

## **4.0 Affected Environment**

### **4.1 Community Description**

Takotna was founded in the early 1900s. The community at this location, which was the upstream limit of access for a small sternwheeler on the Takotna River, served miners after gold was discovered in the Upper Innoko Region. Several trails to surrounding areas were developed during this time. The first airfield was constructed in the 1920s. Low waters adversely affected boat service to the community and in the 1930s McGrath became the primary supply point. Tatalina Air Force Station, 7 miles to the southeast, was constructed in the 1950s and became part of the White Alice communications system. More than 80 miles of old roads connecting Takotna with Tatalina, Sterling Landing (on the Kuskokwim River), and area mines still exist today.

Community facilities include a K-12 school (including a charter high school), a community building, a laundromat and shower facility, a post office, and a gymnasium. Most homes have indoor plumbing. Electricity is provided by Takotna Community Association, Inc., which uses diesel generation. United Utilities, Inc. provides telephone service for local and in-state calls. Out-of-state long-distance service is provided by AT&T Alascom. Figure 4.1 shows the location of community facilities.

### **4.2 Noise**

Airport noise is one of the most common effects of aviation operations encountered in the vicinity of an airport. Aviation noise extends beyond the boundary of the airport into areas over which neither the DOT&PF nor the FAA has authority. Often noise problems develop around airports if the local government has not adopted adequate limitations on incompatible uses. Takotna currently has not instituted airport protection measures to limit the potential for airport noise to impact adjacent development, although the airport is currently located north of the village. Noise analysis is required by the FAA when annual operations are at least 90,000 propeller operations or 700 jet operations.

### **4.3 Compatible Land Use/Land Status**

The lands surrounding Takotna are Alaska Native Claims Settlement Act (ANCSA) 14(c) (3) lands (Figure 4.2). A total of 1,280 acres are held in trust by the State of Alaska for Takotna Village until it becomes a second-class city. As a stipulation of ANCSA, residents only have surface rights to the village land.

Land owned by MTNT Limited, the village corporation for the villages of McGrath, Takotna, Nikolai, and Telida, surrounds Takotna lands. MTNT Limited also has surface rights only. The lands surrounding MTNT Limited land are owned by Doyon Limited, the regional native corporation, and the State of Alaska. Doyon Limited holds the subsurface rights on non-State lands in the project area, except for Native allotments. Four Native allotments have been surveyed and conveyed to allottees. These allotments are located on the south bank of the Takotna River in an area directly across from the village. This land is in relatively pristine condition.

Subsistence hunting and fishing are common activities in the area surrounding Takotna. Roads and trails are used by wheeled vehicles in summer and by snow machines in winter. Gold mining and trapping are popular commercial activities of residents. Takotna is a checkpoint on the annual Iditarod Trail Sled Dog Race.



**Takotna Airport**  
**Project No. 54011**  
**Community Facilities**

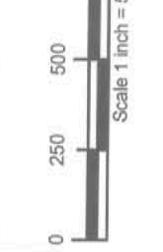
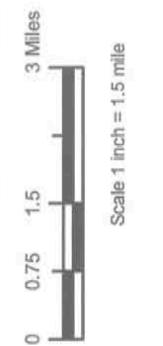
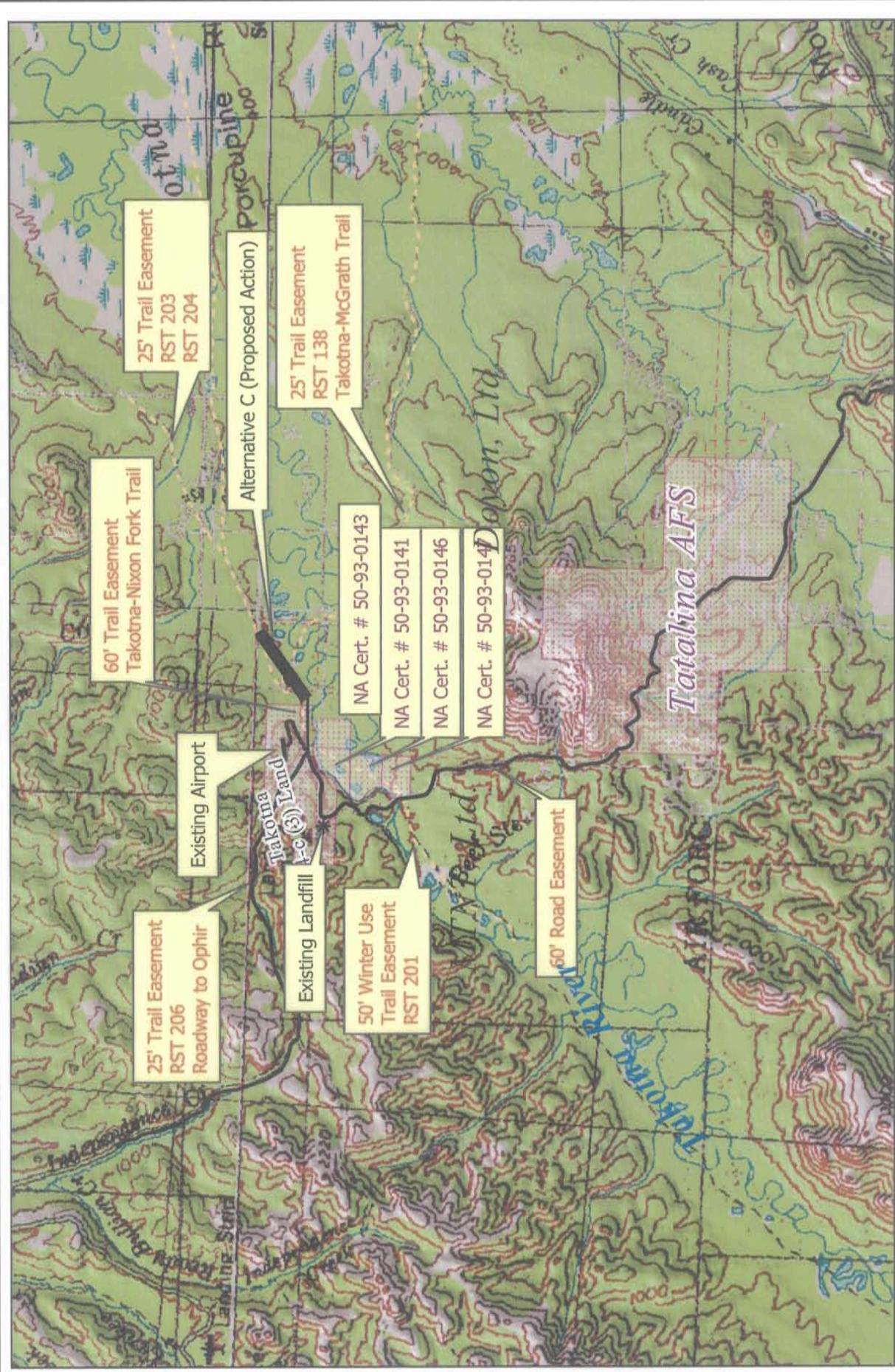


Figure  
**4.1**



Takotna Airport  
Project No. 54011

## Land Status and Trails



Figure  
**4-2**

The existing Takotna Airport is located on land originally established in June 1933 as Air Navigation Site #131. The Department of Interior withdrew 34.4 acres under their jurisdiction for the benefit of the Territory of Alaska, Department of Aviation. DOT&PF now operates Takotna Airport.

The INHT system occurs in the area. Sections of the INHT meet Section 4(f) criteria because of their historic and cultural significance. This is discussed further in Section 4.10, Section 4(f) Property and Section 4.11, Cultural Resources.

A lot adjacent to the east edge of the school lease lot has been identified as the preferred site for a new sewage facility (LCMF 2001). However, there are no plans to construct a new lagoon at this time and ADEC Village Safe Water (VSW) believes near-term construction is unlikely unless priorities change or funding becomes available (Appendix A). The existing landfill is approximately 1 mile (1.25 road miles) west of town on the road to the Takotna River Bridge.

#### ***4.3.1 BLM Easements on the Iditarod National Historic Trail***

In addition to being a National Historic Trail, the INHT is protected by several easements owned by the Bureau of Land Management (BLM). According to the BLM, these easements are described as follows:

- 25-Foot Trail Easement: Accommodates foot traffic, dogsleds, animals, snowmobiles, two- and three-wheeled vehicles, and small all-terrain vehicles (ATVs) less than 1,361 kg (3,000 lbs) gross vehicle weight.
- 50-Foot Trail Easement: Allowed uses include foot traffic, dogsleds, animals, snow machines, two- and three-wheeled vehicles, small and large ATVs, track vehicles, and four-wheel-drive vehicles.
- 60-Foot Road Easement: Accommodates foot traffic, dogsleds, animals, snowmobiles, two- and three-wheeled vehicles, small and large ATVs, four-wheel-drive vehicles, autos, and trucks.
- 1-Acre Bridge Site: This site, located on the south bank of the Takotna River at the Takotna River bridge, is designated for vehicle parking (aircraft, boats, ATVs, snow machines, cars, and trucks), temporary camping, loading, and unloading. Temporary camping, loading, and unloading are limited to 24-hour periods.

#### ***4.3.2 State of Alaska Revised Statute 2477 Rights-of-Way***

The Alaska Department of Natural Resources (ADNR), Division of Mining, Land, and Water, has identified several Revised Statute (RS) 2477<sup>2</sup> rights-of-way in the vicinity of Takotna. RS 2477 was a law enacted to grant public right-of-way across unreserved federal land when people used or constructed routes to guarantee access as land was transferred to State or private ownership. Once a right-of-way was established, it became a “valid existing right” owned by the State. The RS 2477 qualification in Alaska ended in December 1968. Any homesteads, home sites, Native allotments, federal parks, etc., created after RS 2477 was accepted would be subject to these rights-of-way. The following five RS 2477 easements have been identified in the vicinity of Takotna (as shown on Figure 4.2):

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<sup>2</sup> Revised Statute 2477 from the Mining Act of 1866.

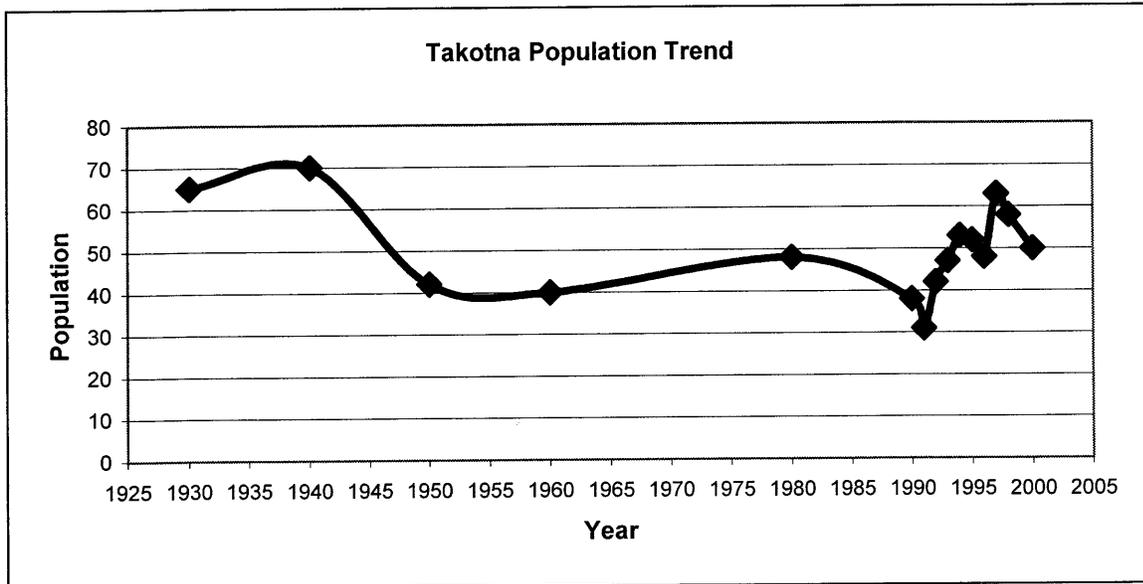
- **RST 138 (IDT-068): McGrath–Takotna Winter Trail.** Starting from the west bank of the junction of the Takotna and Kuskokwim rivers at McGrath, this 18-mile trail heads west, crossing Candle Creek and the Tatalina and Takotna Rivers to arrive at the community of Takotna. The route is shown on the USGS Iditarod D-1 and McGrath D-6 maps. Constructed in 1923 by the Alaska Road Commission, the McGrath-Takotna Winter Trail formed part of the mail route from Nenana to Flat.
- **RST 201: Takotna–Flat Winter Trail Via Moore Creek.** From the Takotna Airport, this 93-mile route heads south along the Takotna River, Fourth of July Creek, Moore Creek, and Bonanza Creek. It ends near the junction of Bonanza and Prince Creeks, at the Prince Creek Trail. It is shown on the USGS Iditarod B-3, B-4, C-2, C-3, and D-1 maps. RST 201 was a winter mail trail, passable by dog team, during the early days of the Iditarod-Flat mining district.
- **RST 203 (IDT-268): Takotna–Nixon Fork Winter Trail.** This is a 14.5-mile route connecting the community of Takotna with McGrath and Medfra. It is shown on the USGS Medfra A-6 and Iditarod D-1 maps. From the early 1900s to the present, RST 203 has been used for hauling freight and people between these communities.
- **RST 204 (IDT-267): Takotna–Nixon Fork Summer Trail.** This trail extends east from Takotna along Porcupine Ridge roughly 15 miles to where the Nixon Fork empties into the Takotna River. The Alaska Road Commission identified this trail as route 80G. DOT&PF’s 1973 *Trails Inventory* shows this route as Trail 5 on Maps 79 (Iditarod Quadrangle) 80 (McGrath Quadrangle) and 89 (Medfra Quadrangle). The route is shown on the USGS Iditarod D-1, McGrath D-6, and Medfra A-6 maps. Constructed by the Alaska Road Commission in 1924, this trail was traveled by packhorses in summer and sleds in winter, to transport freight from the Nixon Fork to Takotna.
- **RST 206: Takotna–Twin Peaks Trail.** Roughly 123 miles long, this trail runs northwest from Takotna and bends north near the headwaters of Canadian Creek. It continues north along ridge tops, passing east of Robert Creek and paralleling it to the east, then traveling north and northeast over the northern slopes of the Cloudy Mountains to the terminus at Twin Peaks. The route is shown on the USGS Iditarod D-1 and Ophir A-1 quadrangles. Historically a summer packhorse trail, RST 206 gave prospectors in the district access to their mines.

#### 4.4 Socio-Economic Conditions

##### 4.4.1 Population

According to the Alaska Department of Community and Economic Development (DCCED) website, the 2000 U.S. Census data indicates that Takotna has 50 permanent residents; with the population fluctuating over the past ten years from 38 residents in 1990 to 58 residents in 1998 (DCCED 2002a). Figure 4.3 depicts the population of Takotna since 1930. Over this period, Takotna’s population has exhibited cyclical boom-bust trends consistent with economies tied to mining, although Takotna’s population may also have been influenced by other regional or statewide economic factors. The village of Takotna is approximately 42% Native and 58% Caucasian (DCCED 2002a).

Figure 4.3. Takotna Village Historic Population



Source: Alaska Department of Community and Regional Affairs

#### 4.4.2 Economy, Employment, and Income

According to the DCCED website, Takotna has a combined cash and subsistence economy with approximately 41 percent of Takotna’s potential workforce employed (DCCED 2005). Governmental entities such as the school district, post office, health clinic and city maintenance provide a majority of the local employment. Local businesses also add to the economic base in Takotna. Gold mining operations, the Iditarod Trail Sled Dog Race, and construction projects provide important seasonal employment. Subsistence is further discussed in Section 4.5

New employment opportunities are emerging due to the Takotna Training Center, a charter high school serving both local and out-of-town students. Created under the Charter School Act of 1995, it was the first charter school in the State and the only high school in Takotna. It is a public school and operates under contract to the local school board. As part of the Iditarod Area School District, it receives funding under the same mechanisms as other schools in the district. The school was started to help maintain economic stability in the village, as well as to improve educational opportunities for Takotna’s young people. School officials report that students from various parts of Alaska and the Lower 48 attend the school. Since 1995, enrollment has averaged 18 students annually.

According 2000 U.S. Census data as indicated on the DCCED website, Takotna’s median household income in 2000 was reported to be \$14,583, with 16.2% of the residents living at or below the poverty level (DCCED 2005).

#### 4.4.3 Subsistence

Subsistence and recreational fishing and hunting are a significant part of the local economy in Takotna. Moose and salmon are the primary meat sources, and many residents garden during the summer (DCCED 2005). Subsistence activities occur within the Takotna River and on the river banks. Most subsistence activities take place to the west of the community (HDR Site Visit Memo 2002, Appendix A), whereas the proposed airport location is approximately one mile east of the community.

#### **4.5 Air Quality**

Takotna is not listed within a nonattainment area or maintenance area for any National Ambient Air Quality Standard pollutants (EPA 2006). Although air quality monitoring for critical pollutants has not been conducted in the Takotna area, air quality in the area is assumed to be good. An Air and Water Quality Certification for the Takotna Airport was signed December 15, 2003 by the DOT&PF (Appendix G). The Certification gives “reasonable assurance” that the airport will be designed, constructed, and operated in compliance with applicable air quality standards.

#### **4.6 Water Quality**

Takotna is located along the north bank of the Takotna River. The Takotna Airport is located approximately 0.4 miles (direct distance) uphill from the community and the Takotna River. The Takotna River is not listed as water quality impaired on the State of Alaska’s 303(d) List (ADEC 2000). Additionally, there are no known water quality impairments to the surface waters surrounding Takotna, and water quality is assumed to be good. The community primarily operates on treated water drawn from Gold Creek (see Section 4.17 for additional information on the community’s water supply).

An Air and Water Quality Certification issued on December 15, 2003 states that the DOT&PF will design, construct, and operate the Takotna Airport in compliance with applicable water quality standards (Appendix G).

#### **4.7 Flood Zones**

The no action and proposed action alternatives would not affect flood zones.

#### **4.8 Section 4(f) Property**

The “main” trail in the Takotna area is the Takotna-Flat Primary Iditarod Trail (IDT-059), which is part of the INHT and runs west between Takotna and Flat. This portion of the historic Iditarod Trail runs along the north side of the Takotna River floodplain and through the community itself (Figure 4.2). Segments of the INHT east of Takotna include the Takotna-Nixon Fork Winter Trail (IDT-268), Takotna-Nixon Fork Summer Trail (IDT-267), and the McGrath-Takotna Winter Trail (IDT-068, RST 138). These segments of the INHT have historic significance and are considered a Section 4(f) property as defined by Section 4(f) of the Department of Transportation Act (1966). A section 4(f) evaluation has been completed separately (Appendix B).

#### **4.9 Cultural Resources**

The ADNR’s Office of History and Archaeology reports that very little is known of the archaeological resources near Takotna. The only archaeological surveys completed in the area were for two Native allotments on the south side of the river about a mile west of town. Nothing was found during these surveys (ADNR-OHA 1999).

Mining activity from the early 1910s and 1920s left a number of historic sites in the area including cemeteries and old structures. Up until 2002, however, no surveys of historic features had been conducted. In 2002, a survey of the project area was completed. Two gravesites of undetermined age and origin reported to the east of the community were not found, however another gravesite in the

general vicinity was identified and may be one described by Takotna residents. A cemetery in the vicinity of the access road to the existing airport was also located.

In 2004, another survey investigated three potential material sites. The remains of a small cabin, a trash or outhouse pit, and a rectangular depression were identified at one potential material site (site 6). The cabin was identified and recorded as the Twitchell/Anderson Cabin (IDT-269). The cabin was determined eligible for listing in the National Register under criterion D (information potential) since the cabin remains have the potential to yield important information in understanding the lifestyles of early to mid twentieth century rural Alaska, and particularly the community of Takotna. Concurrence from SHPO was received on January 20, 2006 (Appendix C).

The Takotna-Nixon Fork Winter Trail and McGrath-Takotna Winter Trail are also eligible for the National Register of Historic Places as component parts of the INHT system.

#### **4.10 Biotic Communities**

The Takotna River meanders within a valley floor dotted with oxbows and ponds, bordered by muskeg, black spruce bog, and boreal forest. Forests in better-drained areas of the lowlands include cottonwood, white spruce, birch, and aspen. Black spruce grows in the more poorly drained soils that are underlain by permafrost. Vegetation common to the muskeg areas includes sedges, mosses, willow, dwarf birch, and other low shrubs. A variety of mammals, birds, and fish inhabit the predominantly boreal forest habitats near Takotna. These biotic communities are described below and in Appendix D.

According to the Alaska Department of Fish and Game (ADF&G) there are no state refuges, critical habitat areas, or sanctuaries within the surrounding Takotna area in the vicinity of the project area (ADF&G 2005).

##### **4.10.1 Wildlife**

The Takotna area supports a variety of mammal species. Lynx, wolverine, marten, ermine, least weasel, mink, and black bear probably breed and forage in the black spruce wetlands surrounding Takotna, and coyote, wolf, red fox, and brown bear may forage in such wetlands but may den elsewhere (Post 1996). A complete list of mammal species that may occur in the project vicinity is included in Appendix D.

Moose likely breed and forage in the wetlands and riparian areas year-around. Plant species used by moose include willow, birch, aspen, alder, cottonwood, and a variety of herbaceous plants. Caribou are winter residents. Black spruce wetlands provide valuable winter range for caribou because of the availability of favorable lichens and herbaceous vegetation.

Waterbodies within black spruce wetlands may provide breeding and rearing habitat for several amphibian species, including wood frogs. Black spruce wetlands also provide excellent foraging habitat for frogs (Post 1996). Wood frogs are the most widely distributed frog in Alaska. The frogs hibernate through the winter in shallow depressions within an organic mat. Wood frogs feed primarily on insects and small animals and, in turn, are preyed upon by birds and larger animals (ADF&G 2000).

**4.10.2 Birds**

The Takotna area supports a variety of waterfowl, raptors, passerines, shorebirds, and grouse. Birds commonly inhabiting the Takotna area include spruce grouse, ravens, red-tailed hawk, spotted sandpiper, short-eared owl, alder flycatcher, boreal chickadee, yellow warbler, common redpoll, mallard duck, and arctic loon. A comprehensive list of bird species that may occur in or around the project area is included at the end of Appendix D. Nearly all of these birds are migratory and are present only from May to November. According to Jan Newton (pers. comm., 4/23/02, Appendix A), bald eagles roost in treetops in the vicinity of the proposed action, although the nearest nesting areas for eagles is approximately 10-20 miles upstream along the Takotna River.

A 1988 amendment to the Fish and Wildlife Conservation Act mandates the USFWS “to identify species, subspecies and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973”. The USFWS devised “The Birds of Conservation Concern, 2002 (BCC 2002)”, which provides a list of migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the highest conservation priorities (USFWS 2002a). Bird species considered for inclusion on the list include nongame birds, game birds without hunting seasons, subsistence-hunted nongame birds in Alaska; and Endangered Species Act candidate, proposed endangered or threatened, and recently delisted species (USFWS 2002a).

In accordance with United States Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) the BCC 2002 has been consulted for this project. Table 4-1 lists bird species from the BCC 2002 for Conservation Region 4 (Northwestern Interior Forest – U.S. portion only) that could occur in the project area. In addition to the species listed in the BCC 2002, a number of Alaska State Species of Special Concern (SSC) may occur in the project area. These are listed also listed on Table 4-1. Refer to Appendix D for a complete list of bird species potentially occurring in the project area.

**Table 4-1. Birds of Concern That May Be Found in the Project Area<sup>3</sup>**

<b>Common Name</b>	<b>Preferred Breeding Habitat</b>	<b>Nesting and Other General Habitat Characteristics</b>	<b>BCC/SSC</b>
Arctic warbler	Birch woods, willow thickets	Nest in grassy tundra or on the ground among streamside willow thickets	BCC
Peregrine falcon	Open country, especially shores and marches frequented by waterfowl and shorebirds, also on cliffs on islands, along the coast and in mountains.	Optimal nesting habitat consists of a cliff face over 200 ft high, and 500 ft or more in length, with more than one good nesting ledge, a wooded slope or open land below, and isolated from roads or other human disturbance	BCC
Arctic Peregrine Falcon	Foraging may occur; may utilize the area for spring and fall migration	Nesting habitat is not likely found in the project area vicinity.	SSC
Blackpoll Warbler	May inhabit conifer forests, mixed	Nest in small conifers or on the ground	SSC

<sup>3</sup> Species and habitat associations data sources: Hagar 1996; Johnsgard 1981; Haymen et al. 1986.

<b>Common Name</b>	<b>Preferred Breeding Habitat</b>	<b>Nesting and Other General Habitat Characteristics</b>	<b>BCC/SSC</b>
	woodland, and shrub thickets in the vicinity of the project.		
Townsend's Warbler	May inhabit conifer forests, mixed woodland in the project area.	Nests in conifers.	SSC
Gray cheeked thrush	May inhabit mixed coniferous woodlands and shrub thickets in the project area.	Nests in bushes or low trees	SSC
Olive-sided flycatcher	May inhabit open coniferous forests and forest edges in the project area.	Nests in conifers.	SSC

**4.11 Essential Fish Habitat and Anadromous Streams**

The Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes indicates that the Takotna River (Anadromous Waters Catalog #335-30-1660-2255) is the only known anadromous fish stream within the project area (ADF&G 2005). ADF&G have investigated fish populations in the river (Appendix A) and report that sculpin, whitefish, grayling, burbot, pike, sucker, lamprey, and coho, Chinook, and chum salmon are present.

The proposed access road would cross an unnamed stream not listed as anadromous approximately 0.75 mi from the village. A fish trapping survey conducted by HDR Alaska, Inc. during a site visit in late September 2000 (Fish Habitat Investigation Memo, Appendix D) supported residents' claims that there are no fish in the stream.

All waters that support anadromous fish species are considered Essential Fish Habitat (EFH) by the National Marine Fisheries Service (NMFS). EFH is defined as "waters necessary to fish for spawning, breeding, feeding, or growth to maturity" by the Magnuson-Stevens Fishery Conservation and Management Act.

**4.12 Threatened and Endangered Species**

The no action and proposed action alternatives would not affect threatened or endangered species.

**4.13 Wetlands**

The USFWS's National Wetlands Inventory (NWI) mapping has not been performed for the Takotna area, but aerial photos and site visits indicate that the general vicinity is dominated by forested and scrub-shrub wetlands. As part of this project, an on-site wetland delineation of the proposed project area (access road and airport) was performed in accordance with USACOE standards (HDR 2002, Appendix E). An approved jurisdictional determination (JD) was obtained from the USACOE on June 5, 2002 (Appendix E). Following approval of the 2002 JD, the project area was expanded to include potential material sites and haul routes. An on-site wetland delineation of unmapped areas (proposed material sites and haul routes) was performed in accordance with USACOE standards in the summer/fall of 2004 (HDR 2005, Appendix E). An approved JD for the proposed material sites

and haul roads was obtained from the USACOE on November 18, 2005 (Appendix E). Wetlands delineated during 2002 and 2004 are shown on Figure 4.4.

Varied habitat, including upland areas and palustrine wetlands, occurs within the proposed airport property boundaries, access road alignment, material sites and temporary haul routes. Boreal forests of birch and white spruce dominate the upland areas. There are some upland habitats of riparian willow and cottonwood. The palustrine wetlands include forested and scrub shrub, emergent/shrub-sedge saturated meadows, and open-water ponds. The saturated forested wetland is composed primarily of stunted black spruce and sphagnum, with ericaceous shrubs and sedges. The saturated and seasonally flooded emergent/shrub-sedge wetland meadow is composed of sphagnum, sedges and ericaceous shrubs, such as Labrador tea, cranberry, crowberry, and blueberry. The permanently flooded pond wetlands are open-water habitats with unconsolidated bottoms and aquatic vegetation. They are bordered by emergent vegetation such as sedges and forbs. Please refer to Appendix E for a complete description of wetland vegetation, hydrology and soils present within the proposed project footprint.

#### ***4.14 Coastal Zone Management Program***

The no action and proposed action alternatives would not affect the local or state coastal zone management programs.

#### ***4.15 Energy Supply and Natural Resources***

##### ***4.15.1 Energy Supply***

Electricity is provided by the Takotna Community Association, Inc. and is generated with diesel fuel. Rates are subsidized through the Alaska Power Cost Equalization Program. Two 50-kW generators and one 80-kW generator are available. Peak demand in Takotna is recorded as 54 kW. Capacity is available to power lights and other equipment at the airport.

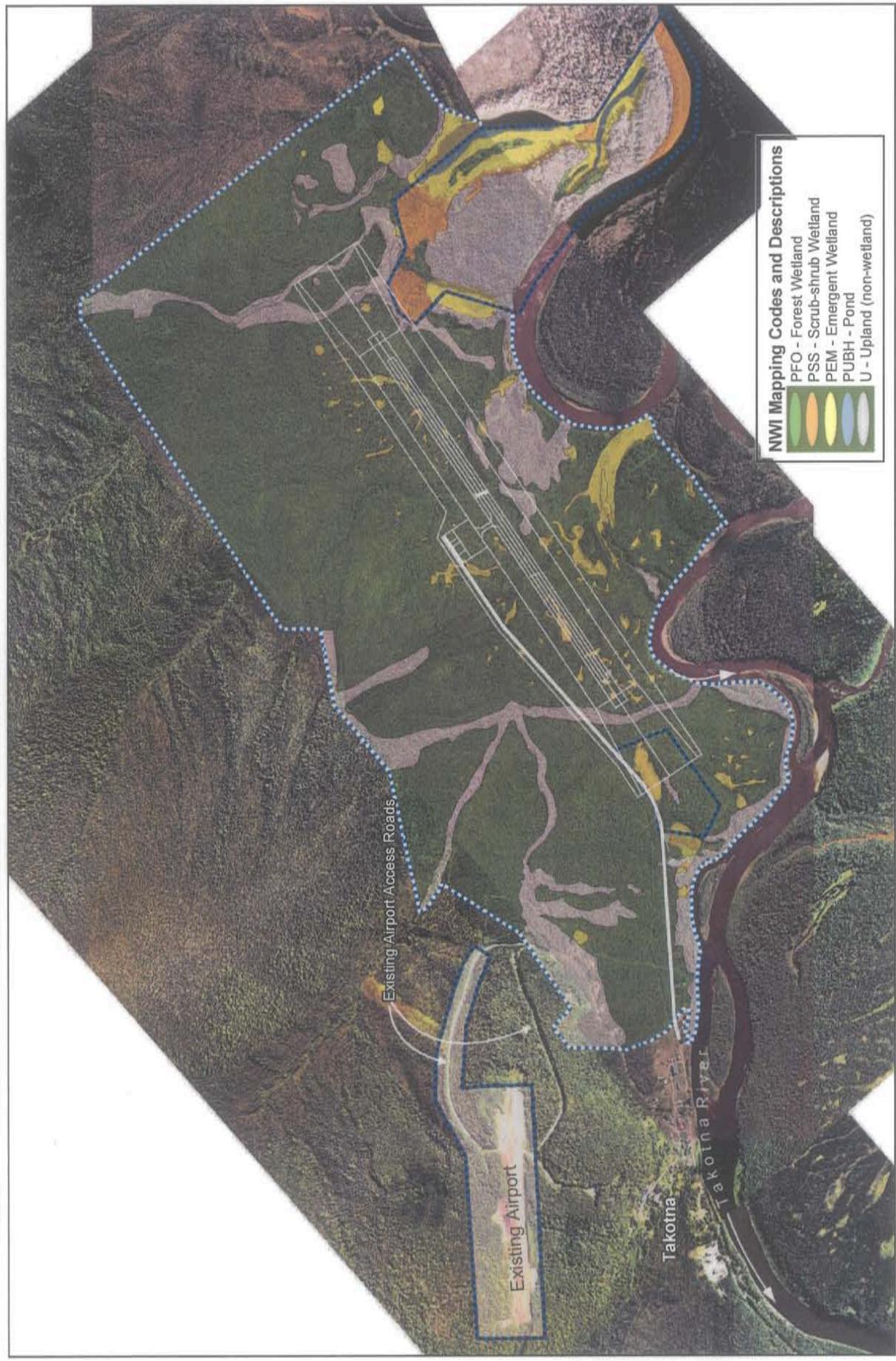
##### ***4.15.2 Natural Resources***

Natural resources required for the project include gravel for surfacing; material for runway embankment, access road, and apron construction; and fuel for operating construction equipment. Adequate supplies of fill and surfacing materials are available locally and material is expected to be supplied from an existing source and new locally developed sites (Figure 3.2).

#### ***4.16 Light Emissions and Visual Resources***

The existing airport does not have lighting. Runway, taxiway, airfield, and navigation equipment lighting are proposed as part of the airport improvements. No concerns about light emissions have been raised by the community.

The visual, or aesthetic, resources of the project area range from disturbed lands consistent with small community development, including network of trails extending in all directions, to undisturbed lands comprised of rolling terrain and muskeg bog. The Takotna River meanders along the southern boundary of the project area. Lower-lying bog areas border the river. Moving further away from the river, elevations increase to become rolling hills and valleys.



Takotna Airport  
Project No. 54011



### Wetlands and Waterbodies with Proposed Action (Alternative C)

**Legend**

- 2002 Mapping Extents
- 2004 Mapping Extents (Proposed Material Sites)
- Proposed Action (Alternative C)

0 750 1,500 3,000  
Feet  
Scale 1 inch = 1,500 feet

#### **4.17 Water Supply and Wastewater**

The community's water is drawn from Gold Creek and treated before use (DCCED 2005). Most homes have running water and flush toilets. Residents haul water from the laundromat and shower facility and from the Takotna Waterworks. Approximately 20% of the homes have storage tanks with running water for the kitchen. Community buildings use individual wells. Honeybucket pits and individual septic tanks are used for sewage disposal. Takotna does not have a sewage lagoon at this time. A feasibility study for water, sewer, and refuse system improvements has been completed (LCMF 2001); see also Appendix A.

#### **4.18 Solid Waste**

According to FAA Advisory Circular 150/5200-33 (1997), solid waste disposal sites, including sewage lagoons, are considered incompatible if located within 5,000 feet of a runway used by piston-powered aircraft, or within 10,000 feet for turbine-powered aircraft, because of the potential for them to act as wildlife attractants. Currently there is no sewage lagoon in Takotna. As mentioned above, honey bucket pits and individual septic tanks are currently used for sewage disposal instead of a sewage lagoon. The existing landfill is approximately 5,300 feet (1 mile) west of town near the Takotna River Bridge.

#### **4.19 Hazardous Waste and Materials**

The no action and proposed action alternatives would not affect hazardous waste and materials.

#### **4.20 Other Planned and Developed Activities**

The community of Takotna has received funding for various community facilities and improvements. Table 4-2 summarizes the projects that have received funding since 2000, and the respective lead agency.

**Table 4-2. Other Planned and Developed Activities in Takotna**

<i><b>Funding Agency</b></i>	<i><b>Year Funded</b></i>	<i><b>Activity</b></i>	<i><b>Funding Amount</b></i>
DCCED	2007	Funded Ophir Road System Maintenance	\$50,000
HUD	2006	Funded Indian Housing Block Grant	\$33,345
DEC/VSW	2003	Funded Water Treatment System Upgrade	\$237,000
HUD	2003	Funded Indian Housing Block Grant	\$25,000
ADEED	2002	Funded School Water Project	\$192,374
DCCED	2002	Funded Utility Office/Lodge Construction	\$26,316
AEA	2002	Funded Bulk Fuel Facility – Phase II	\$182,106
BIA	2002	Funded Bridge Project	\$32,500
HUD	2002	Funded Indian Housing Block Grant	\$25,000
ANTHC	2001	Funded Design New Health Clinic	\$100,200
DCCED	2000	Funded Firehouse Repairs	\$26,352
HUD	2000	Funded Indian Housing Block Grant	\$25,000

DCCED = Alaska Department of Commerce, Community, and Economic Development

ADEED = Alaska Department of Education and Early Development

AEA = Alaska Energy Authority

ANTHC = Alaska Native Tribal Health Consortium

BIA = Bureau of Indian Affairs

DEC/VSW = Department of Environmental Conservation/Village Safewater

DCCED=Department of Commerce, Community, and Economic Development

HUD = U.S. Department of Housing and Urban Development

## 5.0 Environmental Consequences

This section discusses the consequences of the proposed alternatives for the Takotna Airport to selected resources and environmental impact categories.

Table 5-1 lists the impact categories evaluated in this section, and the non-issue categories. FAA Orders 5050.4B (FAA 2006) and 1050.1E (FAA 2004), the Clean Water Act; the Clean Air Act; Section 106 of the National Historic Preservation Act; Section 4(f) of the Department of Transportation (DOT) Act; Magnuson-Stevens Fishery Conservation and Protection Act; Executive Order 11990 (Protection of Wetlands); Executive Order 11988 (Floodplain Management); Executive Order 12898 (Environmental Justice); Executive Order 13084 (Consultation and Coordination with Tribes); and additional topics of concern brought forth by agency and public comments were used as guidance for considering potential environmental impacts of the proposed action. Through various scoping activities and agency correspondence, the non-starred categories have been determined to be non-issues for this project and therefore not included in the project impact analysis. Categories that have been determined as non-issue for this project are explained further in Section 5.19.

**Table 5-1. Environmental Impact Categories**

Noise	*	Floodplains	
Land Use	*	Coastal Zone Management Program	
Social Impacts	*	Coastal Barriers	
Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks	*	Wild and Scenic Rivers	
Air Quality	*	Farmland	
Water Quality	*	Energy Supply and Natural Resources	*
Section 4(f) Property	*	Light Emissions and Visual Resources	*
Cultural Resources	*	Solid Waste	*
Biotic Communities	*	Hazardous Materials	
Essential Fish Habitat	*	Construction Impacts	*
Threatened/Endangered Species		Material Site Impacts	*
Wetlands	*		

\* Included in the EA discussion of environmental consequences because it has been identified as an "issue" warranting discussion due to a potential for impact, public comment, or agency interest.

### 5.1 Noise

Annual operations at the existing Takotna Airport are estimated at 4,035 operations in the year 2020 (USKH 2000), well below the FAA's threshold of 90,000 for noise analysis. Changes to approach and departure patterns over the community may cause a shift in local noise.

**Alternative C (Proposed Action).** The aviation forecast for Takotna Airport predicts a slight change in the fleet mix and number of operations; however, the proposed action is not expected to significantly change airport noise impacts in the community, since the noise would not be expected to be at or above the 65 dB threshold. Relocating the airport to the proposed location one mile east of town is likely to slightly lower the amount of airport noise currently experienced by the community and any sensitive noise areas.

Construction impacts are discussed in Section 5.15.

**No Action Alternative.** The No Action Alternative would have no direct, construction-related noise effects, and no long-term changes in noise from aircraft operations would occur. However, changes in noise at the airport may still occur if flight operations increase, because the projected growth in activity is independent of airport improvements.

## ***5.2 Compatible Land Use***

**Alternative C (Proposed Action).** Under the proposed action, ownership of the existing airport at Takotna would be transferred to Takotna Village. Although the community has not expressed any development plans in the area of the airport, the existing access road may be used for community expansion in the future.

The proposed action would require acquisition of approximately 130 acres of property. The proposed action would be constructed on MTNT lands outside the Takotna municipal boundary to avoid conflicts with city planning; MTNT has indicated it would sell land for airport development (Figure 5.1). Doyon, Limited and State-owned lands surround the MTNT land. Doyon holds the subsurface rights in the project area and excavation of subsurface materials would require a material sale agreement with Doyon, Ltd. In addition each agreement would require a mining and reclamation plan (Norm Phillips, Doyon Ltd., Resource Manager, pers. comm. 2/2/05). Should the contractor choose to obtain material from sources not permitted by the DOT&PF, they would be responsible for securing the necessary permits for material site development from the State and the surface estate owner. The DOT&PF contract language requires the contractor to be responsible for ensuring that all required material source permits and clearances are obtained prior to the start of construction.

The proposed action would not impact existing community facilities. Currently there is no sewage lagoon to pose a possible hazard as a bird attractant, although a site has been identified approximately 4,500 feet to the west of the proposed airport and would not meet the recommended 5,000 foot separation. According to VSW, construction is not imminent (Appendix A). Additionally, the proposed airport would be located approximately 11,000 feet (2.1 miles) from the existing landfill (see Section 5.14 for further discussion on the sewage lagoon and landfill).

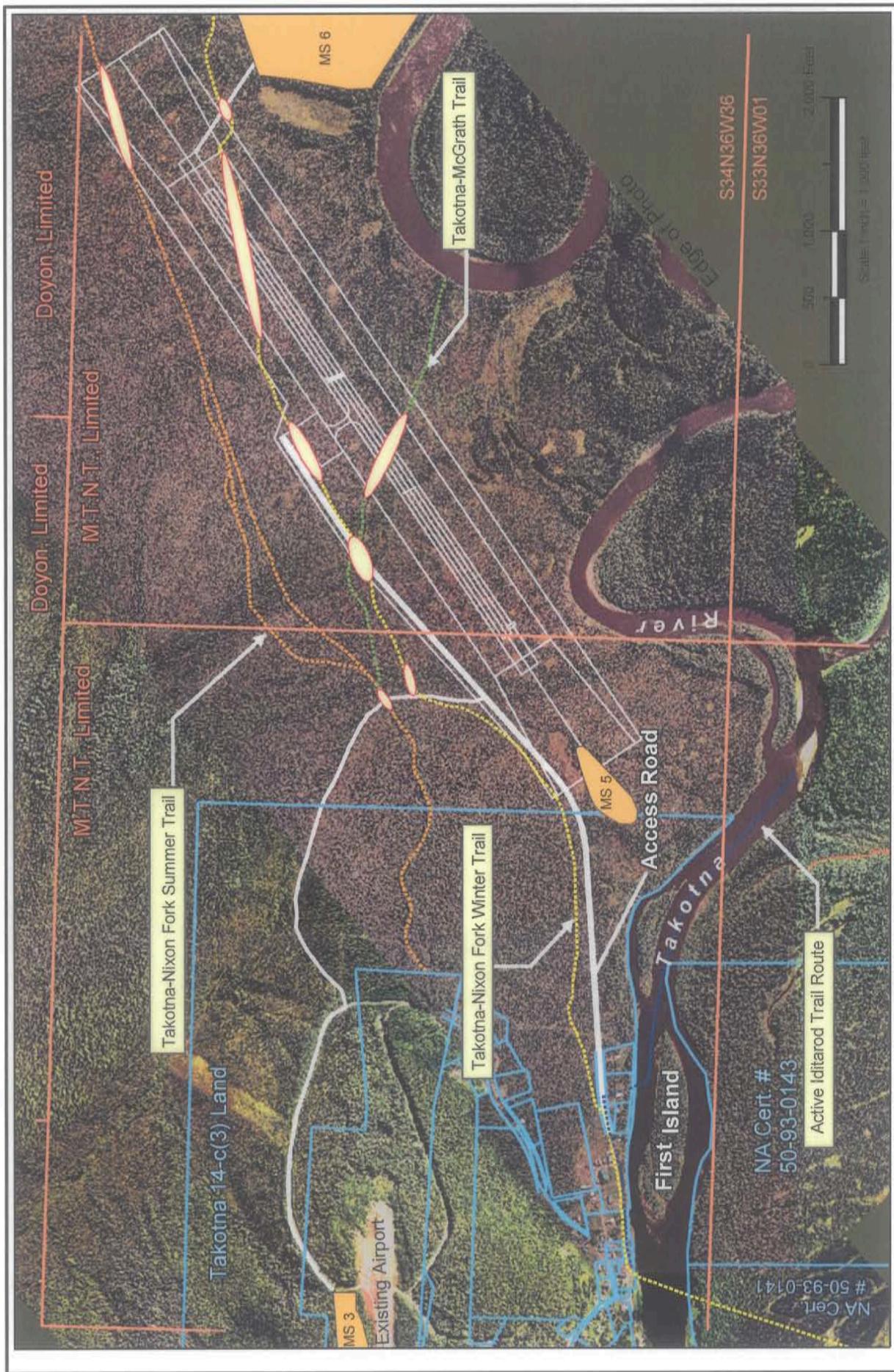
Potential impacts to the INHT are discussed in Sections 5.7 and 5.8.

**No Action Alternative.** The No Action Alternative would have no effect on land use or community facilities. The preferred site for a new sewage lagoon is within 5,000 feet of the existing airport. While construction is not imminent, facility design would need to be coordinated with the FAA and incorporate measures that would minimize the facility as a bird and wildlife attractant. Additionally, the Takotna airport is located approximately 5,300 feet (1 mile) from the existing landfill.

## ***5.3 Social Impacts***

**Alternative C (Proposed Action).** The proposed action would not require the relocation of any residence or business; divide or disrupt established communities; disrupt orderly or planned development; or create changes in employment. Surface transportation patterns would be modified to the extent that the runway would cover portions of the Takotna-Nixon Fork Winter Trail and the McGrath-Takotna Winter Trail. Both trails are eligible for the National Register as component parts of the INHT system. See Section 5.7 and Appendix C for further discussion.

Residents of the village have noted during project public meetings and site visits that they support the airport relocation project (Appendix A). Since the proposed action involves improving the safety of the runway by correcting the deficiencies of the existing airport, the build alternative would enhance



Takotna Airport Project No. 54011  
**Land Status and Trail Segments within Proposed Action (Alternative C)**

Figure 5-1

- Section Line/Corporation Property Boundary
- Native Allotment/Property Boundaries
- Takotna-Nixon Fork Summer Trail
- Takotna-Nixon Fork Winter Trail
- Takotna-McGrath Trail Spur
- Active Iditarod Trail Route

**Legend**

- Impacted Trail Segments
- Proposed Action (Alternative C)
- Material Sites

public safety for residents, visitors, travelers for the Iditarod Trail Sled Dog Race, and pilots traveling to and from Takotna. Relocating the airport would slightly increase the distance from town to the airport, from approximately 0.9 miles to 1.1 miles; however, the lower elevation and gentler topography would allow for easier foot travel to and from the airport for those in the community.

**No Action Alternative.** The No Action Alternative could have negative social impacts to Takotna residents and visitors as the existing airport may not be able to fulfill its function safely and efficiently.

#### **5.4 Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks**

**Alternative C (Proposed Action).** The proposed action is intended to accommodate future demands as efficiently as possible. Relocating the airport would be integral to ensuring the safety of flights to and from Takotna. There is community concern that Takotna needs an airport that can accommodate aircraft capable of transporting fuel to the village, equipment and machinery to support local mining operations, and commuters to the local charter school. The proposed action would provide a runway length capable of supporting aircraft able to transport fuel to the village, as well as medevac aircraft for emergency medical evacuation.

Takotna residents indicate the project would have no adverse impact on subsistence activities in the area. Subsistence activities occur primarily on the Takotna River and in areas west of the community (HDR Site Visit Memo 2002, Appendix A). The proposed airport would impact a section of the McGrath-Takotna Winter Trail that is used by one resident for trapping purposes; however, these subsistence activities are not restricted to being practiced only along that trail and could occur in other locations near the community. There are no plans to relocate the affected part of the trail. The Iditarod sled dog race route would not be affected by the proposed project. While the race uses portions of the INHT on the route between Anchorage and Nome, the INHT trail sections in the vicinity of the proposed project are not used in the race: competitors travel along the Takotna River to the Takotna checkpoint on Main Street.

This project is not expected to have disproportionately high and adverse human health or environmental effects on minority and low-income populations since almost half of the population (42%) of Takotna is an ethnic minority and there is no specific area populated largely by low-income or minority populations.

Children may suffer more environmental health and safety risks because of their size and behavior; however, this project is also not expected to provide disproportionate health and safety risks to children because the proposed action would move the airport farther away from where children may gather and would not expose contamination or other materials that are unsafe for children.

Opportunity for public involvement was provided through one public meeting in the community and a teleconference in which the public was invited to participate (see Section 6.1) and two newsletters (Appendix A). Comment was sought from members of the community on the development alternatives and the opportunity to identify areas used for subsistence activities was provided. Almost all of the community relies to some extent on subsistence activities. Income and poverty estimates based on the 2000 U.S. Census put the per capita income at \$13,143 and median household income at \$14,583. An estimated 6 persons (16.2 percent) were in poverty (DCCED 2005). Evaluation of other impact categories, such as air and water quality, did not identify any significant impacts with

the potential to disproportionately affect minority and low income populations or children. Relocation of the airport would result in a reduction in aircraft noise to the community.

**No Action Alternative.** The No Action Alternative would have no impact on subsistence, but could have long-term direct and indirect effects on socioeconomic conditions in Takotna. Without improvements to meet existing and forecast needs, the airport might not be able to effectively fulfill its function as a community transportation facility. There is community concern that Takotna needs an airport that can accommodate aircraft capable of transporting fuel to the village, equipment and machinery to support local mining operations, and commuters to the local charter school. Without improvements, the community of Takotna would continue to have a substandard runway unable to support transporting fuel by air or medevac aircraft.

### 5.5 Air Quality

**Alternative C (Proposed Action).** Aircraft engines emit water vapor, carbon dioxide (CO<sub>2</sub>), small amounts of nitrogen oxides (NO<sub>x</sub>), hydrocarbons, carbon monoxide, sulfur gases, and particulate matter and metal particles formed by the high-temperature combustion of jet fuel during flight. The Takotna Airport is not within a nonattainment or maintenance area, and according to planning for this project, Takotna's annual operations is approximately 3,000 and by 2025 the annual operations will be around 4,500. FAA guidance states that air quality analysis is needed if an airport is within a nonattainment or maintenance area. Also, if it is a general aviation airport with less than 180,000 annual operations, an air quality analysis is not needed. Therefore, a conformity analysis is not needed for the proposed action.

An Air and Water Quality Certification for the Takotna Airport project was signed on 12/15/2003 by the DOT&PF (Appendix G). The Certification gives "reasonable assurance" that the airport would be designed, constructed, and operated in compliance with applicable air quality standards. Construction impacts are discussed in Section 5.15.

**No Action Alternative.** The No Action Alternative would not change air quality in the Takotna area.

### 5.6 Water Quality

**Alternative C (Proposed Action).** Impacts to water quality would be minimal and temporary. The project is located more than a mile from Gold Creek and would not pose an adverse impact to the community water supply. The proposed airport access road would cross a small stream east of the village that flows into the Takotna River. Design would include culverts and other drainage features that would maintain natural drainage patterns. As described in Section 4.11 and in Appendix D, no fish were found in this stream and no impacts to EFH are anticipated. Material Site 6 is located adjacent to the Takotna River. A 100-foot buffer would be maintained between the site and the river and no work would occur in or on the banks of the Takotna River, an anadromous fish stream. A mining and reclamation plan would be prepared for all material sites as a condition of development.

The proposed action would require removal of vegetation and excavation and placement of fill material. Approximately 104 acres (including both uplands and wetlands) would be disturbed by the project (see Table 5-2 in Section 5.9 for further breakdown of acreages). 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.

In conjunction with this EA, DOT&PF applied for a Certificate of Reasonable Assurance from ADEC, in accordance with Section 401 of the Clean Water Act, for fill placed in wetlands. As noted above, DOT&PF signed an Air and Water Quality Certification for the project on 12/15/2003 (Appendix G).

Construction activities could result in direct, short-term effects on water quality due to potential erosion from construction sites. Since the proposed project requires more than one acre of ground disturbing activity, the construction contractor would be responsible for obtaining a NPDES general permit for construction activities. Prior to construction, the DOT&PF would prepare an ESCP, which would be reviewed by ADEC. The contractor would be required to use the ESCP to develop the SWPPP, which would address measures to protect water quality during on-site construction activities. Implementation of an ESCP, SWPP and the appropriate use of BMPs would prevent and minimize construction-related storm water impacts. See Section 5.15 for further discussion on construction-related water quality impacts.

**No Action Alternative.** The No Action Alternative would not change water quality in the Takotna area.

#### **5.7 Section 4(f) Property**

**Alternative C (Proposed Action).** The construction of the Proposed Action would involve a physical take of the McGrath-Takotna Trail Spur (IDT-068), the Takotna-Nixon Fork Winter Trail (IDT-268), and the Takotna-Nixon Fork Summer Trail (IDT-267). Specifically, the runway apron and access road would cover portions of the Takotna-Nixon Fork Winter as well as McGrath-Takotna Trail. Access roads to Material Site 3 would similarly cover portions of the Takotna-Nixon Fork Summer Trail. Please refer to the Section 4(f) Evaluation for more details (Appendix B).

The trails are eligible for the National Register under Criterion A (events) as component parts of the INHT system.

According to 1050.1E Appendix A Section 6, the significance threshold identified for 4(f) properties is when the actions physical use would be more than minimal or its constructive use substantially impairs the 4(f) property. In either case, the threshold would be passed when mitigation is not enough to sustain the resources designated use of the property. Mitigation for the impacts (see Section 5.8-Cultural Resources) would sustain the designated use of the property.

There are no prudent or feasible alternatives to the use of the Section 4(f) property and all possible planning to minimize harm to the property has been incorporated into the proposed action. The other alternatives considered early in the project had engineering, operational, or environmental concerns associated with them that made them infeasible.

In June 2006, the SHPO, FAA, and BLM reviewed and signed an MOA for impacts to affected trails. The DOT&PF and Takotna Village Council are concurring parties on the MOA (Appendix C).

**No Action Alternative.** The No Action Alternative would not affect 4(f) property.

## 5.8 Cultural Resources

**Alternative C (Proposed Action).** Section 5.7 (Section 4[f] Property) summarizes the impacts to those cultural resources which are also 4(f) properties. In addition to the impacts to the above listed historic trail segments, direct impacts to the Twitchell/Anderson Cabin (IDT-269), including possible removal, would occur with the use of Material Site 6.

As resolution of adverse affects to historic properties, mitigation measures have been developed and agreed to in an MOA. Consulting parties on the MOA include FAA, BLM, SHPO, DOT&PF, and Takotna Tribal Council. DOT&PF and Takotna Tribal Council are concurring parties. FAA, SHPO, and BLM are signatories on the MOA (Appendix C). In a letter dated March 13, 2006, the Advisory Council on Historic Preservation chose not to participate in the MOA, but requested a copy of the MOA, pursuant to 36 CFR 800.6(b)(iv). As required by Section 106 of the National Historic Preservation Act, public consultation was conducted for this project. Details regarding activities are included in Section 6.1 (Public Involvement) of this document.

Proposed mitigation for impacts to identified historic trail segments, as further described in the MOA (Appendix C), include:

- Trail easement relocation of the affected portions of the Takotna-Nixon Fork Winter Trail, Takotna Nixon-Fork Summer Trail, and the McGrath – Takotna Winter Trail as necessary to provide for continued public trail access.
- 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.

Mitigation for impacts to the Twitchell/Anderson cabin ruins will involve data recovery, in order to document and recover information from the site prior to airport construction, as outlined in the MOA among FAA, SHPO, BLM, the Takotna Village Council and DOT&PF (Appendix C).

One known gravesite is in the vicinity of a proposed temporary haul road from Material Site 3. Gravesites reported and/or identified near the community will be avoided.

An archeological survey, no matter how intensive, can only provide a sampling of a project area. Should previously undiscovered cultural material be identified during construction, all work in the vicinity will be halted until appropriate authorities and MOA consulting and signatory parties can be notified immediately to address resolution.

**No Action Alternative.** The No Action Alternative would not affect historic or cultural resources in the Takotna area.

## 5.9 Biotic Communities

**Alternative C (Proposed Action).** Plant and wildlife communities described in Section 4.10 and Appendix D would be impacted by airport improvements at Takotna. As shown in Table 5-2, biotic communities within the project area, including temporary material site haul routes and clearing areas, would be disturbed during construction and permanently displaced from the project's footprint. 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. Therefore displaced species are likely to move to unoccupied habitats. In the unlikely event that unoccupied habitats are unavailable, the loss of habitat would result in a permanent loss of wildlife.

**Table 5-2. Total Acres Impacted by Airport Feature**

Airport Feature	Acres of Project Impacts (Wetland and Upland)		
	Permanent Cut and Fill	Temporary Cut and Fill	Clearing Only*
Airport (runway, taxiway, apron)	26.8	--	--
Airport RPZ	--	--	27.5
Access Road	6.4	--	--
Material Site 3	6.9	--	--
Material Site 5	2.8	--	--
Material Site 6	26.5	--	--
Site 3 Haul Route <sup>1</sup>	--	6.7	--
Site 5 Haul Route <sup>1</sup>	--	0.2	--
Site 6 Haul Route <sup>1</sup>	--	1.0	--
<b>Total Project Impact</b>	<b>68.4</b>	<b>7.9</b>	<b>27.5</b>

\*Chain saw and hydro-ax would be used for clearing in the RPZ. Mechanized land clearing into the vegetative root zone would not occur.

Avian habitat within the project component footprints would be permanently lost or modified, and bird species using that habitat would be permanently displaced. Species within the limits of excavation at material sites would be displaced until the sites were rehabilitated and revegetated. Species using adjacent habitats would be disturbed during construction and more sensitive birds would be permanently displaced from habitats adjacent to the proposed access road and runway. Extraction activities at Material Sites 3 and 6 would likely go below the water table resulting in creation of open water habitat.

The project area is in the potential range of the arctic warbler, listed on the Birds of Conservation Concern (BCC 2002). The preferred habitat type for the arctic warbler, scrub shrub willow thickets which may serve as potential nesting areas, occurs along an approximately 200-foot section of the airport access road. It is unlikely that Arctic warblers that use this habitat would be permanently displaced, since this habitat type is abundant throughout the immediate area outside the project footprint. Direct habitat loss for the other species listed as Birds of Conservation Concern (that may be located in the vicinity of Takotna) would not be expected and therefore would not be directly affected by the proposed action. Birds, including those State Species of Special Concern discussed in Section 4.10.2, using those areas would experience the noise of aircraft taking off and landing at the airport, the noise and sight of airborne aircraft, and the noise and sight of vehicles using the access road. No birds of concern were identified by resource agencies during project scoping.

The following minimization measure has been incorporated into 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.

**No Action Alternative.** The No Action Alternative would have no new effect on biotic communities.

### 5.10 Essential Fish Habitat

**Alternative C (Proposed Action).** No work would occur in or on the banks of the Takotna River, a known documented anadromous fish stream and EFH. Although Material Site 6 is adjacent to the Takotna River, excavation activities, including overburden stockpiling and construction equipment use would maintain a setback from the river, designated at a minimum of 100 feet landward of the ordinary high water mark.

No new barge sites or river crossings would be required to mobilize equipment and materials to the project site. Construction materials and equipment would be offloaded at the existing Sterling Landing barge site on the Kuskokwim River, located 24 miles southeast of Takotna. Materials would be transported to the village using the Takotna-Sterling Landing Road and Takotna River Bridge and would not impact EFH.

The proposed airport access road would traverse a stream east of the village, which is a tributary to the Takotna River. As described in Section 4.11 and in Appendix D, no fish were found in this stream and no impacts to EFH are anticipated.

Construction impacts and proposed mitigation are discussed in Section 5.15.

**No Action Alternative.** The No Action Alternative would have no effect on known anadromous streams or EFH.

### 5.11 Wetlands

**Alternative C (Proposed Action).** The proposed alternative would adversely affect wetlands by placing fill for airport components and by developing material sources. Approximately 36.0 acres of wetlands would be permanently impacted by fill or excavation activities. An additional 5.7 acres of wetland would be temporarily filled to construct material haul roads. Tables 5-3 and 5-4 summarize the wetland type and acreages permanently and temporarily impacted by the airport alignment, new access road and transmission line route, and material sites and associated temporary haul routes. Figure 5.2 depicts the wetland boundaries and the project footprint.

Construction of the airport access road would permanently fill approximately 6.4 acres of wetlands. The road alignment has been designed to avoid wetlands wherever possible. However, in areas where it is impossible to avoid wetlands, the access road crosses wetland areas at their narrowest points. Culverts would be placed at all cross drainages along the access road to preserve natural hydrologic conditions to the extent practicable.

Approximately 26.8 acres of wetlands would be permanently cut or filled to construct the runway, taxiway, apron, and aviation support area embankments. Avoidance of wetlands is not feasible – a runway is a linear feature that must meet minimum length, width, safety area, and clear zone standards. The proposed location was selected because it could accommodate an airport that meets recommended design standards, including wind coverage, while minimizing environmental impacts. Topography prevents development in any other location (see the discussion below for mitigation).

Excavation activities within Material Sites 3 and 6 would avoid impacts to wetlands as the sites are located entirely within uplands. Overburden spoils would be placed in uplands. Excavation and overburden stockpiles at Material Site 5 would impact approximately 2.8 acres of wetlands. Temporary haul routes from Material Sites 3, 5, and 6 would temporarily impact 4.6, 0.2, and 0.9 acres of wetlands, respectively (see Table 5-4). Following completion of construction, temporary fill



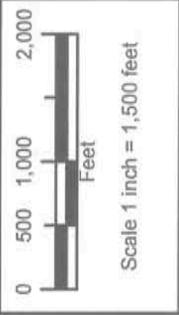
Figure  
**5-2**



Takotna Airport  
 Project No. 54011  
**Wetlands within  
 Proposed Action Area**

- NWI Mapping Codes and Descriptions**
- PFO - Forest Wetland
  - PSS - Scrub-shrub Wetland
  - PEM - Emergent Wetland
  - PUBH - Pond
  - U - Upland (non-wetland)

- Legend**
- Proposed Action (Alternative C)
  - Temporary Haul Roads
  - 2002 Mapping Extents
  - 2004 Mapping Extents (Revisited)
- See Wetland Delineation & Wetland Function Assessment Reports (HDR 2002 & 2005)



would be removed and the haul routes would be regraded to original contours. Wetland areas would be left to revegetate naturally and upland areas would be stabilized. Material sites would be reclaimed.

All the wetland types in the project vicinity function in nutrient cycling that supports the food web of the area. Organic nutrients from plant and animal sources are transported through the wetlands or used on site. All wetlands in the project area provide plant and wildlife habitat (Appendix E). The types of wetlands potentially affected are pervasive in the project area and their loss or modification would have only an incremental impact on the local and regional environment.

**Table 5-3. Permanent Wetland Impacts for Proposed Action (Alternative C)**

Wetland Type (NWI Symbol)	Description	Acres of Cut and Fill				
		Access Road	Airport (runway, taxiway, apron)	Material Site 3	Material Site 5	Material Site 6
PSS4B/C	Palustrine scrub shrub, saturated/seasonally flooded	0	0	0	0	0
PEM1B	Palustrine, seasonally saturated wet meadow	0.1	3.1	0	0.02	0
PFO1/SS4B	Palustrine, saturated broad-leaved forest/needle leaved scrub-shrub wetland	0	0	0	0	0
PFO4/SS1B	Palustrine, saturated needle leaved forest/broad-leaved scrub-shrub wetland	6.3	23.7	0	2.8	0
<b>Total Permanent Wetland and Waterbody Impacts</b>		<b>6.4</b>	<b>26.8</b>	<b>0</b>	<b>2.8</b>	<b>0</b>
<b>Total Permanent Wetland and Waterbody Impacts</b>					<b>36.0</b>	

**Table 5-4. Temporary Wetland Impacts for Proposed Action (Alternative C)**

Wetland Type (NWI Symbol)	Description	Acres of Cut and Fill				
		Access Road	Airport (runway, taxiway, apron)	Material Site 3 Haul Route <sup>1</sup>	Material Site 5 Haul Route <sup>1</sup>	Material Site 6 Haul Route <sup>1</sup>
PSS4B/C	Palustrine scrub shrub, saturated/seasonally flooded	0	0	0	0	0.7
PEM1B	Palustrine, seasonally saturated wet meadow	0	0	0	0	0
PFO1/SS4B	Palustrine, saturated broad-leaved forest/needle leaved scrub-shrub wetland	0	0	0	0	0.2
PFO4/SS1B	Palustrine, saturated needle leaved forest/broadleaved scrub-shrub wetland	0	0	4.6	0.2	0
<b>Total Temporary Wetland and Waterbody Impacts</b>		<b>0</b>	<b>0</b>	<b>4.6</b>	<b>0.2</b>	<b>0.9</b>
<b>Total Temporary Wetland and Waterbody Impacts</b>		<b>5.7</b>				

<sup>1</sup>Haul routes are temporary: fill would be removed and the routes rehabilitated following reclamation of material sites.

**Wetland Finding**

Executive Order (E.O.) 11990, "Protection of Wetlands," and Section 404 of the Clean Water Act, as amended, mandate that federally funded projects are to avoid construction in wetlands unless (1) there is no practicable alternative and (2) the proposed action includes all practicable measures to minimize harm to wetlands. In compliance with E.O. 11990 and FAA guidance, the proposed alternative has been determined to be the only practicable alternative for the project.

Avoidance of wetlands is not feasible because a runway is a linear feature that must meet minimum length, width, safety area, and clear zone standards. The proposed location was selected because it could accommodate an airport that meets recommended design standards, including wind coverage, while minimizing environmental impacts. No reasonable upland alternative exists because topography prevents development in any other location. Documentation for this finding is shown in a "Wetland Avoidance and Minimization Checklist" (AMC) attached in Appendix G.

Based on the information provided in the checklist, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands that might result from such use.

### **Impact Minimization and Mitigation**

In accordance with the multi-agency MOA regarding mitigation and wetland impacts, the DOT&PF must document the evaluation of avoidance and minimization measures considered in the project analysis (FAA et al. 2003). Documentation for minimization and mitigation is in the AMC in Appendix G. The draft Department of Army (Wetlands) Permit application is also located in Appendix G.

Avoidance and minimization measures incorporated into the project include the following:

- 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 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.
- Drainage from the airport would be designed to minimize the potential for transport of sediments off the project site and into wetlands adjoining the project area.
- Culverts and ditching would be installed along the access road and runway, taxiway, and apron embankments and the temporary material site access routes to maintain natural drainage patterns to the extent practicable.
- The airport access road, apron, runway and taxiway sideslopes would be stabilized by seeding to minimize erosion and sedimentation.

Measures to minimize construction impacts to wetlands are discussed in Section 5.15.

As per the MOA, projects that have been developed in conformance with the MOA have, as a preliminary matter, avoided and minimized impacts to wetlands to the maximum extent practicable. Unavoidable impacts to wetlands would be compensated by DOT&PF at \$500 per acre, deposited into the Alaska Wetlands Conservation Fund. Since there is no practicable alternative to construction in wetlands and all practicable measures to minimize harm have been included, the DOT&PF proposes compensation in the amount of \$20,000 for the approximately 40 acres of wetlands permanently and temporarily impacted by the proposed action.

A Department of the Army Wetland Fill Permit (Section 404) application would be submitted for construction work in wetlands and DOT&PF would abide by all commitments made in this EA and in the AMC. The AMC would be included in the Section 404 application.

**No Action Alternative.** The No Action Alternative would have no impact on wetlands and no Section 404 permit would be needed.

## ***5.12 Energy Supply and Natural Resources***

### ***5.12.1 Energy Supply***

**Alternative C (Proposed Action).** Takotna's diesel generating capacity is 180 kW (two 50-kW generators and one stand-by 80-kW generator). Peak energy demand in Takotna is recorded as 54 kW. The build alternative proposes the installation of airport lighting which would increase energy requirements. The construction of an airport with a 4,000-foot runway would cause a slight increase (about 5 kW) in local energy consumption. Runway lighting is radio operated and limited to 15

minutes after each landing and take-off. Generating capacity is available to meet the increased demand.

### 5.12.2 Natural Resources

Natural resources required for the project include gravel for surfacing; embankment material for the airport access road, runway, taxiway, apron and aviation support area construction; and fuel for operating construction vehicles. The relocation alternative would increase demand for natural resources, however, adequate local supplies are available for the proposed project and anticipated future local needs.

**No Action Alternative.** The No Action Alternative would have no effect on energy supply or natural resources in the Takotna area.

### 5.13 Light Emissions and Visual Resources

**Alternative C (Proposed Action).** Relocation of the runway would result in light emissions in an area where none previously existed. New light sources include medium intensity runway lighting, wind cone lighting, and a rotating beacon. Runway lighting, typically activated only for short periods prior to and following a take-off or landing, would not be visible to most residents in town. Impacts would be minor for those who could see the airport.

The visual character of the area would be permanently modified with the construction of a new access road and airport. Vegetative clearing, excavation, and fill activities would disturb approximately 104 acres of forested land and wetlands (see Table 5-2 in Section 5.9 for a further breakdown of acreages). Visual impacts would not be visible from the community but would be visible from higher elevations, including the existing airport.

**No Action Alternative.** The No Action Alternative would have no new effect on light emissions in the Takotna area.

### 5.14 Solid Waste

**Alternative C (Proposed Action).** The relocated airport would be located approximately 11,000 feet from the existing landfill at Takotna. This distance is well outside the FAA-recommended separation distance of 5,000 feet between a solid waste facility (potential bird attractant) and a runway used by a piston-type aircraft. Any expansion of solid waste disposal facilities is expected to be at the current site which has adequate capacity.

The preferred site for a new sewage lagoon is approximately 2,800 feet from the proposed new airport location. This distance does not meet the FAA-recommended separation distance of 5,000 feet between a solid waste facility, including sewage lagoons, and a runway used by a piston-type aircraft. While construction is not imminent, facility design would need to be coordinated with the FAA and incorporate measures that would minimize the facility as a bird and wildlife attractant.

The build alternative may temporarily increase solid waste generation related to construction activities. Any increase in solid waste generation would be minimal and would not significantly impact the current solid waste disposal facility.

**No Action Alternative.** The No Action Alternative would have no effect on solid waste in Takotna.

### 5.15 Construction Impacts

**Alternative C (Proposed Action).** Reconstructing the airport in a new location would likely have temporary impacts, including increased noise and dust (associated with the use of heavy machinery during construction), possible impacts to surface water quality (from erosion and sediment mobilization from disturbed areas), and minor effects on air quality (from construction equipment exhaust emissions and fugitive dust). Construction may also generate a temporary increase in traffic in the construction area. Construction could disturb wildlife in adjacent habitats and could potentially result in the loss of bird habitat.

There would be a short-term direct noise impact associated with the use of heavy construction machinery, including noise associated with hauling materials from sites. Temporary haul routes would be located a significant distance from the village, minimizing noise impacts to residents. At the request of the community, the Material Site 3 haul route was located to avoid the existing airport access road and proximity to residences and businesses. Blasting could be required to mine materials at the material sites. Noise from construction of the majority of the project is not likely to affect the community due to the airport's distance from the village and vegetative screening. Noise could temporarily displace wildlife; however, impacts are anticipated to be temporary and minor. The project contractor would ultimately determine the method of mobilization for construction equipment, which would likely include use of the existing barge-landing site at Sterling Landing and subsequent transportation to Takotna via the Takotna-Sterling Landing Road. Construction activities may result in a temporary increase in energy use, but these are not anticipated to have a measurable effect on local energy supplies.

Construction activities could result in direct, short-term effects on water quality due to potential erosion and runoff from construction sites. In accordance with Section 401 of the Clean Water Act and the Alaska Water Quality Standards, a Certificate of Reasonable Assurance issued by the ADEC would be required before design could be authorized. Construction plans would include measures to control erosion and sedimentation. Since the proposed improvements would disturb more than 1.0 acre of ground, compliance with the storm water NPDES general permit for construction activities would be required. The construction contractor would be responsible for complying with the NPDES general permit. The contractor would prepare and implement a SWPPP that describes BMPs and site-specific measures to prevent and minimize construction-related storm water impacts. These practices may include the following:

- Seeding slopes, as soon as practical, of the new access road, runway, apron, and taxiway.
- Installing temporary erosion control measures, including wood excelsior mats, straw bales and/or silt fencing until the newly seeded slopes are stabilized.
- Installing diversion dikes to channel runoff away from the disturbed soils.
- Phasing development to minimize the amount of disturbed area exposed during construction.

The proposed action could have a minor direct, short-term effect on air quality in the Takotna area during construction of the proposed improvements. Operation of construction equipment may result in localized, temporary increases in emissions of exhaust. Ground disturbing activities and stockpiling of fill material may result in increased emissions of fugitive dust from the construction area. BMPs would be used to minimize windblown dust from the project site. These practices may include the following:

- Pre-water sites prior to excavation.

- Reduce vehicle speeds on excavated sites.
- Cover or otherwise stabilize fill material stockpiles.
- Temporary seeding and maintaining vegetative buffers.
- Phase development to minimize disturbed areas exposed during construction.

**No Action Alternative.** The No Action Alternative would have no construction impacts or material site impacts in the Takotna area.

### 5.16 Material Site Impacts

**Alternative C (Proposed Action).** Approximately 429,000 cy of fill and surfacing material (25,000 cy of which is temporary fill) would be required to construct the proposed alternative. Approximately 409,000 cy of material would be embankment fill and 20,000 cy surfacing material. DOT&PF soils investigations tested six potential material sites, of which three were identified to provide suitable material for this project (see Figure 5.2) while limiting environmental impacts.

Material Site 3 is an active rock quarry located next to the existing airport runway. This site is utilized by local residents for various uses. Material from Site 3 would be used to construct a temporary access road to the airport site. The proposed haul road was not routed along existing roads through town at the request of residents who were concerned about construction impacts (e.g., dust, noise, transportation disruptions). The alternative route selected would place fill in approximately 5.7 acres of wetland. The fill would be temporary and would be removed following completion of construction activities.

Material Site 5 has not been developed and is located between the west end of the proposed runway and the proposed access road. Material Site 5 contains silty gravel and silty sand materials most suitable for embankment construction. Material Site 6 is located southeast of the proposed runway, adjacent to the Takotna River and contains excellent crushable material suitable for the airport runway, access road surfacing and the runway embankment. However, the quantity of surfacing material available may not be adequate to complete the project hence the need for sites 3 and 5.

The estimated size of each material site is:

- Site 3 – approximately 5.4 acres in area (2.4 acres existing material source and 3.0 acres proposed expansion area), with development of an approximately 4,000-foot temporary haul route
- Site 5 –approximately 2.9 acres in area, with a 200-foot temporary haul route
- Site 6 –approximately 10.8 acres in area, with a 350-foot temporary haul route

Staging areas and overburden stockpiles would be located within the footprint of each site. Specific conditions particular to the operational plan would be submitted with the project contractor's Reclamation Plan to comply with AS 27.19 and 11 AAC 97. Development guidelines for material sites (M.S. No. 123-456-1) would be followed for all locations. The DOT&PF contract language requires the contractor to be responsible for ensuring that all required material source permits and clearances are obtained prior to the start of construction.

Material site impacts would include vegetation clearing, excavation, habitat disturbance and modification and habitat loss. Approximately 2.8 acres of palustrine forested and scrub shrub wetlands at Material Site 5 would be excavated. Plant and wildlife habitat within the footprint of the material sites would be modified, and animal species using that habitat would be temporarily or

permanently displaced. Species using adjacent habitats would be disturbed during construction and more sensitive animals would be displaced from those habitats for the period of construction.

Blasting might be required to mine materials at all three sites; however, specific blasting needs would not be determined until the construction phase of this project. If blasting was necessary at Material Site 6, the contractor would be required to coordinate with ADNR's Office of Habitat Management and Permitting regarding measures to minimize the potential effects of blasting on fish in the nearby Takotna River. Excavation activities at Material Sites 5 and 6 may go below the water table. If dewatering is needed, it would be the responsibility of the Contractor to obtain dewatering permits from ADEC. A 100-foot buffer would be retained between the Takotna River and disturbed areas of Material Site 6.

Clearing of vegetation for material extraction would expose soils, potentially increasing runoff and mobilizing sediment. The NPDES SWPPP prepared for the project would specify measures to prevent and minimize adverse effects related to storm water runoff from material sites during construction. Permanent stabilization of disturbed areas, including haul routes and material site berms, would occur following completion of mining activities and would be in accordance with terms and measures laid out in the material site development plan.

Extraction activities at site 3 would be conducted to minimize impacts to existing airport operations, including maintaining safe setbacks from the runway and operational areas. Site 3 is currently utilized by residents of Takotna and would remain open for future use by the community. The DOT&PF anticipates that Material Sites 5 and 6 would be permanently stabilized and closed following completion of the project.

The Twitchell/Anderson cabin ruins are located toward the southwest margin of Material Site 6. The project proposes to extract materials from an area of approximately 10 acres and could involve removal of the cabin. Should Material Site 6 be chosen for development, mitigation will occur to document and recover information from the site prior to airport construction, as outlined in the MOA among FAA, SHPO, BLM, the Takotna Village Council and DOT&PF (Appendix C).

The DOT&PF contract language requires the contractor to be responsible for ensuring that all required material source permits and clearances, including reclamation plans (Reclamation Plan to comply with AS 27.19 and 11 AAC 97) are obtained prior to the start of construction.

**No Action Alternative.** The No Action Alternative would have no material site impacts in the Takotna area, except the continued use of Material Site 3 for maintenance activities.

### ***5.17 Secondary Impacts***

Secondary impacts are those outside the immediate influence of construction and operation of the project. They may be physically some distance from the project or may occur later in time as a "spin-off" or induced effect of the project (40 CFR 1508.8).

**Alternative C (Proposed Action).** The proposed action would result in a large parcel of land (the existing airport) transferring to the Takotna Village, to be available for community development, which could limit to some extent community expansion into undeveloped areas. Although the community has not expressed any development plans in the area of the airport, the existing access road may be used for community expansion in the future. However, due to the steepness in topography at this location, the relocation of the runway is not likely to open up land beyond the already disturbed existing airport property for community development.

Construction of a new access road to link the community with the airport would provide access to private lands to which there is currently no road access. Although the community has not expressed any development plans in the area of the airport, the existing access road may be used for community expansion in the future. If future development occurred, it could lead to further habitat and wetland loss, further displacement of sensitive animals, and further impacts to the INHT system. Airport access roads funded through the Airport Improvement Program (AIP) cannot be used for any use other than airport access. Use of the airport access road to access adjacent lands for development would require reimbursement to FAA.

**No Action Alternative.** The No Action Alternative would cause no additional impacts to habitat, wetlands, sensitive animals, or subsistence areas.

### ***5.18 Cumulative Impacts***

Cumulative impacts are those that result from the incremental consequences of an action when added to other past, present and reasonably foreseeable future action. Cumulative effects can result from several individually minor impacts which may collectively be substantial over time (40 CFR 1508.7).

**Alternative C (Proposed Action).** The extent of development evaluated for potential cumulative impacts may include: the existing development and activity at Takotna, the proposed airport improvements and associated activity and potentially very limited development along the airport access road. The proposed action, when added to reasonably foreseeable projects in Takotna, is not expected to have significant cumulative impacts on the human, biological, or physical environment.

Cumulative impacts on water quality would occur primarily from soil erosion and runoff from roads, and the existing and new runways. Taking into account the proposed mitigation measures and the dispersed nature of any effects from this project, the incremental addition of this alternative to other existing and foreseeable development would have minimal cumulative effects on hydrology and water quality.

The proposed action alternative would result in a loss or alteration of vegetation and wildlife habitat. That loss of habitat and fragmentation of habitat by the road and runway and the associated activity would be in addition to the disturbance effects on wildlife that occur near the community. Large mammal and bird species that are particularly sensitive to human activity might experience excessive disturbance from multiple sources and be displaced to a less developed part of the area. In the unlikely event that suitable habitats elsewhere are fully occupied, some loss of individual animals might occur. Improved access to subsistence areas through development of the access road could also lead to an increase in harvest of some wildlife species. Considering the level of expected development relative to the availability of similar vegetation and wildlife habitat in the vicinity, cumulative effects to vegetation and wildlife resulting from this alternative would not be significant.

Most development in the Takotna vicinity has been small scale, having relatively little effect on wetlands. Some wetlands were most likely filled to construct infrastructure in the community. Potential growth in the area may require fill in wetlands. Continued loss of wetland resources to development would lead to a reduction in wetland functions. These wetland functions include moderating stream flows, producing plant material that supports downstream ecosystems, providing wildlife habitat, and supporting fish habitat by providing stream cover and structure and food sources. Because the incremental loss of wetlands resulting from the proposed action alternative is relatively small and dispersed, and the total loss of wetlands in the area is expected to be small, cumulative impacts to wetlands would not be significant within the context of the Takotna vicinity.

The following are possible actions to mitigate cumulative effects:

- Tribal councils are able to apply for EPA grant funding for community and/or environmental planning, through the Indian General Assistance Program, or other EPA grant programs that support projects related to “smart” or sustainable growth. A local Tribe could obtain funding for community and/or environmental planning in Takotna.
- The village of Takotna could implement a plan to assist community members in minimizing runoff of sediment-laden water as they develop their land.

**No Action Alternative.** The No Action Alternative would not enhance or reduce cumulative impacts for village of Takotna.

### ***5.19 Non-Issue Categories***

The following paragraphs cover each “non-issue” category (see Table 5-1), with an explanation of why the categories were deemed non-issues.

#### ***5.19.1 Floodplains***

The project is not located within a floodplain or flood hazard area (USACOE 1999).

#### ***5.19.2 Threatened and Endangered Species***

There are no listed threatened or endangered species, and there is no designated or proposed critical habitat in the vicinity of the proposed project (USFWS 2002; NMFS 2002).

#### ***5.19.3 Coastal Management Program***

This project is not located within the Alaska Coastal Zone (ADNR-OPMP 2005).

#### ***5.19.4 Coastal Barriers***

There are no coastal barriers in the State of Alaska as defined by the Coastal Barrier Resources Act of 1982 as amended by the Coastal Barrier Improvement Act of 1990 (USFWS 2005).

#### ***5.19.5 Wild and Scenic Rivers/Wilderness***

There are no wild and scenic rivers, wilderness areas, or wildlife refuges in the project area (NPS 2005).

#### ***5.19.6 Farmland***

There is no “prime and unique farmland,” no “farmland of statewide importance,” nor “any farmland of local importance” in Alaska under federal definitions (NRCS 1999).

#### ***5.19.7 Hazardous Materials***

As described in the initial site assessment (see Appendix F), there have been no hazardous material sites documented in the project area.

## 6.0 Coordination and Permits

### 6.1 Public Involvement

Opportunities for public input in the project development stage were provided through outreach and coordination efforts. Public involvement activities included meetings with agency representatives and the community of Takotna, telephone conversations with community and tribal officials, and an on-site visit with the community of Takotna. Two project newsletters describing the project and inviting input were mailed to agency representatives and to residents of Takotna in September 2000 and April 2002. A public meeting was held in the community on September 25, 2000, and in Anchorage on May 13, 2002 (in which the public was invited to attend by teleconference). See Appendix A for the project newsletters and meeting notes.

A newspaper advertisement was placed in the *Anchorage Daily News* and the *Tundra Drums* advertising a May 13, 2002 combined agency/public scoping meeting held at the HDR office in Anchorage. There were no Takotna residents in attendance (or via teleconference) at this meeting. See Appendix A for public involvement materials.

Public involvement to this point has indicated support for the project and has not identified any significant impacts that cannot be mitigated. Community members noted the presence of potential gravesites to the east of the community and subsistence use along the McGrath-Takotna Winter Trail that may be affected (HDR Site Visit Memo 2002, Appendix A). The community also stated that most subsistence uses of the surrounding lands are not occurring in the project area. Residents expressed support for the project as it would result in easier foot access for the community. Aircraft operators indicated that the current location of the runway causes difficulties when conducting operations and they supported the relocation of the airport to a more accessible area. Several residents handed in written comments expressing a need for a minimum runway length of 3,800 feet, and many expressed interest in a 4,000-foot runway (Appendix A).

### 6.2 Agency Coordination

An agency meeting (combined agency/public) was held May 13, 2002 at the HDR Alaska office in Anchorage. Ten people attended this meeting. Scoping letters with preliminary research results and graphics were sent to agencies prior to this meeting. Meeting notes, copies of scoping letters, telephone conversation records and written comments are included in Appendix A.

Agency comments indicated that there are wetlands under the jurisdiction of the USACOE and various biotic communities are known to exist in the community. The USFWS and NMFS indicated that there were no Threatened or Endangered Species in the project area under their jurisdiction. The ADF&G indicated that only the main stem of the Takotna River, which is not in the project area, is catalogued as anadromous fish habitat. However, the ADF&G believed that although no anadromous fish resources are documented in the stream east of town (crossed by the proposed access road) this may need to be verified (Appendix A). A fish habitat investigation was conducted which confirmed that the stream east of town was unlikely to be an anadromous fish resource (Appendix D).

Agency representatives also expressed concerns related to impacts to the McGrath-Takotna Winter Trail in the project area. The project team met with the BLM and SHPO on October 19, 2002 to discuss mitigation for impacts to the McGrath-Takotna Winter Trail and the INHT system. A MOA was developed during the Section 106 consultation process that provided adequate mitigation for the McGrath-Takotna Trail impacts. Subsequent to the MOA, potential material sites and temporary

material haul routes have been identified and the proposed runway length extended from 3,300 feet to 4,000 feet. An additional MOA was developed to address the potential material sites, temporary material site haul routes, and the proposed runway length of 4,000 feet, and signed on June 5, 2006.

The draft EA for the Tanana Airport was released on March 28, 2007. The draft EA was sent along with a cover letter to federal and state agencies and local and tribal governments. Table 6-1 lists agency comments received during the review of the draft EA. Copies of agency correspondence received on the draft EA are found in Appendix A.

**Table 6-1. Comments on the Draft EA for the Takotna Airport**

Agency	Comments	Response to Comments
ADNR-OHMP	The proposed Material Site 6, if developed, will border the Takotna River, which is anadromous. The OHMP strongly suggests, that if developed, a sufficient vegetated buffer (300-500 ft wide) be maintained between the active material site and the Takotna River.	<b>Sections 3.2.1 and 5.16 state that:</b> DOT&PF have committed to a 100-foot buffer between Material Site 6 and the Takotna River at this stage.
	A Fish Habitat Permit will not be required for any aspect of this project, as proposed. The OHMP has no objection to the project at this time.	No response required.
ADNR OPMP	The location of Takotna Airport Project is not within the coastal zone boundaries of Alaska. Therefore, a State review for consistency with the Alaska Coastal Management Program (ACMP) is not required.	No response required.
ADNR Division of Mining, Land & Water Iditarod Trail Easements	There is a signed Memorandum of Agreement between the Alaska State Historic Preservation Officer, the FAA and BLM (with DOT&PF and the Takotna Tribal Council concurring) to move the Iditarod Trail segments and maintain the easements that BLM holds for both trails in the project area. Since the access and existing easements are being preserved, there are no additional concerns from us for the project.	No response required.
USACOE	Would overburden material be stockpiled and replaced on the temporary haul roads footprint to accelerate revegetation after the roads are removed.	<b>Section 3.2.1 Mitigation Measures, the following was added:</b> To the extent practicable, overburden material would be stockpiled and replaced on this footprint to accelerate revegetation.
	Would clearing for the RPZ involve mechanized land clearing down through the vegetative root zones, or clearing above the ground surface with equipment such as a hydro-ax?	<b>Table 5-2, the following was added:</b> Chain saw and hydro-ax would be used for clearing in the RPZ. Mechanized land clearing into the vegetative root zone would not occur.

Agency	Comments	Response to Comments
	<p>If the RPZ clearing involves mechanized land clearing into the vegetative root zone, this work would need to be included in the DA permit application.</p> <p>Permit application cross-section drawings should show average toe-to-toe footprint widths and acreage figures should reflect estimated toe-to-toe footprints.</p> <p>Wetland Avoidance and Minimization Checklist, part V, No. 1 reads “Project overburden <b>could</b> be stockpiled for use as topsoil for revegetation of embankment side slopes. Where feasible, stockpiling will occur in uplands.” Please clarify that stockpiling and reuse of overburden would be a project requirement.</p> <p>Regarding seeding and revegetation, what efforts would be made to ensure regrowth of vegetation native to the area?</p>	<p>The vegetative root zone would not be cleared.</p> <p><b>Appendix G:</b> Cross-section figures accompanying the permit application were changed to include average toe-to-toe footprint widths and figures showing acreage now reflect the estimated toe-to-toe footprints.</p> <p><b>Appendix G4 Section V. Additional Material Site Considerations:</b> Project overburden would be stockpiled for use as topsoil for revegetation of embankment side slopes to the extent practicable. Where feasible, stockpiling will occur in uplands.</p> <p>Consultation with the Alaska Plant Materials Center (APMC) would occur. To control erosion and sedimentation the slopes of the new bypass road, apron, and safety area will be planted with species recommended by the APMC. Temporary erosion control measures, including wood excelsior mats, straw bales and/or silt fencing, will be kept in place until the new plants can bind the soil.</p>

### 6.3 Permits

Permits and authorizations required for construction of the proposed action are summarized in Table 6-2. Draft permit applications are contained in Appendix G.

**Table 6-2. Regulatory and Permitting Requirements**

Type/Agency	Regulatory Authority	Permit Status
Storm Water NPDES General Permit for Construction Activities/EPA Region 10	Section 402, Clean Water Act	SWPPP not part of EA submittal - permit will be obtained by Contactor
Water Quality Certification/ADEC	Section 401, Clean Water Act	
Cultural Resources Review/SHPO	Section 106, Historic Preservation Act of 1966; Executive Order 11593	
Department of the Army Wetland Fill Permit/USACOE	Section 404, Clean Water Act	
Mining and Reclamation Plan Doyon Limited	N/A	

USACOE= U.S. Army Corps of Engineers

ADEC = Alaska Department of Environmental Conservation

EPA= Environmental Protection Agency

SHPO= State Historic Preservation Officer

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Initial Site Assessment	Sally Morsell, HDR Alaska
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Wetlands Analysis	Sally Morsell, HDR Alaska Jeff Schively, HDR Alaska
Surveying/Aerial Photos	USKH Kodiak Mapping

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