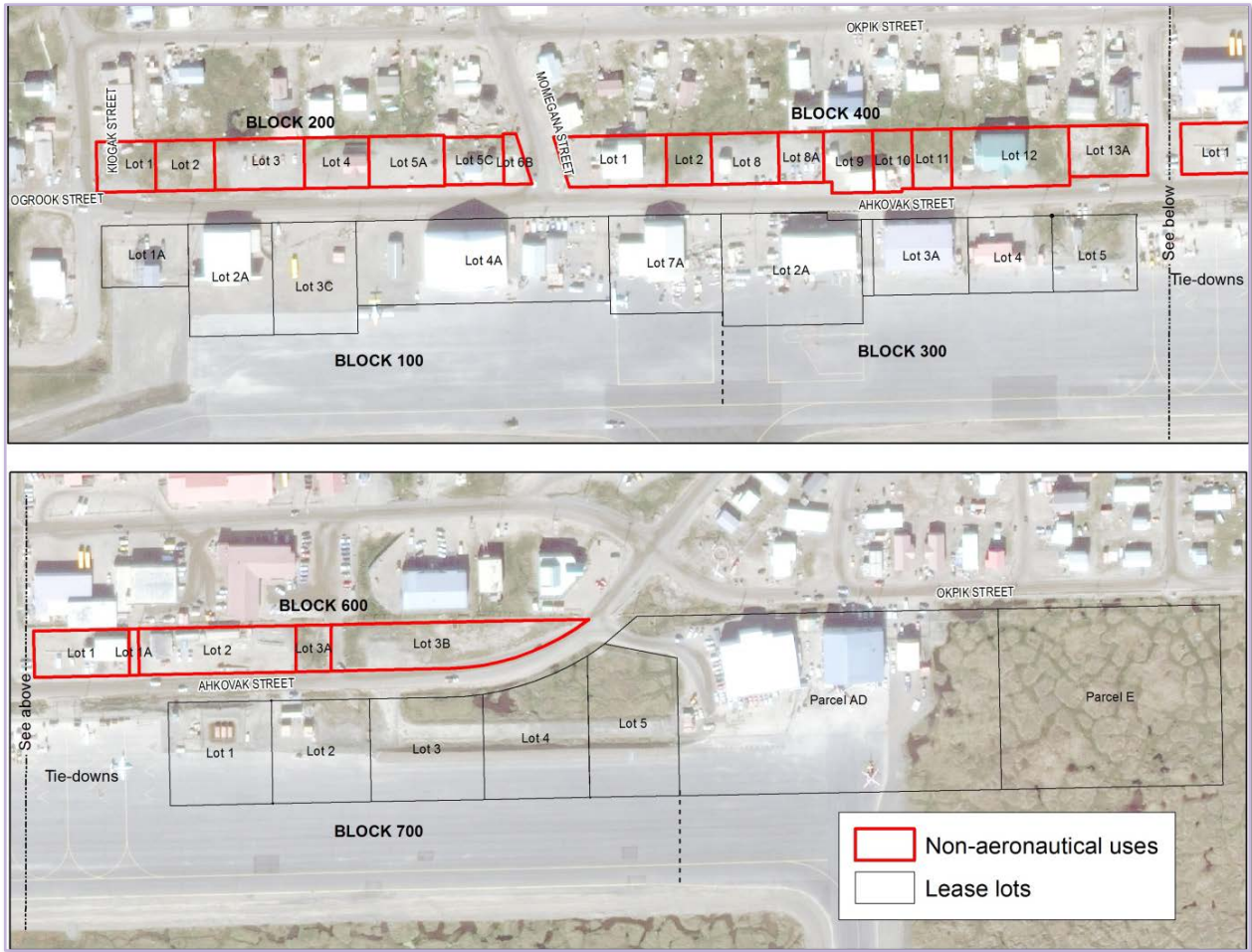


Figure 2-5 – Lease Lots

Table 2-2 – Primary Leaseholders and Sublessees at the Barrow Airport

Primary Leaseholder	Block	Lot	Sublessee (if any)
FAA	100	1A	
	400	9, 10	
Frontier Flying Service	100	2A, 3C, 4A	
	300	4	
	700	1	
Donald Olson Enterprises	100	7A	Hageland Aviation Service
North Slope Borough	200	4	
	600	1A, 3A	
		Parcel AD	
City of Barrow	200	5C	
Barrow Lions Club	200	6B	

<b>Primary Leaseholder</b>	<b>Block</b>	<b>Lot</b>	<b>Sublessee (if any)</b>
<b>Alaska Airlines</b>	300	2A	
	400	8A	
<b>Hageland Aviation Service</b>	300	5	
<b>Arctic Slope Regional Corporation</b>	400	1	
<b>Cornerstone Investment</b>	400	12	
<b>UIC Real Estate</b>	600	1	
<b>SKW/Eskimos Inc.</b>	600	2	
<b>Gary Quarles</b>	700	2	
<b>Ryan Air</b>	700	3, 4	
<b>Clearwater Air</b>	700	5	

Although most of the lots are developed, Lots 4 and 5 of Block 700 and Parcel E are undeveloped. Parcel E has been reserved by ADOT&PF for future facilities. However, five other entities have also expressed interest in leasing that parcel.

Development of lease lots at Barrow Airport is expensive due to the high costs of gravel, construction materials, and labor. Also, FAA imposes limitations on the use of airport lands for non-aviation purposes. Nevertheless, there is demand for apron-front lease space. Developable property within the city of Barrow is in short supply, which increases the demand for on-airport property. In 2012, six entities inquired about leasing airport property, and the NSB expressed a desire to use its closed transit terminal on Block 200, Lot 4, for additional office space.

Only one lease lot at the airport is currently subleased—Hageland Aviation service subleases Block 100, Lot 7A, from Donald Olson Enterprises. For the summer of 2012, Frontier Flying Service subleased Lots 2A and 3C on Block 100 to the USCG and Block 300, Lot 4, to Royal Dutch Shell. Hageland Aviation Service and Frontier Flying Service are both part of Era Alaska. Thus, Era Alaska controls six primary leases and one sublease, totaling more than 5.5 acres of apron frontage.

There is no tie-down program at BRW. Use of the tie-downs is on a first-come, first-serve basis (see Figure 2-5).

Helicopter operations fluctuate seasonally, with the greatest use in summer. The NSB SAR has two Bell 412 helicopters that operate year-round from the SAR lease lot on the east end of the apron. One Robinson-44 is based on the airport during the summer to provide charter services. During 2012, Royal Dutch Shell hired two contractors operating three Sikorsky helicopters (two S61's and one S92) to provide support for crew changes and search-and-rescue operations.

Commercial aircraft movements at BRW are concentrated in the center of the apron. This is because Hageland Aviation and Alaska Airlines are the primary passenger carriers at BRW, and their terminal facilities are adjacent to each other. Likewise, Era Alaska conducts ground handling operations for Northern Air Cargo, Everts Air Cargo, and Hageland Aviation in the Era hangar (which is part of the Hageland Aviation terminal). Section 2.3.1 below discusses the terminal facilities, and Chapter 3 provides detailed information on the operations and passenger enplanements.

During the summer, BRW sees an increase in transient aircraft activity related to scientific research. Often, aircraft such as Twin Otters operate from BRW for a couple of weeks at a time supporting research activities such as wildlife surveys or aerial photography. These transient aircraft park at the tie-down area of the apron (Figure 2-5).

### **Non-Aviation**

The airport property encompasses several parcels on the north side of Ahkovak Street that are outside the security fence and do not have apron frontage. These parcels contain a variety of non-aviation-related facilities, including a hotel, an old bus terminal, parking lots, and a visitor information kiosk (see Figure 2-5). Additionally, the NSB's central receiving facility is located on airport property (Parcel AD).

As the airport sponsor, ADOT&PF is obligated under FAA Grant Assurance 22 to ensure that the airport is available for aeronautical uses. FAA must approve non-aeronautical uses of airport land. These uses must be justified, must not interfere with aeronautical activities, and must generate Fair Market Value revenue. Justification for non-aeronautical uses can include:

- ➔ Land is not currently needed for aviation/airport uses (e.g., far from airfield)
- ➔ Land is not needed for long-term aviation/airport uses
- ➔ Land cannot be used for aviation (e.g., separated from the airfield)

The benefit of allowing non-aeronautical land uses on airport property is that the land earns revenue rather than remaining fallow.

ADOT&PF's Leasing Section requests approval of non-aeronautical uses of airport property through written request to FAA. All non-aeronautical uses of lease lots at Barrow Airport have been approved by FAA.

## **2.3 Inventory of Existing Facilities**

### **2.3.1 Airport Facilities**

#### **Airfield/Airspace**

The current Airport Reference Code (ARC) for Barrow Airport is C-IV. The ARC is a coding system developed by the FAA to relate airport design criteria to the operational and physical characteristics of the airplanes operating at an airport. As such, it is part of the design standards established in the FAA Advisory Circular (AC) 150/5300-13a. In order to determine the appropriate ARC for an airport, a design aircraft is determined. The design aircraft is typically the most demanding aircraft (in terms of an airport's physical features) that conducts at least 500 annual operations at the airport. The ARC has two components relating to the airport design aircraft:

- ➔ Aircraft Approach Category (designated by a letter) is based on aircraft approach speed and typically affects runways and features relating to runway length.
- ➔ Airplane Design Group (designated by a Roman numeral) is based on airplane wingspan and primarily affects width-related features and separation from other facilities.

The FAA also classifies airports according to the amount of passenger service offered at the airport. These classifications are reported in the biennial National Plan of Integrated Airport Systems (NPIAS). Barrow Airport is classified as a Primary Non-Hub airport. "Primary" indicates that the airport is publicly

owned, receives scheduled passenger service, and has more than 10,000 passenger boardings annually. “Non-Hub” means that even though more than 10,000 passengers pass through the airport, the total number is less than 0.05% of total U.S. passenger enplanements.

FAA outlines the standards and recommendations for airport features in AC 150/5300-13a. This document gives the geometric layout and engineering design requirements for runways, taxiways, aprons, and other airport facilities. The current version of the AC took effect in September 2012. The following section summarizes the current airfield dimensions at Barrow Airport and how they meet or differ from FAA standards. A detailed discussion of the required airfield and airspace dimensions based on the design aircraft and adherence to FAA standards is presented in Chapter 4, *Facility Requirements*.

**Runway**

Barrow Airport has a single, paved runway (7-25) that is 7,100 feet long and 150 feet wide. Each threshold is displaced 600 feet. “Elephant ears” at each end of the runway allow large aircraft to turn around. Table 2-3 below summarizes the runway’s declared distances.

**Table 2-3 - BRW Declared Distances**

Measurement	Declared Distance (feet)
Takeoff Run Available (TORA)	7,100
Takeoff Distance Available (TODA)	7,100
Accelerate Stop Distance Available (ASDA)	6,500
Landing Distance Available (LDA)	5,900

The runway pavement is in fair condition, with heaving, cracking, and asphalt degradation occurring along the entire length. There is also a substantial bump in the runway near the Runway 7 threshold. Table 2-4 summarizes the runway load bearing capacity.

**Table 2-4 – Runway Load Bearing Capacity by Wheel Type**

Source: FAA Form 5010

Wheel Type	Gross Weight (lbs)
Single Wheel	75,000
Dual Wheel	160,000
Dual Tandem Wheel	300,000

**Taxiways**

There are three equally sized (75-foot-wide) taxiways connecting the apron to the runway:

- Taxiway A connects to the Runway 7 threshold.
- Taxiway B enters at the midpoint of the runway.
- Taxiway C connects to the runway approximately 1,400 feet from the Runway 25 threshold.

Medium Intensity Taxiway Lighting delineates the edges of all taxiways.



### **Apron**

Barrow Airport has a single paved apron covering approximately 620,000 square feet. On the south side of the apron is a designated 75-foot-wide taxiway.

Several tenants report that the apron has several dips and swales. In fact, Alaska Airlines indicated that because of the slope in the apron they must park their B737-400 Combi aircraft pointing west to avoid difficulty in offloading cargo containers.

### **Runway Safety Areas**

FAA design standards for an ARC C-IV runway specify that the runway safety area (RSA) be 500 feet wide, extend 1,000 feet beyond the departure end of the runway, and extend 600 feet prior to the approach end of the runway. Following the completion of the recent runway shift, paving, and displaced thresholds, the Barrow Airport RSA met these standards except that the RSA beyond Runway 7's departure end is only 800 feet long.

The increase in impervious surfaces from the recent expansion of the RSAs and aprons has made the volume of water flowing over the embankment problematic, as it has begun to erode the runway and apron embankments. At lower latitudes, this could be prevented by planting grass on the embankments. In Barrow, however, it takes considerably longer to establish a ground cover due to the arctic conditions.

### **Obstacle-Free Zones**

The obstacle-free zone (OFZ) encompasses the most critical airspace adjacent to a runway. FAA standards dictate that no fixed objects may penetrate the OFZ except for runway lights and certain navigational aids that must be located near the runway. Any such equipment must be on frangible mounts. Also, no part of a taxiing or parked airplane may extend into the OFZ while another airplane is using the runway.

The OFZ dimensions vary depending upon the size of aircraft served and the visibility minimums of any associated instrument approach.

### **Object Free Area**

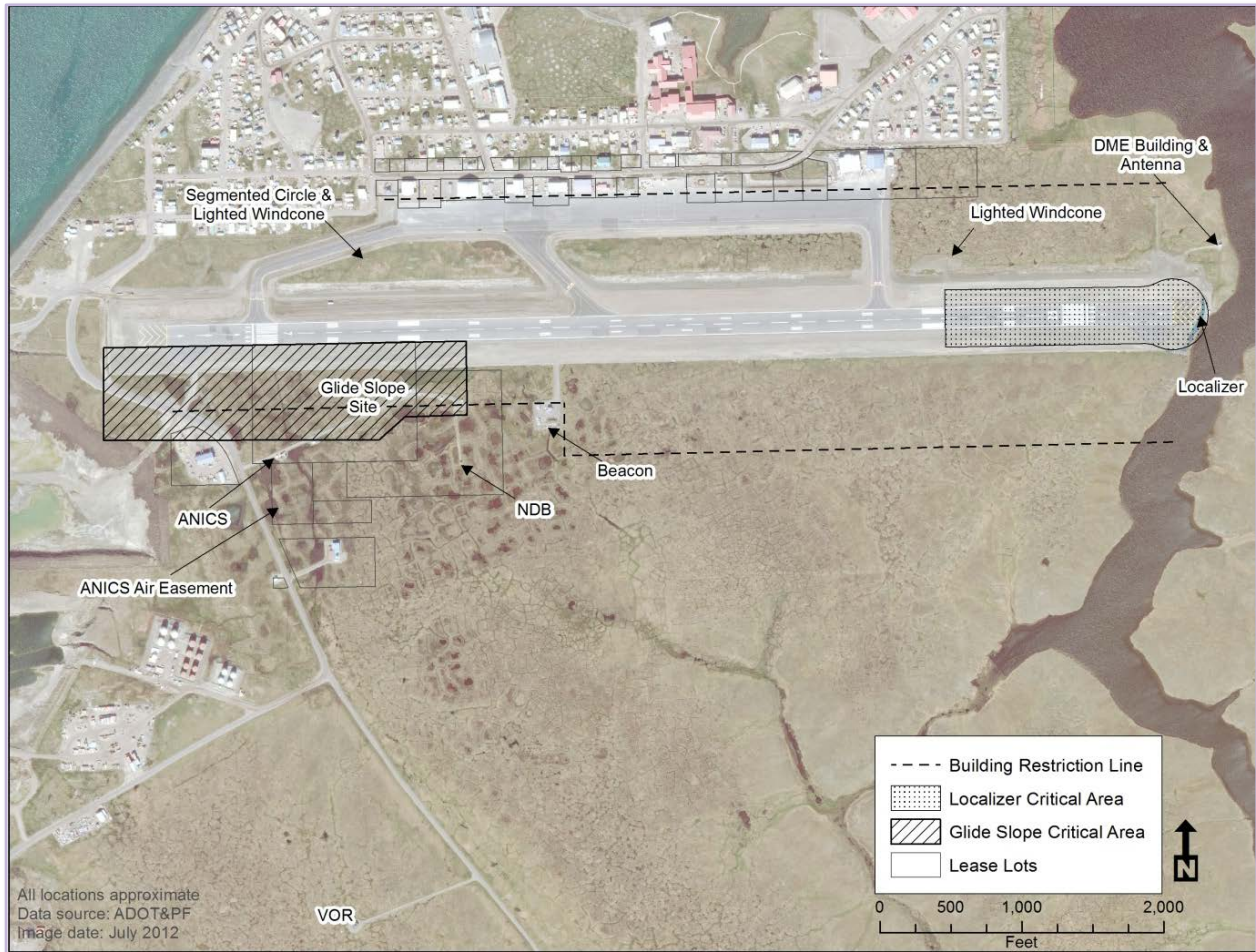
The object-free area (OFA) clearing standard requires that the OFA be clear of above-ground objects. However, unlike in the OFZ, objects for air navigation or aircraft ground maneuvering purposes may be placed within the OFA, and aircraft may taxi and hold there.

### **Building Restriction Line (BRL)**

The building restriction line (BRL) defines the limits of development of all on-airport buildings. The FAA *Airport Design* Advisory Circular does not establish standard setback distances for BRLs. Rather, the FAA recommends that the BRL encompass the runway OFA, runway protection zone (RPZ) areas, areas required for clear line-of-sight, and navigational aid critical areas. Although FAA offers only limited guidance on defining the appropriate location for BRLs, many airports use FAR Part 77 imaginary surfaces.

The BRL at Barrow Airport is 910 feet from the runway centerline.

## Navigational Aids



**Figure 2-6 – Barrow Airport Nav aids, Critical Areas, and Safety Areas**

Approaches and landings at BRW are assisted by the terminal area navigational aids (nav aids). Nav aids in place at Barrow include radio nav aids used for instrument approaches and visual aids used for both instrument and visual approaches (see Figure 2-6).

The Instrument Landing System (ILS) at Barrow supports a Category I precision instrument approach for Runway 7. The ILS system includes a localizer (LOC), glide slope equipment, and distance measuring equipment (DME). Runway 7 has a medium intensity approach lighting system with runway alignment indicator lights (MALSR). A runway visual range (RVR) finder measures the visibility, which is broadcast to the pilots. The non-directional beacon (NDB) “Browerville” (approximately 950 feet south of the runway) and the “Barrow” Very High Frequency Omni-Directional Radio Range (VOR)/DME (approximately 4,200 feet south of the runway) are radio nav aids that support instrument approaches to BRW.



Figure 2-7 - Existing Airport Layout

- |                            |                          |                               |                       |
|----------------------------|--------------------------|-------------------------------|-----------------------|
| ① Flight Service Station   | ④ NSB Search & Rescue    | ⑦ Regulator Building & Beacon | ⑪ Public Parking      |
| ② Alaska Airlines Terminal | ⑤ GA Parking & Tie-downs | ⑧ Lighted Windcone            | ⑫ VOR                 |
| ③ ARFF Building            | ⑥ Segmented Circle       | ⑨ National Weather Service    | ⑬ Era Alaska Terminal |
|                            | ⑩ ASOS                   |                               |                       |



Visual approach navaids at BRW include high-intensity runway lighting (HIRL), four-light precision approach path indicators (PAPI) on each runway end, and runway end identifier lights (REIL) on Runway 25. Other navigational aids include the airport beacon, segmented circle, and two lighted wind cones (see Figure 2-7).

Other air support facilities at BRW include a flight service station (FSS), an Automated Surface Observing System (ASOS) weather station, and weather cameras whose output is hosted on the FAA website (<http://akweathercams.faa.gov/index.php>).

The *U.S. Terminal Procedures – Alaska* publication includes instrument approach procedures for both runways.

**Table 2-5 – Published Instrument Approaches at BRW**

Runway	Lowest Published Visibility Minimum	Number of Published Instrument Approaches	
		Precision	Non-Precision
7	2,600 feet / 1,800 feet	1	1
25	One mile	0	3

Runway 7 has a straight-in ILS approach with 2,600 feet minimum RVR, or 1,800 feet for aircraft with heads-up display (HUD) or autopilot to decision altitude. Decision altitude is the lowest the aircraft can fly without the runway in sight. For this approach at Barrow, the decision altitude is 252 feet, which equates to a height above touchdown (HAT) of 200 feet. These are the lowest published minimums for BRW. Runway 7 also has an Area Navigation (RNAV) global positioning system (GPS) approach with a decision altitude of 302 feet (250-foot HAT) and a minimum of 2,800 feet RVR.

Runway 25 has an RNAV (GPS) approach with visibility minimums as low as one mile, a back course LOC/DME approach with visibility minimums as low as 1½ miles, and a VOR/DME approach with visibility minimums as low as 1 mile.

### Approach Surfaces

The current approved Airport Layout Plan (ALP) shows that the Runway 25 approach is free of obstructions other than the DME antenna, which is fixed by function. The ALP indicates that the Runway 7 approach has one obstruction (a power pole) in the approach surface. Both runways have 50:1 approach slopes. The FAA Flight Procedures office has indicated that the HAT for the Runway 7 GPS approach will be reduced to 200 feet in the next FAA publication. This is due to a change in FAA policy. Otherwise, there are no changes expected for Barrow approaches.

## Lighting, Marking, and Signing

The table below summarizes the runway lighting and markings at Barrow Airport.

Table 2-6 – Barrow Airport Runway Lighting

Runway	Approach Lighting	Runway Edge Lighting	Centerline Lighting	Marking <sup>1</sup>
7	MALSR, PAPI			PI
25	PAPI, REIL	HIRL	Recessed	NPI

Guidance signs provide the ability to easily determine the designation or name of taxiways and runways. The Barrow Airport signage meets these needs.

## Commercial Passenger Terminal Facilities



Figure 2-8 – Alaska Airlines' Barrow passenger terminal

All passenger terminal facilities at BRW are maintained by individual airlines or tenants—currently Alaska Airlines, Era Aviation, and Royal Dutch Shell (seasonally).

<sup>1</sup> PI = Precision Instrument approach; NPI = Non-precision Instrument approach

At nearly 10,000 sf, the Alaska Airlines terminal is the largest passenger terminal facility at BRW. The two-story facility, which was built in 1998, includes a Transportation Security Administration (TSA) passenger screening area, a baggage claim, a cargo services counter, three passenger ticket stations, three self-serve kiosks, a passenger waiting area, and restrooms. The attached garage provides space for equipment and cargo. The second story houses offices and rooms for equipment and supply storage. Employees park on the west side of the building. Alaska Airlines staff report that there is not enough room to store all of their equipment inside the building, so they must keep some equipment on the apron. Alaska Airlines is investigating options for expanding the terminal.

Era Aviation's terminal building is approximately 9,500 sf (2,500 sf of customer service area and a 7,000 sf garage) and includes 8 linear feet of passenger ticket counter space, 8 linear feet of cargo services counter space, a passenger waiting area, a baggage claim, and restrooms. The attached garage holds equipment and cargo. There is a small vehicle parking area on the north side of the building. As a FAR Part 135 operator, Era Aviation is not required to screen passengers; thus, there are no TSA facilities or screening areas in this terminal.

Royal Dutch Shell currently sub-leases a terminal building from Hageland Aviation Services to support their seasonal, 88-passenger 737-400 charter flights from Anchorage. The building is approximately 3,000 sf and includes passenger waiting and screening areas, with security screening provided by a TSA-certified contractor. The terminal is operated only in the summer and fall, when offshore oil exploration is occurring.

## General Aviation (GA)

Private aircraft ownership is less common in Barrow than in other Alaska communities of similar size. As of February 2013, the FAA aircraft registry shows only 11 aircraft registered to individuals in Barrow. During a site visit in February 2013, only two small aircraft were tied down at the airport.

The ADOT&PF Leasing Section does not have a tie-down program at BRW. However, there are 15 designated paved tie-down spaces available on the apron, and an additional four tie-down spaces in front of the FSS (see Figure 2-7). The paved tie-down area is approximately 50,000 sf, while the FSS tie-down area is approximately 20,000 sf. FSS personnel report a maximum of four transient aircraft and four based aircraft during the summer. Transient aircraft often remain at BRW for several days to support research activities. Winter GA operations are essentially nonexistent due to the extended periods of darkness and difficult environmental conditions.

## Cargo



Figure 2-9 – Era Aviation Cargo Handling Facility at BRW

Alaska Airlines, Northern Air Cargo (NAC), Everts Air Cargo, and Hageland Aviation Services were the top four cargo carriers in 2011 (see Chapter 3 for historic and projected cargo volumes). Alaska Airlines handles their cargo shipments in-house, while NAC, Everts, and Hageland share facilities in BRW. Ground handling operations at BRW for NAC, Everts, and Hageland are conducted by Era Alaska in their existing facilities on Block 100, Lot 7A.

## Security

A security fence runs along the north and west sides of the airport (Figure 2-7). The fence varies in height from 12 feet to 6 feet. It has 16 gates, three of which are electronic (badge-activated), while the remaining 13 have key-operated manual locks. The fence and gates were installed in 2012. ADOT&PF staff report that security fencing on the Runway 7 end is subject to snow drifting.

The TSA screens passengers inside the Alaska Airlines terminal building. Passengers pass from the open terminal through metal detectors to the sterile area before crossing the apron and boarding the aircraft. Passenger carry-on bags go through an X-ray machine. The TSA administrative offices are located in downtown Barrow, off airport property.

TSA-approved security badges are required for all personnel in the Security Identification Display Areas (SIDAs). SIDAs are marked on the apron pavement in two places at BRW:

- Alaska Airlines terminal (Block 300, Lot 2A)
- Era Alaska terminal, which is used by Era Aviation, Hageland Aviation, Frontier Flying, and Northern Air Cargo (Block 100, Lot 7A)

ADOT&PF maintains the “Airport Certification Manual” with copies in Fairbanks, Barrow, and one for the FAA. The current manual was reviewed in Barrow on February 1, 2013.



## Support Facilities

### Fueling

SKW/Eskimos, Inc. provides on-airport fuel services via in-the-wing fueling from trucks. SKW/Eskimos operates from its lease lot on Ahkovak Street (Block 600, Lot 2). There are no operable self-fueling facilities at the airport. There is an old self-service pump adjacent to the GA tie-downs, however it has been out of service for several years.

### Weather Reporting and Flight Services

The National Weather Service (NWS) maintains a weather station with a staff of five forecasters at the airport, as well as an automated surface observing station (ASOS) located east of the apron (see Figure 2-7).

An FAA Flight Service Station (FSS) on the west end of the apron (Figure 2-7) provides pilot briefings and aircraft advisories, as well as weather reports when NWS staff are unavailable. The FSS is staffed from 6:00 a.m. until 10:00 p.m. daily. Table 2-7 presents the aircraft advisory history for the last six years. FSS staff issue an aircraft advisory any time a pilot contacts the FSS. The FSS also houses the personnel who maintain FAA navaids. The FSS facilities were recently remodeled, and there are no plans for additional expansion.

**Table 2-7 – Historic FSS Aircraft Advisories**

Year	Number of Aircraft Advisories
2007	13,570
2008	12,622
2009	11,618
2010	11,283
2011	10,907
2012	12,060

### Ground Transportation Services

There are two rental car vendors on airport property, Ukpeagvik Holdings (a subsidiary of UIC) and the King Eider Inn. The King Eider has a fleet of five vehicles, while UIC has six vehicles on offer. The King Eider Inn is on Block 400, Lot 12, and UIC rents vehicles from a facility on Block 600, Lot 1 (see Figure 2-4).

Several cab companies provide transportation throughout Barrow. Taxi fares are set by the City of Barrow.

There are no public transportation options available in Barrow. The NSB bus system was discontinued in 2005.

### Hotels

There are three hotels in the City of Barrow, all within ½ mile of the airport terminal area. The King Eider Inn is located on airport property and operates as an airport concession.

## Access, Circulation, and Parking

The airport is on the south side of the community, adjacent to Ahkovak Street, which provides access to the terminal and cargo areas. Businesses and residences abut the airport property. Kiogak Street and Momegana Street are the primary north/south routes from downtown Barrow. The NSB maintains these roads, even where they cross airport property (see Figure 2-7).

As the primary access to the passenger terminals at BRW, Ahkovak Street gets congested, particularly when Alaska Airlines flights arrive. Ahkovak Street also suffers from several other issues:

- Poor drainage
- Deteriorating surface
- Proximity of buildings and businesses (especially the Alaska Airlines terminal)

There is a project in the 2012-2015 Statewide Transportation Improvement Program (STIP) to address the problems with Ahkovak Street. It will rehabilitate and pave approximately 0.625 miles of Ahkovak Street from Okpik Street to Kiogak Street, including drainage improvements.

Oil exploration has also led to increased congestion around the terminal area. Oilfield workers are transported to/from the Shell terminal to off-airport facilities via buses. The buses contribute to the already congested terminal area on Ahkovak Street.

Access to the NSB SAR hangar is via Okpik Street. There is parking for vehicles on the north side of the hangar. The NSB central receiving facility is on the same parcel as the SAR hangar, although it is outside the security fence. Access to central receiving is via a short driveway off Ahkovak Street.

There are three designated public parking lots on the north side of Ahkovak Street and limited parking is available directly in front of the Alaska Airlines terminal.

- Block 200, Lot 3 – 14,400 sf
- Block 200, Lot 5A – 12,600 sf
- Block 400, Lot 8 – 10,800 sf

There is also a 7,200 sf informal parking lot in Block 400, Lot 8A, that is leased by Alaska Airlines. Era Alaska has a small parking lot on the north side of their terminal, and there is parking for several vehicles adjacent to the FSS.

## 2.3.2 Utilities

Utilities serving the Barrow airport include water, sewer, electricity, telephone, natural gas, and solid waste disposal. The providers of the utility services are listed in Table 2-8.

**Table 2-8 – Utility Service Providers at BRW**

Utility	Provider
<b>Water</b>	Barrow Utilities & Electric Coop Inc. (BUECI)
<b>Sewer</b>	Barrow Utilities & Electric Coop Inc. (BUECI)
<b>Electric Service</b>	Barrow Utilities & Electric Coop Inc. (BUECI)
<b>Natural Gas</b>	Barrow Utilities & Electric Coop Inc. (BUECI)
<b>Telephone</b>	Arctic Slope Telephone Association Cooperative (ASTAC), GCI
<b>Data</b>	Arctic Slope Telephone Association Cooperative (ASTAC), GCI
<b>Solid Waste Disposal</b>	North Slope Borough

## Water

Water is pumped from the Isatkoak Reservoir to BUECI’s water treatment plant, where a microfiltration/nanofiltration system removes minerals, solids, and potentially pathogenic bacteria. BUECI has a water storage capacity of 1.5 million gallons and can process up to 345,000 gallons per day. Current water utility rates are listed in Table 2-9. Water service is available to all airport tenants.

**Table 2-9 – Water Utility Rates**

	Basic Charge	Per-Gallon Charge
<b>Potable Water</b>		
<b>Pipeline Customers</b>	N/A	\$0.0225
<b>Potable Haulers</b>	\$168.75	\$0.0225
<b>BUS Water</b>		
<b>Residential (Non-Senior)</b>	\$55.00	0 – 3,000 gal: No charge > 3,000 gal: \$0.02
<b>Residential (Senior)</b>	\$11.00	0 – 3,000 gal: No charge > 3,000 gal: \$0.02
<b>All Others</b>	N/A	\$0.0800
<b>Non-Potable Water</b>		
<b>Haulers</b>	N/A	\$0.0200
<b>Fire Protection</b>	\$609.00	N/A

## Sewer

BUECI operates the wastewater collection and treatment system. Wastewater flows to pump stations throughout the village and is eventually pumped to a facultative lagoon system. After testing to ensure pH, dissolved oxygen content, fecal coliform, total suspended solids, bio-chemical demand, and color meet the limits set by the Alaska Department of Environmental Conservation (ADEC) Discharge Permit, the processed water is discharged to the ocean. Current sewer utility rates are listed in Table 2-10. Sewer service is available to all airport tenants.

**Table 2-10 – Sewer Utility Rates**

BUS Sewer	Basic Charge	Gallon Charge (<3,000 gallons)
<b>Residential (Non-Senior)</b>	\$14.00	N/A
<b>Residential (Senior)</b>	\$3.00	N/A

## Electric

BUECI operates seven generators with a maximum total production capacity of 20.5 megawatts (MW). The generators use natural gas as their primary fuel but can be operated using diesel in emergency situations. BUECI has “Double Firm Power” generation capacity, meaning the system can generate roughly double the peak demand. See Table 2-11 for current electric service rates.

Table 2-11 – Electric Service Rates

BUECI Electric	Basic Charge	Per kWh Energy Charge
Single-Phase	\$14.55	\$0.0961
Three-Phase	\$89.67	\$0.0956

## Natural Gas

BUECI furnishes natural gas through a steel-and-HDPE pipe network throughout Barrow. Gas is available to the north side of the airport property along Ahkovak Street, Okpik Street, and D Street. There is no distribution system available on the south side of the runway. Table 2-12 lists natural gas rates.

Table 2-12 – Natural Gas Rates

BUECI Natural Gas	Basic Charge	Cubic Foot Charge	
Natural Gas (All Customers)	\$18.05	0-55 ccf	No charge
		>56 ccf	\$0.2882 per ccf

## Telephone/Data

### *Arctic Slope Telephone Association Cooperative (ASTAC)*

ASTAC provides telephone and internet services to the north side of the airport. Service to existing airport customers is through copper lines, but recent upgrades installed fiber optic lines throughout the utilidor system. Trans-continental fiber service is expected to be in place by the end of 2014, with the development and installation of fiber optic service from Japan to London that will pass by Barrow. ASTAC has the opportunity to connect to this high-speed service. Rates vary depending on the extent of the customer's service requirements.

### *General Communications, Inc. (GCI)*

GCI provides telephone, internet, and cable television services to the north side of the airport. Service is through a fiber optic system with coaxial service connections. Rates vary depending on the extent of the customer's service requirements.

## Solid Waste Disposal

The NSB operates a Class II municipal solid waste landfill located 6 miles southwest of Barrow. The landfill is approved for ash, construction and demolition debris, inert waste, municipal refuse, non-asbestos-containing material, and sewage sludge. The NSB provides refuse collection services for household and commercial customers.

The NSB also operates a thermal oxidation system (TOS) incinerator facility for municipal waste. The Barrow TOS does not produce electricity, instead emitting directly to a stack exit. It was designed to process 30 tons per day of municipal solid waste and is currently permitted to process up to 20 tons per day of domestic and commercial refuse. The NSB incinerates most of its refuse in the TOS before depositing the ash in the 55-acre landfill.

## 2.4 Environmental Overview

The purpose of the environmental overview is to document environmental conditions that should be considered in the identification and analysis of airport development alternatives. These alternatives will be presented in Chapter 5. The information below outlines the existing conditions or potentially affected environment and helps to identify any data gaps. This information will help in developing purpose and need statements for subsequent documents that will be required to complete the environmental analysis required under the National Environmental Policy Act (NEPA).

### 2.4.1 Air Quality

According to FAA's *Airport Environmental Handbook*, no air quality analysis is needed if the annual levels of activity in a proposed study area are fewer than 1.3 million passengers and fewer than 180,000 operations, or if it is a general aviation airport with fewer than 180,000 annual operations forecast (Section 47(e)(5)(c)(1)). Current and forecast activity levels at BRW are well below 180,000 operations; therefore, no air quality analysis is necessary.

### 2.4.2 Coastal Resources

The Alaska Coastal Management Program (ACMP) website and agency are inactive. The federally approved ACMP expired on July 1, 2011, resulting in a withdrawal from participation in the Coastal Zone Management Act (CZMA)'s National Coastal Management Program. The CZMA federal consistency provision no longer applies in Alaska.

Although the Barrow airport is within a coastal district, it is not subject to the ACMP unless the program is re-activated and approved by state legislation. Because a federally approved coastal management program must be administered by a state agency, no other entity may develop or implement a federally approved coastal management program for the state.

For Barrow, the ACMP expiration means that FAA does not provide a consistency determination (with a state coastal management policy) for a NEPA document.

### 2.4.3 Department of Transportation Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966, codified as 49 USC Section 303(c), gives the Secretary of Transportation approval power for projects requiring the use of publicly owned land of a park, recreational area; a wildlife refuge of national, state, or local significance; or a historic site of national, state, or local significance.

For historic sites, FAA may make this approval on behalf of the Secretary if it has made the determination under Section 106 of the National Historic Preservation Act (NHPA) that the project will not adversely affect historic properties and it has received concurrence from the State Historic Preservation Officer (SHPO) and the Tribal Historic Preservation Officer (THPO).

Although Section 4(f) applies to all historic sites of the national, state, or local significance, it only protects those properties on or eligible for inclusion on the National Register of Historic Places (NRHP).

The exception to this is that FAA can determine application of Section 4(f) is appropriate if an official formally provides information stating a site is locally significant.

There is therefore overlap between Section 106 and Section 4(f) requirements for historic properties. A notable difference is that Section 106 is a procedure involving consultation. Section 4(f) prevents project approval if the specific findings of de minimis impact cannot be made.

For historic sites, a *de minimis* impact (per 36 CFR Part 800) means that either historic property is not affected by the project or that the project will have "no adverse effect" on the historic property. A *de minimis* impact determination does not require analysis to determine if avoidance **alternatives** are feasible and prudent, but consideration of avoidance, minimization, mitigation or enhancement **measures** should occur.

There are no Section 4(f) lands defined for Barrow Airport. A search of the National Park Service's National Parks and National Forest and National Monuments found two listed properties on the National Register of Historic Places in the Barrow area. Neither of the listed properties—the Point Barrow Refuge Station (listed in 1980) and the Utkeagvik Church Manse (listed in 1983)—are within the proposed project area, and neither will be affected by airport improvements. A search of the Alaska Department of Natural Resources (ADNR) Division of Parks and Outdoor Recreation (DPOR) website (<http://dnr.alaska.gov/parks/aspunits/index.htm>) indicated there are no state parks in the proposed project area.

Northern Land Use Research Alaska, LLC (NLURA) prepared a report on cultural resources considerations for this project. NLURA's report is included in the Resource Documents binder (*Barrow Airport Master Plan Update Cultural Resources Data Gap Analysis* [March 2013]). Results indicate there are 18 Alaska Heritage Resource Survey (AHRS) sites within the airport boundary. Thirteen of these have not received determination of eligibility for listing on the NRHP, and further work is needed to determine their eligibility. The Barrow Airport terminal may also be eligible for listing on the NRHP. ADOT&PF is consulting with SHPO on these sites in anticipation of the Section 106 consultation required by NEPA.

In addition to the acknowledged sites of potential significance, unmarked graves are known to exist in the study area. These findings indicate that Section 4(f) requirements still apply, regardless of the absence of known Section 4(f) lands within the airport boundary. In order to fulfill the NEPA requirements of Section 4(f), DOT&PF will instigate a data request from the NSB Inupiat History, Language, and Culture (IHLC) Traditional Land Use Inventory (TLUI) database. The data request will allow known sites of local significance to be identified. In preparation for the NEPA environmental document, clearance will be obtained through the NSB IHLC/TLUI process. The preferred build alternative is expected to have a *de minimis* impact on any historic properties known to exist. The NSB IHLC TLUI clearance process is in addition to ongoing consultation with SHPO.

For any historic properties that are not included in the TLUI, NRHP, or AHRS and are not known to exist at this time, an Avoidance, Minimization, and Mitigation Plan will be implemented. The plan should include measures for inadvertent discovery and steps to avoid and minimize the archaeological risk of development within the study area. If an inadvertent discovery is made during earth-moving activities, work will be immediately suspended. In compliance with the Native American Graves Protection and Repatriation Act (25 USC 3001), if any human remains are inadvertently discovered during operations, activity will cease in the vicinity of the discovery and the tribal representative will be contacted in order to determine the appropriate course of action as specified in 43 CFR 10.4.

Although this high level of involvement is not typical at the pre-NEPA master plan stage, the intricate sensitivities involved in historic properties in and around the study area require early planning for Section 4(f) and Section 106 consultation.

#### 2.4.4 Prime and Unique Farmlands

There are no prime farmlands in Alaska due to the soil temperature criteria, and no unique farmlands have been designated in Alaska.

#### 2.4.5 Fish and Wildlife Resources

Barrow lies just south of the Arctic Ocean in an area characterized by numerous meandering streams and thousands of small lakes and swamps. The study area includes 38.21 acres of the Isatkoak Lagoon and 9.06 acres of shallow open water habitat (thermokarst ponds and former gravel extraction sites). These ponds are shallow enough to freeze to the bottom in winter and have not been identified as supporting fish.

ABR, Inc. Environmental Research & Services (ABR) prepared a report on fish and wildlife considerations for this project, which is included in the Resource Documents binder (*Fish and Wildlife Resources for the Barrow Airport Master Plan Update* [March 2013]). The report summarizes wildlife habitat descriptions and species of concern that could occur around the Barrow Airport.

#### Anadromous Fish Streams and Essential Fish Habitat

A search of the Alaska Department of Fish and Game (ADF&G) online “Fish Distribution Database” identified that there are no catalogued anadromous water bodies within the proposed project area. A search of the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service’s (NMFS) website on March 14, 2013, revealed that there are no areas of Essential Fish Habitat (EFH) within the project area. There are also no Habitat Areas of Potential Concern at the proposed location.

Isatkoak Lagoon is a 160-acre waterbody directly to the east of the Barrow Airport runway. During airport construction, the lagoon was dredged and split into three sections. The upper and middle lagoon sections of the Isatkoak Lagoon are hydraulically connected but divided by a causeway. The lower lagoon is a designated wastewater lagoon. The upper and middle portions of Isatkoak Lagoon are known to support ninespine stickleback (*pungitius pungitius*).

Direct sampling of the upper and middle lagoon would confirm or negate the presence of other fish species and would categorize the likelihood of the system as a viable fish habitat. In 1980, ADF&G, following a request from the City of Barrow, conducted a feasibility study of the possibility of creating a recreational fishery in the lagoon. This study concluded that the lagoon system possessed the year-round physical habitat necessary to support a grayling fishery. In 1981, the ADFG and NSB Wildlife Management stocked the upper lagoon with 50,000 juvenile arctic grayling. However, sampling of the upper and middle lagoon two years later yielded zero fish caught over two days of gill net fishing.

#### Threatened and Endangered Species

No terrestrial mammals listed as threatened or endangered under the Federal Endangered Species Act (1973, as amended) are likely to occur in the study area (U.S. Fish Wildlife Service [USFWS] Listing Information).

## Birds

For bird wildlife, there are two threatened species listed under the ESA, including both the Spectacled Eider (*Somateria fischeri*) and Steller's Eider (*Polysticta stelleri*). Extensive field surveys in 2004-2008 for pre-breeding eiders and eider nests yielded an absence of nests during that period. However, Barrow is an active habitat for a variety of migratory birds, and there are reports of both the Spectacled and Steller's Eiders in the vicinity of the airport. No known eider surveys have occurred since 2008.

Compliance with the Migratory Bird Treaty Act will ensure that no construction activities that will potentially damage active nests (such as vegetation clearing or gravel fill) will occur during the nesting season.

According to the 2000 Barrow Master Plan, the King Eider, Long-tailed Duck, Red Knot and Black Guillemot were also found to nest or breed near the airport. Other than the listed threatened species, none of the bird species known to use the proposed project area are of sufficient conservation concern to warrant field studies.

## Marine Mammals

The Barrow Airport boundary does not include the marine environment. However, the close proximity of the airport to the near-shore environment warrants brief discussion of marine mammals in close vicinity to the airport.

NMFS has management responsibility for all marine mammals in Alaska except the sea otter, walrus, and polar bear. The population range of the sea otter does not extend to the North Slope (<http://alaska.fws.gov/fisheries/mmm/seaotters/images/stockmap.gif>). The Pacific walrus (*Odobenus rosmarus divergens*), a candidate species scheduled for a decision on listing in October 2017, has a summer and fall range extending to the Beaufort Sea ([http://alaska.fws.gov/fisheries/mmm/walrus/pdf/walrus\\_range\\_map.pdf](http://alaska.fws.gov/fisheries/mmm/walrus/pdf/walrus_range_map.pdf)). Endangered marine species that inhabit waters in the vicinity of the project area also include the polar bear ([http://alaska.fws.gov/fisher/es/endangered/pdf/consultation\\_guide/4\\_Species\\_List.pdf](http://alaska.fws.gov/fisher/es/endangered/pdf/consultation_guide/4_Species_List.pdf)). ABR's report, *Fish and Wildlife Resources for the Barrow Airport Master Plan Update, March 2013*, which is included in the Resources Document Binder, includes discussion on the polar bear.

ADOT&PF will consult with the USFWS and the NMFS during the NEPA process in accordance with Section 7 of the Endangered Species Act to determine the potential impact to threatened and endangered species or critical habitat areas. Early consultation well in advance of construction will also determine the need to conduct further nesting surveys.

## State-Listed Species of Special Concern

Since August 15, 2011, ADF&G no longer maintains a list of Species of Special Concern. ADF&G does maintain the Wildlife Action Plan and uses this to assess the needs of species with conservation concerns. Aside from the threatened and endangered species, none of the species known to use the airport are currently of sufficient conservation concern to require field studies or other pre-construction evaluation (ABR, 2013).



## Wildlife Hazards

Bird and wildlife attractants near or on airfields are incompatible with air operations. The FAA’s online Wildlife Strike Database (<http://wildlife.faa.gov/>) provides strike data for the Barrow airport. Six strikes have been reported in the last five years. The species listed in the strike database include the glaucous gull (*Larus hyperboreus*), the Northern Pintail (*Anas acuta*), and the parasitic jaeger (*Stercorarius parasiticus*). A caribou strike was also reported in January 2005. Airport planning and improvements should consider the habitat types used by the species included in the strike record and identify means of mitigation to prevent future aircraft strikes.

Strike reporting is voluntary, and therefore the count may not be accurate. Statistics show that aircraft collisions with birds and other wildlife are a serious economic and public safety problem (AC 150/5200-33B). Birds and wildlife strikes cost U.S. civil aviation over \$700 million/year, and more than 250 people have been killed worldwide as a result of bird strikes since 1988 (Bird Strike Committee, 2012). Not all birds and wildlife present equal hazards. The FAA has published a list of 25 species groups ranked by their relative hazard to aircraft (AC 150/5200-33B). Geese, a common species group in Barrow, ranked third.

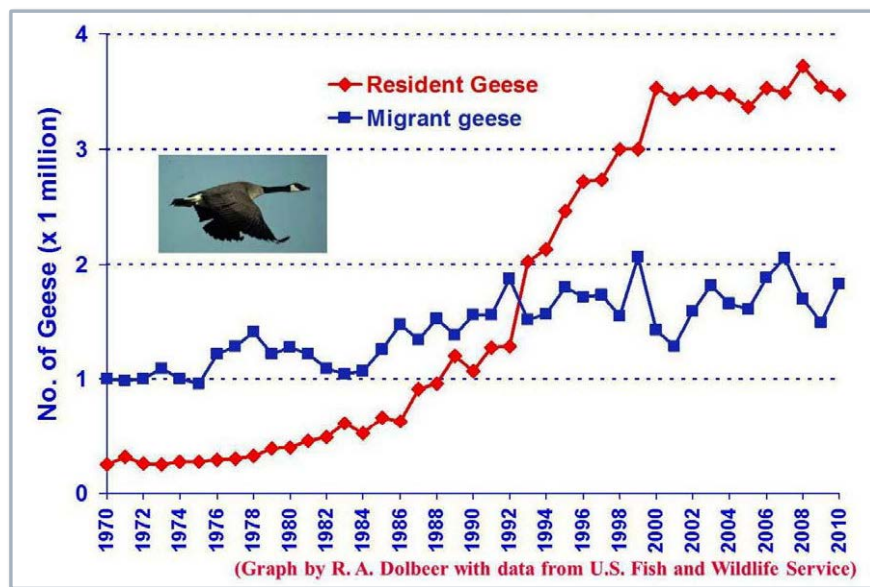


Figure 2-10 – Canada Goose Population in North America, 1970-2010

Source: Wildlife Strikes to Civil Aircraft in the United States 1990-2011 (FAA Report, 2012)

The abundance of wetlands and open water within the airport boundary and the proximity of the wastewater treatment facility (the lower section of the Isatkoak Lagoon) present a risk for aircraft. At airports servicing turbine-powered aircraft, FAA recommends a separation distance of 10,000 feet from hazardous wildlife attractants including wetlands and sewage lagoons. Isatkoak Lagoon is 81 feet from the Runway Safety Area at the east end of the runway.

On September 5-7, 2012, the FAA conducted a periodic inspection of the Barrow airport. During the inspection, the Lead Safety Inspector observed at least 40 Canada geese resting in ponding water along the runway safety areas and occasionally flying across the active runway. Other wildlife hazards (including a fox failing to respond to hazing) were identified during the inspection, and the inspector recommended that a wildlife hazard assessment (WHA) be completed.

Title 14 CFR, Part 139, of the CFR requires airport operators to conduct a WHA when certain events occur on or near the airport. FAA considers the results of the WHA and determines whether a formal Wildlife Hazard Management Plan (WHMP) is needed. If so, the airport operator must formulate and implement a WHMP, using the WHA as the basis for the plan. The intent of the WHMP is to minimize the risks to aviation safety, structures, and human health from hazardous wildlife. FAA's advisory circular explaining wildlife hazards and the steps to completing a WHA and WHMP (*Hazardous Wildlife Attractants on or near Airports*, AC 150/5200-33B [2007]) is on file with ADOT&PF.

## 2.4.6 Floodplains

Although most of Barrow is susceptible to flooding, the airport property is one of the few sections of town that does not flood. It is not likely that airport improvements would impact floodplain values.

A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) online on March 18, 2013, revealed that the proposed project area is unmapped.

## 2.4.7 Hazardous Materials, Pollution Prevention, and Solid Waste

A May 2013 search of the ADEC Contaminated Sites database revealed that there are no existing sites in the "Open" status within the airport boundary. There are two former contaminated sites with a "Cleanup Complete" status within the airport boundary and one site with a "Cleanup Complete" status approximately 1 mile south of the airport (see Figure 2-11).

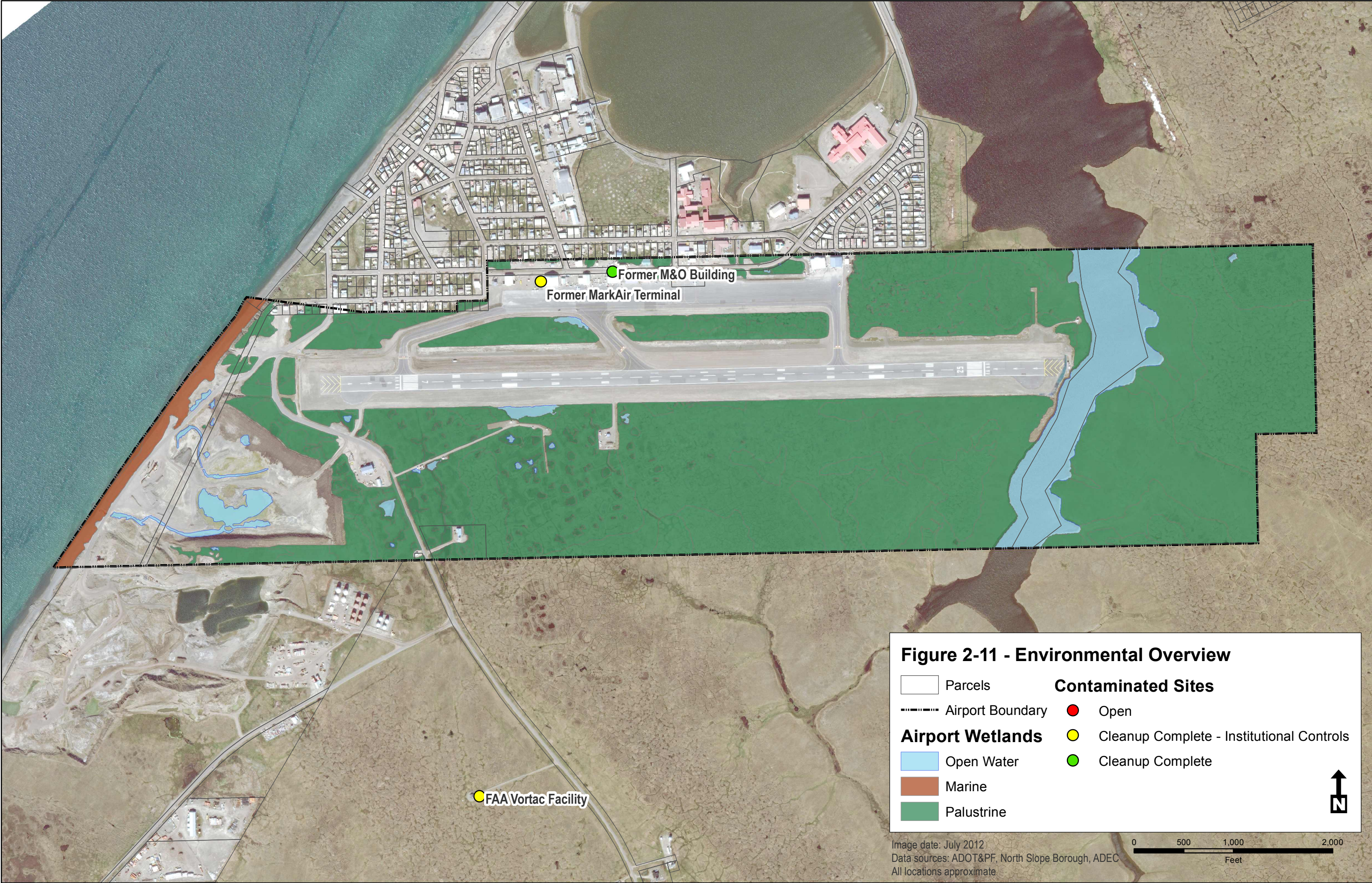
The three closed sites will be included in the planning process to ensure potential future construction does not encounter contamination. Sites include:

- Former ADOT&PF Maintenance and Operations Shop Building on Lease Lot 2A, Block 300
- FAA VORTAC Facility Pad (aka Maintenance Shop, Building 200; institutional controls in place)
- Former Mark Air Terminal (Lease Lot 4A, Block 100; institutional controls in place)

The closest contaminated site with an "Open" status is approximately 1 mile from the western end of the runway on the NSB South Pad. A 2011 inspection of the site found more than 350 drums of unknown material and 24 leaking aboveground storage tanks, with evidence of contaminant migration off the pad. As of November 2012, cleanup efforts were still in progress.

ADOT&PF will coordinate with ADEC throughout the design process to ensure any disturbance to contaminated areas is handled in an ADEC-approved manner. In December 2012, ADEC's Contaminated Sites Program contacted ADOT&PF Airport Leasing Program; a copy of the correspondence is included in the Resource Binder (*ADEC Decision Document, File No 310.38.010*). The letter summarizes the cleanup and the institutional controls of the Former Mark Air Terminal site.

- Any ground-disturbing activities or facility construction must be coordinated with and approved by the ADEC Contaminated Sites Program staff.
- For purposes of the Master Plan Update, any ground disturbing activities or facility construction on Lot 4a, Block 100, will require coordination with ADEC.



Former M&O Building  
 Former MarkAir Terminal

FAA Vortac Facility

**Figure 2-11 - Environmental Overview**









 Parcels	<b>Contaminated Sites</b>
 Airport Boundary	 Open
<b>Airport Wetlands</b>	 Cleanup Complete - Institutional Controls
 Open Water	 Cleanup Complete
 Marine	
 Palustrine	



Image date: July 2012  
 Data sources: ADOT&PF, North Slope Borough, ADEC  
 All locations approximate

0 500 1,000 2,000  
 Feet



## 2.4.8 Historical, Architectural, Archeological, and Cultural Resources

Multiple sites within and near the project area are listed in the AHRS. Cultural resources are currently being reviewed as part of the environmental analysis for the Plan. Recent 2012 Office of History and Archaeology (OHA) site reports and all data of known cultural resources in the proposed project area are being assessed. ADOT&PF will evaluate the need for further cultural resources surveys including subsurface testing and a re-survey of human remains.

ADOT&PF and FAA will be consulting with the SHPO; THPOs; the NSB's Inupiat History, Language & Culture Division; Native tribes; and federal and state agencies in accordance with Section 106 of the National Historic Preservation Act (16 USC 470).

NLURA's *Barrow Airport Master Plan Updated Cultural Resources Data Gap Analysis* (March 2013), which is included in the Resource Documents binder, includes more detail on AHRS sites within and near the project area.

## 2.4.9 Light Emissions and Visual Impacts

While the Barrow airport has remained in its current location since its construction, residences and businesses have encroached on the airport property. No major changes are proposed for the airfield lighting that would increase the visual impacts to the surrounding properties.

## 2.4.10 Noise

A detailed noise analysis was performed as part of the 1983 Barrow Airport Development and Land Use Plan. The report noted that the 60 L<sub>DN</sub> (day-night average sound level) contour extended into the Barrow townsite.

Since 1983, conditions have changed including quieter jets and increased helicopter use. Noise has been brought up as a potential issue by the community. In 2012, ADOT&PF commissioned a four-month Noise Monitoring Study. The results of this study were used to help determine if conditions warrant further noise analysis. Further noise analysis will serve two purposes:

- ➔ Augment the data analysis section of the draft Noise Monitoring Report using ADOT&PF-collected information and scheduled flight operations data. This will provide a better understanding of the noise environment and serve as a tool for the Master Plan team to discuss airport-related noise with the community.
- ➔ Use the Integrated Noise Model (INM) to generate noise contours and noise exposure maps. These maps would serve as a tool to assist ADOT&PF, FAA, and the public in understanding the impacts of existing and various future growth scenarios and support alternative selections in the master planning process.

## 2.4.11 Socioeconomic Impacts

Socioeconomic conditions in Barrow are described in Chapter 3.

## 2.4.12 Receiving Waters/Impaired Water Bodies/Water Quality

ADEC's website (<http://www.dec.state.alaska.gov/water/wqsar/waterbody/2010ImpairedWaters.pdf>), accessed on March 14, 2013, revealed no impaired waterbodies in the project area. Wetlands adjacent to the airport property and surrounding area are influenced by surface runoff from the airport runway and aprons.

Barrow's community water source is Isatkoak Lagoon, located 0.25 miles from the airport terminal. Part of Isatkoak is within the airport property boundary (see Figure 2-1). Water is treated by filtration.

Barrow Airport operates under an Alaska Pollution Discharge Elimination System (APDES) Multi-Sector General Permit for Storm Water Pollution Prevention. During construction and normal operations, erosion and sediment control measures under an approved Storm Water Pollution Prevention Plan (SWPPP) will control potential pollutants and protect the adjacent wetlands.

## 2.4.13 Wetlands and Vegetation

ABR, Inc. prepared a report for this topic. See *Fish and Wildlife Resources for the Barrow Airport Master Plan Update* (March 2013) included in the Resource Documents binder. The report summarizes the land types included in the airport boundary; 504.57 acres are comprised of either wetlands or open water.

Previous studies at the airport also document large extents of wetlands in the project area. ADOT&PF commissioned a wetland study for the project area in the summer of 2012, and a third party review of that work was completed in early 2013. This Master Plan Update will assess and analyze potential wetlands impacts of development alternatives. Any future development options involving embankment construction will undoubtedly require a United States Army Corps of Engineers (USACE) Section 404 permit. Close coordination will be needed with USACE, USFWS, and other agencies to minimize impacts and to identify any required mitigation necessary.

## 2.4.14 Wild and Scenic Rivers

A search of the National Wild and Scenic Rivers System website ([www.rivers.gov/rivers/maps/alaska.php](http://www.rivers.gov/rivers/maps/alaska.php)) on March 14, 2013, revealed that no Wild and Scenic Rivers exist in the proposed project area.

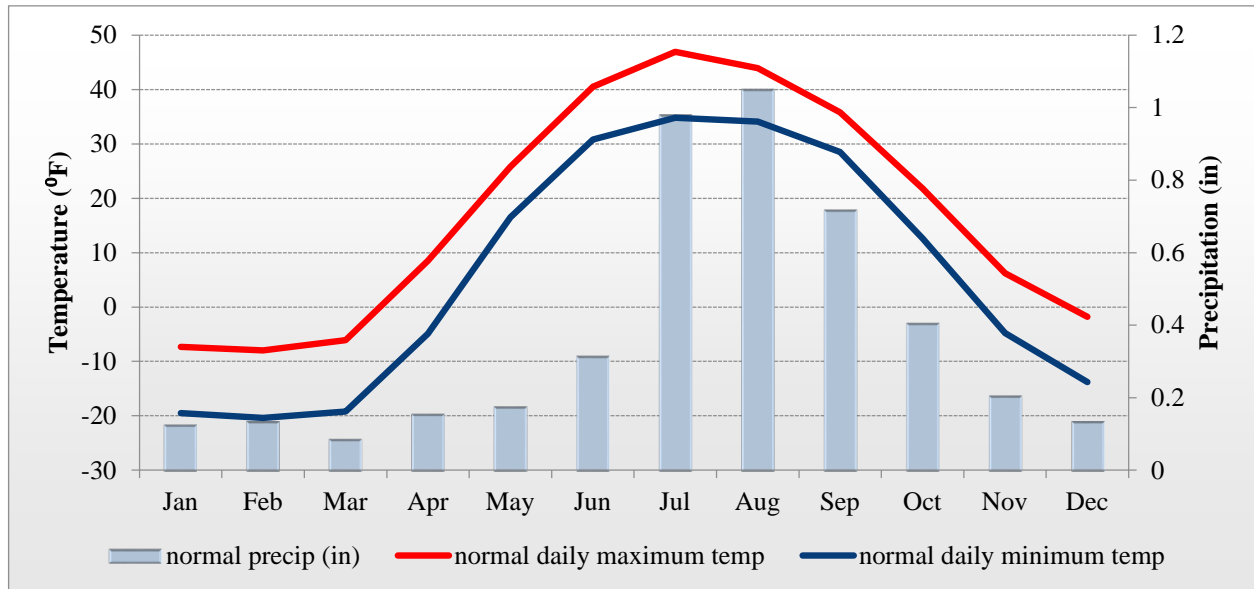
## 2.4.15 State Refuges, National Wildlife Refuges, Critical Habitat Areas, and Sanctuaries

On March 14, 2013, a search of the Alaska Fish and Game Department of Wildlife Conservation website (<http://www.wildlife.alaska.gov/index.cfm?adfg=refuge.main>) found no state refuges, critical habitat areas, or sanctuaries in the project vicinity.

A February 2013 ruling by the U.S. Fish and Wildlife Secretary excluded the town of Barrow, including the airport property, from designation as a polar bear critical habitat.

## 2.5 Climate

Barrow’s climate is cold and dry, with less than 30 inches of snow annually and an annual average temperature below freezing (10.4°F). The temperatures are moderated somewhat by the Arctic Ocean. At the peak in July, daytime highs average 45°F. Average lows in February are the coldest of the year, approximately -22°F (Figure 2-12).



**Figure 2-12 – Barrow Average Temperatures and Precipitation**

Data Source: NOAA National Climatic Data Center

The surrounding topography is flat tundra and ocean, and winds are common throughout the year. According to the Alaska Climate Research Center, calm conditions only occur 1% of the time in Barrow. Wind speed is consistent throughout the year, averaging approximately 11 mph; the predominant wind direction is east-northeast. Fog is also common in the summer and fall when the ocean is ice-free, with June, July, and August averaging eight or more foggy days each (Table 2-13).

**Table 2-13 – Mean Number of Days per Month with Fog Reducing Visibility to ¼-Mile or Less**

Data Source: NOAA National Climatic Data Center

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.4	1.2	1.2	2.4	6.9	8.4	11	10.9	5.1	2.7	1.7	0.9

The Chukchi and Beaufort Seas are ice-covered for half of the year, with landfast ice present at Barrow from November through June. Ice cover helps protect the beach from storm-caused erosion and reduces the chance of fog.

On November 18<sup>th</sup> the sun drops below the horizon and does not rise again until January 24<sup>th</sup>. By May 10<sup>th</sup>, the sun is up for 24 hours per day and does not set again until August 2<sup>nd</sup>.

## 2.6 Airport Geotechnical Conditions

### 2.6.1 General Geology

The Barrow Airport is located on the north coast of Alaska in the Arctic Coastal Plain, which is a broad, roughly triangular area bordered by the arctic foothills on the south and the Arctic Ocean on the north and extending from Cape Beaufort in the west to the Canadian border in the east. It is approximately 400 miles long, with a maximum width of eight miles and an area of approximately 25,000 square miles. It is characterized by low topographic relief and tundra laced with thousands of small lakes and swamps with numerous meandering streams.

For the most part, permafrost underlies the area, with a layer of ice-rich silt lying beneath the organic-rich peat and tundra at the surface. The plain is underlain by Cretaceous strata capped by a thin mantle of dominantly marine Quaternary sediments, called the Gubik formation. This stratum continues beneath the ocean and forms the shallow continental shelf, which terminates offshore at the rim of the deeper basin of the Arctic Ocean.

### 2.6.2 Soil Profile

The Arctic Coastal Plain has been extensively modified by surf action as sea levels fluctuate. Permafrost, which is present throughout the area, impedes drainage and soil development, resulting in shallow, wet soils overlying frozen ground.

Both the surficial silt and underlying beach deposits have been modified by frost action and ice-lens formation so that vegetation is present within the deposits in all states of oxidation. In addition to frost churning, the on-going process of lake formation and filling-in, with associated sedimentation, further modifies the sediments.

Surface organics on the North Slope consist of tundra vegetation growing on a layer of peat. This peat has formed from dead organic matter which has decomposed in the reducing environment present below ponded surface water. Permafrost impedes drainage, so that these saturated conditions are typically present throughout the area during the brief summer seasons. In undisturbed areas, the permafrost is 1 to 8 feet deep with the strata above thawing during the summer for a seasonal frost or active layer of 1 to 8 feet.

### 2.6.3 Surface and Ground Water Flow

With the permafrost and the active layer only being thawed for a short period each year, there is minimal ground water flow.

The airport is virtually surrounded by surface water. The Arctic Ocean is approximately 1,400 feet west of the runway. Isatkoak Lagoon is immediately east of the runway and bends around to a point approximately 2,000 feet north of the runway. Numerous small lakes dot the tundra south of the runway.



### 2.6.4 Borrow Material

The Barrow Airport material site is located about 2,000 feet south-southwest of the west end of the runway (Figure 2-4). The site is along the coast of the Chukchi Sea and is accessed by a road along the beach and coastal bluff.

The soils are classified as gravel, sandy gravel, and gravelly sand. They are suitable for use as embankment borrow. This material has a degradation value of 95 and an L.A. Abrasion Test loss of 18%, indicating that it is also suitable for use as asphalt aggregate.

Material in and around Barrow that is suitable for airport construction is limited. The borrow pit on the airport property is nearing the end of its useful life. Expansion at this site is limited on the south by a petroleum pipeline and on the east by Emaiksoun Road. In May 2013, ADOT&PF drilled several boreholes south and southeast of the airport to determine the extent of the existing material source and to locate possible new sources. Analysis of the cores indicated that there is additional material available if the existing borrow pit is expanded to the east. However, this area contains Emaiksoun Road, several buildings, and airport nav aids. The potential material source to the southeast of the airport contains approximately 1 million cubic yards of sand and gravel; however it is not on State land and does not have an access road.

## 2.7 Maintenance & Operations (M&O)

ADOT&PF personnel are responsible for the maintenance and operation of the airfield, including snow removal, runway de-icing and sanding, friction testing, wildlife management, security badging, and emergency response. M&O personnel mentioned several concerns during the inventory process:

- ➔ Not enough storage space for equipment and supplies in the M&O building
- ➔ Snow drifting off the western end of the runway due to the security fence
- ➔ Erosion of the RSA

M&O personnel work in Barrow on a one-week-on/one-week-off rotation. They operate in shifts, with two people per shift and a 3-hour overlap between shifts. Shifts run between 6:00 a.m. and 8:30 p.m.

M&O has a combined-use facility at BRW that includes office space, a bunkhouse, Aircraft Rescue and Fire Fighting (ARFF) equipment, vehicle storage, and limited sand and chemical storage. M&O staff report that the building is too small to accommodate all of their equipment, vehicles, and de-icing materials. Table 2-14 lists the current M&O vehicle fleet at BRW.

Snow removed from the apron is pushed into the unpaved areas between Taxiways A, B, and C. ADOT&PF removes snow up to 50 feet from leaseholder buildings. Leaseholders are responsible for removing the snow within 50 feet of their buildings. Snow on the runway is swept or blown beyond the safety areas into the surrounding tundra. No snow is trucked off-airport. M&O personnel report snow drifting off the west end of Runway 7 because of the security fence.

**Table 2-14 – M&O Equipment Fleet**

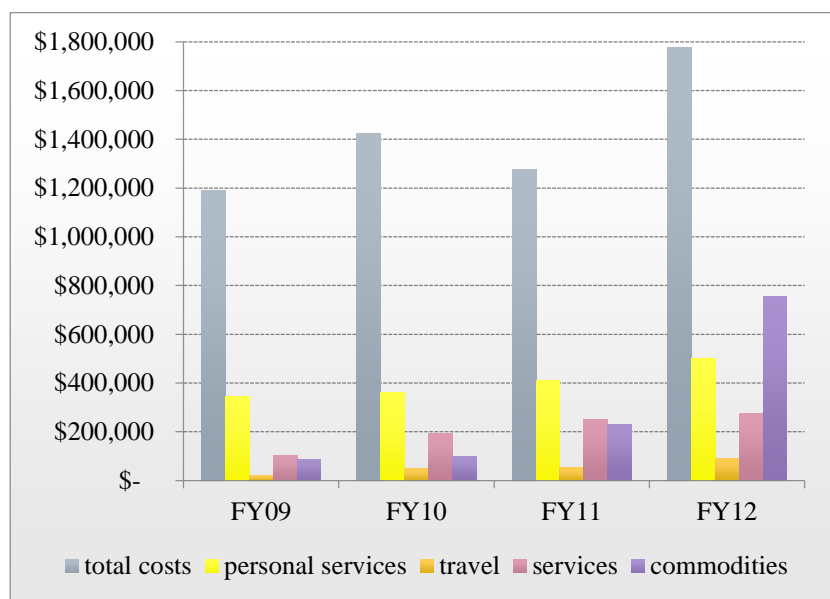
Vehicle Type	Quantity
Pickup Truck	4
Loader	2
Grader	1
Snow Blower	2
Broom	1
Plow Truck	1
SUV	1
Dump Truck	1
E1 Fire Truck	1

M&O staff conduct friction testing every morning and relay the results to the FSS. At present, urea is used for de-icing, but as a result of changing EPA policies, it is being phased out and replaced with a liquid de-icing agent that meets the new regulations. Traction sand is screened and bagged in the autumn before freeze-up and stored in a corner of the M&O facility.

Aircraft operators are responsible for de-icing their aircraft. There is no centralized de-icing facility or equipment, so aircraft de-ice on the aprons in front of their respective lease lots. Contaminated snow is not handled any differently from non-contaminated snow.

ADOT&PF maintains a storm water management plan for BRW. M&O personnel report that the runway safety area has experienced considerable erosion from late-summer rains. Block 700, which is undeveloped, has also experienced substantial erosion, even after installation of an anchored geotextile material.

Maintenance and operations costs have grown over the past four years (see Figure 2-13), with total costs exceeding \$1.7 million for state fiscal year 2012. The most dramatic cost increase has been in the price of commodities (although the steep increase in FY2012 is primarily attributable to a one-time \$550,000 expenditure for the new security fence).



**Figure 2-13 – Maintenance & Operations Costs for BRW, FY2009-2012**  
 Source: ADOT&PF

### 2.7.1 Aircraft Rescue and Fire Fighting

Barrow Airport is a Part 139 Certified Airport and as such is required to have firefighting agents such as water, foam, Halotron, etc., available at specified volumes, rates, and response times. ADOT&PF operate the aircraft rescue and firefighting (ARFF) facilities in Barrow. The Barrow ARFF presently holds an Index B rating.

The ARFF vehicle (Figure 2-14) carries 3,000 gallons of water, 700 pounds of dry extinguishing agent, and 500 gallons of foam.



**Figure 2-14 – ARFF Vehicle**

## 2.8 Financial Data

### 2.8.1 Historic Airport Improvements Program (AIP) Funding

FAA’s Airport Improvements Program provides grants to public agencies for planning and development of public-use airports. The existing infrastructure and major rehabilitation efforts at BRW have been completed primarily using federal AIP funds with matching funds from the State of Alaska. AIP funding comes from the Aviation Trust Fund, an accumulation of aviation taxes on aviation users throughout the country.

In general, AIP funds can be used on most airfield capital improvements or repairs except those for terminals, hangars, and non-aviation development. For Primary Airports such as BRW, there are two types of funding with the AIP:

- ➔ Entitlement funds, based on levels of passenger traffic and to cargo service airports based on levels of cargo aircraft landed weight, subject to certain minimum and maximum levels
- ➔ Discretionary funds, distributed based on the ranking of the airport’s projects in relation to others deemed most important for improving the national airspace system. Discretionary funds are generally used for safety area, pavement, and security improvements.

Barrow competes for AIP funds with other regional airports such as Kotzebue, Bethel, and Nome. ADOT&PF regions prepare detailed project nomination sheets and cost estimates for regional aviation projects. Collectively, the ADOT&PF regions score all of the proposed projects based on aviation criteria and guidance. Criteria include safety; health and quality of life; economic development; maintenance and operations issues; local capital contribution to project cost; and others.

Since 1984, more than \$55 million in AIP funding has been spent on improvements to the Barrow airport.

**Table 2-15 – Historic AIP Funding for BRW**

Project	Year	Funding <sup>2</sup>
Rehabilitate Apron	1984	\$ 521,185
Expand Apron	1986	1,610,736
Rehabilitate Taxiway	1986	1,385,513
Install Apron Lighting	1986	138,302
Acquire ARFF Vehicle	1988	295,783
Construct Apron	1990	123,094
Install Runway Lighting	1990	886,319
Improve RSA	1990	952,801
Install Apron Lighting	1990	631,954
Improve ARFF Building	1992	2,200,515
Airport Master Plan Study	1998	247,259
Improve SREB	1998	1,688,688
Expand Apron	2001	3,024,161
Rehabilitate Apron	2002	1,500,000
Rehabilitate Runway	2002	5,650,861
Extend RSA	2002	16,848,803
Construct RSA	2003	3,049,999
Rehabilitate Runway	2003	2,750,000
Acquire ARFF Vehicle	2005	800,000
Snow Removal Equipment	2005	107,350
Acquire Snow Removal Equipment	2006	262,064
Rehabilitate Runway	2008	500,000
Construct RSA	2008	2,500,000
Safety Equipment/Fencing	2009	133,425
Construct RSA	2010	7,200,000
Airport Master Plan Study	2012	562,500
Snow Removal Equipment	2012	334,825
<b>Total</b>		<b>\$55,906,137</b>

<sup>2</sup> No adjustments for inflation

## 2.8.2 Leasing Revenues

ADOT&PF collects fees for property leasing at State-owned airports. Fees collected under this program are deposited into a designated account that helps fund ADOT&PF's Statewide Aviation and Aviation M&O Sections. Leasing revenue for the past three years is shown in Table 2-16.

Table 2-16 - Leasing Revenues, BRW

Year (state fiscal year)	Leasing Revenue
2010	\$137,788
2011	\$143,214
2012	\$145,358

## 2.9 Related Plans, Programs, and Projects

The following is a list of local area and regional land use and transportation plans to be considered when determining direct or indirect impacts of airport development at Barrow. When available, links to each plan are included.

### 2.9.1 2000 Barrow Airport Master Plan

The previous master plan update was completed in 2000. Recommendations from that plan included moving the runway centerline south by 125 feet and expanding the apron area. Many of the recommendations in the plan have been enacted.

### 2.9.2 2004 Northwest Alaska Transportation Plan

[http://dot.alaska.gov/stwdplng/areaplans/area\\_regional/nw.shtml](http://dot.alaska.gov/stwdplng/areaplans/area_regional/nw.shtml)

The Northwest Alaska Transportation Plan provided a long-term strategic plan to improve year-round mobility and access for residents in northwest Alaska and to broaden and diversify the region's transportation network. The plan explored potential road, aviation, and marine transportation options and developed recommendations that would improve the movement of goods, improve connectivity between communities, and remove barriers to regional economic development.

### 2.9.3 2005 North Slope Borough Comprehensive Transportation Plan

[http://www.north-slope.org/information/comp\\_plan/comp\\_plan.php](http://www.north-slope.org/information/comp_plan/comp_plan.php)

The 2005 NSB Comprehensive Transportation Plan is an element of the NSB Comprehensive Plan that outlines transportation-related issues, goals, and objectives. The plan recommended the following improvements at the airport:

- Passenger terminal with security screening, baggage claim, and vehicle access
- Cold storage building for sand and de-icing chemicals

The plan recognizes the traditional subsistence lifestyle of Borough residents and recommends that transportation facility planning avoid conflicts with this lifestyle. The plan's first subsistence conflict avoidance objective is, "Ensure the siting, design, construction, and maintenance of transportation facilities does not adversely impact subsistence resources."

## 2.9.4 2011 Alaska Aviation System Plan (AASP)

<http://www.alaskaasp.com/>

The AASP sets the vision for the Alaska aviation network by addressing Alaska's aviation infrastructure and policy needs. It is a key component of ADOT&PF's statewide transportation plan.

The AASP made projections of aircraft activity for all airports in the state, including BRW. These forecasts are outlined in Chapter 3, Aviation Demand Forecasts.

## 2.9.5 2011 Native Village of Barrow Comprehensive Economic Development Strategy

[http://nvb-nsn.gov/doc/NVB\\_CEDS\\_2011\\_For\\_Public\\_Comment.pdf](http://nvb-nsn.gov/doc/NVB_CEDS_2011_For_Public_Comment.pdf)

The goal of this long-term plan is to move the tribal government and its membership into self-sustaining economic development. While it does not address the Barrow airport directly, it does recommend developing the tourism sector, which would directly rely on air access to the community.

## 2.9.6 2012 National Petroleum Reserve – Alaska (NPR-A) Integrated Activity Plan

<https://www.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=14702>

The NPR-A Integrated Activity Plan (IAP) addresses a list of issues and contains five alternatives for the BLM's future administration of nearly 23 million acres of public lands on Alaska's North Slope. NPR-A borders Barrow, and development in the reserve may have impacts on the community.

Alternative A, the no action alternative, would continue the management established in the current Records of Decision (RODs) for the Northwest NPR-A IAP, Northeast NPR-A Supplemental IAP, and decisions made as part of the Colville River Special Area Management Plan. There are no current BLM IAP decisions effective for the southern portion of the NPR-A. Under this Alternative, 57 percent of the NPR-A subsurface would be available for oil and gas leasing, while maintaining the four current Special Areas covering 8.3 million acres.

Alternatives B-1 (formerly Alternative B in the Draft IAP/EIS), B-2, C, and D would make between 48 and 100 percent of the total subsurface of the NPR-A, including unleased and currently leased lands, available for oil and gas leasing. These alternatives would make roughly two-thirds to all of the economically recoverable oil production possible, and nearly half to all of the economically recoverable gas production possible from BLM's subsurface estate in the NPR-A. The alternatives would also add zero to 7.2 million acres in designated Special Areas, and recommend zero to 12 rivers within the NPR-A for inclusion in the Wild and Scenic Rivers System.

## 2.9.7 2012 Outer Continental Shelf Oil and Gas Lease Program: 2012-2017

<http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Five-Year-Program/2012-2017/Five-Year-Program.aspx>

The 2012 Outer Continental Shelf (OCS) Oil and Gas Lease Program outlines the schedule of offshore lease sales over the next 5 years and the associated impacts of potential development. There are two defined planning areas in Alaska: the Chukchi and Beaufort Seas. This program authorizes offshore lease sales in the Chukchi Sea in 2016 and the Beaufort Sea in 2017.

OCS development in Alaska has a direct impact on the transportation infrastructure at Barrow. Oil and gas companies may utilize Barrow as a staging area for access to offshore leases in the Chukchi and Beaufort Seas.