1.0 Summary

The village of Takotna is located in Interior Alaska on the north bank of the Takotna River, in the Kilbuck-Kuskokwim Mountains (Figure 1.1). It is approximately 17 air miles west of McGrath, 7 air miles northwest of Tatalina, and 385 air miles northwest of Anchorage at 62° 59' N Latitude, 156° 04' W Longitude (Sec. 35, T034N, R036W, Seward Meridian, U.S. Geological Survey [USGS] Quadrangle Iditarod D-1). Takotna is on the Iditarod National Historic Trail (INHT) and is also a checkpoint for the Iditarod Trail Sled Dog Race.

The only year-round access to the village of Takotna is via its community-class airport. The airport is the primary point through which mail, freight, and people are transported to and from the village. An engineering analysis (Phase I Scoping Report, USKH 2000) identified the following deficiencies at the Takotna Airport:

- Runway 6/24 is too short.
- Length, width, and grading of the runway safety area (RSA) are inadequate.
- Object free area (OFA) is inadequate.
- Airport has no runway lights.
- Existing maintenance equipment is old.
- Airport has no maintenance building or maintenance and operations (M&O) pad.
- Runway cannot accommodate common medevac aircraft.
- Runway has obstructed approach surfaces and is in an area of gusty, unpredictable winds.
- Airport cannot be reasonably expanded in its current location due to topography.

For these reasons, the Alaska Department of Transportation and Public Facilities (DOT&PF) and the Federal Aviation Administration (FAA) are proposing to relocate the airport and improve the runway, apron, and other associated facilities. These upgrades would improve safety and ensure continued access to the village of Takotna. Four alternatives for potential development were identified, of which, three alternatives were not considered further because of construction costs or impracticality (Phase I Scoping Report, USKH 2000). One build alternative (Alternative C) and the no-build alternative (No Action Alternative) have been brought forward for evaluation in this environmental assessment (EA).

This EA presents an analysis of the potential environmental impacts of the proposed alternatives. The primary issues associated with this project, as identified in the initial environmental analysis, are wetlands impacts, land use, cultural resources, construction costs, and Section 4(f) property impacts (Phase I Scoping Report, USKH 2000). Potential impacts of the project are discussed further in Section 5, Environmental Consequences.

0 1 2 4 Miles

Scale 1 inch = 4 miles

Legend

Towns
Streams
Roads
Iditarod Trail

Takotna Airport
Project No. 54011

Location and Vicinity Map

N
W E
S

Figure

1.1

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2.0 Purpose and Need

2.1 Purpose and Need

The Takotna Airport was identified by DOT&PF as needing airport improvements to correct facility deficiencies (Figure 2.1). The following functional, operational, and safety problems identified through engineering analysis and input from the FAA, the community, and other stakeholders were described in the Phase I Scoping Report (USKH 2000) and are summarized below:

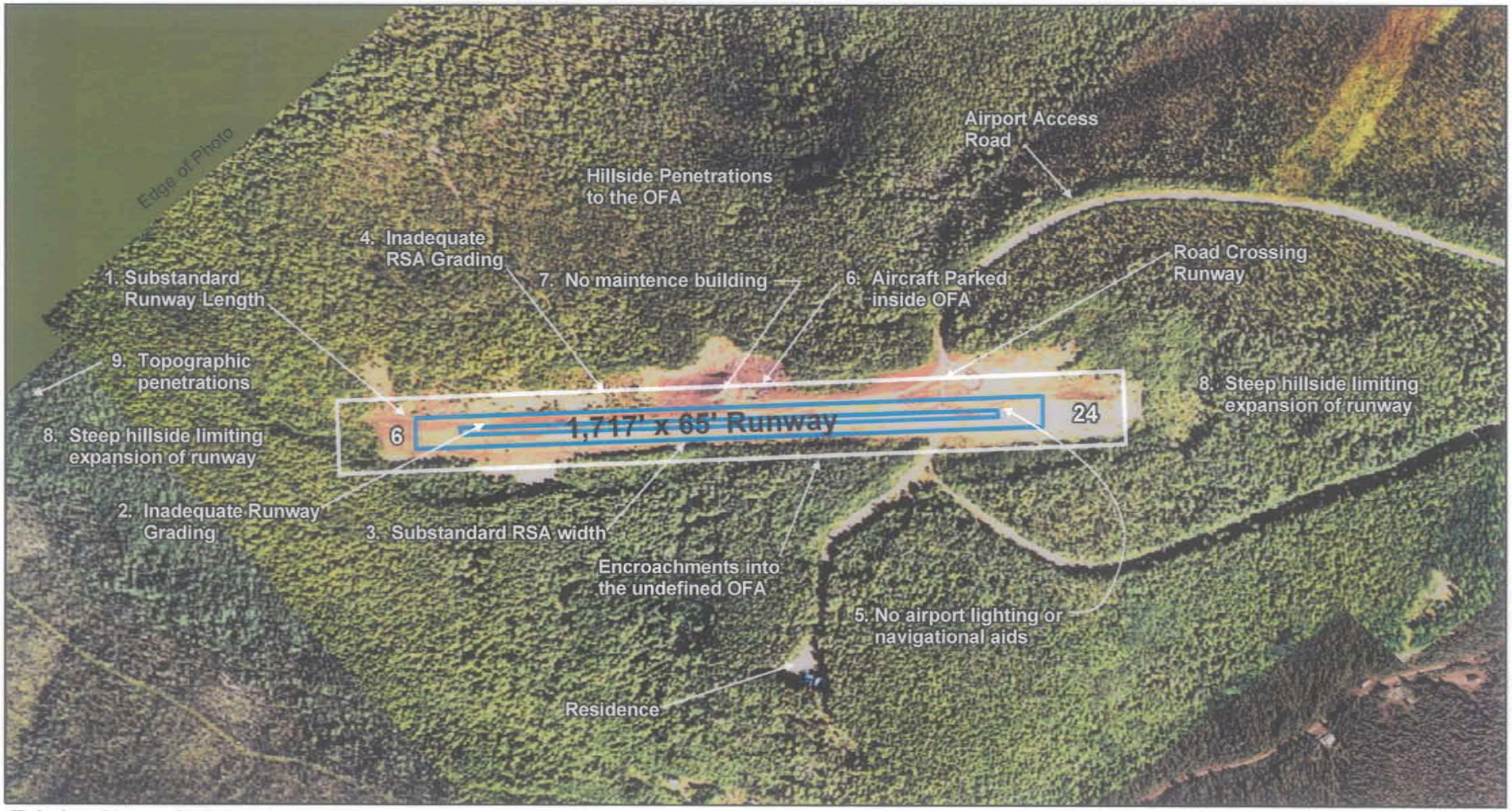
- The runway length does not accommodate the forecasted fleet of aircraft.
- The RSA length, width, and grading are inadequate.
- The OFA has encroachments and is undefined.
- The airport lacks runway lights and a rotating beacon.
- The runway surface is poorly graded, causing water to pond on the runway.
- Airport maintenance equipment is old.
- The airport has no maintenance building.
- No public lease lots or tie-downs are available.
- The runway will not accommodate common medevac aircraft.
- The runway is too short to accommodate the delivery of fuel to the community.
- The runway is located on the side of a large hill, making access difficult for those who must travel on foot.
- The airport is located in an area of unpredictable, gusty winds.
- The approach surface to Runway 6 and the primary horizontal and conical surfaces to the north and west are obstructed.
- The airport cannot reasonably be expanded in its current location due to topography constraints.

The purpose of resolving these deficiencies is to provide an airport that meets FAA and DOT&PF standards, to improve safety for all aircraft operations, and to meet the forecast aviation demand and needs of the community for the next 20 years, including the ability to accommodate intermittent use by larger aircraft that supply fuel and materials. The proposed project would address the deficiencies in a safe and cost-effective manner, with due consideration for environmental impacts, and with the objective that the Takotna Airport would continue to fulfill its role as a community class airport. Construction is expected to begin in summer 2007 and to be completed at the end of summer 2008.

To ensure that the airport serves the community, it is important that the aviation facility's deficiencies be corrected to meet established size and safety standards. Adequate size and safety standards are based on a number of factors including the demand forecasts, expected fleet mix, and the regional role the airport is expected to play. The DOT&PF Alaska Aviation System Plan (AASP) and the FAA Advisory Circular (AC) 150/5300-13 Change 9 establish the airport size and safety standards for Takotna Airport (ADOT&PF 1996 and FAA 2005).

2.2 Problem Definition: Airport Conditions and Deficiencies

The DOT&PF's AASP designates the Takotna Airport as a community class airport and establishes the standards to which such airports are to be built. The DOT&PF's AASP defines a community class airport as the primary land or water access point to a small rural community of at least 25



Existing Airport Deficiencies

1. The runway length (Runway 6/24) does not meet DOT guidelines for a community class airport.
2. The existing gravel runway surface is poorly graded, causing water to pond on the runway, and needs to be upgraded.
3. The Runway Safety Area (RSA) length beyond the approach end of both Runway 6 and 24, and width does not meet FAA requirements for its current design specification.
4. The existing RSA is poorly graded.
5. The airport lacks runway lights, rotating beacon, navigation aids, and communication equipment.
6. Aircraft are parked within areas that are classified as obsticle-free zones and primary surface along the runway because there are no public lease lots or tie-downs available.
7. There is no maintenance building.
8. Topographical constraints limit expansion in the airports current location.
9. Runway 6 approach has topographic penetrations of the Part 77 surface.

0 200 400 800 Feet

Scale 1 inch = 400 ft.

Takotna Airport
Project No. 54011

Existing Airport Deficiencies

N W E S

Figure 2.1

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permanent year-round residents without other reliable year-round access. The FAA has established minimum dimensional standards to ensure safety for various classes of airports. According to the forecasting results from Phase I, the Takotna Airport should meet Airport Reference Code (ARC)[1] B-I standards as defined by the FAA (see the Phase I Scoping Report for more detail).

The primary aircraft using the airport on a daily basis to transport passengers, freight and mail are small ARC B-I aircraft, including the Piper PA-31, the design aircraft. This aircraft is forecast to continue to provide daily freight and passenger service. There is no year-round means to economically transport fuel to the community. Currently, fuel is transported by air to Tatalina Air Force Station (approximately 7 miles south) and the fuel is trucked up the only road to Takotna (see Figure 1.1). This is only feasible in the summer because the road is not maintained during the winter. Transportation by water is not possible. Shallow water in the Takotna River prevents reliable water access by barge. The closest barge landing is at Sterling Landing, approximately 24 miles away on the Kuskokwim River. A road connects Sterling Landing with Takotna.

Future use by the Lockheed 100-30 aircraft (more commonly known as the Hercules C-130 or L-382) has been identified to meet the fuel transportation needs of the community and has been incorporated into the proposed airport design. To accommodate the larger L-382 aircraft (classified as ARC C-IV), the runway, taxiway, and apron design dimensions would allow the aircraft to operate safely during takeoff, landing, and parking procedures (see Section 3). Table 2-1 summarizes the forecast demands for the Takotna Airport.

Table 2-1. Aviation Activity Forecasts, Takotna Airport

	Year			
Activity	**2005**	**2010**	**2015**	**2020**
Enplanements	800	880	975	1,075
Operations	3,000	3,310	3,650	4,035
Operations of Current Critical Aircraft – Piper PA 31	200	220	242	269
Air Mail (pounds)	147,000	163,000	178,000	198,000

*The Aviation Activity Forecast for the Takotna Airport was approved by FAA July 3, 2000.

Deficiencies, as defined by airport components' falling short of the guidelines or standards, must be addressed by airport improvements. Where proposed improvements would not meet standards, justification must be given. Table 2-2 provides a comparison of the minimum airside requirements for community class airports in Alaska (according to the AASP and the FAA AC 150/5300-13 Change 9) to the existing Takotna Airport. Alternatives that would otherwise be considered reasonable that did not adequately meet the guidelines and standards were rejected (see Section 3.1 Alternatives Considered but Dismissed).

[1] The ARC is a coding system used to relate airport design criteria to the operational and physical characteristics of the aircraft intended to operate at the airport. This coding system is a combination of two components: Aircraft Approach Category and Aircraft Design Group. The Aircraft Approach Category, depicted by an alphabetical letter ("A" through "E"), relates to the aircraft's approach speed. The Aircraft Design Group, depicted by a Roman numeral ("I" through "VI"), relates to the aircraft's wingspan.

Table 2-2. Existing Facilities and Airport Design Standards for Takotna Airport

Design Element	*Existing Takotna Airport*	*FAA B-I Standards[a] and DOT&PF AASP Community-Class Recommendations*
Primary Runway (6/24) Length	1,717 ft	3,300 ft minimum[2]
Primary Runway (6/24) Width	65 ft	60 ft[1] Shoulders: 10 ft[1]
RSA Length Beyond Runway End	RW 24: 170 ft RW 6: 100 ft	240 ft each end[1]
RSA Width	100 ft	120 ft[1]
OFA Length (beyond runway end)	RW 24: 170 ft RW 6: 100 ft	240 ft each end[1]
OFA Width	65 ft	400 ft[1]
Runway Protection Zone (RPZ)	Not maintained	Inner width: 500 ft[1] Outer Width: 700 ft[1] Length: 1,000 ft beyond runway end[1]
Taxiway	None	25 ft minimum [1]*width*
Taxiway Safety Area	None	49 ft minimum [1]*width*
Lighting	None	Medium-intensity runway lighting (MIRL)[2], Medium-intensity taxiway lighting (MITL)[2]
Apron	Widened portion of runway	200 ft by 300 ft (60,000 ft^2) minimum[2]
Aviation Support Area	None	100 ft by 300 ft (30,000 ft^2)[2]
M&O Area	None	100 ft by 100 ft (10,000 ft^2)[2]
Equipment Building	None	Heated, double bay[2]
Service Access	Road to village	2 lane gravel road

[1] FAA B-I Standard. Standards reflect Change 9 of AC 150/5300-18, adopted 9/26/05 (FAA 2005)
[2] DOT&PF Alaska Aviation System Plan Community Class Recommendation

2.2.1 Runways and Runway Safety Areas

The Takotna Airport has one primary runway aligned in an east-west direction (Runway 6/24) and no crosswind runway. The existing primary runway is 1,717 feet long and 65 feet wide (Table 2-2). One of the primary constraints with the existing runway is that it is too short to accommodate aircraft delivering fuel, thereby limiting year-round means to economically deliver fuel to Takotna.

Wind data collected at McGrath, Alaska, from December 31, 1995 to December 31, 1998, was used for the wind analysis (see Phase I Scoping Report, USKH 2000). Supplemental information obtained from residents and airport operators indicated that the prevailing winds near Takotna are parallel to the Takotna River Valley. The recommended wind coverage under the FAA standards is 95%. The wind coverage for the existing runway is 96% (ARC B-I, 10.5 knots), which is adequate, and no crosswind runway is required.

Topography prevents expansion in the present location; the airport is located on top of a hill that falls off steeply on all sides. In addition to geometric deficiencies, the surface of the existing runway is poorly graded and ponding occurs during wet conditions. The location of the runway on the side of a ridge creates hazards from gusting winds and obstructions.

The RSA is a defined surface surrounding the runway that is free from obstructions and suitable (similar surface and grade as the runway) for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or incursion on the runway. The FAA dimensional standards for an ARC B-1 airport require the RSA to be 120 feet wide and extend 240 feet beyond each runway end. The current RSA is approximately 100 feet wide and extends about 100 feet beyond the end of Runway 6 and 170 feet beyond the end of Runway 24. The RSA dimensions are deficient in both length and width, and does not meets FAA and DOT&PF recommendations and standards.

2.2.2 Apron, Taxiway, and Aviation Support Area

The existing apron is a widened portion of the runway measuring approximately 400 feet by 100 feet, or 40,000 square feet (ft^2), without a designated aviation support area. AASP guidelines for community-class airports recommend a minimum apron size of 200 feet by 300 feet (60,000 ft^2) with an aviation support area of 100 feet by 300 feet (30,000 ft^2) and a maintenance and operations pad approximately 100 feet by 100 feet (10,000 ft^2) contiguous to the apron. There is no taxiway at the Takotna Airport. There are no tie downs, lease lots, or maintenance buildings at Takotna Airport.

2.2.3 Lighting and Navigational Aids

The Takotna Airport has no runway lighting, rotating beacon, navigation aids, or communication equipment. Two windsocks are located near each end of the runway, but neither has a segmented circle. The windsocks are old and need to be replaced. The AASP recommends radio-controlled medium-intensity runway lighting (MIRL) as the minimum lighting standard adequate for visual and non-precision approaches. MIRL also allows for operations at night and in inclement weather conditions. In conjunction with MIRL, medium-intensity taxiway lighting (MITL) is also recommended.

2.3 Federal Action Requested

The federal actions requested of the FAA by DOT&PF are approval of the airport layout plan and participation in funding through Airport Improvement Program of the proposed improvements.

3.0 Alternatives

Many factors are taken into consideration during the development of alternatives which incorporate necessary facility improvements: engineering and design requirements, maintenance, accessibility and serviceability to the community, land ownership, potential conflicts with existing uses, and environmental concerns. Potential sites must be able to accommodate a runway of adequate length and width, and maximize prevailing wind conditions. The site selected should be geotechnically sound, meet the community's need for safe operations and good access, and support the community's long-term development goals. The aviation forecast (USKH 2000), FAA guidelines, and AASP standards for community-class airports were used to develop facility improvements that would meet current and future demand.

This section describes the proposed action, the alternatives initially considered but dismissed and the reasons for their dismissal, and the no-action alternative.

3.1 Alternatives Considered but Dismissed

Four build alternatives were considered during early project development (Phase I Scoping Report, USKH 2000). Three of the alternatives (Figure 3.1) were dismissed after thorough consideration of their feasibility, as briefly described below.

Improving the existing airport (Alternative A) was not considered feasible because the existing facility is located on a hill with unpredictable winds. Jutting slopes and trees act as obstructions to the north and west. Safety issues related to winds would not be addressed and the costs of the large fill necessary to lengthen the runway in this location were prohibitively expensive. Improving the airport in the current location would not solve these problems, and would not meet the purpose and need of the project.

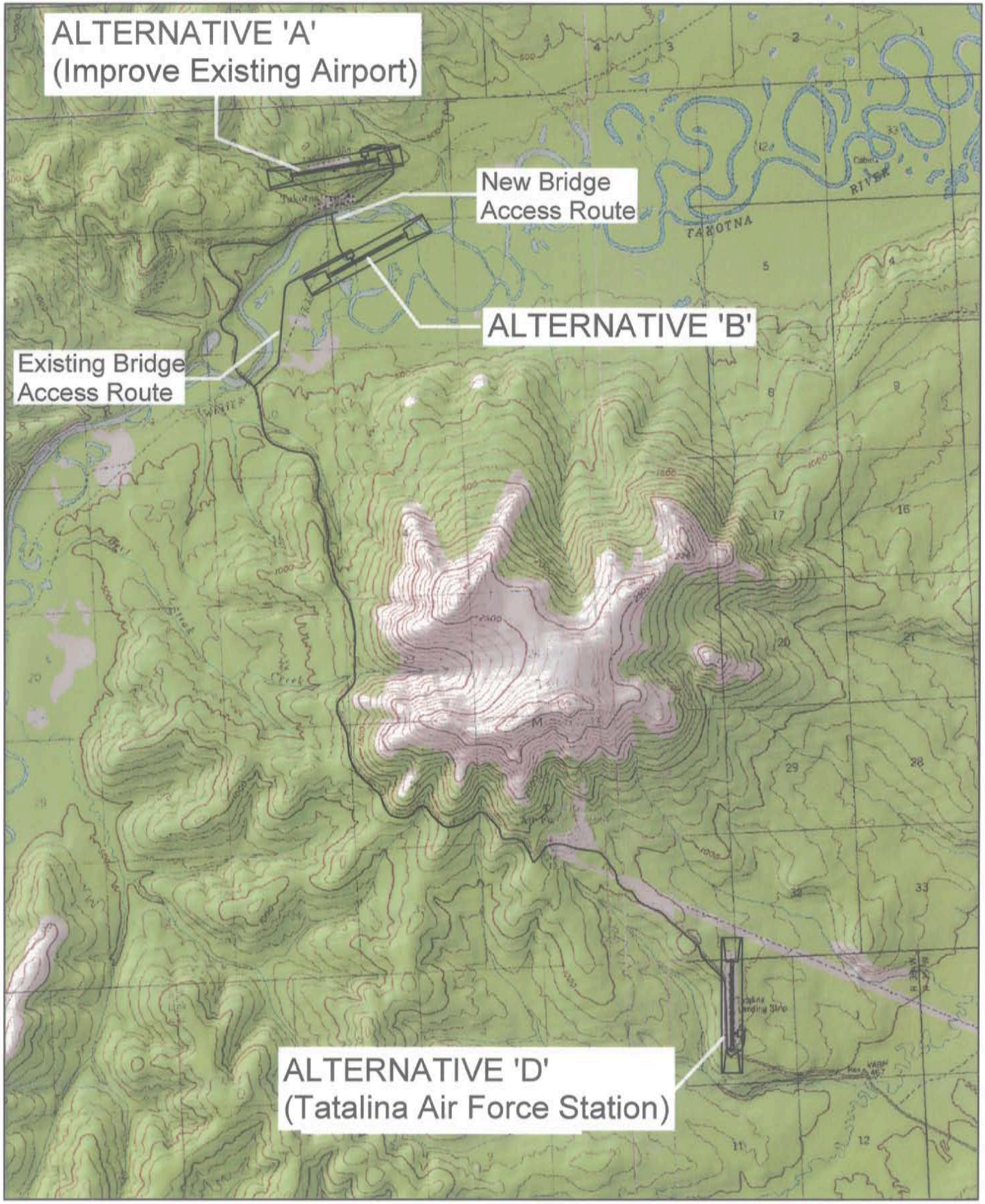
Based on a cursory review of existing conditions, the expected environmental consequences resulting from Alternative A include:

- The Iditarod Trail is not mapped at the airport; however, spur trails to the Iditarod Trail would be impacted by airport improvements.
- Due to the uneven terrain and significant elevation changes along the alignment, this alternative would require excavating approximately 72 acres.
- No borrow site would be needed; fill material would come from the existing terrain.
- It would be necessary to acquire approximately 93 acres from Takotna 14-C(3) lands (1280 lands) to accommodate the expansion of the airport.

Relocating the airport south of the village across the Takotna River (Alternative B) was not considered feasible because of the costs associated with the project. Alternative B would impact Native allotments and incur higher costs (an estimated additional $1.6 million for a bridge) to cross the Takotna River (USKH 2000).

Based on a cursory review of existing conditions, the expected environmental consequences resulting from Alternative B include:

- The Takotna River, an anadromous stream and Essential Fish Habitat, would be impacted by construction and use of a bridge crossing the river to access the new airport location.



0 0.5 1 2 Miles

Scale 1 inch = 1 mile

Takotna Airport
Project No. 54011

Alternatives Considered but Dismissed

N W E S

Figure

3-1

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- High-value open water and other types of wetlands would be impacted by the new road, bridge, and airport.
- The Iditarod Trail would be impacted by the new airport.
- Additional construction impacts would occur due to the construction of a new bridge and airport access road.
- Approximately 80 acres would be impacted by construction of this alternative.
- A borrow site would be needed for approximately 90,500 cubic yard of material.

Use of the existing airport at Tatalina Air Force Station (Alternative D) was not considered a feasible alternative, in part due to the costs and the physical challenges of providing year-round access, estimated to be $15,000 a year after road and bridge improvements (USKH 2000). Tatalina Air Force Station is 7 miles from Takotna and the road is used primarily for access to Sterling Landing, which would make upgrades to the road for airport use ineligible for FAA funding. The U.S. Air Force failed to respond to DOT&PF inquiries about the possibility of using the airport. Additionally, the Tatalina Air Force Station alternative is not supported by the Takotna community (TCAI 2005, Appendix A).

Based on a cursory review of existing conditions, the expected environmental consequences resulting from Alternative D include:

- The Takotna River, an anadromous stream and Essential Fish Habitat, would be impacted by Takotna River bridge improvements needed to access the Tatalina Air Force Station.
- High-value open water and other types of wetlands would be impacted by reconstruction of the access road and needed airport improvements.
- Land around the 10.7 mile long access road would need to be acquired from Native allotments held by private individuals.
- The Tatalina Air Force Station would have to be transferred from the Air Force to the DOT&PF.
- Improvements to the access road and airport runway would involve approximately 1 acre of impacts beyond existing footprints.
- A borrow source for approximately 4,120 cubic yards of material would be required.

3.2 Project Alternatives

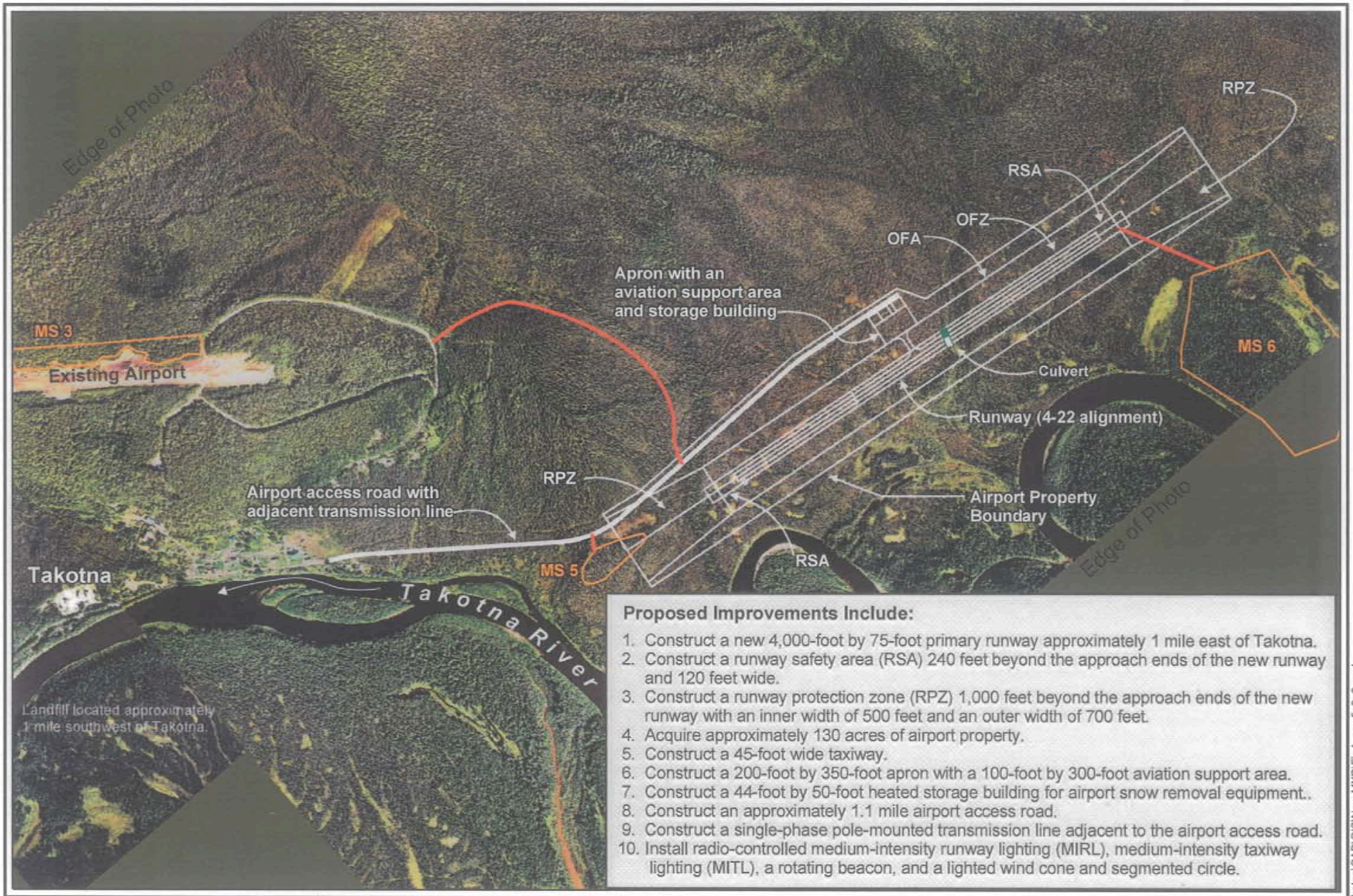
The two alternatives considered and evaluated in this EA are:

Alternative C – Proposed Action. Relocate the airport approximately 1.1 miles east of the village.

No Action Alternative. No change to the existing conditions.

3.2.1 Alternative C – Proposed Action

Description of Action: The Proposed Action (Figure 3.2) would relocate the airport approximately one mile east of the village. Relocation would allow development of an airport that complies with FAA and DOT&PF standards and recommendations. Table 3-1 shows the proposed action compared to the FAA standards for an ARC B-I class airport and the AASP community class airport recommendations. This proposed action is based on the forecast demand and the Piper PA-31 as the primary design aircraft. Proposed modifications to runway length, taxiway width, and apron dimensions would safely accommodate Hercules (C130/L-382) aircraft, the primary aircraft delivering fuel and bulk materials to other communities in the region.



Proposed Improvements Include:

1. Construct a new 4,000-foot by 75-foot primary runway approximately 1 mile east of Takotna.
2. Construct a runway safety area (RSA) 240 feet beyond the approach ends of the new runway and 120 feet wide.
3. Construct a runway protection zone (RPZ) 1,000 feet beyond the approach ends of the new runway with an inner width of 500 feet and an outer width of 700 feet.
4. Acquire approximately 130 acres of airport property.
5. Construct a 45-foot wide taxiway.
6. Construct a 200-foot by 350-foot apron with a 100-foot by 300-foot aviation support area.
7. Construct a 44-foot by 50-foot heated storage building for airport snow removal equipment..
8. Construct an approximately 1.1 mile airport access road.
9. Construct a single-phase pole-mounted transmission line adjacent to the airport access road.
10. Install radio-controlled medium-intensity runway lighting (MIRL), medium-intensity taxiway lighting (MITL), a rotating beacon, and a lighted wind cone and segmented circle.

0 250 500 1,000 1,500 2,000 Feet

Scale 1 inch = 1,000 feet

Legend

Proposed Material Sites (MS)

Proposed Temporary Haul Road

Takotna Airport
Project No. 54011

Proposed Action (Alternative C)

N W E S

Figure

3.2

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Table 3-1. Proposed Action and Airport Design Standards for Takotna Airport

Design Element	***Proposed Action***	***FAA B-I Standards and AASP Community-Class Recommendations***
Primary Runway (4/22) Length	4,000 ft	3,300 ft minimum[2]
Primary Runway (4/22) Width	75 ft Shoulders: 10 ft	60 ft[1] Shoulders: 10 ft[1]
RSA Length Beyond Runway	240 ft each end	240 ft each end[1]
RSA Width	150 ft	120 ft[1]
OFA Length (beyond runway end)	240 ft each end	240 ft each end[1]
OFA Width	400 ft	400 ft[1]
Runway Protection Zone (RPZ)	Inner width: 500 ft Outer Width: 700 ft Length: 1,000 ft beyond runway end	Inner width: 500 ft[1] Outer Width: 700 ft[1] Length: 1,000 ft beyond runway end[1]
Taxiway Width	45 ft	25 ft minimum[1]
Taxiway Safety Area Width	118 ft	49 ft minimum[1]
Lighting	MIRL , MITL	MIRL[2], MITL[2]
Apron	200 ft by 350 ft (70,000 ft^2)	200 ft by 300 ft (60,000 ft^2) minimum[2]
Aviation Support Area	100 ft by 300 ft (30,000 ft^2)	100 ft by 300 ft (30,000 ft^2) [2]
M&O Area	100 ft by 100 ft (10,000 ft^2)	100 ft by 100 ft (10,000 ft^2) [2]
Equipment Building	Heated, double bay	Heated, double bay [2]
Service Access	Road to village: 24 ft by 1.1 mi. (2-lane, gravel)	2-lane, gravel road

[1]FAA B-I Standard; [2]AASP Community Class Recommendation

A new 1.1 mile, 24-foot wide, two-lane all-weather gravel access road would be constructed. The access road would connect the proposed airport with existing roads at the eastern limits of the village. Approximately 119 acres would be acquired for the new runway and associated airport facilities from MTNT Limited and an additional 2.6 acres would be acquired, also from MTNT Limited, for the airport access road.

A single-phase transmission line would be installed adjacent to the access road to provide power to the airport. The line would be pole mounted until it reached the airport where it would enter an electrical enclosure located on the aviation support area adjacent to the apron. Lighting would meet AASP recommendations and would include: radio-controlled MIRL and MITL, a rotating beacon, and a lighted wind cone and segmented circle. Airfield aids would include a supplemental unlighted wind cone, reflective cones, and threshold panels. A 44-foot by 50-foot heated storage building for airport snow removal equipment would be constructed adjacent to the aviation support area. An airport rotating beacon would be installed on the new building. Fuel for snow removal equipment would be stored in a double-walled, skid-mounted tank with a 500-gallon capacity. No fuel for aircraft use would be stored in the equipment storage building.

To meet the anticipated demand for fill and surfacing materials, an existing material site (Material Site 3) would be expanded and two new materials sites (Material Sites 5 and 6) would be developed (Figure 3.2). Material Site 3 is an active rock quarry, approximately 2.4 acres in size located

immediately adjacent to the existing Takotna airport. This site is entirely in uplands and is currently utilized by local residents. Use of Material Site 3 would require a 3.0 acre expansion of the site to 5.4 acres. Material Site 5 is 0.6 miles east of the community, immediately south of the Takotna-Nixon Fork Winter Trail, between the west end of the proposed runway and the proposed airport access road. The proposed material site is approximately 2.9 acres in size. Material Site 6 is located approximately 1.8 miles east of the community, southeast of the proposed airport location and adjacent to the Takotna River. The proposed site is approximately 10.8 acres.

Functional Analysis: The proposed airport facility includes several modifications from B-I standards and recommendations established by the FAA and the AASP to accommodate intermittent use by larger aircraft. The proposed airport would be primarily used by small ARC B-I aircraft for daily transport of passengers, mail and freight but would be capable of accommodating L-382 aircraft, the primary aircraft used to haul fuel and materials to other communities in the region. The L-382 is classified as an ARC C-IV aircraft, and would require a runway length of 4,000 feet, which is 700 feet longer than the standard 3,300 feet runway used for community class airports. Taxiway and taxiway safety area width, and apron dimensions would be increased to accommodate the L-382. The FAA standard widths for the taxiway and taxiway safety area are 25 feet and 49 feet respectively, for ARC B-I aircraft. Applying FAA design guidelines for the L-382, these dimensions would be increased to 45 feet and 118 feet respectively to accommodate the wheelbase and larger wingspan of the L-382. The AASP recommended apron size would be increased from 200 feet by 300 feet (60,000 ft^2) to 200 feet by 350 feet (70,000 ft^2) for greater maneuverability. The larger area would improve turnaround conditions, minimize the potential for wingtips to encroach on lease lots, and minimize the potential for collisions with aircraft parked on the apron.

The location of the new airport would not be as exposed as the existing airport and problems with gusty winds would be reduced. The new runway would be aligned approximately 56 degrees east from true north, parallel to the prevailing winds as described by pilots and residents. Table 3-2 summarizes wind coverage for the Proposed Action and the No Action Alternative, for both the 10.5-knot (ARC B-I) and 13-knot (B-II) crosswind components. Wind data for the McGrath airport was used in the analysis (USKH 2000).

Table 3-2. Wind Coverage Analysis

Alternative	*Approximate Orientation (True North)*	*Crosswind Component = 10.5 knots Tailwind Component = 60 knots*	*Crosswind Component = 13 knots Tailwind Component = 60 knots*
No Action	82° east	96%	98%
Proposed Action	56° east	96%	98%

The minimum wind coverage recommended by the FAA is 95%. Both alternatives have adequate wind coverage at the 10.5-knot crosswind component and a crosswind runway is not recommended. The proposed build alternative would be aligned parallel to the Takotna River Valley, as suggested by residents and air taxi operators.

Environmental Consequences Summary: Approximately 429,000 cubic yards (cy) of fill and surfacing material would be required to construct this alternative. This amount includes 25,000 cy of temporary fill for temporary haul routes. Biotic communities within the approximately 104 acre project area; including development of material sites (approximately 36.3 acres), the temporary material site haul routes (approximately 7.9 acres), and RPZ clearing areas (approximately 27.5) would be disturbed during construction and permanently displaced from the project's footprint.

Animal and plant communities within the limits of excavation for surface and embankment material (approximately 32.1 acres) would be displaced. Portions of the excavation that become inundated would be permanently modified. Impacts would be minor, however, as the types of vegetative communities that would be affected are widespread throughout the area and represent only a small increment of the total habitat available. There is no documented use of the project area by threatened or endangered species, birds of conservation concern, or State species of special concern. Construction of the airport, access road, and development of material site would not require crossing any anadromous streams or stream known to contain fish.

The majority of the new airport would be located in wetlands. Construction of the airport facilities would permanently fill approximately 26.8 acres of wetland and construction of the airport access road would fill approximately 6.4 acres of wetland. Material site development would permanently modify 2.8 acres of wetland and construction of material haul routes would temporarily place fill in 5.7 acres of wetland.

Table 3-3. Summary of Wetland and Waterbody Impacts

Alternative Component	Acres of Cut and Fill in Wetlands	
	Permanent	**Temporary**
Airport (runway, taxiway, apron)	26.8	
Access Road	6.4	
Material Site 3	0.0	
Material Site 5	2.8	
Material Site 6	0.0	
Site 3 Haul Route[1]		4.6
Site 5 Haul Route[1]		0.2
Site 6 Haul Route[1]		0.9
Total Wetland and Waterbody Impacts	**36.0**	**5.7**
Total (Permanent and Temporary) Impacts	**41.8**	

[1]Haul routes are temporary: Fill would be removed and the routes would be rehabilitated following reclamation of material sites.

Construction of the airport and airport access road, and development of the material sites and temporary roads would impact segments of the INHT system, including the Takotna-Nixon Fork Winter Trail (IDT 269), Takotna-Nixon Fork Summer Trail (IDT 267) and McGrath-Takotna Winter Trail (IDT 068). The trails have been determined eligible for the National Register. The trail segments are also considered section 4(f) property as defined by the Department of Transportation Act (1966) because of their historic and cultural significance. Impacts would range from vegetative clearing to fill and excavation activities that would obliterate sections of the trails within the project footprint. Placement of the airport and access road would constitute an adverse effect on the trails.

A cultural site, including ruins of the Twitchell/Anderson Cabin, a trash or outhouse pit, and a rectangular depression were found along the southwest margin of Material Site 6. A Determination of Eligibility (DOE) concluded the site would be eligible for inclusion in the National Register of Historic Places. Direct impacts to the Twitchell/Anderson Cabin (IDT-269), including possible removal, would occur with the use of Material Site 6.

Mitigation Measures: The proposed road alignment was selected to minimize sidesloping and the extent and volume of cut and fill areas. Areas of exposed soil and potentially erodible slopes would be reduced and adverse effects on water quality minimized. Construction would be timed to avoid

sensitive life stages of nesting birds.

Haul roads from all material sites would be temporary. Material used to build the haul roads would be removed and disturbed areas reclaimed following completion of construction activities. At Material Site 6, a 100-foot setback would be maintained between the disturbed areas and the Takotna River.

A Hazardous Materials Control Plan will be developed by the construction contractor prior to construction which would delineate the contractor's methods for handling and disposing of waste oil and hazardous wastes generated during construction. The plan would also specify the contractor's methods for handling accidental spills of hazardous wastes during construction.

Dust and water quality impacts would be minimized through the use of best management practices (BMPs) including:

- Stockpiling embankment fill material within the project fill footprint or disturbed areas of the material site.
- Maintaining setbacks from water channels and standing water for refueling and vehicle maintenance activities.
- Requiring construction vehicles to stay within the project boundaries.
- Developing and implementing a National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention Plan (SWPPP) and an Erosion and Sediment Control Plan (ESCP) for construction activities.

Additional mitigation measures include:

- Wetlands were avoided by a thorough analysis of material site locations to determine if the majority of suitable materials could be obtained from upland locations. Although adequate suitable material could not be obtained solely from upland sources, only 2.8 acres of the 19.1 acres identified for material extraction is wetland. Another 5.7 acres of wetlands would be temporarily impacted by construction of haul roads. Material Sites 3 and 6 would be exploited as much as possible to reduce impacts to wetlands in Material Site 5.
- Culverts and ditching would be installed along the access road and runway embankment to maintain natural drainage patterns to the extent practicable.
- The airport access road, apron, runway and taxiway sideslopes would be stabilized as soon as practical after construction to minimize erosion and sedimentation.
- Silt fencing would be installed along embankment toe-of-slope to limit sediment runoff into wetlands.
- Post-construction stabilization would include seeding of airport embankment fills and other disturbed areas.
- Temporary haul roads, including fill, would be removed and disturbed areas would be fertilized and left to revegetate naturally. To the extent practicable, overburden material would be stockpiled and replaced on this footprint to accelerate revegetation.
- Equipment operations (other than preparatory vegetative clearing and placement of fill) and servicing would occur on embankments at least 100 feet from the Takotna River and open waterbodies, and not in wetland areas.
- Fuel, lubricants, and other substances would be stored in double-walled tanks or lined containment berms, with 110 percent storage capacity, more than 200 feet from streams or waterbodies.

- The project footprint, including the 100-foot setback from the Takotna River at Material Site 6, would be staked prior to construction and maintained for the duration of the project.
- No vegetation clearing, fill placement, excavation, or other construction activities would be conducted between May 1 and July 15, except at sites which have been previously disturbed or altered (with fill, plastic, or other material to cover nesting habitat) prior to May 1, to prevent impacts to suitable nesting bird habitat.
- DOT&PF would provide $20,000 in compensation to the Alaska Wetlands Conservation Fund for the approximately 40 acres of permanent and temporary wetlands impacts.

Proposed mitigation for impacts to identified historic trail segments and historic properties, as further described in the revised Memorandum of Agreement (MOA) in Appendix C, include:

- Relocation of the affected portions of the Takotna-Nixon Fork Winter Trail, Takotna Nixon-Fork Summer Trail, and the McGrath – Takotna Winter Trail.
- Development of an interpretive sign, photography and documentation of the trail sections that would be affected by the airport.
- Preparation of an Alaska Heritage Resource Survey card.
- Development of a data recovery plan for the recovery of archaeological data from the Twitchell/Anderson Cabin.
- Data recovery at the Twithcell/Anderson Cabin

Project Cost: Construction cost of Alternative C (Proposed Action) would be approximately $13 million in 2005.

Permits and Clearances: The following permits and clearances would be required to construct this alternative:

- NPDES general permit for construction activities from the U.S. Environmental Protection Agency (EPA), pursuant to Section 402 of the Clean Water Act.
- Water Quality Certification from the Alaska Department of Environmental Conservation (ADEC), pursuant to Section 401 of the Clean Water Act.
- Department of the Army Wetland Fill Permit, pursuant to Section 404 of the Clean Water Act.
- Cultural Resources Review with the State (of Alaska) Historic Preservation Officer (SHPO), pursuant to Section 106, Historic Preservation Act of 1966; Executive Order 11593.
- Mining and reclamation plan for material site development.

3.2.2 No Action Alternative

Description of Action: Under the No Action Alternative, no improvements would be made to the existing airport.

Functional Analysis: The deficiencies and problems listed in Section 2.1 and Table 2-2 would not be corrected or resolved. Runway, RSA, and OFA dimensions would not meet minimum federal standards. Medevac and fuel delivery capability would continue to be compromised.

Environmental Consequences Summary: No construction would take place therefore, no construction induced environmental consequences would occur. The social and economic impacts of being served by an airport below current standards would continue to exist.

Mitigation Measures: No mitigation measures would be proposed for the No Action Alternative.

Project Cost: No construction would take place therefore, no expenditure of construction funds would occur. However, yearly maintenance funding would continue and could possibly increase as the airport facility condition worsens.

Permits and Clearances: No permits, clearances, or waivers would be needed for the No Action Alternative.