DEADHORSE AIRPORT

FINAL

ENVIRONMENTAL ASSESSMENT

DEADHORSE SAFETY AREA EXPANSION
DEADHORSE, ALASKA

ADOT&PF Project No. 62644
August 2004
FINAL

ENVIRONMENTAL ASSESSMENT

DEADHORSE SAFETY AREA EXPANSION
DEADHORSE, ALASKA

ADOT&PF PROJECT NO. 62644

Prepared for:

State of Alaska
Department of Transportation and Public Facilities
2301 Peger Road
Fairbanks, Alaska 99709

Prepared by:

DOWL Engineers
4040 B Street
Anchorage, Alaska 99503

W.O. D58530H

August 2004
## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEFINITIONS</td>
<td>v</td>
</tr>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>viii</td>
</tr>
<tr>
<td>1.0 PURPOSE AND NEED</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Proposed Action</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Airport Conditions and Deficiencies</td>
<td>1</td>
</tr>
<tr>
<td>1.3 Relevant Statistical Data</td>
<td>2</td>
</tr>
<tr>
<td>1.4 Identification of Federal Action</td>
<td>3</td>
</tr>
<tr>
<td>2.0 ALTERNATIVES</td>
<td>4</td>
</tr>
<tr>
<td>2.1 Proposed Action</td>
<td>4</td>
</tr>
<tr>
<td>2.1.1 Description of Action</td>
<td>4</td>
</tr>
<tr>
<td>2.1.2 Summary of Environmental Consequences</td>
<td>12</td>
</tr>
<tr>
<td>2.1.3 Permits Required</td>
<td>15</td>
</tr>
<tr>
<td>2.2 No-Build Alternative</td>
<td>16</td>
</tr>
<tr>
<td>2.2.1 Description of Action</td>
<td>16</td>
</tr>
<tr>
<td>2.2.2 Functional Analysis</td>
<td>16</td>
</tr>
<tr>
<td>2.2.3 Summary of Environmental Consequences</td>
<td>16</td>
</tr>
<tr>
<td>2.2.4 Mitigation Measures</td>
<td>16</td>
</tr>
<tr>
<td>2.2.5 Permits Required</td>
<td>17</td>
</tr>
<tr>
<td>2.3 'Alternatives Considered and Eliminated</td>
<td>17</td>
</tr>
<tr>
<td>2.3.1 EMAS Alternative</td>
<td>17</td>
</tr>
<tr>
<td>3.0 AFFECTED ENVIRONMENT</td>
<td>18</td>
</tr>
<tr>
<td>3.1 Introduction</td>
<td>18</td>
</tr>
<tr>
<td>3.2 Social and Socioeconomic Environment</td>
<td>19</td>
</tr>
<tr>
<td>3.3 Water Quality and Hydrology</td>
<td>19</td>
</tr>
<tr>
<td>3.4 Biotic Communities</td>
<td>20</td>
</tr>
<tr>
<td>3.4.1 Fish and Aquatic Resources</td>
<td>20</td>
</tr>
<tr>
<td>3.4.2 Vegetation and Terrestrial Habitats</td>
<td>21</td>
</tr>
<tr>
<td>3.4.3 Terrestrial Mammals</td>
<td>22</td>
</tr>
<tr>
<td>3.4.4 Birds</td>
<td>22</td>
</tr>
<tr>
<td>3.4.5 Threatened and Endangered Species</td>
<td>23</td>
</tr>
<tr>
<td>3.5 Wetlands</td>
<td>23</td>
</tr>
<tr>
<td>3.6 Floodplains</td>
<td>26</td>
</tr>
<tr>
<td>3.7 Coastal Zone Management Program</td>
<td>29</td>
</tr>
<tr>
<td>3.8 Hazardous Materials and Solid Waste</td>
<td>29</td>
</tr>
<tr>
<td>3.9 Land Use</td>
<td>30</td>
</tr>
<tr>
<td>3.10 Noise</td>
<td>30</td>
</tr>
<tr>
<td>3.11 Air Quality</td>
<td>30</td>
</tr>
<tr>
<td>3.12 Historic, Architectural, Archeological, And Cultural Resources</td>
<td>30</td>
</tr>
<tr>
<td>3.13 Energy and Natural Resources</td>
<td>31</td>
</tr>
<tr>
<td>3.14 Light Emissions</td>
<td>31</td>
</tr>
<tr>
<td>3.15 Environmental Justice</td>
<td>31</td>
</tr>
</tbody>
</table>
4.0 ENVIRONMENTAL CONSEQUENCES .........................................................32
  4.1 Introduction .......................................................................................32
  4.2 Induced Socioeconomic Impacts .......................................................32
  4.3 Water Quality ....................................................................................33
  4.4 Biotic Communities ..........................................................................35
    4.4.1 Fish and Aquatic Resources .......................................................35
    4.4.2 Vegetation and Terrestrial Habitats ............................................36
    4.4.3 Terrestrial Mammals .................................................................37
    4.4.4 Birds .........................................................................................38
    4.4.5 Threatened and Endangered Species ........................................38
  4.5 Wetlands .........................................................................................39
  4.6 Floodplains .....................................................................................41
  4.7 Coastal Zone Management Program ...............................................41
  4.8 Hazardous Materials and Solid Waste ...........................................42
  4.9 Construction ...................................................................................43
  4.10 Other Considerations ......................................................................45
  4.11 Land Use .......................................................................................45
  4.12 Noise ............................................................................................45
  4.13 Air Quality ......................................................................................46
  4.14 Historic, Architectural, Archeological, And Cultural Resources ....46
  4.15 Energy and Natural Resources ......................................................46
  4.16 Light Emissions ...............................................................................47
  4.17 Environmental Justice .................................................................47

5.0 COMMENTS AND COORDINATION ...................................................48
  5.1 Summary of Scoping Comments from Agencies ..............................48
    5.1.1 Federal Agencies .......................................................................48
    5.1.2 State Agencies ..........................................................................49
    5.1.3 Local Agencies ..........................................................................50
  5.2 Draft EA - Public and Agency Review Comments .........................50

6.0 LIST OF PREPARERS ........................................................................52

7.0 REFERENCES ...................................................................................53

APPENDICES

Appendix A ................................................................. Agency Coordination
Appendix B .......................................................... Wetland Avoidance and Minimization Checklist
Appendix C .......................................................... Permit Applications and Permits received
Appendix D ............................................................ List of Bird Species Common to Deadhorse
Appendix E ............................................................ List of Plant Species Common to Deadhorse
Appendix F ............................................................. ADOT&PF Material Site Gravel Mining and Reclamation Plan
Appendix G ............................................................. Environmental Site Assessment Report
LIST OF TABLES

Table 1: Existing Airport Deficiencies ................................................................. 2
Table 2: Existing Annual Aircraft Operations (2003) ............................................. 3
Table 3: Airport Design Dimensions (Existing and Proposed) .............................. 12
Table 4: Wetlands Fill Due to Airport Improvements ......................................... 39
Table 5: Agency Scoping ....................................................................................... 48

LIST OF FIGURES

Figure 1: Location and Vicinity Map ................................................................. xi
Figure 2: Proposed Action ................................................................................. 5
Figure 3: Runway Typical Sections ................................................................. 6
Figure 4: Runway Safety Area Typical Section ................................................. 7
Figure 5: Material Site Location Map .............................................................. 9
Figure 6: Material Site Plan ............................................................................. 10
Figure 7: Material Site Cross-Sections ............................................................ 11
Figure 8: Wetlands ......................................................................................... 25
Figure 9: Material Site Wetlands ................................................................... 27
Figure 10: Material Site Reclamation Plan ..................................................... 28
# LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AASP</td>
<td>Alaska Aviation System Plan</td>
</tr>
<tr>
<td>AASP2</td>
<td>Alaska Aviation System Plan Update</td>
</tr>
<tr>
<td>AC</td>
<td>Advisory Circular</td>
</tr>
<tr>
<td>ADEC</td>
<td>State of Alaska Department of Environmental Conservation</td>
</tr>
<tr>
<td>ADF&amp;G</td>
<td>State of Alaska Department of Fish and Game</td>
</tr>
<tr>
<td>ADNR</td>
<td>State of Alaska Department of Natural Resources</td>
</tr>
<tr>
<td>ADOT&amp;PF</td>
<td>State of Alaska Department of Transportation and Public Facilities</td>
</tr>
<tr>
<td>AMP</td>
<td>Avoidance and Minimization Procedures</td>
</tr>
<tr>
<td>ARC</td>
<td>Airport Reference Code</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>BMPs</td>
<td>Best Management Practices</td>
</tr>
<tr>
<td>CL</td>
<td>Centerline lighting</td>
</tr>
<tr>
<td>CWA</td>
<td>Clean Water Act</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental Assessment</td>
</tr>
<tr>
<td>EFH</td>
<td>Essential Fish Habitat</td>
</tr>
<tr>
<td>EMAS</td>
<td>Engineered Material Arresting Systems</td>
</tr>
<tr>
<td>ESA</td>
<td>Environmental Site Assessment</td>
</tr>
<tr>
<td>ESCP</td>
<td>Erosion and Sediment Control Plan</td>
</tr>
<tr>
<td>FAA</td>
<td>Federal Aviation Administration</td>
</tr>
<tr>
<td>FAR</td>
<td>Federal Aviation Regulations</td>
</tr>
<tr>
<td>HIRL</td>
<td>High intensity runway lighting</td>
</tr>
<tr>
<td>HMCP</td>
<td>Hazardous Material Control Plan</td>
</tr>
<tr>
<td>MALS</td>
<td>Medium intensity approach lighting system</td>
</tr>
<tr>
<td>MIRL</td>
<td>Medium intensity runway lighting</td>
</tr>
<tr>
<td>MITL</td>
<td>Medium intensity taxiway lighting</td>
</tr>
<tr>
<td>MOA</td>
<td>Memorandum of Agreement</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environmental Policy Act</td>
</tr>
<tr>
<td>NMFS</td>
<td>National Marine Fisheries Service</td>
</tr>
<tr>
<td>NPDES</td>
<td>National Pollution Discharge Elimination System</td>
</tr>
<tr>
<td>NTSB</td>
<td>National Transportation Safety Board</td>
</tr>
<tr>
<td>OFA</td>
<td>Object Free Area</td>
</tr>
<tr>
<td>OHMP</td>
<td>Office of Habitat Management and Permitting</td>
</tr>
<tr>
<td>OPM&amp;P</td>
<td>Office of Project Management and Permitting</td>
</tr>
<tr>
<td>SHPO</td>
<td>State Historic Preservation Officer</td>
</tr>
<tr>
<td>USACE</td>
<td>United States Army Corps of Engineers</td>
</tr>
<tr>
<td>USEPA</td>
<td>United States Environmental Protection Agency</td>
</tr>
<tr>
<td>USFWS</td>
<td>United States Fish and Wildlife Service</td>
</tr>
<tr>
<td>USGS</td>
<td>United States Geological Survey</td>
</tr>
<tr>
<td>WET</td>
<td>Wetland Evaluation Technique</td>
</tr>
</tbody>
</table>
DEFINITIONS

Airport Layout Plan

The plan of an airport showing the layout of existing and proposed airport facilities.

Airport Reference Code

A coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport. Example: Airports expected to accommodate single-engine airplanes normally fall into Airport Reference Code (ARC) A-I. Airports serving larger general aviation and commuter-type airplanes are usually ARC B-II or C-II. The ARC has two components relating to the design aircraft: aircraft approach speed and wingspan.

<table>
<thead>
<tr>
<th>Aircraft Approach Speed</th>
<th>Wingspan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Speed in Knots</td>
</tr>
<tr>
<td>A</td>
<td>Less than 91</td>
</tr>
<tr>
<td>B</td>
<td>91-120</td>
</tr>
<tr>
<td>C</td>
<td>121-140</td>
</tr>
<tr>
<td>D</td>
<td>141-165</td>
</tr>
<tr>
<td>E</td>
<td>166 or more</td>
</tr>
</tbody>
</table>

Alaska Aviation System Plan

The State of Alaska’s aviation plan was developed in the mid-1980s for the purpose of providing guidelines for developing, operating, and maintaining the Alaska Aviation System Plan (AASP). The State of Alaska Department of Transportation and Public Facilities developed the plan in accordance with Federal Aviation Administration guidelines for “State Airport System Plans”, and in response to a 1980 National Transportation Safety Board special study, “Air Taxi Safety in Alaska”. That study indicated that accident rates among
air taxi operators in Alaska are significantly higher than the rest of the United States. The National Transportation Safety Board identified several contributing factors and recommended that the State prepare an aviation system plan in addition to taking other direct actions to improve airport facilities. The AASP was revised in 1996 (Alaska Aviation System Plan Update [AASP2]).

Design Aircraft

The most demanding aircraft that will use a particular airport regularly (500 operations or more per year; see definition for operation).

Essential Fish Habitat

Essential Fish Habitat (EFH) is defined in the Magnuson-Stevens Act as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” § 3(10), 16 U.S.C. 1802(10).

Object Free Area

Object Free Area (OFA) is an area on the ground centered on a runway, taxiway, or taxi lane centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the OFA for air navigation or aircraft maneuvering purposes.

Operation

A landing or takeoff by an aircraft.

Segmented Circle

A basic marking device used to aid pilots in locating airports, and which provides a central location for such indicators and signal devices as may be required.
Runway

A defined rectangular surface on an airport prepared or suitable for the landing or takeoff of airplanes.

Runway Length

The extent of a runway based on AC (Advisory Circular) 150/5325 and airplane flight manuals or computer program “Airport Design (for Microcomputers) Version 4.1”.

Runway Protection Zone

An area off the runway end to enhance the protection of people and property on the ground.

Runway Safety Area

A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

Taxiway

A defined path established for the taxiing of aircraft from one part of an airport to another.

Taxiway Safety Area

A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway.
EXECUTIVE SUMMARY

The State of Alaska Department of Transportation and Public Facilities, in cooperation with the Federal Aviation Administration, is proposing improvements to the Deadhorse Airport in Deadhorse, Alaska (Figure 1).

Deadhorse is the northern terminal for construction and operation of the Trans-Alaska Pipeline and is located five miles south of Prudhoe Bay on the northern coastal plain of Alaska, about 490 miles north of Fairbanks, at the northern end of the Dalton Highway. Deadhorse was established in the 1970s to support oil development in the area, and has a part-time population of 5,000, according to the 2002 census data. The landscape is primarily wet tundra. The climate is arctic, characterized by long, cold winters and cool summers. Temperature extremes range from -56 °F in the winter to 78 °F in the summer. Average annual precipitation is five inches, with 20 inches of snowfall.

The Deadhorse Airport is a public use airport owned by the State of Alaska. The Deadhorse Airport has one 6,500-foot paved and lighted runway. Two scheduled air carriers provide daily jet service from Anchorage and Fairbanks, and three air taxi operators run daily flights to surrounding villages.

The Deadhorse Airport is in Sections 24 and 25, Township 10 North, Range 14 East, and Section 30, Township 10 North, Range 15 East, Umiat Meridian, at latitude 70°12' North and longitude 148°28' West (United States Geological Survey Quadrangle Beechey Point A-3). This Deadhorse Airport is an important transportation center for oilfield development and is the only major public airport in the area. Originally constructed in 1969, the Deadhorse Airport consisted of a main runway (4-22), which was 5,000 feet long and 150 feet wide, an apron and connecting taxiways, all with a gravel surface. The runway was extended to 6,500 feet in 1974, and the Deadhorse Airport was paved in 1978. In 1995, the runway and parallel taxiway were rehabilitated to address issues relating to thermal instability, which caused severe surface deterioration of the runway and taxiways. The apron has received no major work since being paved in 1978.
Purpose and Need

The existing Deadhorse Airport runway safety area fails to meet current state and federal airport standards, which is a potential safety hazard. Federal Aviation Administration mandates expansion of the runway safety area to current standards for the Deadhorse Airport because it is certificated under Federal Aviation Regulations Part 139 and would provide the users of Deadhorse Airport with a safe, reliable facility to meet their transportation needs. Federal Aviation Administration Part 139 requires airport sponsors to provide and maintain, “to the extent practicable,” a runway safety area in accordance with standards established in Advisory Circular 150/5300-13.

The existing paved main apron at Deadhorse has deteriorated and becomes congested with several large passenger and cargo aircraft. The Airport Manager reports that he has had to direct some of the aircraft to park on the remote side from the terminal area. There are large cracks in the pavement and some areas are rutted and uneven. The Pavement Condition Index is below nine, which means the pavement needs to be reconstructed. The pavement has outlived its useful life and needs to be replaced. Connecting taxiways would also be repaved as needed to meet any grade changes.

Proposed Action

The project would entail expanding the current runway safety area from 7,500 feet x 300 feet to the full recommended 8,500 feet x 500 feet. The purpose of the runway safety area is to provide a usable area along all sides of a runway for aircraft that fail to maintain a proper heading along the runway itself, and may need additional area to correct their trajectory to avoid a crash. In addition, the runway safety area provides safe access for maintenance and utility vehicles without the need for them to use the runway itself. The runway safety area would be lengthened 500 feet to the east and 500 feet to the west, and widened 100 feet to both sides. The paved apron would be expanded to the existing gravel pad known as the “British Petroleum Exploration” pad; existing paved areas would be re-paved along with the connecting taxiways. The new paved apron addition area would be approximately 163,500 square feet (18,167 square yards). The total paving area including the existing apron, connecting taxiways, and “British Petroleum Exploration” pad would be approximately
788,770 square feet (87,641 square yards). An existing material site located approximately
6,000 feet to the south of Deadhorse Airport would be expanded. This material site is
centered on a dry lakebed on the west side of the Dalton Highway, in the southeast corner of
Township 10 N, Range 14 E, United States Geological Survey Quad Beechy Point A-3.

Alternatives Considered

The alternatives analysis in Chapter 2 includes a functional analysis, and a summary of the
potential environmental consequences and permits required for each alternative under
consideration. This document evaluates the Proposed Action and the No-Action Alternative.
No other alternatives were identified that would meet the purpose and need of the proposed
project.

Comparison of Environmental Impacts

No significant social, economic, or environmental issues or impacts have been identified for
either of the alternatives under consideration.

Under the Proposed Action, approximately 62.8 acres of wetlands fill would result from the
proposed runway safety area and widening, approximately 4.2 acres of wetlands fill for the
apron expansion, and an additional 124 acres of wetlands would be impacted by development
of the material site.

Under the No-Action Alternative, the runway would continue to operate with sub-standard
safety areas, which could have detrimental social impacts in the event of an accident.

The apron would remain congested and could result in damage to aircraft and goods, reduced
service and continue to be a burden to Deadhorse Airport management staff.
Figure 1: Location and Vicinity Map
1.0 PURPOSE AND NEED

Air travel is an essential component of commerce, communication, human health, education, recreation, and life in Alaska. Throughout most of the State, when there is a life-threatening emergency, airports provide the vital life link to medical facilities. It is imperative to all Alaskans that the State’s airports are capable of providing safe travel. Implementation of airport safety standards developed by Federal Aviation Administration (FAA) would improve the safety and reliability of Alaska’s airports.

The purpose of the proposed project is to remedy the deficiencies of the Deadhorse Airport and improve the facility in order to provide a safe airport that meets FAA standards for current and future air traffic.

1.1 Proposed Action

The Alaska Department of Transportation and Public Facilities (ADOT&PF), in cooperation with the FAA, proposes to upgrade the Deadhorse Airport. The proposed project consists of expanding the runway safety area to meet current federal and state standards. The runway safety area for Runway 4-22 would be extended 500 feet to the east and 500 feet to the west, and widened 100 feet on both sides of the runway. Approach lighting systems within the safety area expansion area would be replaced to meet the new grade. The apron would be expanded by approximately 163,500 square feet (18,167 square yards) for a total of 680,720 square feet (75,636 square yards). Existing pavement on the apron and connecting taxiways would be reconstructed and the existing gravel “British Petroleum Exploration (BP)” pad and apron expansion area would be paved. A more detailed description of the Proposed Action is provided in Chapter 2, Alternatives.

1.2 Airport Conditions and Deficiencies

The existing runway at Deadhorse is a precision instrument runway and is defined as a Design Group IV, Approach Category C Airport. The primary deficiency of the Deadhorse Airport is that airport dimensions and facilities are less than current design standards, as defined by the Alaska Aviation Systems Plan Update (AASP2) and FAA standards described...
in FAA Advisory Circular 150/5325-4A, 150/5300-13 and Federal Aviation Administration (FAR) Part 139.

The existing paved runway is 6,500 feet long by 150 feet wide with a 500-foot runway safety area at each end of the runway and a 75-foot safety area on each side. There is a 6,500 feet long by 75 feet wide paved parallel taxiway with five 90-foot wide connecting taxiways. The paved terminal apron is 1,510 feet long by 342.5 feet wide. There are also two gravel aprons with dimensions of 260 feet by 260 feet, and 300 feet by 450 feet.

The design standards for runways and taxiways are described in the FAA Advisory Circular (AC) 150/5300-13 and 150/5325-4A. These standards are based upon the approach speed and the wingspan of the design aircraft for a particular airport. Table 1 illustrates the need for runway safety area to meet FAA recommendations.

<table>
<thead>
<tr>
<th>Airport Feature</th>
<th>Existing Dimensions</th>
<th>Ultimate Facility Requirements (C-IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runway</td>
<td>6,500 x 150 feet</td>
<td>6,500 x 150 feet</td>
</tr>
<tr>
<td>Runway Safety Area</td>
<td>7,500 x 300 feet</td>
<td>8,500 x 500 feet</td>
</tr>
</tbody>
</table>

1.3 Relevant Statistical Data

The Deadhorse Airport is owned and operated by the State of Alaska Department of Transportation and Public Facilities (ADOT&PF), and is classified in the Alaska Aviation System Plan (AASP) as a Regional Airport. Regional Airports are airports that: 1) are primary or secondary hubs for passenger, cargo, or mail traffic, 2) provide primary access to populations greater than 1,000, or 3) support economic activities or unusual requirements of regional or statewide significance. There are 36 Regional Airports in Alaska.

Deadhorse, with its close proximity to the Arctic Ocean, encounters frequent fog conditions preventing visual flight. The lighting system consists of high intensity runway lighting (HIRL), centerline (CL) lighting, medium intensity approach lighting system-runway (MALS-R), visual approach slope indicator, and medium intensity taxiway lighting (MITL). FAA categorizes five types of operations: 1) air taxi, 2) commuter, 3) general aviation (local
or itinerant), 4) air carrier and 5) military. The FAA Master Record for the 12 months ending December 25, 2003 states that there were 19,600 operations, as follows (5010 WEB, 2003):

- 3,500 air carriers
- 500 commuters
- 5,000 air taxis
- 4,500 general aviation local
- 6,000 general aviation itinerant
- 100 military

There are seven to ten aircraft based on the field at the Deadhorse Airport on a regular basis: three single engine airplanes, two multi-engine airplanes, and two helicopters (www.airnav.com). This varies depending on oil field activities.

The current aircraft using the airport are Boeing 737, 727, Douglas DC-6, Lockheed C-130, Lockheed L-100-30, DeHavilland Twin Otter, Piper Navajo, Convair 580, Piper Cherokee, and Cessna 206, 207, and 208.

Table 2 provides existing aircraft operations for the Deadhorse Airport.

<table>
<thead>
<tr>
<th></th>
<th>Annual Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Annual Operations</td>
<td>19,600</td>
</tr>
<tr>
<td>Annual Enplanements</td>
<td>22,817</td>
</tr>
<tr>
<td>Annual Scheduled Operations</td>
<td>1,050</td>
</tr>
<tr>
<td>Annual Non-Scheduled Operations</td>
<td>18,550</td>
</tr>
</tbody>
</table>

Source: GCR and Associates, 2004

1.4 **Identification of Federal Action**

The formal requested federal action is for approval of funding for the proposed airport improvements through the Airport Improvement Program.
2.0 ALTERNATIVES

This chapter describes the alternatives that are under consideration for this project, and based upon the information and analysis presented in Chapter 3 and Chapter 4, provides a basis for comparison in terms of their environmental impacts and their achievement of objectives. Two alternatives are under consideration for this project (the Proposed Action and the No-Action Alternative). One other alternative [the Engineered Material Arresting Systems (EMAS) Alternative] was identified and eliminated because it would not meet the project purpose and need (see 2.3.1).

2.1 Proposed Action

2.1.1 Description of Action

The proposed project consists of expanding the runway safety area to meet current federal and state standards. The proposed action shown on Figures 2 through 5 would include the following project activities:

- Extend safety area for Runway 4-22 500 feet to the east and 500 feet to the west
- Widen safety area for Runway 4-22 100 feet to the north and 100 feet to the south
- Expand existing material site approximately 124 acres
- Expand paved apron approximately 163,500 square feet (18,167 square yards).
- Re-pave and grade connecting taxiways to the apron.
- Adjust approach lighting system in the runway safety area.

Proposed expansion of the material site shown on Figures 6 through 8 would include:

- Construction of a gravel work pad, access roads and staging area within the material site.
- Temporary construction stockpiles and permanent maintenance and operation stockpiles within the area.
- Channel excavation to provide fish access to the material site.

The haul route would be north via the Dalton Highway and then by existing gravel haul road at the east end of the airport.
Figure 2: Proposed Action
Figure 3: Runway Typical Sections
Figure 4: Runway Safety Area Typical Section
Figure 5: Material Site Location Map
Figure 6: Material Site Plan
Figure 7: Material Site Cross-Sections
2.1.2 **Functional Analysis**

The Proposed Action best meets the purpose and need, as outlined in Chapter 1. Expanding the safety areas would put the airport in compliance with current FAA and ADOT&PF standards. The following table shows how the proposed action meets FAA and ADOT&PF standards.

**Table 3: Airport Design Dimensions (Existing and Proposed)**

<table>
<thead>
<tr>
<th>Airport Feature</th>
<th>Existing</th>
<th>Proposed</th>
<th>AASP Dimension Criteria</th>
<th>Ultimate Facility Requirements (C-IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runway</td>
<td>6,500 x 150 feet</td>
<td>6,500 x 150 feet</td>
<td>6,500 x 150 feet</td>
<td>6,500 x 150 feet</td>
</tr>
<tr>
<td>Runway Safety Area</td>
<td>7,500 x 300 feet</td>
<td>8,500 x 500 feet</td>
<td>8,500 x 500 feet</td>
<td>8,500 x 500 feet</td>
</tr>
<tr>
<td>Apron</td>
<td>1,510 x 342.5 feet</td>
<td>1,987.5 x 342.5 feet</td>
<td>N/A</td>
<td>1,987.5 x 342.5 feet</td>
</tr>
</tbody>
</table>

2.1.2 **Summary of Environmental Consequences**

The following impacts to the social, physical, and biological environment would result from the proposed action. These issues are discussed in more detail in Chapter 4, Environmental Consequences.

- Approximately 62.8 acres of wetlands would be filled as a result of runway safety area expansion.
- Approximately 4.2 acres of wetlands would be filled as a result of the apron expansion.
- Material site development would result in approximately 124 acres of additional wetland impacts.
- Impacts to fish and aquatic resources.

**Proposed Measures to Mitigate Wetland Impacts**

The “Memorandum of Agreement between the FAA, U.S. Army Corps of Engineers (USACE), ADOT&PF, U.S. Fish and Wildlife Services (USFWS), and Alaska Department of Fish and Game (ADF&G) regarding Impacts to Wetland and Other Aquatic Resources,
Mitigation and Airport Improvement Projects in Alaska” would be followed for this project. This Agreement is a programmatic approach to meeting the mitigation hierarchy of the National Environmental Policy Act (NEPA), the Clean Water Act (CWA) Section 404 (b)(1) Guidelines, the Executive Order 11990 (protection of wetlands) and the applicable agencies’ mitigation policies. Based upon the nature of Alaska’s landscape, the standardized requirements for airport improvements, and requirements to avoid wildlife hazards, this Memorandum of Agreement (MOA) recognizes that options to avoid and minimize impacts to wetlands and other aquatic resources may be limited.

Under this MOA, ADOT&PF and FAA are required to fully integrate appropriate Avoidance and Minimization Procedures (AMPs) into all ADOT&PF sponsored, FAA funded and approved airport improvement projects to avoid and minimize wetland and aquatic resource impacts. Unavoidable impacts to wetlands would be compensated by ADOT&PF through payments into a fund based on a per acre basis at a rate of $500/acre. These funds would be used to address FAA’s mitigation requirements identified in an FAA approved NEPA document or USACE permit issued under the CWA for FAA approved and funded airport development. Proposed wetland AMPs for this project are listed below and are also documented in the Wetland Avoidance and Minimization checklist (Appendix B).

1. In order to avoid higher value wetland habitat to the north, the existing material site would be expanded to the south, as previously recommended by USFWS.

2. The new cell that ADOT&PF develops would be isolated from the cell that has already been reclaimed.

3. Overburden from the excavation would be used to dress slopes where appropriate to help prevent erosion and to facilitate revegetation of these areas.

4. The material site would be excavated in a manner that would result in the creation of additional over-wintering habitat for fish and ponded habitat for birds. While this is within the 10,000-foot separation distance desired by the FAA between airports and wildlife or bird attractants, the U.S. Department of Agriculture has previously determined that this over-wintering pond will not be a prime habitat for birds (please see Appendix A). In addition, open water ponds and other wetlands in
general characterize the region, and so this will not really add any significant bird habitat within the airport’s area.

5. Upon completion of this project, a new channel would be constructed to connect the old cell with the newly developed cell, in order to provide access to the additional over-wintering fish habitat.

6. Project design has minimized the fill footprint to the extent practicable. Runway safety area side slopes are minimized to 4:1, the minimum value recommended by FAA in accordance with FAA AC 150/5300-13.

7. The Contractor would be required to provide effective control of erosion and surface water run off into adjacent streams and wetlands during construction. Compliance with United States Environmental Protection Agency (USEPA)’s National Pollution Discharge Elimination System (NPDES) General Permit for Construction Activities would be a requirement of the contract.

8. Construction vehicles would be prohibited outside permitted boundaries.

9. All exposed earthwork attributable to the project would be stabilized at the earliest date possible to prevent erosion both during and after project completion.

10. The Contractor would implement the attached Material Site Reclamation Plan. The Contractors Plan would be reviewed and approved by State of Alaska Department of Natural Resources (ADNR) per A.S. 27.19 and 11 AAC 97. The Plan includes details of procedures to be used during mining operations and during site restoration that would minimize impacts to wetlands.

11. Equipment servicing and fueling operations would not occur within 100 feet of the Sag River, or any drainage channels, wetlands, or other water bodies. Adequate sorbent materials would be kept on-site to be used to contain and cleanup any spill of petroleum products.
Proposed Measures to Mitigate Effects to Spectacled Eiders

To avoid a direct take of spectacled eiders, a federally listed threatened species, construction activities would be initiated prior to June 1, in order to discourage eiders from nesting close to the project site. Nest surveys of all areas within 200 meters of construction activities would be conducted in mid June and if a nest is found, construction activity within 200 meters of the nest(s) would be stopped for 30 days, or upon clearance by a biologist that a take would not occur. If fill must be placed on tundra prior to the survey being complete, it may be placed if a biologist on-site during the construction activities confirms that no eiders or eider nests are present within the footprint area.

Proposed Measures to Mitigate Effects to Water Quality

Best Management Practices (BMPs) would be used during construction activities to minimize water quality impacts to adjacent wetlands and to the Sagavanirktok River. A Mining and Reclamation Plan would be developed and implemented by the Contractor in compliance with ADOT&PFs Material Site Reclamation Plan (Appendix F).

Proposed Measures to Mitigate Impacts from Material Site Expansion

A channel would be constructed to provide access for fish in an attempt to create additional over-wintering habitat in the ponded area that would result from material excavation.

Waste material generated from the material site would be stockpiled around the edges of the excavation. Upon completion of the project, waste material would be disposed of within the existing excavation and used to dress the slopes as part of the pit reclamation.

2.1.3 Permits Required

The following list identifies permits and/or clearances required prior to construction. This list may change as agency requirements evolve and regulations are promulgated.

- USACE Section 404 Permit for fill in wetlands, including Section 401 Water Quality Certification or waiver from the State of Alaska Department of Environmental Conservation (ADEC);
• State of Alaska Department of Natural Resources, Office of Project Management and Permitting Alaska Coastal Management Program Consistency Review;

• State of Alaska Department of Natural Resources Material Sale Agreement and approval of Mining and Reclamation Plan for material site;

• State of Alaska Department of Natural Resources, Office of Habitat Management and Permitting Title 41 Permit;

• North Slope Bureau Planning Department Land Management Permit; and

• Compliance with the U.S. Environmental Protection Agency’s NPDES General Permit for Construction Activities in Alaska.

Permit applications are attached in Appendix C.

2.2 No-Build Alternative

2.2.1 Description of Action

The No-Build Alternative would leave the existing facility as it is now, and would not resolve the sub-standard safety areas. In addition, the apron would remain the same size, and would remain overly congested.

2.2.2 Functional Analysis

The No-Build Alternative would not meet the project purpose and need as outlined in Chapter 1, and would not meet current or future user needs.

2.2.3 Summary of Environmental Consequences

The No-Build Alternative would result in increased risk to human lives and potential damage to aircraft in the event of an accident. No other impacts to the social, physical, and biological environment were identified for this alternative.

2.2.4 Mitigation Measures

Mitigation measures would not be required for the No-Build Alternative.
2.2.5 Permits Required

No permits would be required for the No-Build Alternative.

2.3 ‘Alternatives Considered and Eliminated

2.3.1 EMAS Alternative

Engineered Material Arresting Systems (EMAS) is an alternative to developing full safety area length on the runway ends. The system is designed to arrest aircraft overruns at speeds of 70 knots or less. The EMAS product consists of cellular cement blocks, typically four-foot square, that are secured to a paved surface.

The EMAS alternative only addresses safety areas beyond the runway ends, not the safety area width. There is no alternative to placing fill in order to meet the required safety area width dimension of 500 feet. It was examined and later dismissed for the reasons listed below.

The existing safety area beyond the runway ends is 500 feet. It is constructed of gravel. A standard EMAS installation would require that there be at least 600 feet of safety area extending past the threshold. Therefore, an additional 100 feet of safety area would still be needed on both runway ends. The EMAS bed itself is 360-foot and lies 75 feet beyond the runway end within the 600-foot of safety area. The gravel area under the EMAS would require paving to ensure good adhesion of the EMAS.

This alternative would result in a minor reduction of wetland disturbance. Approximately 5.2 acres of low value, 1.2 acres of moderate value, and 4.9 acres of high value wetland habitat would not be filled with this alternative versus the full 1000-foot safety area beyond the runway ends alternative.

The reasons for dismissing EMAS:

- There has been no extreme cold weather testing of EMAS. Extreme cold temperatures are frequent on the North Slope during the majority of the year.
• Maintenance of the EMAS bed requires special snow removal equipment, which is cost-prohibitive. In addition, it requires replacement of the bed after each use by an errant aircraft.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

This chapter provides a description of the existing environmental, social, and economic setting for the area affected by the proposed Deadhorse Airport Improvements Project. FAA Orders 5050.4a and 1050.1D require that impacts of a proposed federal airport project be evaluated for specific resource categories. This is an issues-based environmental assessment. That is, only those resource categories where the project impacts were identified as an issue of concern are evaluated in detail. Chapters 3 and 4 are organized similarly (by resource category) to improve the readability of this document.

The following resources were not identified within the proposed project’s affected area, and are not evaluated in this document:

- **Park Land and/or Section 4(f) Resources**
  There are no 4(f) properties within the project area, and the project would not affect any external 4(f) properties.

- **Coastal Barriers**
  There are no coastal barriers within the State of Alaska.

- **Wild and Scenic Rivers**
  The Sagavanirktok (Sag) River, the only river in or near the project area, is not a Wild or Scenic River.

- **Farmland**
  There is no prime or unique farmland, nor farmland of state or local importance, in the entire North Slope Borough.
Below is a discussion of the remaining resource categories that are required by FAA Order 5050.4a to be evaluated in an Environmental Assessment.

3.2 Social and Socioeconomic Environment

Deadhorse is an unincorporated community within the North Slope Borough. It has a permanent population of about five, and a transient population of 4,000 to 5,000 oil company and support service employees. The local economy is dependent upon the oil industry. Access to the area is primarily by aircraft or the Dalton Highway.

The Prudhoe Bay oilfields provide some 20 percent of the nation's domestic oil supply, and employ over 5,000 individuals in drilling, pipeline operations, cargo transportation and a variety of support positions. U.S. Census population and employment figures reflect only permanent residents of Deadhorse and Prudhoe Bay. Most oil field workers travel home to other Alaskan communities or the lower 48 states when off duty. Pre-arranged tours are available through various tour companies.

The oil companies maintain several camps in the Deadhorse/Prudhoe Bay area that provide quarters and meals for their employees. Commercial food and lodging are very limited and are only available during the summer months. There is no actual town or village of Deadhorse, so there are no nearby schools, places of public assembly, hospitals, or shopping areas.

As a worksite, oil is the focus of the local culture. All residents are employees of oil drilling or oil-support companies, and work long consecutive shifts. Living quarters and food are provided to the workforce, and there are a number of recreational facilities.

3.3 Water Quality and Hydrology

Surface water is abundant in the Deadhorse area. The airport is approximately 500 feet from the west channel of the Sagavanirktok River. This river is the second largest river on the North Slope, having a total drainage area of about 14,900 km$^2$ and a length of about 267 km (United States Geological Survey [USGS, 1995]). Drinking water is supplied to the Deadhorse facilities by hauling surface water from the Sagavanirktok River to the facilities.
The area surrounding the Deadhorse Airport is characterized by low relief, numerous shallow lakes and ponds, wetlands, and beaded drainage patterns. The beaded drainage is caused by surface water flowing between lakes and ponds on its route to the sea. Areas with this type of drainage pattern typically have saturated soils because of low relief and the presence of continuous permafrost, which restricts vertical drainage (USGS, 1995).

Permafrost is rock or soil that has remained continuously below 32 degrees Fahrenheit for two or more years. In the Deadhorse area, permafrost extends to depths of 660 meters (Rawlinson, 1983). Unfrozen ground occurs only below river channels and lakes deeper than two meters and beneath heated buildings and other artificial structures. The layer above the permafrost that thaws each summer and refreezes each winter is referred to as the “active layer”, and is typically about 0.5 meters, but rarely exceeds one meter in thickness (Rawlinson, 1983). Most buildings and other structures in the Deadhorse area are built on man-made gravel pads that are about 1.5 to 2.5 meters thick. The active layer on the pads may exceed one meter, but the thaw would not reach the underlying soil because the pads are designed to insulate the soil and keep it frozen year round.

Permafrost controls groundwater movement on the arctic coastal plain. Usable groundwater is not available because of this thick layer of continuous permafrost, which acts as a confining layer, restricting downward movement of water (USGS 1995).

3.4 Biotic Communities

3.4.1 Fish and Aquatic Resources

The airport is just west of the Sagavanirktok (Sag) River, which provides habitat for both resident (burbot, least cisco, ninespine stickleback, and arctic grayling) and anadromous fish (dolly varden char and broad whitefish), according to the ADNR, Office of Habitat Management and Permitting (OHMP) (Nancy Ihlenfeldt (ADNR, OHMP), personal communication, 1/30/04). The Sag River is listed as ADF&G stream catalog number 330-00-100370.

This project would require expansion of an existing material site that was developed for a previous airport project. The material site is centered on a dry lakebed on the west side of
the Dalton Highway, in the southeast corner of Township 10 N, Range 14 E (Figure 6). As part of the previous project, the pit was reclaimed to enhance fish habitat, at the request of the resource agencies. The mining and reclamation plan included a design that ensured adequate flow in the stream outlet channel to the Sag River (approximately 2,400 feet in length) to allow fish to access the reclaimed pit, and use it as over-wintering habitat.

The reclaimed pit has been monitored by ADNR, OHMP since the project was completed to determine whether the reclamation was a success. According to ADNR Biologist Nancy Ihlenfeldt, the pit supports resident fish (arctic grayling, ninespine stickleback, slimy sculpin, least cisco, and burbot), as well as anadromous fish (e.g., broad whitefish and dolly varden). Recent investigations have indicated that the access channel between the pit and the Sag River is experiencing erosion and scouring. This scour will be addressed and mitigated as part of an upcoming project on the Dalton Highway. The pit was nominated as waters important for the spawning, rearing or migration of anadromous fish in 1999; however, the ADF&G has not yet entered it into their stream catalog system. A Fish Habitat Permit will be required for this project if reclamation includes connecting the new cell to the old, reclaimed material site.

3.4.2 Vegetation and Terrestrial Habitats

Vegetation in the vicinity of Deadhorse is characterized as wet tundra (Viereck and Little, 1972). The coastal plain is a mosaic of wet grass and sedge tundra in low, poorly drained areas and dwarf shrub communities on drier sites. Sedges make up about 75 percent of the vegetation community, with secondary species including cottongrass, lousewort, and buttercup in wetter sites, and heather and purple mountain saxifrage in the raised, drier areas of polygonal frost-heaved ridges. A complete list of plant species common to Deadhorse is included in Appendix E. The different vegetation types that occur throughout the area are related to the microrelief of the polygonal ground patterns that are common to the coastal plain of Alaska (USGS, 1995). Floodplains of the major rivers are dynamic and covered by willow thickets, prostrate shrub communities, and barren gravel bars (Meehan, 1986).
A wetland delineation of the airport property was conducted in 1995, and a delineation of the proposed material site was conducted in 2002 (refer to section 3.5 for information regarding wetlands).

3.4.3 Terrestrial Mammals

Deadhorse is within the mapped range for moose, caribou, wolverine, wolf, brown bear, polar bear, arctic fox, short-tailed weasel, least weasel, collared lemming, brown lemming, northern red-backed vole, arctic ground squirrel, and masked, arctic and vagrant shrews.

Caribou of the Central Arctic herd calve and spend the summer on the arctic coastal plain. Because of the significance of caribou as a subsistence resource, and because of the caribou’s position as a large herbivore in the regional food web, much attention has been focused on potential impacts to these animals from oilfield development on the North Slope.

3.4.4 Birds

Many species of waterfowl and shorebirds utilize the tundra ecosystem during the summer growing season (late May through mid-September). Appendix D contains a listing of the most commonly found birds on the North Slope. The vast majority of bird species that use the arctic coastal plain are migratory and therefore protected under the Migratory Bird Treaty Act. Birds that breed on the North Slope winter as far away as Antarctica (arctic tern) and southern South America (pectoral sandpiper). Others winter in the northern Bering Sea or southern Chukchi Sea (oldsquaw, king eider and common eider). Most are dependent upon wetlands for feeding, nesting cover and brood rearing (Meehan et al., 1986).

Birds generally arrive on the North Slope by the first week in June and begin nesting as soon as snow-free areas on the tundra are available. Early migrants to the area include the king eider, common eider, and glaucous gulls. Spring waterfowl migrants rest and feed in open water and tend to congregate around river deltas, which provide the first open water, until break-up of the tundra (Meehan et al., 1986). The snow-free period on the North Slope is short and for many species provides barely enough time to successfully nest and rear their young. Birds must arrive and quickly initiate nesting, lay a clutch of eggs, incubate, and rear their young before the onset of freeze-up in late September (Meehan et al., 1986).
Waterfowl and shorebirds feed on vegetation, invertebrates and fish found in the wetlands surrounding the Deadhorse Airport during the breeding season.

3.4.5 Threatened and Endangered Species

The spectacled eider (*Somateria fischeri*) is listed by the USFWS as a threatened species throughout its range, and thus falls under the protection of the Endangered Species Act. Spectacled eiders nest in various densities across the Arctic Coastal Plain, as well as other areas of Alaska, and are most abundant in areas with extensive wetlands (Day et al., 1995). On the North Slope, spectacled eiders nest primarily in wet meadows, along the margins of ponds and lakes, and on islands in ponds and lakes. Eiders with young tend to use water bodies with emergent grasses and sedges as cover for the young from predators.

While the Deadhorse Airport is well to the east of the only known regularly occupied breeding area in Arctic Alaska, some nesting has been documented in the area surrounding the airport (AGRA, 1995). The Deadhorse Airport vicinity was included in aerial surveys flown by TERA in 1991-1993 to determine the distribution of spectacled eiders in the Prudhoe Bay area (Warnock and Troy, 1992; TERA, 1993). Breeding pairs were seen in 1991 and 1992 in the large lake northwest of the west end of the runway (TERA, 1993). In 1993, USFWS biologists located one active nest in a small wetland about 150 meters from the east end of the runway (Martin, 1995). In 1994, two spectacled eider nests were located in the large lake northwest of the runway, and one brood was later seen nearby (Troy, 1995).

The Steller’s eider (*Polysticta stelleri*) is another listed threatened species that occurs in Alaska. However, the airport is well to the east of the only known breeding area in arctic Alaska (near Barrow) and this species is an infrequent visitor to the Prudhoe Bay region (AGRA, 1995).

3.5 Wetlands

A wetland delineation and functional assessment of areas within the Deadhorse Airport property boundaries was performed by ABR, Inc. in 1995 (refer to Figure 9). Wetlands were identified in the vicinity of the Deadhorse Airport in accordance with USACE methodology and the USFWS classification scheme. A detailed description of the habitats, including a
classification map, vegetation, and functional descriptions can be found in the technical report Wetland Delineation and Site Characterization for FAA Station Deadhorse, Alaska (Shannon and Wilson, 1996a).

The functions and values of wetland habitats adjacent to the Deadhorse Airport were evaluated in accordance with the Wetland Evaluation Technique (WET) Volume I: Literature Review and Evaluation Rationale (Adamus et al., 1991). This methodology and the field methods used for this project are described in detail in the Wetland Delineation and Site Characterization Methodology for 14 FAA Airports, Alaska (Shannon and Wilson, 1996b). The USACE has indicated they will accept this delineation and valuation for permitting purposes (Mike Holley, (USACE), personal communication, 04/23/04). The wetland habitats shown on Figure 9 were defined by considering three factors:

1. Wetland habitat communities delineated on aerial photographs;
2. Observed associations of wetlands and uplands within topographic or hydrologic zones, or association of wetlands and uplands that are important habitat areas; and
3. Observed degradation from human intrusion, physical alteration, or hydrologic characteristics.

Following is a summary of the habitat types classified as having high, moderate, or low value based on the functional assessment.

**High Value Habitats**

The area east of the runway and the west-northwest end of the airport property are classified as high value. These areas are wet sedge/meadow, tundra/marsh habitats and are of importance to spectacled eiders.

**Moderate Value Habitats**

Areas immediately adjacent to developed areas at the east end of the runway are considered of moderate value, primarily because of their proximity to the areas ranked as high value. The Sagavanirktok River is also considered to be of moderate value.
Figure 8: Wetlands
Low Value Habitats

Most of the land adjacent to the runway, excluding the east end, is considered to be of low value, primarily comprised of sedge/willow tundra.

Impoundments and ponds surrounding the airport generally provide abundant emergent vegetation and an important source of invertebrates for foraging water birds (Kertell, 1993). Wetlands are also located in the area of the proposed Material Site 3 (MS 3) (also called MS 102). The USACE has determined the area to be jurisdictional wetlands. MS 3 covers a total area of 152 acres, which is comprised entirely of wetlands (Figure 10). Alaska Biological Research Inc. (ABR) analyzed the site in a 2003 report for ADOT&PF (ABR, 2003). MS 3 is dominated by moist/wet sedge meadow wetlands (132 acres, or 87.2 percent total area), with occurrences of sedge marsh (8.8 percent), pond/sedge marsh complex (3.5 percent), and open pond (0.5 percent) (ABR, 2003).

Based on wetland type and wildlife habitat assessment, the majority of MS 3 (approx. 87 percent) is Nonpatterned Wet Meadow and Moist Sedge-Shrub Meadow (ABR, 2003). This is not considered high value habitat for waterfowl, including spectacled eiders, and should therefore be categorized as moderate or low-value wetlands. The remaining 13 percent of the total area of MS 3 is comprised of Shallow Open Water without Islands, Young Basin Wetland Complex (described as a complex mosaic of open water and Aquatic Sedge or Grass Marsh), and Aquatic Sedge Marsh. This combined area was judged to be of potential value to waterfowl, water birds and shorebirds, including the spectacled eider (ABR, 2003). However, the USFWS has indicated that they consider the area to be low-value habitat for the spectacled eider. (Jonathan Priday, (USFWS), personal communication, 04/19/04).

3.6 Floodplains

According to the USACE, although the entire airport is within the Sagavanirktok River’s 100-year floodplain, the buildings and runway have been built up above the surrounding tundra on gravel pads and effectively avoid most flood hazards. For this reason, the flood hazard to the Deadhorse Airport facilities has been rated low by the USACE (USGS, 1995). The proposed project is not likely to cause any substantial additional backwatering during a flood event, and is not considered a significant encroachment, as defined in FAA Order 1050.1D.
Figure 9: Material Site Wetlands
Figure 10: Material Site Reclamation Plan
3.7 Coastal Zone Management Program

Deadhorse is in the Coastal Zone and falls within the North Slope Borough Coastal District boundaries. The principal means used to determine whether a proposed Federal action is consistent with an approved coastal zone management program is through the state and local review process. This project would be subject to a consistency review coordinated by the ADNR, Office of Project Management and Permitting to ensure compliance with the Alaska Coastal Management Program. The Coastal Project Questionnaire is attached in Appendix C.

3.8 Hazardous Materials and Solid Waste

Solid waste generated by the Deadhorse Airport is transported to the landfill, which is operated by the North Slope Borough, and is located six miles northwest of Deadhorse, on Oxbow Road.

A Phase I Environmental Site Assessment (ESA) was performed for the Deadhorse Airport in June 2004. This ESA found no evidence of recognized environmental conditions at the Deadhorse Airport. The complete ESA may be found in Appendix G.

A previous Phase I and Phase II Hazardous Materials Investigation completed in 1993 and 1994, respectively, found a contaminated site at the former Fire Training Area located between the taxiway and runway (RZA AGRA, 1993; RZA AGRA, 1994). This area had been used by ADOT&PF as a training ground for fire and emergency response procedures, and training exercises generally involved the use of diesel and jet fuels. Because this area was visibly contaminated, ADOT&PF had previously excavated the noticeably stained soils and stockpiled them on the nearby former Sohio Pad, Block 700 Lot 6A. The site has since been remediated, and no further cleanup is necessary (Stuller, Dwight, [ADOT&PF], personal communication May 4, 2004).

Although a formal environmental site assessment was not determined necessary, government records were searched in order to ascertain whether any existing contaminated sites might be present within the project areas. A report containing the results of a recent search of available environmental records is attached in Appendix G. It found contaminated sites in
the area, but none of the Deadhorse Airport property itself. This report meets the government records search requirements of American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments, E 1527-00.

In addition, there is a well marker for an old oil well (SoCal 31-25) approximately 98 feet from the western edge of the main apron, which falls within the proposed project area. This well is expected to be closed and approved by ADEC in 2005.

3.9 Land Use

The ADOT&PF owns the existing airport property, and all land in the vicinity of the airport is owned by the State of Alaska. The surface and subsurface rights in this area were patented to the state by the federal government in 1974 (ADOT&PF, 1987).

3.10 Noise

No additional increase in air traffic would result from the proposed improvements. According to FAA regulations, a noise analysis is not necessary since forecasted operations are well below the threshold of 90,000 annual adjusted propeller operations or 700 annual adjusted jet operations.

3.11 Air Quality

According to AAC, 18 AAC 50.15, Deadhorse is in an attainment area for air quality.

According to FAA regulations, no air quality analysis is needed because the State of Alaska does not have indirect source review requirements and the airport will support service less than 1.3 million passengers and less than 180,000 general aviation operations annually.

3.12 Historic, Architectural, Archeological, And Cultural Resources

According to previous correspondence from the State Historic Preservation Office (SHPO), there are no known cultural resources in the areas surrounding the Deadhorse Airport (refer to letter from SHPO in Appendix A), and there is a very low probability of undocumented cultural resources in the area.
3.13 Energy and Natural Resources

The Deadhorse Airport currently powers its regular operations; including airport lighting, radio work, heating, and computers through a power plant located on-site. In addition, fuel must be used to operate the maintenance vehicles at the airport. Additional resource uses may include gravel and other fill material.

3.14 Light Emissions

Light emissions from the Deadhorse airport are not currently considered an impact to the surrounding community.

3.15 Environmental Justice

The Deadhorse community, including Prudhoe Bay, is composed of four or five permanent residents (2003 State of Alaska Demographer estimate), with another 5,000 part-time residents who work primarily in the oil industry or related support industries. According to the census, zero percent of the population of Deadhorse was below the poverty level. Eighty percent of the population is minority, which is above both the state and national averages.
4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This chapter of an Environmental Assessment (EA) is the scientific and analytic basis for the comparisons of the alternatives. Environmental effects that would likely result from the implementation of the alternatives presented in Chapter 2 are disclosed in this chapter. The two alternatives evaluated in this EA are the Proposed Action and the No-Action Alternative.

Environmental consequences are described in terms of direct, indirect, and cumulative impacts. Direct impacts are those that are caused by the action and occur at the same time and place. Indirect impacts are those that are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable. Because the line between direct and indirect impacts is often difficult to draw, the discussion of these impacts is combined. Cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions. Cumulative impacts are not discussed for the No-Action Alternative, since this alternative would not be expected to contribute to existing cumulative impacts in the project area.

This chapter is organized by resource topics, similar to Chapter 3. Because this is an issues-based EA, only those issues determined to be relevant to this project are evaluated. The mitigation measures listed in Chapter 2 are assumed to be a part of the Proposed Action, and are not repeated in the following discussion of environmental consequences.

4.2 Induced Socioeconomic Impacts

Proposed Action Direct and Indirect Impacts

The Proposed Action would provide substantial safety improvements for those that fly into and out of the Deadhorse Airport, due to improved safety areas. This project would also have a minor positive impact on the local economy through the creation of short-term construction jobs.

The Proposed Action would not involve the need to relocate any residence or business, alter surface transportation patterns, divide or disrupt established communities, disrupt orderly,
planned development, or create an appreciable change in employment. Therefore, no specific analysis of potential social or induced socioeconomic impacts was conducted.

**Cumulative Impacts**

Cumulative impacts in the project area relate primarily to past, present, and future oil and gas development on the North Slope of Alaska. The oil and gas industry in the Prudhoe Bay region has resulted in significant cumulative socioeconomic impacts, including substantial economic development on a national level. The Proposed Action would have a miniscule contribution to the overall cumulative socioeconomic impacts of oil and gas development in the project area.

**No Action Alternative**

The No-Build Alternative would result in greater risk to human lives and potential damage to aircraft in the event of an accident. Apron congestion would continue with potential damage to aircraft. No other socioeconomic impacts were identified for this alternative.

**4.3 Water Quality**

**Proposed Action Direct and Indirect Impacts**

There may be minor impacts to local water quality in the immediate vicinity of the airport, due to surface runoff of sediment during construction activities. However, these impacts would be short-term in duration, and would not be significant. Permanent impacts include a minor amount of additional storm water runoff from the expanded safety area; however, this long-term impact to water quality would be minimal.

Water quality impacts during material extraction would be minimized through use of erosion and sedimentation controls such as silt fences, straw bales, dikes, and earthen berms. Overburden from the excavation would be used to dress slopes where appropriate to help prevent erosion and to facilitate revegetation of these areas.

This project would involve over one acre of ground disturbance and is therefore required to comply with the NPDES General Permit for construction activity in Alaska. The Department
will prepare an Erosion and Sediment Control Plan (ESCP). The Contractor will use the ESCP to develop their Storm Water Pollution Prevention Plan which will address measures to protect water quality during on-site construction activities, including gravel mining and hauling material to the construction-site. Work would be done in accordance with the Best Management Practices For Construction Erosion and Sediment Control (1997) to ensure that water quality standards are met. All disturbed ground would be seeded and fertilized to establish ground cover and minimize storm water runoff. A Section 401 Water Quality Certification would be obtained from ADEC as part of the permitting for this project.

In addition, the Contractor would be required to develop and implement a Hazardous Material Control Plan (HMCP). The HMCP is a detailed plan for prevention of pollution that stems from the use, containment, cleanup, and disposal of hazardous material, including petroleum products generated by construction activities and equipment. According to a hydrology study conducted by the U.S. Geological Survey (USGS), potential spills of hazardous material at the Deadhorse Airport pose little danger to the Sagavanirktok River, which is the current drinking water source for Deadhorse (USGS, 1995).

**Cumulative Impacts**

Cumulative water quality impacts in the project area relate to past, present, and future projects in the vicinity of the airport, such as road construction, airport construction, and oil and gas facility construction. In addition, the scouring currently occurring at the prior reclaimed pit access channel probably has some minor contribution to water quality. The incremental impact of the Proposed Action would be a miniscule contribution to the overall cumulative water quality impacts of past, present, and future development in the project area. Significant cumulative impacts to water quality are not anticipated.

**No Action Alternative**

Under the No-Action Alternative, the airport would continue to have minor storm water runoff; however, no major water quality impacts would occur.
4.4  Biotic Communities

4.4.1  Fish and Aquatic Resources

Proposed Action Direct and Indirect Impacts

The primary impact to fish and aquatic resources would be creation of over-wintering habitat as part of the reclamation plan for the material site. According to ADNR, the reclaimed material site from the last Deadhorse Airport project in 1995 has been successfully functioning as over-wintering fish habitat. Given the success of that effort, a similar reclamation plan is proposed for the material site expansion that would be needed for this project. The gravel pit would be excavated in a manner to create additional over-wintering habitat for fish, and upon completion of the project, a new channel would be constructed to connect the old cell with the newly developed cell, in order to provide access to additional over-wintering habitat for fish.

Prior to material site expansion, a berm would be constructed to isolate the new cell that ADOT&PF intends to develop from the cell that has already been reclaimed.

Cumulative Impacts

The incremental effect of the Proposed Action when added to past, present, and foreseeable future actions would be an overall beneficial impact on fish habitat in the project area, due to creation of additional over-wintering habitat. In addition, the scouring at the existing reclaimed pit access channel, if uncorrected, could conceivably eliminate the pit’s use as an over-wintering fish habitat. This scour will be addressed and mitigated as part of an upcoming Dalton Highway project.

No-Action Alternative

No impacts to fish habitat were identified under the No-Action Alternative.
4.4.2 Vegetation and Terrestrial Habitats

Proposed Action Direct and Indirect Impacts

Clearing, grubbing, materials excavation, and placement of fill would result in approximately 191 acres of direct tundra habitat loss. Due to the abundance of wetlands and tundra habitat in the Deadhorse area, this amount is not considered significant.

The tundra environment in the Deadhorse area is much more susceptible to damage by human activity than are soils in more temperate environments. A secondary impact of almost any construction activity on the North Slope is the initiation of thermokarst, which occurs when the thermal properties of the adjacent tundra are modified. Disturbances resulting from vehicle traffic or construction activities can cause long-term changes to the tundra due to damage to the vegetation, compaction of the surface organic mat and underlying soils, or a combination of these factors (USGS, 1995). Gravel placement, dust, or nearly any disturbance to the vegetation can disrupt the thermal equilibrium of the underlying permafrost, leading to thermokarst. The extent of thermokarst depends in part on the extent of other disturbances; it will be more extensive adjacent to major facilities and heavily traveled roads (Meehan et al., 1986). Vegetative types most susceptible to thermokarst are wet, sedge tundra and moist sedge dwarf-shrub tundra (Meehan et al., 1986). Thawing of ice-rich permafrost can lead to considerable subsidence of the local land surface, which in flat terrain (i.e. the Deadhorse area) can have large indirect effects on local drainage patterns.

Cumulative Impacts

Cumulative impacts to vegetation and terrestrial habitats on the North Slope include continued oil and gas development and construction of the necessary infrastructure to support that development, which results in direct habitat loss as well as indirect impacts such as thermokarst. Deposition of dust from vehicles traveling along roadways, temporary impoundment of surface runoff, and placement of numerous gravel fill pads have been the
Predominant disturbances to vegetation on the North Slope (Truett et al., 1994). A study conducted in the mid 1980s indicated that approximately seven percent of the Prudhoe Bay oilfields had been covered by gravel or flooded by impoundments (Truett et al., 1994). The Proposed Action would have a miniscule incremental contribution to the overall cumulative impacts to vegetation and terrestrial habitat in the project area.

No-Action Alternative

No impacts to vegetation and terrestrial habitat were identified under the No-Action Alternative.

4.4.3 Terrestrial Mammals

Proposed Action Direct and Indirect Impacts

Embankment construction and material site development would result in minor yet permanent alteration of existing habitat. However, the portion of habitat lost represents a miniscule percentage of the overall habitat available in the region, and would not substantially reduce the carrying capacity of the area. None of the areas that would be impacted by the Proposed Action are unique to the area, and none are of particular significance to terrestrial mammals.

Cumulative Impacts

Cumulative impacts to terrestrial mammals on the North Slope include continued oil and gas development and construction of the necessary infrastructure to support that development, which results in direct habitat loss and indirect impacts such as disturbance and displacement. The Proposed Action would have a miniscule incremental contribution to the overall cumulative impacts to terrestrial mammals in the project area.

No-Action Alternative

The No-Action Alternative would not change the existing level of impacts sustained by terrestrial mammals in the airport area.
4.4.4 Birds

Proposed Action Direct and Indirect Impacts

The Proposed Action would result in 67 acres of fill in wetlands that are utilized by numerous species of migratory water birds and shorebirds at the airport, and another 124 acres at the material site. Portions of the ponds east and south of the existing runway, which are considered high value waterbird habitat, would be filled as part of this project, resulting in potential displacement of water birds that would normally use this habitat. However, the majority of this ponded area would remain, and there are numerous other ponds in the area. Loss of this small amount of habitat is not considered to be a significant impact.

In addition, ponds adjacent to airports are considered to be a wildlife hazard, as they attract birds to the area, causing increased risk of bird strikes. As such, displacement of birds to areas further away from the airport could reduce the risk of harm to birds by decreasing the risk of bird strikes.

Cumulative Impacts

Similar to other resources, cumulative impacts to birds on the North Slope include continued oil and gas development and construction of the necessary infrastructure to support that development, which results in direct habitat loss and indirect impacts such as disturbance and displacement. The Proposed Action would have a miniscule incremental contribution to the overall cumulative impacts to birds in the project area.

No-Action Alternative

The No-Action Alternative would not change the existing level of impacts sustained by birds in the airport area.

4.4.5 Threatened and Endangered Species

Proposed Action Direct and Indirect Impacts
The Proposed Action would result in 67 acres of fill in wetlands that are utilized by spectacled eiders. The direct, indirect, and cumulative impacts discussed above under Section 4.4.4 (Birds) would also apply to spectacled eiders.

Informal consultation with the USFWS, Northern Alaska Ecological Services, in accordance with Section 7(c) of the Endangered Species Act has been completed (see Appendix A). The agency has determined that if ADOT&PF commits to the mitigation measures listed in Chapter 2, formal consultation will not be required.

The Steller’s eider (*Polysticta stelleri*), which is also a listed threatened species, is not likely to be affected by this project, because the airport is well to the east of the only known breeding area in arctic Alaska (near Barrow) and this species is an infrequent visitor to the Prudhoe Bay region (AGRA, 1995).

No-Action Alternative

The No-Action Alternative would not impact any listed threatened or endangered species under the Endangered Species Act.

4.5 Wetlands

Proposed Action Direct and Indirect Impacts

Under the Proposed Action, wetland loss is unavoidable due to the fact that wetlands surround the existing runway. Construction of the proposed airport improvements would result in approximately 822,124 cubic yards of fill in approximately 67 acres of palustrine scrub-shrub and emergent wetlands.

Table 4 shows the acreage of wetland habitat types that would be filled for runway safety area extension and widening and apron expansion.

<table>
<thead>
<tr>
<th>Vegetation Type</th>
<th>Acres Filled</th>
<th>Acres on Airport Property</th>
</tr>
</thead>
</table>

Table 4: Wetlands Fill Due to Airport Improvements
### Low Value Wetlands

<table>
<thead>
<tr>
<th>Value Type</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Value Wetlands</td>
<td>56.5</td>
<td>56.5</td>
</tr>
<tr>
<td>Medium Value Wetlands</td>
<td>4.2</td>
<td>4.2</td>
</tr>
<tr>
<td>High Value Wetlands</td>
<td>6.3</td>
<td>6.3</td>
</tr>
<tr>
<td><strong>Total Wetlands Impacted:</strong></td>
<td><strong>67.0</strong></td>
<td><strong>67.0</strong></td>
</tr>
</tbody>
</table>

In addition, material site expansion would result in impacts to approximately 124 total acres of moist tundra wetlands. Approximately 60,000 cubic yards of fill would be placed in five acres of wetlands (included in the 124 total disturbed acres) at the material site, to construct the access road, staging pad, and stockpiles. The existing highway and haul route would be used and therefore would not result in additional wetlands impacts (see Figure 1).

Figures 6 through 8 show the material site plan and mining and access road typical sections.

Executive Order 11990, Protection of Wetlands, requires that there be no practicable alternative to the proposed action, and that the project includes all practicable measures to minimize harm to wetlands. ADOT&PF has analyzed the project, and determined that there are no practicable alternatives having less impact on the aquatic ecosystem and without other significant adverse environmental consequences. Due to the fact that wetlands surround the airport, there are no avoidance alternatives. Therefore, minimization of impacts and compensatory mitigation are the primary mitigation measures available to this project. The proposed mitigation measures are listed in Chapter 2.

Based upon the above considerations, it is determined that there is no practicable alternative to the proposed construction in waters of the U.S., and the proposed action includes all practicable measures to minimize harm to wetlands that may result from the project.

### Cumulative Impacts

Total wetland impacts resulting from petroleum development on the North Slope have been estimated at about 20,000 acres. This is a very small percentage (0.05 percent) of the 37 million acres of wetlands that fall within the USACE North Slope jurisdictional region...
(Senner, 1989), and is not considered significant. The proposed Deadhorse Airport project would be a minor contributor to the overall cumulative impacts to wetlands on the North Slope.

**No-Action Alternative**

The No Action Alternative would continue to have minor storm water runoff effects on adjacent wetlands. No other impacts to wetlands would occur under this alternative.

### 4.6 Floodplains

**Proposed Action Direct and Indirect Impacts**

Because the buildings and runway at the Deadhorse Airport have been built up above the surrounding tundra on gravel pads, the flood hazard to the airport facilities has been rated low by the USACE (USGS, 1995). The proposed project is not likely to cause any substantial additional backwatering during a flood event, and is not considered a significant encroachment, as defined in FAA Order 1050.1D.

**Cumulative Impacts**

The proposed project does not appear to cause a significant impact when added to other past, present and reasonably foreseeable future activities within the Sag River floodplain.

**No-Action Alternative**

The No-Action Alternative would not impact the Sag River floodplain.

### 4.7 Coastal Zone Management Program

**Proposed Action Direct and Indirect Impacts**
The Coastal Project Questionnaire and Certification Statement has been sent to the ADNR for the consistency review (see Appendix C). This review will ensure compliance with state and federal coastal zone regulations and with the coastal district’s enforceable policies. The North Slope Borough has indicated that they do not object to this project (Sheldon Adams, personal communication).

Cumulative Impacts

It does not appear that the proposed project would cause a significant impact to coastal zone resources when added to other past, present and reasonably foreseeable future activities within the area.

No-Action Alternative

The No-Action Alternative would not impact the coastal zone, and would not require an Alaska Coastal Management Program consistency review.

4.8 Hazardous Materials and Solid Waste

Proposed Action Direct and Indirect Impacts

The proposed project would not affect the generation, storage, or removal of wastewater or solid waste at the Deadhorse Airport. It is also not anticipated to increase the frequency of solid waste or wastewater transport.

Based upon existing information from government resources (see Appendix G), it does not appear that the Proposed Action would involve any areas known to be previously contaminated.

Should hazardous waste or contamination be encountered during construction, the Contractor would be required to report to the Resident Engineer, who would contact ADEC. Once the contamination is characterized, it would be disposed of according to an ADEC approved
plan. The Contract would include specific language requiring all waste to be disposed of in accordance with local, state, and federal laws and regulations.

The Contractor would also be required to submit a HMCP, which would detail their proposed methods for the handling and disposing of waste oil and hazardous wastes generated during construction. The plan would also specify the Contractor’s methods for handling the accidental spills of hazardous wastes during construction.

Cumulative Impacts

It does not appear that the proposed project would cause significant impacts associated with hazardous materials or solid waste when added to other past, present and reasonably foreseeable future activities within the area.

No-Action Alternative

The No-Action Alternative would have no impacts on hazardous materials or solid waste.

4.9 Construction

Proposed Action

Potential adverse impacts during the construction period include the following:

Air Quality

The use of diesel-fueled construction equipment may result in slight degradations in air quality during the construction period; however, these effects would be minor and short-term in duration.

Noise Level
Airport construction would result in a temporary increase in noise from heavy equipment operations. However, since there are no residential areas near the airport, this is not anticipated to be a major impact.

**Dust**

Construction activities on the North Slope generate airborne dust that settles onto the adjacent tundra. Dust can have an effect on mosses and lichens, and has been shown to significantly reduce productivity and growth of Sphagnum spp. (Meehan et al., 1986). However, many of the most common moss species in the Deadhorse area are not as sensitive to dust (Meehan et al., 1986), so major impacts are not anticipated. Watering, as necessary, would control dust.

**Water Quality**

Water quality may be temporarily impacted during construction, due to storm water runoff. The project would have a Department prepared Erosion and Sediment Control Plan from which the Contractor would prepare a Storm Water Pollution Prevention Plan. These plans would detail BMPs that would be used during the construction of the project to maintain water quality standards and include siltation control measures to minimize impacts.

**Staging Areas and Storage of Fuels**

Staging and fuel storage areas would be located in uplands and not be allowed within 100 feet of any wetland or stream/river. Protective fuel transfer measures would be implemented and the Contractor would be required to identify all fuels that would be used and/or stored in the project area, prepare a waste disposal plan and prepare a spill prevention, control and countermeasure plan.

**Thermokarst**

To minimize the development of thermokarst adjacent to the runway, construction activities will not be allowed to disturb adjacent vegetation. Construction vehicles will be limited to existing pads and areas of proposed gravel placement.
Material Site Expansion

The Mining and Reclamation Plan attached in Appendix F would be written and implemented by the Contractor. This plan will be reviewed and approved by ADNR per A.S. 27.19 and 11 AAC 97. The plan includes details of procedures to be used during mining operations and during site restoration. All necessary permits and agency approvals (USACE Individual Permit, ADNR Title 41 Permit, ADNR Material Sale Agreement, North Slope Borough Land Management permit, and ADNR Mining/Reclamation Plan) would be obtained prior to construction.

As part of the previous project at the Deadhorse Airport, the Department of Agriculture determined that development of this material site would not pose any increased wildlife hazard to aircraft at Deadhorse Airport (refer to letter from USDA in Appendix A).

No-Action Alternative

No construction related impacts would result from the No-Action Alternative.

4.10 Other Considerations

Based on the evaluation and coordination to date, there does not appear to be any significant issues that could cause the proposed project’s environmental document to be elevated to an Environmental Impact Statement. It does not appear that there are any substantial conflicts between the proposed action and the objectives of federal, state, or local land use plans, policies, and controls for the area concerned.

4.11 Land Use

Oil and gas development is the main focus of all land uses around the airport. No impacts to the existing land use would result from the proposed project.

4.12 Noise

No significant increase in aircraft related noise impacts are expected to result from this project.
Heavy equipment operations during construction would temporarily increase noise levels, however this would be short-term in duration.

### 4.13 Air Quality

Long-term air quality impacts would not result from the proposed project because no additional increase in aviation activity would result from this project.

Temporary, localized air degradation may occur from short-term construction activities during gravel hauling and placement, and during operation of heavy equipment. Construction activity would cause minor air quality degradation from increased dust and exhaust from heavy equipment. Due to the minor amount of land to be affected by construction clearing activities, air quality impacts are expected to be minimal.

### 4.14 Historic, Architectural, Archeological, And Cultural Resources

The State of Alaska Office of History and Archaeology conducted an archaeological investigation of the proposed material site in 2002, and concluded that development of that material site would not adversely affect any significant historic properties (DePew and Pendleton 2003).

If, during airport activities, human or cultural remains are discovered, the Arctic Slope Regional Corporation and the State Historic Preservation Officer must be notified within one working day to meet the requirements of the Native American Graves Protection and Repatriation Act. No cultural or historical sites were listed in the Alaska Heritage Resources Survey within the immediate airport area.

### 4.15 Energy and Natural Resources

This project would not cause any significant changes in the energy demand of the Deadhorse Airport.

Local gravel resources would be partially depleted for this project; however, there are numerous other gravel resources in the project vicinity.
4.16 Light Emissions

This project would not alter the existing light emissions from the Deadhorse Airport.

4.17 Environmental Justice

Pursuant to Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, the proposed project has been evaluated to determine whether it would result in any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. No significant adverse impacts were identified.
5.0 COMMENTS AND COORDINATION

All scoping materials and comments are attached in Appendix A. Following is a brief summary of scoping efforts and comments received.

A scoping letter soliciting comments on the project was sent to the following agencies on date:

<table>
<thead>
<tr>
<th>Agency Contacted</th>
<th>No Response</th>
<th>Comment Received</th>
<th>Correspondence Attached in Appendix A</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of Alaska Department of Natural Resources, Office of Habitat Management and Permitting</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>State of Alaska Department of Natural Resources, Division of Mining, Land, and Water</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>State of Alaska Department of Natural Resources, Office of Project Management and Permitting</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>State of Alaska Department of Natural Resources, State Historic Preservation Office</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>National Marine Fisheries Service</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>U.S. Fish and Wildlife Service</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>U.S. Army Corps of Engineers</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>U.S. Environmental Protection Agency</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

An agency scoping meeting was held in Fairbanks at the ADOT&PF office on April 19, 2004. Documentation of this meeting is included in Appendix A.

5.1 Summary of Scoping Comments from Agencies

5.1.1 Federal Agencies

**U.S. Army Corps of Engineers (USACE)** stated that the proposed project would involve work in waters of the U.S. under their regulatory jurisdiction, and therefore, an Individual Section 404 Permit is required prior to conducting the work (see Appendix A, pages 11 through 14).
U.S. Department of Agriculture (USDA) had previously stated, in an earlier project at the Deadhorse Airport, that they are not concerned about the material site’s proximity to the airport posing any increased wildlife hazard to aircraft from birds (see Appendix A, page 20).

U.S. Fish and Wildlife Service (USFWS) provided informal consultation regarding mitigation that would offset any effects of the proposed project on spectacled eiders (see Appendix A, pages 15 through 17).

National Marine Fisheries Service (NMFS) responded that the described action would not affect Essential Fish Habitat (EFH), and no EFH Assessment is required. NMFS therefore did not offer any EFH Recommendations, and stated that further consultation would not be required (see Appendix A, page 18).

5.1.2 State Agencies

University of Alaska Fairbanks had asked that ADOT&PF maintain a 500-meter buffer between their excavation work at MS 3 and their boring hole and monitoring station (see Appendix A, pages 30 and 31).

State of Alaska Department of Natural Resources, Division of Mining, Land, and Water stated that they were interested in potential recreational use of MS 3 following reclamation, including gentler slopes for access. They also indicated concern about creation of new access roads instead of using previously disturbed areas, and which wetlands areas surrounding MS 3 would be affected. Finally, they stated that the drinking water source for Deadhorse was in the immediate vicinity (see Appendix A, page 22).

State of Alaska Department of Natural Resources, Office of Habitat Management and Permitting stated that the existing MS 3 pit currently support populations of both anadromous and resident fish. Therefore, a Fish Habitat Permit will eventually be required for this project, since the new cell is planned to connect to the old, reclaimed cell. In addition, ADNR-OHMP listed potential reclamation requests. They would provide further comments as the project advances (see Appendix A, pages 19 through 20).
State of Alaska Department of Natural Resources, Office of Project Management and Permitting stated that the proposed project sites are located within the Alaska coastal zone and the North Slope Borough Coastal District. Therefore, a Coastal Project Questionnaire would be required for this project. They indicated that they might provide further input once the project has advanced further (see Appendix A, page 21).

State of Alaska Department of Natural Resources, State Historic Preservation Office stated that they would wait until receiving and reviewing the EA and/or the official ADOT&PF letter stating their conclusion of ‘No Historic Properties Affected’ to concur with the decision. ADNR-SHPO did add that, given the area, they expected to concur with the findings (Appendix A, pages 22 and 23).

5.1.3 Local Agencies

North Slope Borough indicated their initial assent for the project. They also reminded ADOT&PF to be attentive for waterfowl in the project area, including but not limited to endangered eider species. They mentioned that waterfowl may remain as long as there is open water (see Appendix A, page 10).

5.2 Draft EA - Public and Agency Review Comments

The Draft EA was distributed for a 30-day public and agency review on July 6, 2004. A public notice was placed in the Anchorage and Fairbanks newspapers on July 8 and 11, 2004. Copies of the newspaper ads and the distribution list that was used to send out the Draft EA are attached in Appendix A. Comments were received from Gary Schultz, ADNR, Division of Mining, Land, and Water. These comments were regarding the reclamation plans for MS 3, the water source inlet for MS 3, and the possibility of using MS 3 as a winter recreational area by leaving piles of overburden in place for snowmobile recreation.

Comments were also received from Mac Mclean, ADNR, Office of Habitat Management and Permitting, by way of Patricia Miller, ADOT&PF. These comments indicated that ADNR would evaluate any potential scouring problems at the material site outlet, and would inform ADOT&PF if mitigation or improvement would be required on any future project.
These comments are attached in Appendix A. No other comments were received on the Draft Environmental Assessment.
### 6.0 LIST OF PREPARERS

<table>
<thead>
<tr>
<th>Name/Education</th>
<th>Expertise Applied to Document</th>
<th>Profession/Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROJECT DEVELOPMENT AND SUPERVISION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cindie Little, P.E.</td>
<td>ADOT&amp;PF Project Manager, Alternatives Evaluation, and Document Review</td>
<td>Design Engineering Manager</td>
</tr>
<tr>
<td>Richard Stumpf</td>
<td>ADOT&amp;PF Design Engineer, Alternatives Evaluation, and Document Review</td>
<td>Airport Design Engineer</td>
</tr>
<tr>
<td>Melinda Brunner</td>
<td>ADOT&amp;PF Environmental Analyst Document Review</td>
<td>Environmental Analyst</td>
</tr>
<tr>
<td><strong>DOCUMENT TEXT AND ORGANIZATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kristen Hansen, M.S. Environmental Science</td>
<td>EA Project Manager; Environmental Research; and Author</td>
<td>Environmental Planner</td>
</tr>
<tr>
<td>Patrick Whitesell</td>
<td>Environmental Research</td>
<td>Environmental Planner</td>
</tr>
<tr>
<td>Corey Loyd</td>
<td>Document Review and Quality Control</td>
<td>Environmental Planner</td>
</tr>
</tbody>
</table>
7.0 REFERENCES


State of Alaska Department of Community and Regional Affairs, Community Information Summaries and Detailed Community Data. Internet address: http://www.dced.state.ak.us/cbd/commdb/CF_BLOCK.htm.


Holley, Mike (USACE), personal communication, 04/23/04.

Ihlenfeldt, Nancy, (ADNR, OHMP), personal communication.


Priday, Johnathan (USFWS), personal communication, 04/19/04.


Stuller, Dwight, (ADOT&PF), personal communication 05/04/04.


