

## 3 Transportation Inventory

Transportation systems in the study area include roads and highways, air travel, trails, railroads and river access. The most prevalent form of transportation in the Interior is via road, with over 80 percent of the region's communities on the road system. Roads provide access to recreation areas, mining and resource development, military bases and North Slope oil and gas developments.

### 3.1 Existing Highway System

Roadways serve as a critical link between port cities and communities that make up the Interior Alaska region, while also supporting many of the other transportation modes. Motor vehicles, bicycles, pedestrians, transit, and freight transportation all rely on roadways to some degree.



*Richardson Highway, Isabel Pass*

Roadways also provide vehicle access to airports, waterways, and rail facilities.

The public roadway system within the study area is primarily owned and maintained by the Alaska DOT&PF.

**National Highway System (NHS)** – Includes all interstate roads, defense routes, principal arterials and routes between intermodal facilities.

**Alaska Highway System (AHS)** – Includes roads connecting recreational areas, resource development areas and some communities.

Figure 1 shows the DOT&PF highway system and identifies the NHS and AHS facilities in the study area. Following is a brief description of each NHS and AHS facility.

Figure 1 Highway Systems



### 3.1.1 Functional Classification

A roadway's *functional classification* describes its role in the transportation system. In general, the functional classification of a roadway is based on the varying degree of its two primary functions: 1) providing regional mobility, and 2) promoting local accessibility.

The classifications of the State highways within the study area are provided in Table 0-1. The DOT&PF is currently reviewing functional classifications. The table below shows the current roadway classifications for roads within the study area.

**Table 0-1 Roadway Classification**

<b>NATIONAL HIGHWAY SYSTEM (NHS)</b>			
<b>Highway</b>	<b>Mile Post</b>	<b>Geographic Boundary</b>	<b>Classification</b>
Alaska Highway	1222-1422	Canadian Border – Delta Junction	Rural Interstate
Dalton Highway	0 – 232	Elliott Hwy – Study Area Boundary	Rural Other Principal Arterial
Elliott Highway	0 - 68	Fox – Dalton Hwy	Rural Other Principal Arterial
Glenn Highway	127 – 187	Study Area Boundary - Glennallen	Rural Interstate
Parks Highway	128 - 305	Study Area Boundary – FNSB Boundary	Rural Interstate
Richardson Highway	69 - 340	Study Area Boundary - Glennallen	Rural Other Principal Arterial
		Glennallen – Tok Cutoff	Rural Interstate
		Tok Cutoff – Delta Junction	Rural Minor Arterial
		Delta Junction – FNSB Boundary	Rural Interstate
Tok Cutoff Highway	0 - 125	Gakona Junction - Tok	Rural Interstate
<b>ALASKA HIGHWAY SYSTEM (AHS)</b>			
<b>Highway</b>	<b>Mile Post</b>	<b>Geographic Boundary</b>	<b>Classification</b>
Denali Highway	0 - 135	Parks Hwy – Richardson Hwy	Rural Major Collector
Elliott Highway	68 - 154	Dalton Hwy Jct.- Manley Hot Springs	Rural Major Collector
Edgerton Highway/ McCarthy Road	0 - 91	Richardson Hwy - McCarthy	Rural Major Collector
Lake Louise Road	0 - 19	Glenn Hwy – Lake Louise	Rural Major Collector
Nebesna Road	0 - 41	Tok Cutoff (Slana) - Nebesna	Rural Major Collector
Steese Highway	43 - 162	FNSB Boundary – Circle	Rural Major Collector
Taylor Highway	0 - 93	Alaska Hwy – Top of the World Hwy	Rural Minor Arterial
	93 - 160	Top of the World Hwy – Eagle	Rural Major Collector
Top of the World Hwy	0 - 14	Taylor Hwy – U.S./Canada Border	Rural Minor Arterial

Source: Alaska DOT&PF

Other agencies also use functional classification for roadways under their various jurisdictions throughout the study area. For example, the Bureau of Indian Affairs (BIA) provides functional classifications for routes within Native communities in Alaska.

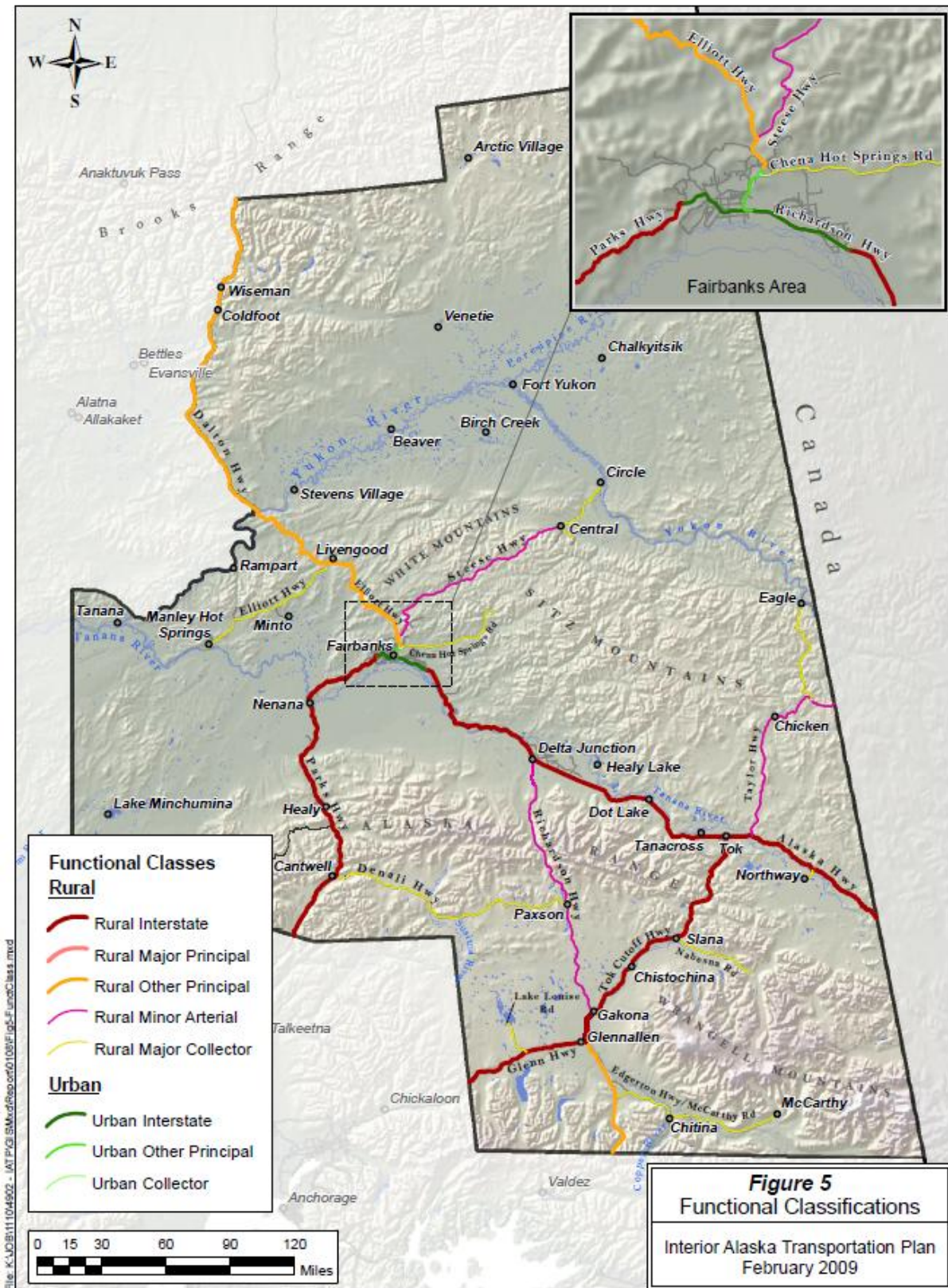
Local jurisdictions typically establish the functional classification of roadways using a similar hierarchy but often define them differently. Functional classification definitions are provided below:

- **Arterials** represent the highest class of road. These roadways are intended to serve higher volumes of traffic, particularly through traffic, at higher speeds. They also serve truck movement and should emphasize traffic movement over local land access. In some cases, arterial streets are further designated as “major/principal” or “minor.” Major/principal arterials have higher design speed, fewer access points per mile, and usually do not permit direct private driveway access. Minor arterials usually connect with major/principal arterials.
- **Collectors** represent the intermediate roadway class. As their name suggests, these roadways collect traffic from the local street system and distribute it to the arterial street system. These roadways provide a balance between traffic movement and land access and should provide extended continuous stretches of roadway to facilitate traffic circulation through the area. Collector streets are sometimes divided into two categories – urban collector/rural major collector and minor collector. Urban collector/rural major collector have the same basic roadway design, but are differentiated by urban features like bike lanes and sidewalk. Minor collectors serve lower volume of traffic and have lower design speeds than urban collector/rural major collector roadways.
- **Local** roads and streets are the lowest roadway class. Their primary purpose is to provide local land access and to carry locally generated traffic at relatively low speeds to the collector street system. Local streets should provide connectivity through neighborhoods, but should be designed to discourage cut-through vehicular traffic.

Figure 2 shows the classification of the major roadways within the study area.



Figure 2 Functional Classifications



### 3.1.2 Existing Traffic Volumes and Roadway Operations

The Highway Data section for DOT&PF collects and processes traffic count data gathered on Alaska's highways and prepares Annual Traffic Volume reports. Figure 3 illustrates the 2005 Annual Average Daily Traffic (AADT) volumes on all major DOT&PF roads in the study area. As shown in the figure, traffic volumes are relatively low (less than 1,000 AADT) along the majority of study roadways and increase steadily around areas of destination (i.e. cities, communities, recreation areas). The roadways with the highest traffic volume levels (ranging between 1,500 and 10,000 AADT) are the Glenn Highway, the Richardson Highway, and the Parks Highway.

The following table indicates the Truck Percentages for several routes within the study area.

**Table 0-2 Highway Truck Percentage**

Location	% Trucks	Year
Alaska Hwy at Gardiner Creek	31%	2006
Chena Hot Springs Road, west of Nordale	13%	2007
Dalton Highway, south of Coldfoot	70%	2007
Edgerton Highway, east of Richardson Highway	13%	2006
Elliott Highway North of Fox	25%	2007
Glenn Highway at Nelchina Maintenance station	28%	2004
Parks Highway at East Fork	24%	2007
Parks Highway at Nenana	19%	2007
Richardson Hwy at Moose Creek 12	14%	2007
Richardson Hwy at Gulkana	27%	2007
Tok Cutoff, 5 miles from AK Hwy Junction	27%	2007

A qualitative planning level assessment of the rural highway system reveals no major roadway capacity constraints. A qualitative assessment was used because the roads analyzed are mostly rural, two-lane facilities with relatively low traffic volumes, although higher traffic volumes occur within the more populated areas of the study area, such as the Glenn Highway near Glennallen and the Richardson Highway near North Pole.



**Figure 3 Annual Average Daily Traffic Volumes**



The operational characteristics of road corridors are based on standard engineering procedures called Level of Service (LOS). Level of Service considers the design characteristics and capacity of a given roadway and its ability to handle traffic based on the AADT and typical Peak Hour Traffic volumes. LOS criteria and descriptions are taken from the Highway Capacity Manual (HCM). LOS A and B are generally very good, LOS C and D are generally good to fair, while LOS E and F indicate stop-and-go traffic conditions. Most roads within the study area currently operate at a LOS A and B, with the exception of those roads located near more populated areas such as Fairbanks or North Pole where the level of service occasionally falls to LOS C.

### **3.1.3 Roadway Safety**

The safety analysis of the roadway network was conducted by analyzing safety data provided by DOT&PF. Historical crash data were collected from DOT&PF for the five-year period between 2001 and 2005. Crash density (number of crashes per mile), crash severity, and crash rates were used to identify locations with safety concerns.

Crash rates per million vehicle miles (crashes/MVM) were computed for each roadway segment (three-mile segments) over a five-year period. Crashes/MVM is a standard measure of crash occurrence on roadway segments. This measure is a function of the following factors of the given roadway: a) length of the roadway segment; b) average daily traffic volumes; and; c) frequency of crash occurrence.

As a method of evaluating computed roadway crash rates, statewide average crash rates for a range of facility types were analyzed. Table 0-3 summarizes the DOT&PF roadway classifications and corresponding statewide average crash rates for 2005.



**Table 0-3 DOT&PF Statewide Average Crash Rates, 2005**

Road Category	Category Type*	Statewide Crash Rate for 2005
A	Undivided Urban & Rural Interstate	1.164
B	Divided Rural Interstate	1.292
C	Divided Urban Interstate/Other Freeway & Expressway	1.035
D	Divided or Undivided Rural Arterial Either Principal or Minor	1.102
E	Divided or Undivided Rural Collector/Local, Major or Minor	1.190
F	Undivided Urban Arterial/Principal or Minor/Two Way Traffic	1.857
G	Undivided Urban Arterial/Principal or Minor/One Way Traffic	3.557
H	Divided Urban Arterial/Principal or Minor	1.594
J	Divided or Undivided Urban Collector & Local Roads	2.095

\*A divided roadway indicates that opposing traffic is separated by a nontraversable median or barrier.

The DOT&PF computed rates reflect an average rate of crash occurrence, and therefore can be used to calculate a *critical crash rate* for any given roadway segment. A critical crash rate is an adjusted statewide average crash rate that is unique and specific to a given roadway segment. The critical crash rate is a threshold to which a site's observed crash rate is compared. Therefore, based on this *rate quality control method*, any roadway segment that experienced a five-year average crash rate exceeding its critical crash rate was identified as needing further analysis. Each of the roadway segments shown in Table 0-4 has experienced a five-year average crash rate exceeding its critical crash rate.

**Table 0-4 Roadway Segments Identified for Further Analysis**

Highway	Roadway Segments (Mileposts: Start-End)
Alaska Highway	1231 - 1234, 1284 - 1287, 1406 - 1414
Denali Highway	27 - 33, 39 - 42, 78 - 81
Elliott Highway	0 - 3, 9 - 19, 29 - 32, 134 - 137, 143 - 146
Nebesna Road	6 - 9
Parks Highway	216 - 219, 297 - 299
Richardson Highway	149 - 152, 240 - 243, 273 - 278, 294 - 301
Taylor Highway	86 - 89
Dalton Highway	3 - 6, 9 - 12, 24 - 27
Steesse Highway	43, 52 - 56, 157 - 160

Comparing the observed crash rates to the critical crash rates reveals several locations on the existing roadway system that suggest further analysis is needed to identify or confirm that there is potential for safety improvement.

Road Safety Audits (RSA) is another tool available to assess traffic safety. A road safety audit is a formal safety performance examination of an existing or future road or intersection and seeks to identify opportunities to improve safety. RSAs are typically conducted by an independent audit team comprised of experienced and interdisciplinary team members. RSAs consider the safety of all road users, examines the interaction of project elements, considers interactions at the borders or limits of a project, and proactively considers mitigation measures. The safety analysis simultaneously considers road geometry, operations, and user interactions. RSAs typically include reviewing existing data (i.e. crash data, as-builts, construction documents, photos, past studies), conducting field reviews, identifying safety issues and potential mitigations, and presenting preliminary findings.

The next step of this analysis, to be conducted as part of *Chapter 6 Transportation Analysis*, will be to confirm that the rate quality control method is not overemphasizing the observed crash rates, particularly at locations with relatively low traffic volumes. All available crash data will be evaluated in more detail, for those locations where the rate method seems appropriate, to identify specific trends and possible improvements. Locations where fatalities occurred will also be examined.

### 3.1.4 Weight Restrictions / Freight Truck Transportation



www.blm.gov

DOT&PF provided historical seasonal weight restriction data for many of the major roadways within the study area. Weight restrictions are normally applied during the spring months (April through June) to sections of roadways that are susceptible to damage due to subsurface

conditions (frozen subgrade below saturated pavement structure). They are applied in order to preserve the life of the road surface. When weight restrictions are in place, it means that a truck may only be able to carry 75 percent or 85 percent of their total legal load so the weight of the

truck does not damage the weakened roadway. In other cases, when the road conditions permit (winter and summer) overloads, loads greater than 100 percent, are allowed.

The five most recent years of available data (2002 to 2006) were reviewed in an effort to identify general weight restriction trends. The data confirmed that seasonal weight restrictions are applied during the spring months; however, some of the highways in higher latitudes did not have any weight restrictions imposed at all. The Dalton Highway does not receive weight restrictions because a good portion of the roadway has been reconstructed and because weight restrictions would have a heavy impact on the oil field operations. Additionally, the Taylor Highway receives weight restrictions later in the spring because the roadbed thaws later in the year at that latitude.

Current weight restriction information for a specific highway can be found by contacting the local DOT&PF office.

### **3.1.5 Maintenance (Costs and Stations)**

The Northern Region Maintenance and Operations (M&O) Division is led by a Maintenance and Operations Director, and staffed by over 450 full-time or part-time/seasonal M&O personnel. M&O personnel include:

- Managers
- Foremen
- Equipment operators
- Mechanics
- Building maintenance specialists
- Administrative workers

The M&O managers include:

- Regional Maintenance Manager
- Seven District Managers (five of which are in the Interior; Dalton, Denali, Fairbanks, Tazlina and Tok Districts)
- A Regional Buildings Maintenance Manager
- A Regional Aviation Manager
- A Regional Safety Officer
- A Regional Maintenance Engineer
- Two Administrative Managers



There are 43 Maintenance Stations in the Northern Region M&O system, 26 of which are in the study area. Each is situated and staffed to handle the primary highway, airport, building, and equipment maintenance needs of adjacent segments of Interior Alaska's transportation infrastructure.

A review of highway maintenance costs, indicates that the average maintenance district is responsible for approximately 1,400 miles at a current cost of about \$5,000 per lane mile (including overhead). In total, the State pays about \$32,600,000 annually to maintain State routes in the study area<sup>1</sup>.

Funds for maintenance activities are provided to the DOT&PF from State General Funds.

### **3.1.6 Scenic Byways**

In 1993, Alaska established a Scenic Byways program to recognize some of the areas in the State that have exceptional intrinsic value in the following categories: scenic, natural, historic, cultural, archaeological, and recreational. Some of the State Scenic Byway routes are also recognized under the National Scenic Byways Program. There are 96 such designated byways in 39 states. The Federal Highway Administration promotes America's Byways and provides funds for projects that promote or enhance them.

The State and National programs are voluntary and were developed to promote tourism and economic development in the communities along the byways and to educate the traveling public about the local environment, history and culture. The programs were designed to work within existing State and local regulations. The byway programs do not require significant local financial investment nor do they infringe upon individual private property rights.

This program recognizes fourteen National or State Scenic Byways in the state, eight of which are located in the study area. Table 0-5 describes the State designated Alaska Scenic Byways in the Interior.

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<sup>1</sup> Highway Maintenance District Cost summary provided by Northern Region, 2007

**Table 0-5 Alaska Scenic Byways**

<b>Name of Byway</b>	<b>Segment Description</b>	<b>Milepost Location</b>	<b>Date of Designation</b>	<b>Intrinsic Qualities</b>	<b>Miles</b>
Alaska Railroad	All Routes		9/12/1997	Scenic, natural, historic	N/A
Dalton Highway	Livengood to Deadhorse	MP 0 - 414	1/15/1998	Scenic, natural, historic, cultural archaeological, recreational.	414
Glenn Highway	Mat Su Boundary to Eureka Summit	MP 118-138*	6/30/00	Scenic, natural, historic, cultural archaeological, recreational.	11
Parks Highway	Denali State Park to Healy	MP 132 - 248	1/15/1998	Scenic, natural, archaeological	116
Richardson Highway -North Segment	Ft Greely to Fairbanks	MP 261 - 362	12/23/2004	Historic, natural, archaeological, recreational	101
Richardson Highway -South Segment	Valdez to Glennallen	MP 0 -128	1/15/1998	Scenic, natural, recreational, historic, cultural.	128
Steese Highway	Fox to Circle	MP 0 - 151	1/15/1998	Scenic, natural, recreational, historic.	151
Taylor "Top of the World" Highway	Tetlin Junction to Boundary	MP 0 - US/Canada Border	1/15/1998	Scenic, natural, historic.	105
<b>Total Miles</b>					<b>1,015</b>

\*actual Milepost is MP 0-138.7 but only 20 miles are within study area.

Currently, DOT&PF is developing a Corridor Partnership Plan—a requirement for nomination as a National Scenic Byway—for the Parks Highway, MP 132-248. They are also in the process of nominating the Richardson Highway, MP 261-362 for National Scenic Byway status. The Glenn Highway MP 0 -138.7 was designated a National Scenic Byway on June 13, 2002.

### **3.1.7 Waysides and Pullouts**

An inventory of rest areas, scenic viewpoints, waysides, and pullouts on the highways within the study area was completed. Many of these facilities include recreational areas, campgrounds, trailheads, scenic viewpoints, interpretive signage, waysides, visitor centers, and rest areas. The tourist industry recommends a rest stop/public restroom facility every 50 miles.

Traveler safety and comfort facilities are essential on the highway system because it helps drivers fight fatigue, which is a major cause of serious accidents. The National Highway Traffic Safety Administration (NHTSA) estimates that approximately 100,000 police-reported crashes in the United States annually (about 1.5 percent of all crashes) involve drowsiness or fatigue as a principal factor. NHTSA estimates that fatigue-related crashes result in 1,500 fatalities in the United States each year.

Rest areas and pullouts on the major transportation corridors within the study area are heavily used by commercial trucks, particularly during the late evening and early morning hours. During the summer months, tour buses also frequent the rest areas, especially those facilities that have scenic viewpoints. At some locations, larger parking spaces are needed to accommodate these user types. Equally, travelers in recreational vehicles and campers, snowmachiners, hunters, and boaters also use these facilities for overnight parking. In the 1,900 miles of roads in the study area, there are 76 public toilets. Figure 4 shows the location of public toilet facilities in the study area. Concerns were expressed by the public in meetings held in the fall of 2006, that some of the waysides are poorly maintained. Table 0-6 provides information on highway waysides with toilets.

**Table 0-6 Public Restroom Facilities along Interior Alaska Highways**

Highway	Average Miles between Public Toilets	Number of Public Toilets on Route
<b>National Highway System</b>		
Alaska Highway	20	10
Dalton Highway	34	7
Elliott Highway	17	4
Glenn Highway	32	2
Parks Highway	62	3
Richardson Highway	15	20
Tok Cutoff Highway	24	5
<b>Alaska Highway System</b>		
Denali Highway	33	4
Edgerton Highway/McCarthy Road	25	4
Elliott Highway	86	1
Lake Louise Road	18	1
Nebesna Road	11	4
Steese Highway	50	3
Taylor Highway	26	6
Top of the World Highway	13	1





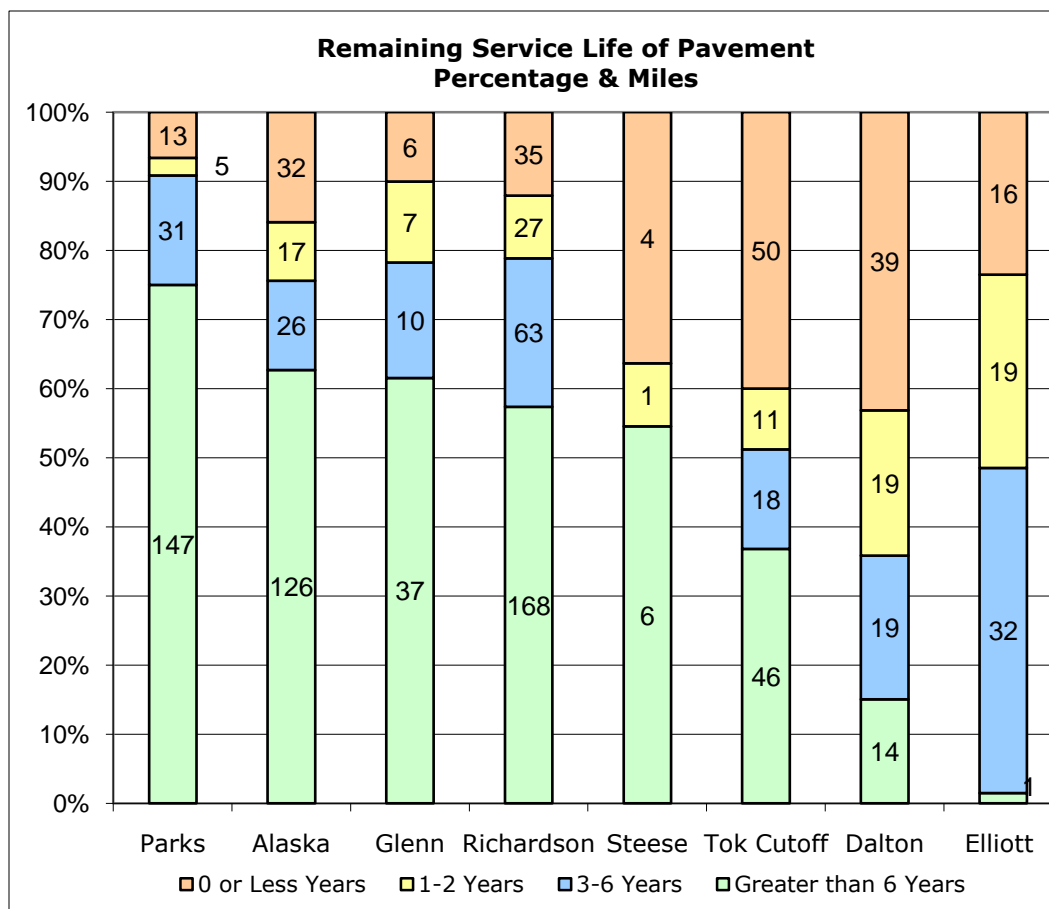
### 3.1.8 Pavement Conditions

The Statewide Pavement Management section of the Alaska DOT&PF monitors conditions and recommends needed repairs on the National and State Highway System in Alaska on an annual basis. They use this information to help maintain and manage the pavements to cost effectively meet the needs of users.

The following exhibits represent 2006 DOT&PF pavement condition for paved highway routes within the study area. Pavement conditions are quantified into the remaining service life of the pavement (shown in miles), from a service life of greater than 6 years to zero or less years. The bars in Exhibit 0.1 and Exhibit 0.2 are labeled to show the remaining service life of pavement by actual number of miles and by the percentage of the highway that falls into each category.

The data for the NHS routes show that the Parks, Glenn, and Alaska Highways have a much greater percentage of service life left than the other NHS highways.

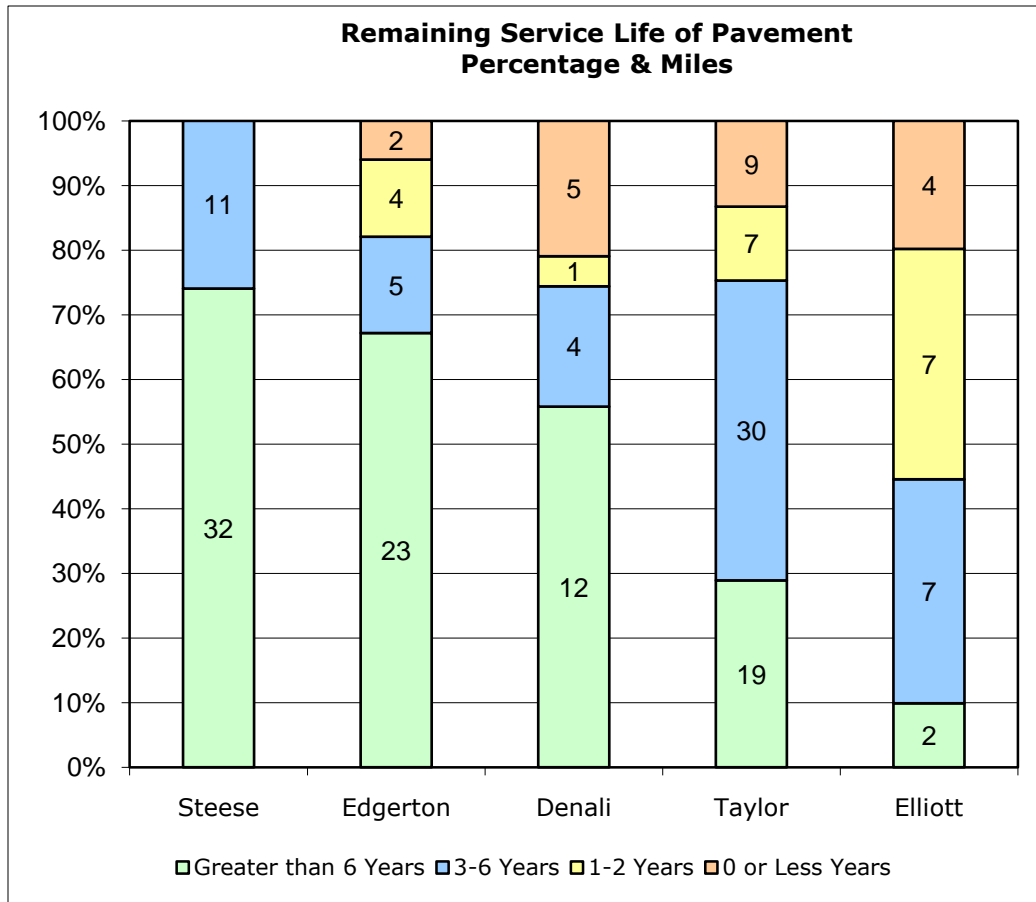
**Exhibit 0.1 Pavement Conditions - National Highway System**



Source: Alaska DOT&PF, Pavement Management database (Alaska State Road Conditions.kmz)

The data for the AHS routes reveals that Steese and Edgerton Highways have greater percentages of remaining pavement life than the other AHS routes.

**Exhibit 0.2 Pavement Condition - Alaska Highway System**



Source: Alaska DOT&PF, Pavement Management database (Alaska State Road Conditions.kmz)

### 3.1.9 Highway Project History

Many improvements have been made to the highways in the Interior over the past 20 years, including projects to improve safety, functionality, and highway enhancements. Table 0-7 shows the total amount spent on highway capital projects in the study area over the 20-year period from 1987 to 2007.



**Table 0-7 Highway Capital Project History, 1987-2007**

<b>Highway</b>	<b>Amount Spent</b>
<b>National Highway System</b>	
Alaska Highway	\$97,000,000
Dalton Highway	\$148,000,000*
Elliott Highway	\$37,000,000
Glenn Highway	\$12,200,000
Parks Highway	\$155,000,000
Richardson Highway	\$116,700,000
Steese Highway	\$72,000,000
Tok Cutoff Highway	\$89,800,000
<b>Alaska Highway System</b>	
Denali Highway	\$10,200,000
Edgerton Highway/McCarthy Road	\$8,900,000
Elliott Highway	
Nebesna Road	
Steese Highway	
Taylor Highway	\$28,800,000
Top of the World Highway	

\*Includes data from 1994-2006 only

Source: Alaska ADOT&PF, Northern Region Project Control

### 3.1.10 Project Programming

Road project programming in the study area is primarily accomplished through the DOT&PF Statewide Transportation Improvement Program (STIP). Additionally surface transportation projects in Native communities are programmed through the Bureau of Indian Affairs, Tribal Transportation Improvement Program (TTIP). Aviation improvements are discussed in Section 0.

NHS and AHS projects are identified by the respective regions. These projects are chosen based on overall need, pavement condition, traffic volumes, weight restrictions, and special project needs such as the gas line or military support.

The STIP is required by Federal law (23 USC 135). It must include all federally funded surface transportation projects and must be fiscally constrained to reflect reasonably expected funding. Most of Alaska's surface transportation program is driven by Federal program requirements and funding levels. Federal funds for each Federal fiscal year are program estimates and will not be final until after the Federal budget is approved around October 1 of each year, although this approval is often delayed.

Creating a new STIP involves soliciting project nominations from the public and State and Federal agencies. Once the project nominations have been received by the DOT&PF Regions

they are then evaluated and scored. This evaluation process only applies to community and recreational type projects. Scoring criteria include items such as health and safety, intermodal connectivity, matching funds and economic benefits. A list of scored projects is submitted by the DOT&PF Regions to the Project Evaluation Board (PEB), which is comprised of primarily high-level DOT&PF staff for further evaluation.

DOT&PF creates a Draft STIP after the evaluation process is complete. The Draft STIP balances the needs (projects) against the available funding to create a financially constrained program. The public is invited to review and comment on the Draft STIP before it is finalized and sent to the FHWA for approval.

These projects address various transportation issues such as roadway condition, traffic operations, safety, and pedestrian and bicycle need.

The Denali Commission provides Federal funding for road and waterfront development projects. Nominations are accepted in the fall for the next year's funding and projects are evaluated by the Denali Commission's Transportation Advisory Committee. Basic road and waterfront development projects or small community projects may be fully funded by the Commission. Larger projects need to demonstrate a funding partnership in which the Denali Commission may become a partner.

Denali Commission-funded projects in the study area are listed in Table 0-8. As can be seen in the table, the Denali Commission focuses its efforts on rural projects.

**Table 0-8 Denali Commission Projects in the Study Area**

<b>Project Name and Funding Year</b>	<b>Project Description</b>	<b>Total Estimated Cost (with match)</b>
Cantwell 2006	Dust control	500,000
Circle 2006	Dust control	\$900,000
Eagle 2006	Dust control	\$1,300,000
Fort Yukon 2006	Dust control	\$2,000,000
Nenana 2007	Tug and barge port construction	\$850,000
Gakona 2007	Access Road Rehabilitation construction	\$900,000
Gulkana 2006-2007	Road chip seal	\$1,800,000
Stevens Village 2007	Access road reconnaissance engineering	\$500,000
Stevens Village 2007	Community roads construction	\$1,000,000
Tanana 2006	Dust control	\$425,000

Source: [www.denali.gov](http://www.denali.gov)

### 3.1.11 Highway Corridor Assessments

In this section, inventory information for individual highways is presented. The type of information includes the following:

- Background
- setting
- road design
- bridges
- maintenance stations
- AADT
- design and posted speed limits
- pavement condition
- crash data
- weight restrictions
- rest areas
- project history
- STIP





### Alaska Highway (Alaska Route 2)

*Background.* The portion in the study area is from MP 1222 – 1422. It is an NHS route. The Alaska Highway was built in spring, summer and fall of 1942 as part of the WWII effort. The general route of the highway was along a line of existing airfields from Edmonton, Alberta to Fairbanks, Alaska. This chain of airfields was known as the Northwest Staging Route and was used to ferry more than 8,000 war planes from Great Falls, Montana to Ladd Air Base in Fairbanks as part of the Lend Lease Program.

Today, the Alaska Highway is a paved two-lane highway which runs southeast/northwest from Dawson Creek British Columbia, Canada, to Delta Junction, Alaska. The Highway crosses into Alaska at MP 1222 near Beaver Creek, where it becomes Alaska Route 2. Approximately 198 miles of the highway are located in the study area. The United States Customs has a port of entry station at the border open twenty-four hours a day, seven days a week. The highway intersects with the Taylor Highway at MP 1301.7, about 13 miles east of the Tok Cutoff Highway at Tok. It meets the Richardson Highway at Delta Junction, MP 1422.

*Setting.* The terrain through which the highway travels is generally rolling or flat with minimal restrictions to vertical or horizontal roadway alignment. From the International border to Northway Junction, the Alaska Highway follows the Denali Fault; its trace through this stretch lies south of the highway. This part of the fault appears as a discontinuous, north-facing bluff in young sedimentary deposits.<sup>2</sup> In 2002, an earthquake along this fault caused significant damage to the Northway Airport.

The communities along this route include Northway, Tetlin, Tok, Tanacross, Dot Lake and Delta Junction. Public airports are found in all of these communities except Dot Lake. The route is located entirely within the Unorganized Borough. Delta Junction, a 2<sup>nd</sup> class City, incorporated in 1960, is the only incorporated city along this route. Doyon Limited is the regional native corporation in the area. Tribal governments are located in Northway, Tetlin, Tanacross and Dot Lake. The road passes through the Tanana Valley State Forest at about MP 1371, and from the border to Tetlin Junction follows the Tetlin Wildlife Refuge boundary. On the southwest side of

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<sup>2</sup> Cathy Connor, Daniel O'Haire, *Roadside Geology of Alaska*, Mountain Press Publishing, Missoula, 1988.

the Alaska Highway near Delta Junction is a bison sanctuary that includes over 3,000 acres of grassland that attract hunters.

The economy along the Alaska Highway is primarily related to independent and group tourism. It is also a significant freight haul route between the interior and the Canadian Border. Agriculture, mining, timber harvest and military presence also contribute to the economy along the route.

*Road Design.* The Alaska Highway is a two-lane Rural Interstate Highway. All segments are paved 36 feet wide, except in the vicinity of Tok Junction, which is 40 feet wide.

*Bridges.* According to the 2007 Bridge Inventory Report, there are 19 bridges along the Alaska Highway including five major bridges over 900 feet in length at the Gerstle, Johnson, Robertson, Tanana, and Tok Rivers. Table 0-9 provides a complete list of the bridges along the Alaska Highway, along with the bridge type, length, width and whether the bridge is eligible for bridge repair or replacement funds under the Federal Bridge Program according to the 2007 Bridge Inventory Report completed by the DOT&PF Bridge Design Section.

**Table 0-9 Bridge Inventory, Alaska Highway**

<b>MP</b>	<b>Water Body</b>	<b>Bridge type*</b>	<b>Length (feet)</b>	<b>Roadway Width (feet)</b>	<b>Year Built</b>	<b>Bridge Funding Eligibility</b>
1223.4	Scottie Creek	PCBT	126	36	1995	
1246.7	Gardiner Creek	PCBT/A	119	36.2	1983	
1268.1	Beaver Creek	PCBT	80	35.8	1986	Ineligible
303.3	Tanana River	STTC/LTA	946	23	1944 2004 seismic retrofit	Eligible
1309.4	Tok River	STT/RC	253	23.7	1944	Ineligible
1333.6	Yerrick Creek	PCBT/A	202	36	1985	Ineligible
1338.1	Cathedral Rapids No 1	PCBT/A	68	36.9	1985	Ineligible
1338.7	Cathedral Rapids No 2	PCBT/A	68	35.9	1985	Ineligible
1338.8	Cathedral Rapids No 3	PCBT/A	68	35.9	1985	Ineligible
1345.3	Robertson River	SDT/RC	1980	23.7	1944 2004 rail replace, seismic retrofit	Ineligible
1357.3	Bear Creek	PCTT/A	55	36	1985	Ineligible
1358.6	Chief Creek	PCTT/A	41	35.8	1985	Ineligible
1371.4	Berry Creek	PCBT/A	90	36	1990	Ineligible

MP	Water Body	Bridge type*	Length (feet)	Roadway Width (feet)	Year Built	Bridge Funding Eligibility
1374.4	Sears Creek	PCCG/A	26	35.5	1982	Ineligible
1378.1	Dry Creek	SS/RCA	42	36.3	1957	Ineligible
1380.4	Johnson River	STT/LTA	970	24.5	1944 1994 Rehabilitation 2004 seismic retrofit	Ineligible
1388.4	Little Gerstle River	PCBT/A	200	36	1999	Ineligible
1392.7	Gerstle River	STT/RC	1820	23.8	1944 2000 rehabilitation 2003 seismic retrofit	Ineligible
1403.9	Sawmill Creek	PCBT/A	139	36	1995	Ineligible

\*Bridge Type Key: A-Asphalt, LTA-Laminated Timber Asphalt, PCBT-Prestressed Concrete Bulb Tee, PCCG – Prestressed Concrete Channel Girder, PCTT-Prestressed Concrete Triple Tee, RC-Reinforced Concrete, SDT-Steel Deck Truss, SS-Steel Stringer, STT-Steel Through Truss, STTC- Steel Through Truss Concrete  
Source: ADOT Bridge Inventory, August, 2007

*Maintenance.* The Alaska Highway is located within the Tok Maintenance District and has three maintenance stations that are responsible for the highway, Delta, Tok and Northway.

*AADT.* This highway experiences most usage during summer, the peak tourism time of year. The AADT along most of the corridor averages 430 with higher AADTs occurring near Delta (AADT 973) and near Tok Junction (AADT 1,290).

*Design and Posted Speed Limits.* The design speed for the Alaska Highway ranges between 55 and 65 miles per hour (mph). The posted speeds along the highway are consistent with the design speed, ranging from 55 to 65 mph.

*Pavement Condition.* The 2006 *Pavement Management Report* by DOT&PF indicates that 147 miles of this route have greater than six years of service life left, 31 miles have three to six years left, five miles have one to two years left and 13 miles have no service life left. Some of the worst pavement conditions are located near the border (MP 1222 to 1236) and either side of Northway Junction (MP 1254 to 61 and MP 1265 to 71).

*Crashes.* There were 171 total crashes reported along this route for the five-year period from 2001 through 2005. There were 30, 15, 44, 43, and 39 crashes reported annually over the five-year period. Of those 171 crashes reported on the Alaska Highway, 122 were property damage only, 45 were injury and four were fatality crashes. These fatalities were located at MP 1313,

1314, 1349 and 1389 and the crash types consisted of off-road, angle, animal, and a second animal collision, respectively. No fatalities were reported within the roadway segments previously identified for further analysis based on the rate quality control method.

Table 0-10 provides a summary of crash type and severity of the crash (whether the crash resulted in an injury, property damage only or a fatality) for the four segments identified for further review. General crash trends include collisions with animals and crashes under icy and nighttime conditions.

**Table 0-10 2001-2005 Selected Crash Data on the Alaska Highway**

Segment (MP)	Number of Crashes	Type						Severity		
		Angle	Rear-End	Turning	Animal	Off-Road	Other	Injury	PDO <sup>1</sup>	Fatality
1231-1234	6	0	1	0	0	4	1	3	3	0
1284-1288	9	0	0	0	2	7	0	7	2	0
1407-1410	8	0	0	0	7	1	0	6	2	0
1411-1414	7	0	0	0	7	0	0	4	3	0

<sup>1</sup> PDO = Property Damage Only

Source: ADOT&PF

*Weight Restrictions.* Seasonal weight restrictions are placed on the Alaska Highway. From mid to late April, the weight restrictions are 75 to 100 percent. From mid to late May, the weight restrictions are 85 to 100 percent, and from early to mid June, overloads are allowed.

*Rest areas.* There are eighteen rest areas with parking along the Alaska Highway. Four of the rest areas include toilet facilities. The toilets are located at the U.S. border, at Tetlin Wildlife Refuge at MP 1229, at Deadman Lake Campground and Trailhead at MP 1249.5, and at the Tanana River at MP 1269

*Project History.* The Alaska Highway has been reconstructed to 55 to 65 mph standards for its entire length from the Border at MP 1222 to Delta Jct. at MP 1422. Some segments of this road have had numerous rehabilitation projects due to the extremely poor foundations in those isolated areas. The existing bridges, except for the Tanana River Bridge, are not deficient. Since 1987, the State has spent approximately \$97,000,000 improving the road.

*STIP.* The 2010-2013 STIP includes the following projects for the Alaska Highway.



**Table 0-11 2010-2013 STIP Alaska Highway Projects**

Project Location/Name	Project Description	Construction Year	Amount
Alaska Highway MP 1309 Bridge Replacement No. 0506	Tok River Bridge Replacement	2012	\$11,000,000
Alaska MP 1222 to 1235	Rehabilitation	2010	\$18,350,800
Alaska Highway MP 1354 to 1364	Rehabilitate the Alaska Highway to support construction of a natural gas pipeline	After 2013	\$6,500,000

Source: Alaska DOT&PF



### Dalton Highway (Alaska Route 11)

*Background.* The 414-mile Dalton Highway begins at MP 73, near Livengood, of the Elliott Highway and terminates near the State-owned Deadhorse Airport at Prudhoe Bay. The portion of the Dalton Highway in the study area is from MP 0 – 232 and it is all on the NHS. The Dalton Highway was constructed by Alyeska Pipeline to serve the development of the oil pipeline. It was built to secondary road standards and was completed in 1975. The State took over maintenance of the road in 1978.



<http://calphotos.berkeley.edu>

*Truck on the Dalton Highway*

The entire road, up to Prudhoe Bay, was opened to the public in 1994. It winds through several diverse geographical regions, from steep mountains to level coastal plain and ranges from 4,800' to sea level.

The Dalton Highway is designated as a State Scenic Byway.

*Setting.* The portion of the Dalton Highway in the study area generally travels through rounded hills of ancient rock and mountainous terrain with varying degrees of restrictions to vertical or horizontal roadway alignment. In some areas benching and side hill excavation are used to obtain acceptable sight distances. On the northern edge of the study area, the Dalton Highway crosses through the Brooks Range and approaches the highest point on the road, Atigun Pass, which reaches 4,643 feet. Discontinuous permafrost occurs throughout the road's entire length. At MP 56, the highway crosses the Yukon River with a 2,294-foot bridge.

The communities along this route include Coldfoot (MP 175), which is primarily a truck stop and Wiseman (MP 189) which is located one mile west of the Dalton Highway. Both communities are unincorporated. Wiseman and Coldfoot have public airports owned by DOT&PF. There is also a DOT&PF airport located at MP 137 (Prospect Creek Airport). Porcupine Creek is a privately owned, public use airport located near Coldfoot.

The portion of the Dalton Highway in the study area is located within the Unorganized Borough and there are no incorporated communities along the route. Doyon Limited is the Regional Native Corporation.

Stevens Village is located on the Yukon River approximately 26 miles upstream from the Yukon River Bridge along the highway. In 2006, the Stevens Village Tribal government successfully applied to Denali Commission for a \$500,000 feasibility study to study a route to their village. That study is on-going.

The highway passes through the Arctic Circle at MP 115. It borders the Kanuti National Wildlife Refuge, Yukon Flats National Wildlife Refuge, and Gates of the Arctic National Park. The Bureau of Land Management (BLM) manages a swath of public lands along the highway from the Yukon River to the north side of the Brooks Range. Within this corridor, BLM maintains campgrounds, rest areas, interpretive panels and a visitor center.

The economy along the Dalton Highway is primarily related to oil industry-related highway travel and tourism.

*Road Design.* The Dalton Highway is a two-lane Rural Other Principal Arterial. The road width guideline currently being followed for the Dalton is 32 feet finished width for all projects from the Elliott Highway junction (MP 0) to the study area boundary.

*Bridges.* Twenty-seven bridges are located along the part of the Dalton Highway in the study area. The largest bridge, the Yukon River Bridge at MP 56, is 2,294 feet by 30 feet with a 6 percent grade. It is a steel box girder bridge and was constructed in 1975. Because of the steep



*Yukon River Bridge*

<http://images.travelpod.com/>

grade and poor friction, trucks typically use tire chains in winter months, which has accelerated the deterioration of the wooden deck surface. This bridge was re-decked in 2007 and seismic retrofitting occurred in 2008. The bridge requires re-decking approximately every five to ten years.

DOT & PF routinely repairs small culverts when they fail. However, major culverts have failed in the past at several locations including Rosie Creek (MP 172).

These failures create lengthy road closures and require extensive resources to repair. Other culverts must be replaced to allow for fish passage and are costly to replace.

Table 0-12 provides a complete list of the bridges along the Dalton Highway in the study area, along with the bridge type, length, width and whether the bridge is eligible for bridge repair or replacement funds under the Federal Bridge Program according to the 2007 Bridge Inventory Report completed by the DOT&PF Bridge Design Section.

**Table 0-12 Bridge Inventory, Dalton Highway**

<b>MP</b>	<b>Water Body</b>	<b>Bridge type*</b>	<b>Length</b>	<b>Roadway Width</b>	<b>Year Built</b>	<b>Federal Bridge Funding Eligibility</b>
23.8	Hess Creek	PCBT	136	30.0	1982	Ineligible
55.5	Yukon River	OSBG/TPR	2295	30.0	1975	Ineligible
72.6	Ft. Hamlin Hills Creek	GTS/LTR	41	28.0	1982	Ineligible
79.1	No Name Creek	SS/PRC	92	27.0	1972	Ineligible
105.7	Kanuti River	SS/PRC	152	27.0	1972	Ineligible
114.0	Fish Creek	SS/PRC	120	27.0	1972	Ineligible
124.7	South Fork Bonanza Creek	SS/PRC	92	27.0	1972	Ineligible
125.7	North Fork Bonanza Creek	SS/PRC	120	27.0	1972	Ineligible
135.1	Prospect Creek	SS/PRC	123	27.0	1972	Ineligible
140.1	Jim River No. 1	SS/PRC	123	27.0	1972	Ineligible
141.0	Jim River No. 2	SS/PRC	123	27.0	1972	Ineligible
141.8	Douglas Creek	GTS/LT	41	28.0	1982	Ineligible
144.1	Jim River No. 3	SS/PRC	180	27.0	1972	Ineligible
156.1	South Fork Koyukuk River	SS/PRC	423	27.0	1972	Ineligible
175.1	Slate Creek	SS/PRC	92	27.0	1972	Ineligible
179.8	Marion Creek	PCBT	102	32.0	2003	Ineligible
187.2	Minnie Creek	SS/PRC	122	27.0	1972	Ineligible
188.5	Mid Fork Koyukuk River 1	SS/PRC	333	27.0	1972	Ineligible

MP	Water Body	Bridge type*	Length	Roadway Width	Year Built	Federal Bridge Funding Eligibility
190.6	Hammond River	SS/PRC	152	27.0	1972	Ineligible
190.8	Mid Fork Koyukuk River 2	SS/PRC	273	27.0	1972	Ineligible
196.0	Gold Creek	GTS/LT	29	28.0	1982	Ineligible
204.3	Mid Fork Koyukuk River 3	SS/PRC	152	27.0	1972	Ineligible
204.5	Mid Fork Koyukuk River 4	SS/PRC	123	27.0	1972	Ineligible
207.0	Dietrich River	SS/PRC	212	27.0	1972	Ineligible
227.3	Nutirwik Creek	SS/LTR	87	24.1	1994	Ineligible

\*Bridge Type Key: GTS - Glue Laminated Timber Stringer, LT - Laminated Timber, LTR-Laminated Timber Running Plank, OSBG-Orthotropic Steel Box Girder, PCBT-Prestressed Concrete Bulb Tee, PRC - Precast Reinforced Concrete, SS-Steel Stringer, TPR-Timber Running Plank

Source: ADOT Bridge Inventory, August, 2007

**Maintenance.** The Dalton Highway has three maintenance stations within the study area, Seven Mile (MP 62), Jim River (MP 138) and Coldfoot (MP175).

**AADT.** Well over 50 percent of highway traffic is heavy trucks. Since the road opened to the public, recreational travel has increased 300 percent. Current ADT on the highway ranges from 410 at the Yukon River Bridge to 160 at Wiseman.

**Design and Posted Speed Limits.** The design speed policy is 50 mph from the Elliott Highway to the Yukon River and 60 mph from the Yukon River to study area boundary. The posted speeds along this highway are 50 mph.

**Pavement Condition.** About 85 miles (MP 90 to 175) of the Dalton Highway is treated with High Float Surface Treatment (HFST). This special form of asphalt surface treatment requires applying a high float emulsion to the surface of the base course, followed by a dense-graded aggregate. About 16 miles of the highway is paved (MP18 to 22 and 37 to 49). Some of the worst pavement conditions in the study area are located on either side of the Arctic Circle (MP 110 to MP 123).

**Crashes.** There were 41 total crashes reported along this route for the five-year period from the 2001 through 2005. There were 12, 10, 4, 9, and 6 crashes reported annually over the five-year period. Of those 41 crashes, 16 were property damage only, 22 were injury, and three were fatality crashes. These fatalities were located at mileposts 24.5, 32.5, and 45.0 and the crash



types consisted of off-road crashes. One fatality was reported within the roadway segments previously identified for further analysis based on the rate quality control method.

A summary of crash type and severity is provided below for the three segments identified for further review. General crash trends include off-road collisions.

**Table 0-13 2001-2005 Selected Crash Data on the Dalton Highway**

Segment (MP)	Number of Crashes	Type						Severity		
		Angle	Rear-End	Turning	Animal	Off-Road	Other	Injury	PDO <sup>1</sup>	Fatality
3.0-6.0	4	0	0	0	0	4	0	4	0	0
9.0-12.0	4	0	0	0	0	1	3	1	3	0
24.0-27.0	4	1	0	0	0	3	0	2	1	1

<sup>1</sup> PDO = Property Damage Only

*Weight Restrictions.* Seasonal weight restrictions are not placed on the Dalton Highway.

*Rest areas.* There are about fifty informal pullouts with parking along the Dalton Highway. Seven of the rest areas include toilet facilities. The rest areas with toilets are located at the Yukon River (MP 60), Finger Mountain Wayside (MP 98), Arctic Circle Wayside (MP 115), Gobblers Knob (MP 132), Grayling Lake Wayside (MP 150), Coldfoot (MP 175) and Marion Creek Campground (MP 180).

*Project Background.* In the last ten years, DOT&PF has rehabilitated or reconstructed approximately 90 miles of the 235 miles of road in the study area. DOT&PF construction personnel also completed about 85 miles of high-float asphalt surface treatment projects. The existing bridges are generally up to current standards and are in good condition.

*STIP.* The 2010-2013 STIP includes the following projects for the Dalton Highway:

**Table 0-14 2010-2013 STIP Dalton Highway Projects**

Project Location/Name	Project Description	Construction Year	Amount
Dalton Highway MP 0 - 9	Reconstruction - Livengood to 9 Mile Hill	2013	\$40,000,000
Dalton MP Alaska MP 9-11	Reconstruction	2011	\$10,000,000
Dalton MP Alaska MP 11 - 18	Reconstruction	2013	\$15,000,000
Dalton MP 197-209	Gold Creek to Dietrich	2011	\$24,000,000



### **Denali Highway (Alaska Route 8)**

*Background.* The entire Denali Highway from MP 0-135 is in the study area and is an AHS route. The Alaska Road Commission began work on the Denali Highway in 1953 and opened the road in 1957. It remained the main access to Denali National Park and Preserve (then known as Mount McKinley National Park) until the Parks Highway was opened in 1971. The Denali Highway leaves the Richardson Highway at Paxson, and climbs steeply up into the foothills of the Alaska Range. It ends at Cantwell on the Parks Highway.

*Setting.* The terrain through which the highway travels is generally rolling to mountainous. The highway passes through three major river drainages: the Copper River drainage; the Tanana/Yukon drainage; and the Susitna drainage. It crosses the Delta National Wild and Scenic River. The highway traverses the southern slopes of the Alaska Range and the western half of the route overlies Jurassic to Cretaceous sedimentary rocks. Its eastern half is over Tertiary basalt. The area was covered by ice during the last Ice Age and offers many ice carved vistas.<sup>3</sup>

Paxson and Cantwell are at the ends of the Denali Highway. There are no other communities along the route; however, there are several lodges and stopping points along the road. Clearwater and Road Commission Number 1 are public use backcountry airstrips located along the Denali Highway. Paxson, (population 37), on the Richardson Highway is unincorporated and is located within the Unorganized Borough. Paxson has no Tribal government. The Paxson Lodge operates an airport open to public use and floatplane access is available at Summit Lake, although the FAA does not recognize it as a seaplane base. Cantwell, on the Parks Highway (population 204), is unincorporated and is located within the Denali Borough. The Native Village of Cantwell has offices in Cantwell and Ahtna Inc. is the regional Native Corporation.

The economy along the Denali Highway is primarily related to tourism, subsistence, sport hunting/fishing and general recreation. It has also become a popular destination for birding enthusiasts.

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<sup>3</sup> Cathy Connor, Daniel O'Haire, *Roadside Geology of Alaska*, Mountain Press Publishing, Missoula, 1988.

*Road Design.* The Denali Highway is classified as a Rural Major Collector. It is a two-lane road. MP 0 to 21 is paved and MP 132 to 135 is paved. The rest of the road is gravel. The highway is entirely located within the study area.

*Bridges.* There are nine bridges along the Denali Highway including a major bridge over 1,000 feet in length at the Susitna River. The following table provides a complete list of the bridges along the Denali Highway, along with the bridge type, length, width and whether the bridge is eligible for bridge repair or replacement funds under the Federal Bridge Program according to the 2007 Bridge Inventory Report completed by the DOT&PF Bridge Design Section.

**Table 0-15 Bridge Inventory, Denali Highway**

<b>MP</b>	<b>Water Body</b>	<b>Bridge type*</b>	<b>Length</b>	<b>Roadway Width</b>	<b>Year Built</b>	<b>Bridge Funding Eligibility</b>
0.2	Gulkana River	SS/RC	81	19.8	1951	Eligible for repair
21.4	Tangle River	SPT/LT	103	18.8	1954	Eligible for repair
24.9	Rock Creek	SS/LTR	61	19.0	1955	Eligible for repair
41.9	Maclaren River	PCBT/C	362	28.0	1986	Ineligible
55.9	Clearwater Creek	SS/LTR	157	19.8	1957	Ineligible
79.2	Susitna River	SDT/LTR	1039	20.0	1956	Ineligible
104.3	Brushkana Creek	SS/RC	81	20.0	1955	Ineligible
110.9	Seattle Creek	TS/TP	26	20.0	1954	Eligible for repair or replacement

\*Bridge Type Key: C-Continuous, LT-Laminated Timber, LTR-Laminated Timber Running Plank, PCBT-Prestressed Concrete Bulb Tee, RC-Reinforced Concrete, SDT-Steel Deck Truss, SPT-Steel Pony Truss, SS-Steel Stringer, TS-Tiber Stringer

Source: ADOT Bridge Inventory, August, 2007

*Maintenance.* The Denali Highway has two maintenance stations, Cantwell and Paxson. The highway is generally not maintained between October 1 and mid-May.

*AADT.* This highway experiences summer use only, since it is not maintained between October 1 and mid-May. The AADT along most of the corridor is 75 with higher AADTs (125) occurring near the ends at Paxson and Cantwell.

*Design and Posted Speed Limits.* The design speed for the Denali Highway is 50 mph. It is posted from MP 0 to 21 at 55 mph and the rest of the road has a maximum recommended speed limit of 30 mph.

*Pavement Condition.* The Denali Highway is only paved for the first 21 miles west of Paxson and 3 miles east of the Cantwell Junction. The 2006 *Pavement Condition Report* indicates that 12 miles of this route have greater than six years of service life left, four miles have three to six

years left, one mile has one to two years left and 4.5 miles have no service life left. Some of the worst pavement conditions are located where drivers turn into turnouts and/or parking adjacent to the road.

*Crashes.* There were 19 total crashes reported along this route for the five-year period from 2001 through 2005. There were 4, 4, 5, 1, and 5 crashes reported annually over the five-year period. Of those 19 crashes reported on the Denali Highway, nine were property damage only, nine were injury and one was a fatal crash. This fatality was located at MP 2.9 and involved an off-road crash. No fatalities were reported within the roadway segments previously identified for further analysis based on the rate quality control method.

A summary of crash type and severity is provided below for the four segments identified for further review. General crash trends include off-road collisions and crashes under icy and nighttime conditions.

**Table 0-16 2001-2005 Selected Crash Data on the Denali Highway**

Segment (MP)	Number of Crashes	Type						Severity		
		Angle	Rear-End	Turning	Animal	Off-Road	Other	Injury	PDO <sup>1</sup>	Fatality
27.0 – 30.0	3	0	1	0	0	2	0	1	2	0
30.0 – 33.0	2	0	0	0	0	2	0	1	1	0
39.0 – 42.0	2	0	0	0	0	2	0	1	1	0
78.0 – 81.0	2	0	0	0	0	2	0	0	2	0

<sup>1</sup> PDO = Property Damage Only

*Weight Restrictions.* Seasonal weight restrictions are placed on the Denali Highway. From mid to late April the weight restrictions are 75 to 100 percent. From early to mid June overloads are allowed.

*Rest areas.* There are fourteen parking areas along with numerous pull outs, both paved and unpaved along the Denali Highway. Five locations have toilet facilities besides the private developments at Tangle Lakes Lodge (MP 22) and Maclaren River Lodge (MP 42). The toilets are located at a pullout at MP 20.6, the BLM Campground at MP 21.3, at the BLM Delta National Wild and Scenic River Wayside at MP 21.7, MP 56, Clearwater Creek Wayside and at the BLM Campground at MP 104.6.

*Project History.* The Denali Highway has received mostly minor road repairs between 1987 and 2007 except for major work completed in 2003 to repair earthquake damage from the November 3, 2002 earthquake.

*STIP.* The 2010-2013 STIP does not include any projects for the Denali Highway. There have been efforts in the past to pave and upgrade the Highway. This is controversial on many fronts. Paving the road would lead to discussions about having it open year round and increased maintenance costs to the State.



### **Edgerton Highway/McCarthy Road (Alaska Route 10 and 10E)**

*Background.* The entire Edgerton Highway/McCarthy Road from MP 0-91 is in the study area and is an AHS route. The general alignment of the highway follows an old pack trail along the Copper River. The pack trail was established during the initial stages of the Richardson Highway development as a wagon road to Chitina. By 1912, it was considered a good winter road and a passable summer road for horse-drawn wagons. By 1929, the road had a gravel surface and was capable of handling motorized traffic.

Today, the Edgerton Highway is a paved two-lane highway which runs east from the Richardson Highway to Chitina. It was named for U.S. Army Major Glenn Edgerton, a member of the Alaska Territorial Road Commission. The Edgerton Highway borders the Wrangell St. Elias National Park and Preserve. From Chitina, the road continues as the McCarthy Road, a mostly two-lane gravel road. The McCarthy road follows the old railroad right-of-way that was used to move copper ore from the Kennecott Mine to Cordova. The entire road is within the study area.

*Setting.* The terrain through which the highway travels is generally rolling or mountainous with restrictions to vertical and horizontal roadway alignment. “A brightly colored mosaic of transported volcanic rock appears in road cuts along the Edgerton Highway, in the Kotsina Delta area opposite Chitina, and along the road to McCarthy. The roadways slice through a giant volcanic mudflow that probably originated near Mt. Wrangell”.<sup>4</sup>

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<sup>4</sup> Cathy Connor, Daniel O’Haire, *Roadside Geology of Alaska*, Mountain Press Publishing, Missoula, 1988.



The communities along this route include Kenny Lake, Chitina and McCarthy. Chitina and McCarthy have State-owned airports. The route is located entirely within the Unorganized Borough and none of the communities are incorporated. Chitina Traditional Indian Village is the only tribal government along this route and Ahtna, Inc. is the Native Regional Corporation. The road borders the Wrangell St. Elias National Park and Preserve to Chitina and the McCarthy Road travels through the Park.

The economy along the Edgerton Highway is primarily related to agriculture (Kenny Lake), government service (National Park Service) and to independent tourism and seasonal fisheries (Copper River dip netting).

*Road Design.* The Edgerton Highway is classified as a Rural Major Collector and is a two-lane paved road. The McCarthy Road is predominantly two-lanes and is not paved. There are no passing lanes on either road. The ROW width is 200 feet except in Chitina where it is 80 feet.

*Bridges.* There are six bridges along the Edgerton Highway/McCarthy Road including one major bridge, 1,378 feet in length, at the Copper River near Chitina. The following table provides a complete list of the bridges along the Edgerton Highway/McCarthy Road, along with the bridge type, length, width and whether the bridge is eligible for bridge repair or replacement funds under the Federal Bridge Program according to the 2007 Bridge Inventory Report completed by the DOT&PF Bridge Design Section.

**Table 0-17 Bridge Inventory, Edgerton Highway/McCarthy Road**

MP	Water Body	Bridge type*	Length	Roadway Width	Year Built	Bridge Funding Eligibility
19.3	Tonsina River	PCBT	351	30.0	1976	Ineligible
23.6	Liberty Falls Creek	SA/RC	175	28.2	1963	Ineligible
34.6	Copper River (Chitina)	SSC/RC	1378	30.0	1971	Ineligible
50.8	Kuskulana River	SDT/TPR	775	14.5	1910	Ineligible
60.6	Chokosna River	SPT/LTA	103	20.0	1973	Eligible for repair or replacement
78.0	Lakina River	STT/LTR	204	12.81	1981	Eligible for repair

\*Bridge Type Key: LTA-Laminated Timber Asphalt, LTR-Laminated Timber Running Plank, PCBT-Prestressed Concrete Bulb Tee, RC-Reinforced Concrete, SA- Suspension Asphalt, SDT-Steel Deck Truss, SPT-Steel Pony Truss, SSC- Steel Stringer Continuous, STT-Steel Through Truss, TPR-Timber Running Plank

Source: ADOT Bridge Inventory, August, 2007

*Maintenance* The Edgerton Highway/McCarthy Road has one maintenance station at Chitina.

*AADT.* Greatest usage of this highway occurs during summer, the peak tourism time of year. The AADT at the junction with the Richardson Highway is 275. It is 325 at the junction with the Old Edgerton Loop Road and drops to 50 by MP 34.9.

*Design and Posted Speed Limits.* The design speed and posted speed for the Edgerton Highway is 30 to 55 mph. The

speed limit is reduced to 30 mph through Chitina. Posted speed on the McCarthy Road is 30-35 mph according to DOT&PF records.

*Pavement Condition.* The 2006 *Pavement Condition Report* indicates that 22.5 miles of this route have greater than six years of service life left, five miles have three to six years left, four miles have one to two years left, and two miles have no service life left. Some of the worst pavement conditions are located near the beginning of the route and near MP 20.

*Crashes.* There were 16 total crashes reported along this route for the five-year period from 2001 through 2005. There were 4, 3, 0, 5, and 4 crashes reported annually over the five-year period. Of those 16 crashes reported on the Edgerton Highway/McCarthy Road, 11 were property damage only, five were injury and there were no fatality crashes. No roadway segments were identified for further analysis based on the rate quality control method.

*Weight Restrictions.* Seasonal weight restrictions are placed on the Edgerton Highway. The restriction in mid April is 85 to 100 percent. From early to mid June overloads are allowed.

*Rest areas.* There are 11 turnouts/parking areas along the paved Edgerton Highway with two public toilets: Liberty Falls State Recreation Site is at MP 23.6 (not functional in 2009); and the Chitina Wayside is at MP 33.5. There are 18 turnouts/parking areas along the unpaved McCarthy Road with three public toilets. There is a campground at MP 1.4, a National Park Service Ranger Station at MP 58.5, and public toilets at the pedestrian bridge.

*Project History.* DOT& PF maintenance has recently improved the road surface of the Edgerton Highway/McCarthy Road. The existing bridges are generally up to current standards and are in



*Edgerton Highway*

Wolfgang Hagemann

good condition, with the exception of the Chokosna River Bridge (MP 60.6) which is eligible for repair or replacement, and the Lakina River Bridge (MP 78) which is eligible for repair.

Since 1987, the State has spent approximately \$9,000,000 improving the road (mostly on the McCarthy Road).

*STIP.* There is nothing in the 2010-2013 STIP planned for the Edgerton Highway.



### **Elliott Highway (Alaska Route 2)**

*Background.* The entire Elliott Highway, from MP 0-154 is the study area. From MP 0-68 it is an NHS route and from MP 68-154 it is an AHS route. This NHS section is paved to the junction with the Dalton Highway. From the junction of the Dalton Highway at MP 68 to the end of the road at Manley Hot Springs at MP 154 the road is an AHS route and is gravel. Completed in 1959, the highway was named after Malcolm Elliott, director of the Road Commission between 1927 and 1932.

*Setting.* This highway traverses rolling to mountainous terrain. It crosses the Yukon Tanana Terrane and the Wickersham Terrane. It has long grades, is winding and can be bumpy. The road is a series of upgrades and downgrades, winding through the White Mountains. Less than half of the road is in the Fairbanks North Star Borough and the rest is in the Unorganized Borough. “From Livengood to Manley Hot Springs the road follows the Manley terrane, a collection of Mesozoic sedimentary and volcanic rocks that were strongly deformed and intruded by Cretaceous granite.”<sup>5</sup>

The communities along this route include Livengood, Minto and Manley Hot Springs. All of the communities have DOT&PF owned airports, are unincorporated and located within the Unorganized Borough. Eureka Creek is a backcountry airstrip located along the Elliott Highway. Livengood was originally a small mining town; however, it has since become a seasonal mining community. Minto is connected to the Elliott Highway via an 11 mile paved road. The Minto IRA Council is the local governing body. Seth-De-Ya-Ah Corporation is the Village Corporation and Doyon Limited is the Regional Native Corporation. In Manley there is a local Village Tribal Council. The Manley Hot Springs Community Association, and Bean Ridge Corporation also operate on behalf of Manley residents.

<sup>5</sup> Cathy Connor, Daniel O’Haire, *Roadside Geology of Alaska*, Mountain Press Publishing, Missoula, 1988.

The economy of the NHS portion of the route is dependent on the transportation of goods and services to the North Slope as well as some local mining support, independent or small scale tourism, subsistence and sport hunting. The economy along the AHS section of the Elliott Highway is primarily related to independent tourism, some mining, fishing, fishing and government employment.

*Road Design.* The Elliott Highway from MP 0-68 is classified as a Rural Other Principal Arterial. From MP 68-154 it is a Rural Major Collector. This section is a narrow two-lane road with no shoulders. There are blind hills and curves and the road narrows and has one lane bridges in places. The width is generally 22 to 24 feet.

*Bridges.* There are six bridges along the NHS stretch of the Elliott Highway and five along the AHS section. None have great length and the oldest was built in 1967 – over 40 years ago. The longest is over Hot Springs Slough and is 222 feet long. Table 0-18 provides a complete list of the bridges along the Elliott Highway, with bridge type, length, width and whether the bridge is eligible for bridge repair or replacement funds under the Federal Bridge Program according to the 2007 Bridge Inventory Report completed by the DOT&PF Bridge Design Section.

**Table 0-18 Bridge Inventory Elliott Highway (NHS)**

MP	Water Body	Bridge type*	Length	Roadway Width	Year Built	Bridge Funding Eligibility
11.0	Chatanika River	SS/RC	249	34.0	1967	Ineligible
12.5	Willow Creek	CS	19	33.5	1972	Ineligible
18.3	Washington Creek	PCBT/A	147	32.0	2007	Ineligible
37.0	Globe Creek	GTS/LTR	36	30.5	1978	Ineligible
44.9	Tatalina River	PCBT	120	36.1	2002	Ineligible
57.1	Tolovana River	SS/RC	115	28.6	1969	Ineligible
70.1	Livengood Creek	GTS/LTR	64	30.0	1979	Ineligible
74.9	West Fork Tolovana River	SS/RC	200	28.0	1971	Ineligible
129.3	Hutlinana Creek	PCBT	106	28.7	2004	Ineligible
141.0	Baker Creek	PCBT	121	27.6	1998	Ineligible
150.9	Hot Springs Slough	STT/TTPR	222	12.8	1961	Eligible for repair or replacement

\*Bridge Type Key: A-Asphalt, CS- Concrete Slab . GTS-Glue Laminated Timber Stringer, LTR-Laminated Timber Running Plank , PCBT-Prestressed Concrete Bulb Tee, RC-Reinforced Concrete, SS-Steel Stringer, STT-Steel Through Truss, TTPR- Treated TPR-Timber Running Plank

Source: ADOT Bridge Inventory, August, 2007

*Maintenance.* The Elliott Highway is maintained by three maintenance stations located in Fairbanks, Livengood and Manley Hot Springs.

*AADT.* Summer is the peak traffic time for this highway. The AADT at the junction with the Steese Highway in Fox is 1,110. It is 442 at the Chatanika River and 40 at the junction with the Dalton Highway where the route turns into an AHS route. It is 22 at Minto Spur Road and 22 at Eureka Airfield Road and 175 at Tofty Road.

*Design and Posted Speed Limit.* Design speed for the route is 50 to 55 mph. Posted speed is also generally 50-55. Driving conditions relegate the driver to 45 mph or less on most of the route from Livengood to Manley Hot Springs.

*Pavement Condition.* The 2006 *Pavement Condition Report* indicates that one mile of the NHS portion of the road has more than five years of life and nineteen miles have one to two years of life. There is also 32 miles with three to six years of life, and 16 have no service life left.

Most of the AHS section of the route is gravel; however, there is a section of pavement between MP 121 and 137.5. The 2006 *Pavement Condition Report* indicates that two miles of this paved section have greater than six years of service life left, nine miles have three to six years left, 7.2 miles have one to two years left and four miles have no service life left.

*Crashes.* There were 65 total crashes reported along this route for the five-year period from-2001 through 2005. There were 18, 14, 17, 6, and 10 crashes reported annually over the five-year period. Of those 61 crashes reported on the Elliott Highway, 40 were property damage only, 21 were injury and there were no fatality crashes. No fatalities were reported within the roadway segments previously identified for further analysis based on the rate quality control method.

A summary of crash type and severity is provided below for the five segments identified for further review. General crash trends include off-road collisions, collisions with animals and crashes under icy conditions.



**Table 0-19 2001-2005 Selected Crash Data on the Elliott Highway**

Segment (MP)	Number of Crashes	Type						Severity		
		Angle	Rear-End	Turning	Animal	Off-Road	Other	Injury	PDO <sup>1</sup>	Fatality
0.0-3.0	15	2	0	0	5	7	1	6	9	0
9.0-12.0	7	0	0	0	5	2	0	1	6	0
12.0-15.0	4	1	0	0	0	3	0	3	1	0
15.0-18.0	4	0	0	0	0	4	0	1	3	0
28.0-33.0	5	1	0	0	0	3	1	1	4	0

<sup>1</sup> PDO = Property Damage Only

*Weight Restrictions.* There are no weight restrictions on the NHS segment of the Elliott Highway. Seasonal weight restrictions are placed on the AHS section of the Elliott Highway. In mid-April, the weight restrictions are 100 percent. However, both the location and the duration of this restriction vary from year to year.

*Rest Areas.* There are 39 pullouts/parking areas along the Elliott Highway. There are public outhouses at MP 10, Olnes Pond, MP 11 Chatanika River, MP29, BLM White Mountains National Recreation Area, and at MP 57.1, Colorado Creek Trailhead. There is one public toilet near the junction with Tofty Road at about MP 145. There are no services in Livengood; however, Minto and Manley Hot Springs have limited services.

*Project History.* The NHS portion of the Elliott Highway has been improved over recent years with some new bridges and pavement rehabilitation. Since 1987, the State has spent approximately \$33,868,000 improving the road. The existing bridges are generally up to current standards and are in good condition with the exception of the Hot Spring Slough Bridge (MP 150.9) which is eligible for repair or replacement.

*STIP.* The 2010-2013 STIP shows the following project for the Elliott Highway.

**Table 0-20 2010-2013 Elliott Highway Projects**

Project Location/Name	Project Description	Construction Year	Amount
Elliott Highway MP 0-12 Rehabilitation (Fox to Haystack)	Rehabilitate, restoration, resurfacing with spot widening	After 2013	\$26,500,000



## Glenn Highway (Alaska Route 1)

*Background.* The portion of the Glenn Highway in the study area is from MP 118.4-187. The Glenn Highway was started in the 1930s when colonists moved primarily from Minnesota, Wisconsin and Michigan to farm in the Mat-Su Valley as part of a government plan to help Americans recover from the Depression. The alignment from Anchorage to the Valley hugged the Chugach Mountains rather than crossing the flats in competition with the railroad alignment. The Glenn Highway was expanded to the east to connect with the Richardson and Alaska Highways during WW II. The Highway was a twenty foot wide, rough unpaved road when construction was complete in 1945.

Today, the Glenn Highway, an NHS route, is approximately 187 miles in length and is paved throughout. It provides an east-west connection between Anchorage and Glennallen where it connects with the Richardson Highway and the Tok Cutoff to the Alaska Highway. The Glenn Highway lies within the study area from its eastern terminus at the Richardson Highway to approximately 60 miles west at the Mat-Su Borough boundary (MP 118.4). Within the study area, approximately 20 miles of the Glenn Highway is part of the National Scenic Byway System (from MP 118.4 to MP137.7).

*Setting.* The terrain the Glenn Highway traverses between MP 118 and Glennallen is level to rolling with minimal restrictions to vertical or horizontal roadway alignment. It follows the Nelchina River, fed by the Nelchina Glacier in the Chugach Mountains, until it traverses the Tazlina River watershed. The area is characterized geologically as “superficial deposits from the last ice age.” One local phenomenon is the “mud volcanoes” adjacent to the Glenn Highway in this area. Various drill holes in the area indicate that warm water and methane gas may be percolating to the surface and bubbling through lake silts to create the mud volcanoes. Permafrost also exists along this route.

The communities along this route include Glennallen, Mendeltna and Nelchina as well as Lake Louise. Mendeltna and Nelchina are accessed directly off the Highway while Lake Louise is connected by a State maintained road almost 19 miles long. The portion of the Glenn Highway within the study area is completely within the Unorganized Borough although Lake Louise is inside the Mat-Su Borough. There are no incorporated governments in this road section. The DOT&PF-owned public airports on the Glenn Highway are at Tazlina and Lake Louise.

Seaplane bases open to public use are at Lake Louise, Smokey Lake (Tazlina), and Tolsona Lake.

Ahtna Inc. is the Regional Native Corporation in the area and their headquarters is located in Glennallen, which borders the Wrangell St. Elias National Park and Preserve. There are no tribal governments on this section of highway.

The economy along the Glenn Highway between Glennallen and MP 127 is dependent on tourism and pass through traffic. Mendeltna area residents rely on tourism and subsistence activities. Mendeltna has a lodge and large recreational vehicle (RV) campground. Lake Louise is a year-around attraction for Alaskans, with lake trout fishing in both summer and winter. There are cabins to rent in Nelchina as well as a grocery store, gift shop, repair shop and towing company. Glennallen is a supply hub for the Copper River region and has regional offices of several Federal and State agencies as well as a State Trooper station.

*Road Design.* The Glenn Highway, from MP 28-189, is classified as a Rural Interstate. The road is 40 feet wide within the Study Area. There are westbound passing lanes at MP 137.5. A westbound truck climbing lane begins at MP 131.4 and ends at MP 133.

*Bridges.* There are three bridges along the Glenn Highway, within the study area. The following table provides a list of the bridges in the study area along the Glenn Highway, along with the bridge type, length, width and whether the bridge is eligible for bridge repair or replacement funds under the Federal Bridge Program according to the 2007 Bridge Inventory Report completed by the DOT&PF Bridge Design Section.

**Table 0-21 Bridge Inventory, Glenn Highway**

MP	Water Body	Bridge type*	Length	Roadway Width	Year Built	Bridge Funding Eligibility
137.4	Little Nelchina River	SSC/RC	285	44.0	1973	Ineligible
152.8	Mendeltna Creek	PCBT/A	89	40.0	1977	Ineligible
173.1	Tolsona Creek	SS/RC	82	44.6	1950	Eligible for repair or replacement

\*Bridge Type Key: A-Asphalt, PCBT-Prestressed Concrete Bulb Tee, RC-Reinforced Concrete, SS-Steel Stringer  
 Source: ADOT Bridge Inventory, August, 2007

*Maintenance.* The portion of the Glenn Highway within the study area is in the Tazlina Maintenance District. There are two maintenance stations, one at Tazlina (just south of Glennallen) and the other at Nelchina.

*AADT.* This highway experiences most usage during summer, the peak tourist season. The AADT at the Nelchina M&O Station is 997 and 1,042 at the junction with Lake Louise Road. The AADT is higher in Glennallen, 2,314 at the junction with Aurora School Road.

*Design and Posted Speed Limits.* The Glenn Highway is designed to 60 mph standards. The posted speed for the Glenn Highway between MP 110 and MP 176 is 55 mph. The posted speed between MP 176 to 180 is 40 mph.

*Pavement Condition.* The 2006 *Pavement Condition Report* indicates that 36.8 miles of this route have greater than six years of service life left, ten miles have three to six years left, seven miles have one to two years left, and six miles have no service life left. The areas where the pavement conditions are the worst (no service life) are areas where there are attractions for turning off and onto the highway. Those areas where there is only a year or two of pavement life left are also in areas where there are attractions or scenic turnouts. A particularly poor area of pavement is MP 172 to MP 178. This area either has zero to two years of pavement life remaining.

*Crashes.* There were 71 total crashes reported along this route for the five-year period from 2001 through 2005. There were 9, 8, 16, 23, and 15 crashes reported annually over the five-year period. Of the 71 crashes reported on the Glenn Highway within the study area, 49 were property damage only, 18 were injury and four were fatality crashes. Fatalities were located at mileposts 132, 150, 171, and 185 and the crash types consisted of head-on, off-road, head-on and an angle collision, respectively. No roadway segments were identified for further analysis based on the rate quality control method.

*Weight Restrictions.* Seasonal weight restrictions are placed on the Glenn Highway. From mid to late April the weight restrictions are 85 to 100 percent. From early to mid May the weight restrictions are 100 percent and from early to mid June overloads are allowed.

*Rest areas.* There are 16 informal and formal rest areas with parking in the study area along the Glenn Highway, with two of the rest areas including toilet facilities. The toilets are located at the

Little Nelchina State Recreation Area at approximately MP 137.8 and the Mendeltna Creek Wayside at approximately MP 152.8.

*Project History.* The Glenn Highway has been reconstructed to 60 mph standards for its entire length. Two of the existing bridges are generally up to current standards and are in good condition; the third, the Tolsona Creek Bridge, is eligible for repair or replacement.

Since 1987, the State has spent approximately \$12,000,000 improving the road.

*STIP.* The 2010-2013 STIP includes the following projects for the Glenn Highway.

**Table 0-22 2010-2013 STIP Glenn Highway Projects**

Project Location/Name	Project Description	Construction Year	Amount
Glenn Highway MP 172-189	Rehabilitation – Tolsona River to Richardson Hwy. Jct.	2010	\$20,674,300



### **Parks Highway (Alaska Route 3).**

*Background.* The portion in the study area is from MP 128 – 352 and is an NHS route. The Parks Highway was completed in 1971 and was initially called the Anchorage-Fairbanks Highway. It was renamed the George Parks Highway in commemoration of the Territorial Governor, George Parks. It took 12 years to build, at a cost of over \$150,000,000. The Parks Highway is the primary vehicular facility connecting Anchorage and Fairbanks (approximately 362 miles) and follows the alignment of the previously constructed railroad for much of the way. The entire route is paved. The portion of the Parks Highway inside the study is approximately 177 miles. This highway passes through Denali National Park and serves tourist traffic to and from the park. While it currently is part of the State Scenic Byway System (MP 132 to 248), efforts are underway to nominate parts of the Parks Highway (Coal Creek to Healy) as a National Scenic Byway.

*Parks Highway between Denali NP and Fairbanks*

http://students.washington.edu/srh13/FtHills.html





*Setting.* In the study area, the Parks Highway follows the Nenana River through the Alaska Range to Nenana. Road cuts reveal displaced crust along the Denali Fault. The road between Nenana and Fairbanks continues through the Tanana River lowlands before looping northeast along the north side of the Tanana River through rounded hills of schist. Terrain is varied and is mountainous, rolling or level depending on which section of road is being traversed.

The primary settlements along the route include Anderson (including Clear Air Base), Cantwell, Denali National Park, Healy and Nenana. There is a road to Ferry at MP 259 that is approximately one mile in length which leads to the Gold King area that is accessed via a railroad bridge.

Public use airports on the Parks Highway include Summit (DOT&PF-owned) in Broad Pass, Cantwell Airport (privately owned), the McKinley National Park Airport (owned by the NPS), Healy River (owned by the DOT&PF), Clear Airport (owned by the DOT&PF), and Nenana Municipal Airport (owned by the City of Nenana).

The Parks Highway is located in the Mat-Su Borough, the Denali Borough, the Fairbanks North Star Borough and the Unorganized Borough. Anderson is a 2<sup>nd</sup> class city, incorporated in 1962. Fairbanks and Nenana are Home Rule Cities. Ahtna, Inc. is the Regional Native Corporation for Cantwell. Nenana has a Tribal government, the Nenana Native Village Association. Their village corporation is called Toghotthele Corporation.

The economy along the Parks Highway is primarily tourism dependent; however, Usibelli Coal Mine and the Clear Air Force Base are also significant contributors. Denali National Park and Preserve is a major seasonal employer along with privately owned developments along the Highway at the entrance to the park.

*Road Design.* The Parks Highway is classified as a Rural Interstate Highway. All segments are 40 feet wide and paved. A truck lane southbound begins at approximately MP 247.8. The highway begins a series of long winding grades with intermittent passing lanes northbound for 38 miles past MP 312. There are intermittent passing lanes southbound for 38 miles past MP

349.2. There is a four-lane divided highway eastbound at MP 356, near Fairbanks, with a two-lane highway westbound.

*Bridges.* There are 25 bridges along this section of the Parks Highway including several bridges with spans of 500 or more feet (Hurricane Gulch, Nenana River Park Station, and Nenana River at Moody). The following table provides a complete list of the bridges along the Parks Highway, along with the bridge type, length, width and whether the bridge is eligible for bridge repair or replacement funds under the Federal Bridge Program according to the 2007 Bridge Inventory Report completed by the DOT&PF Bridge Design Section.

**Table 0-23 Bridge Inventory, Parks Highway**

MP	Water Body	Bridge type*	Length	Roadway Width	Year Built	Bridge Funding Eligibility
174.0	Hurricane Gulch	SA/RC	558	31.5	1971	Ineligible
178.1	Honolulu Creek	SS/RC	121	41.6	1971	Eligible for repair
185.1	East Fork Chulitna River	SS/RCA	143	30.0	1967	Ineligible
194.5	Middle Fork Chulitna River	SS/RCA	143	30.0	1966	Ineligible
208.4**	Summit Overhead	PCBT/A	146	40.5	2006	Ineligible
208.0	Pass Creek	SS/RC	132	30.0	1965	Ineligible
209.5	Jack River	SS/RC	197	30.0	1965	Ineligible
215.6	Nenana River At Windy	SBGC/RC	389	34.0	1974	Eligible for repair
224.0	Carlo Creek	SS/RC	77	42.5	1973	Ineligible
231.2	Nenana River Park Bnd	SSC/RC	358	32.5	1973	Eligible for repair
237.2	Riley Creek	SS/RC	226	33.0	1969	Eligible for repair or replacement
237.9	Nenana River Park Sta	SSC/RC	500	33.0	1970	Ineligible
238.2	Kingfisher Creek	SS/RC	111	44.0	1971	Ineligible
240.0	Iceworm Gulch	SS/RC	82	44.5	1971	Ineligible
240.2	Hornet Creek	SS/RCA	92	44.5	1971	Ineligible
241.2	Fox Creek	SS/RC	82	44.0	1971	Ineligible
242.4	Dragonfly Creek	SS/RC	82	44.5	1971	Ineligible
242.8	Nenana River At Moody	SDT/RC	891	30.0	1970	Ineligible
243.6	Bison Gulch	SS/RC	148	31.5	1969	Ineligible
244.6	Antler Creek	SS/RC	220	31.5	1969	Ineligible
249.3	Dry Creek Overflow	SS/RC	180	33.3	1965	Ineligible
249.8	Dry Creek	SS/RC	301	30.0	1965	Ineligible
252.5	Panguingue Creek	SS/RC	127	36.0	1965	Ineligible
269.4	Bear Creek	SSC/RC	81	36.0	1965	Ineligible
275.9	Nenana River At Rex	STT/RC	510	30.0	1963	Ineligible

\*Bridge Type Key: A-Asphalt, PCBT-Prestressed Concrete Bulb Tee, RC-Reinforced Concrete, RCA- Reinforced Concrete Asphalt, SA- Suspension Asphalt, SBGC-Steel Box Girder Continuous, SDT-Steel Deck Truss, SS-Steel Stringer, SSC- Steel Stringer Continuous, STT-Steel Through Truss

\*\*MP for Summit Overhead is listed as 208.4 in the *ADOT Bridge Inventory*, August, 2007, but this seems inaccurate.

Source: *ADOT Bridge Inventory*, August, 2007

*Maintenance* The portion of the Parks Highway within the study area is maintained by the Denali and Fairbanks Maintenance Districts. There are four maintenance stations: Cantwell; Healy; Nenana; and Fairbanks.

*AADT.* This highway experiences most usage during summer, the peak tourism time of year. The AADT along the Parks Highway in the study area varies between 1,300 and 2,700 (at the junction with the Denali National Park Road) and peaks in Fairbanks at the junction with University Avenue at over 16,000.

*Design and Posted Speed Limits.* With the exception of a few small segments around towns and in areas where the road hasn't been updated, the majority of the Parks Highway has a design speed of 70 mph. The posted speeds are generally 45 to 65 mph.

*Pavement Condition.* The 2006 *Pavement Condition Report* indicates that 113 miles of this route have greater than six years of service life left, 24 miles have three to six years left, two miles have one to two years left and 12 miles have no service life left. Some of the worst pavement conditions are located roughly between MP 243 and 260 in areas where there may be problems with subgrade materials; frost heaves are prevalent.

*Crashes.* There were 711 total crashes reported along this route for the five-year period from 2001 through 2005. There were 120, 136, 155, 144, and 156 crashes reported annually over the five-year period. Of those 711 crashes reported on the Parks Highway, 430 were property damage only, 267 were injury and 14 were fatal crashes. These fatal crashes were located at about MPs 185, 206, 243, 275, 278, 298, 303, 315, 316, 329, 348, and the junctions with the Parks Highway and Airport Way, Peger Road and 1<sup>st</sup>/2<sup>nd</sup>/Wilbur Street. The fatal crash types consisted of off-road, angle, rear end and head-on collisions. Two fatalities were reported within the roadway segments previously identified for further analysis based on the rate quality control method. One fatality occurred at MP 299 and involved a single vehicle crashing off-road. The second fatality occurred near Cripple Creek Road and involved two vehicles in a rear-end collision.

A summary of crash type and severity is provided below for the four segments identified for further review. General crash trends include off-road crashes under icy and nighttime conditions.

**Table 0-24 2001-2005 Selected Crash Data on the Parks Highway**

Segment	Number of	Type	Severity
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(MP)	Crashes	Angle	Rear-End	Turning	Animal	Off-Road	Other	Injury	PDO <sup>1</sup>	Fatality
216-218	18	1	1	0	0	15	1	6	12	0
297-300	15	0	0	0	4	11	0	8	6	1
347-350	24	1	2	0	8	11	2	12	11	1

<sup>1</sup> PDO = Property Damage Only

*Weight Restrictions.* Seasonal weight restrictions are placed on portions of the Parks Highway. In mid April, the weight restrictions are 85 to 100 percent. From May to early June, overloads are allowed.

*Rest areas.* There are 62 formal and informal (paved and gravel) pullouts and rest areas with parking along the Parks Highway within the study area. Three of the rest areas include toilet facilities. The toilets are located at the entrance to Denali Park, the June Creek Rest Area, and the Nenana Visitor Center.

*Project History.* The Parks Highway has been reconstructed to 70 mph standards for nearly its entire length. Some areas in the vicinity of towns have a lower design speed. Most of the existing bridges are generally up to current standards and are in good condition. Three Parks Highway bridges are eligible for repair: the Honolulu Creek Bridge (MP 178.1), the Nenana River at Windy (MP 215.6), and the Nenana River at Park Bend (MP 231.2). Additionally, the Riley Creek Bridge (MP 237.2) is eligible for repair or replacement.

Since 1987, the State has spent approximately \$155,000,000 improving the road.

*STIP.* The 2010-2013 STIP includes the following projects for the Parks Highway.

**Table 0-25 2010-2013 STIP Parks Highway Projects**

Project Location/Name	Project Description	Construction Year	Amount
Parks Highway MP 163-305	Passing Lanes	2013	\$14,242,000
Parks Highway MP 194 to Broad Pass RR Overcrossing	RR Overcrossing	2013	\$25,600,000
Parks Highway MP 239-263	Reconstruction Nenana Canyon to Bear Creek	2011	\$10,000,000
Parks Highway MP 163-185 Rehabilitation (NR Boundary to East Fork Chulitna)	Rehabilitate the Parks Highway to accommodate heavy truck loads associated with the construction of a natural gas pipeline	After 2013	\$33,000,000
Parks Highway MP 251-262 Reconstruction	Reconstruct and resurface from Dry Creek to Bear Creek	2010	\$12,000,000
Parks Highway Rest Areas	Construct new rest areas at MP 185, MP 239, MP 262 and MP 360	After 2013	\$4,000,000



### **Richardson Highway (Alaska Route 2 and 4)**

*Background.* The portion in the study area is from MP 69-340 and is an NHS route. The history of the Richardson Highway begins with the Klondike Gold Rush, when thousands of people were trying to find the easiest way to reach the gold fields. In 1898, a U.S. Army exploration party under the command of Captain William R. Abercrombie completed a rough survey of a route starting at Valdez. The following spring, work began on the five-foot-wide pack trail that would eventually become the Richardson Highway. The following year, construction on a military telegraph network began. A crucial part of the network was a line from Fort Liscum, at Valdez, to Fort Egbert, at Eagle. Much of the pack trail was upgraded as part of that work. The trail was further improved in 1902 due to the rush to the new gold strike near what is now Fairbanks, and the current highway generally follows that route. When the Alaska Road Commission was established in 1905, Major Richardson, its first president, assigned top priority to upgrading the Valdez-Fairbanks trail. By 1907, it was developed to a wagon route and a stage plied the trail with horse-drawn sledges in winter and wagons in summer. The highway was eventually named for Major Richardson.

Today, the Richardson Highway is a paved primary north/south route running approximately 368 miles between Valdez and Fairbanks. Much of the Highway corridor has been upgraded from



the 1950s roadway system. Approximately 294 miles of the highway are located in the study area which begins along the Richardson Highway at MP 69. The Richardson Highway is designated as Alaska Route 4 between Valdez and Delta Junction, and becomes Alaska Route 2 between Delta Junction and Fairbanks.

*Setting.* The Richardson Highway intersects with five other highways: the Edgerton Highway at MP 82.5, the Glenn Highway (MP 115) at Glennallen, the Tok Cutoff (MP 128.6) at Gakona Junction, the Denali Highway (MP 185.5) at Paxson, and the Alaska Highway (MP 266) at Delta Junction. The terrain through which the highway travels is generally rolling or flat with minimal restrictions to vertical or horizontal roadway alignment. A portion of the Richardson Highway, the North Richardson (MP 261 to 362) is being considered for a Scenic Byway designation. Work on this effort has begun.

The communities along this route include Copper Center, Kenny Lake, Tazlina, Glennallen, Gulkana, Paxson, Delta Junction, Big Delta, Salcha, North Pole and Fairbanks. Two military installations are also located on the route: Fort Greely Missile Defense Site at MP 261 and Eielson Air Force Base at MP 341. Fort Wainwright also borders the Richardson Highway in the Fairbanks vicinity. Public use airports along this portion of the route include Copper Center 2, Gulkana, Paxson, Black Rapids, Delta Junction, Allen Army Airfield (Fort Greely), and Bradley Sky Ranch (North Pole).

The Richardson Highway is located within the Unorganized Borough along its entire route until it meets the Fairbanks North Star Borough (FNSB) boundary. Approximately 67 miles of the highway are contained within the FNSB. Local government entities found along the Richardson Highway include the incorporated cities of Delta Junction, North Pole and Fairbanks. The City of Delta Junction is a 2<sup>nd</sup> class City, incorporated in 1960; the City of North Pole is a Home Rule City, incorporated in 1953; and the City of Fairbanks is a Home Rule City, incorporated in 1903.

Ahtna, Inc. is the Native Regional Corporation from near Thompson Pass to north of Paxson. The remainder of the highway is within the boundaries of Doyon Limited. Tribal governments along the highway are located in Copper Center, Gulkana and Tazlina.

The economy along the Richardson Highway is primarily related to both independent and group tourism. Whitestone Farms, Inc. operates Rika's Roadhouse, a major tourist attraction along the route, which includes RV parking, a restaurant, and gift store in the Big Delta State Historical

Park. Another major contributor to the economy is the Pogo Mine located in the upper Goodpaster River Valley and accessed at the Shaw Creek Road (MP 293.5) via a 49 mile all-season road from the Richardson Highway. The North Richardson Highway is also a significant freight-hauling route to and from Canada from the Alaska Highway. Agriculture, small business, pipeline support, dipnetting and State and Federal highway maintenance jobs also provide sources of employment. The military installations, Fort Greely Army base near Delta Junction, Fort Wainwright near Fairbanks, and Eielson Air Force Base near North Pole are a significant part of the economy.

*Road Design.* The Richardson Highway is classified as a Rural Other Principal Arterial from the study area Boundary to Glennallen then a Rural Minor Arterial to Delta Junction and a Rural Interstate Highway from Delta Junction to Fairbanks. Near Fairbanks and North Pole it is classified as an Urban Interstate Highway. The highway is primarily a two-lane facility through most of the study area; however, there are areas where additional lanes are added. The highway increases from two to three lanes north of Tonsina, from MP 80 to 81 approximately. In the area of Delta Junction, the highway increases from two to three lanes (at approximately MP 265.5, near the intersection with Fourth Street) for about half a mile to the intersection with the Alaska Highway, where it again increases to four lanes for approximately half a mile to the intersection with Deborah Street. A recent project added passing lanes from MP 265-341. At MP 341, the highway becomes four lanes and remains a four-lane road until it terminates approximately 20 miles north in Fairbanks.

*Bridges.* There are 32 bridges along the Richardson Highway including four major bridges over 400 feet in length at Tazlina, Gulkana, Tanana and Salcha Rivers. The following table provides a complete list of the bridges within the study area along the Richardson Highway, including the bridge type, length, width and whether the bridge is eligible for bridge repair or replacement funds under the Federal Bridge Program according to the 2007 Bridge Inventory Report completed by the DOT&PF Bridge Design Section.

**Table 0-26 Bridge Inventory, Richardson Highway**

<b>MP</b>	<b>Water Body</b>	<b>Bridge type*</b>	<b>Length</b>	<b>Roadway Width</b>	<b>Year Built</b>	<b>Bridge Funding Eligibility</b>
79.2	Tonsina River	SSC/RCA	254	40.3	1957	Ineligible
79.6	Squirrel Creek	SS/RCA	52	40.4	1973	Ineligible
101.2	Klutina River	PCBT/A	308	36.0	1989	
110.7	Tazlina River	SSC/RC	469	35.3	1973	Ineligible
126.9	Gulkana River	SSC/RC	405	34.0	1974	Ineligible
147.7	Sourdough Creek	PCBT	100	36.0	1987	Ineligible
184.7	One Mile Creek	PCBT/A	55	36.0	2000	Ineligible
196.8	Gunn Creek	SS/RC	81	24.0	1954	Ineligible
201.5	Phelan Creek	SS/RC	82	24.0	1958	Eligible for repair or replacement
202.4	McCallum Creek	SS/RC	33	24.0	1954	Ineligible
215.1	Upper Miller Creek	SSC/RC	183	24.0	1958	Ineligible
216.7	Lower Miller Creek	SS/RC	152	24.0	1958	Ineligible
217.1	Castner Creek	SSC/RC	153	24.0	1958	Ineligible
218.8	Trims Creek	SS/RC	37	24.0	1954	Ineligible
219.9	Michael Creek	SS/RC	33	24.0	1954	Ineligible
220.8	Flood Creek	SS/RC	37	24.0	1954	Ineligible
223.0	Whistler Creek	SS/RC	37	24.0	1954	Eligible for repair or replacement
223.8	Boulder Creek	SS/RC	37	24.0	1954	Eligible for repair or replacement
224.5	Lower Suzy Q Creek	PCCG	36	28.0	1990	Ineligible
226.9	Gunny Sack Creek	SS/RC	47	24.0	1954	Ineligible
228.4	One Mile Creek	SS/RC	31	24.0	1950	Eligible for repair or replacement
231.0	Darling Creek	SS/RC	81	24.0	1952	Eligible for repair or replacement
233.3	Bear Creek	SS/RC	51	24.0	1952	Eligible for repair or replacement
234.7	Ruby Creek	SS/RC	31	24.0	1952	Eligible for repair or replacement
264.8	Jarvis Creek	SSC/RC	184	24.0	1954	Eligible for repair or replacement

MP	Water Body	Bridge type*	Length	Roadway Width	Year Built	Bridge Funding Eligibility
275.4	Tanana River Big Delta	STT/RC	784	29.8	1966	Ineligible
286.5	Shaw Creek	PCBT/A	166	38.0	1975	Ineligible
295.4	Banner Creek	PCCG/A	32	39.5	1975	Ineligible
323.3	Salcha River	SSC/RC	504	35.0	1967	Ineligible
324.0	Clear Creek	SS/RC	47	41.0	1967	Eligible for repair
325.4	Munson Slough	SS/RC	63	41.1	1967	Ineligible
328.4	Little Salcha River	SS/RC	92	41.0	1967	Ineligible

\*Bridge Type Key: A-Asphalt, PCBT-Pre-stressed Concrete Bulb Tee, PCCG – Pre-stressed Concrete Channel Girder, RC-Reinforced Concrete, RCA- Reinforced Concrete Asphalt, SS-Steel Stringer, SSC- Steel Stringer Continuous, STT-Steel Through Truss

Source: ADOT Bridge Inventory, August, 2007

*Maintenance.* The Richardson Highway, within the study area, has seven maintenance stations: Ernestine, Tazlina, Paxson, Trims, Delta Junction, Birch Lake, and Fairbanks.

*AADT.* This highway experiences most usage during summer, the peak tourism time of year. The AADT along most of the corridor is 1,896 with higher AADTs occurring near North Pole and Eielson Air Force Base (AADT 20,979).

*Design and Posted Speed Limits.* Except for the area around Delta Junction, the design speed for the Richardson Highway ranges between 55 and 65 mph. The posted speeds along the highway are consistent with the design speed, ranging from 55 to 65 mph and slowing to 35 mph through Delta Junction.

*Pavement Condition.* The 2006 *Pavement Condition Report* indicates that approximately 165 miles of this route have greater than six years of service life left, 63 miles have three to six years left, 27 miles have one to two years left and 35 miles have no service life left. Some of the worst pavement conditions are located north of Thompson Pass (MP 45 to 72) and south of Trims Maintenance Station (MP 128 to 183).

*Crashes.* There were 825 total crashes reported along this route for the five-year period from 2001 through 2005. There were 137, 138, 199, 187 and 164 crashes reported annually over the five-year period. Of those 825 crashes reported on the Richardson Highway, 563 were property damage only, 249 were injury and 13 were fatality crashes. These fatalities were located at MP 79, 80, 110, 138, 159, 238, 262, 268, 301, 308, 310, 330 and 340 and the crash types consisted of

off-road, angle and head-on collisions. No fatalities were reported within the roadway segments previously identified for further analysis based on the rate quality control method.

A summary of crash type and severity is provided below for the five segments identified for further review. General crash trends include off-road crashes, nighttime conditions and animal crashes.

**Table 0-27 2001-2005 Selected Crash Data on the Richardson Highway**

Segment MP	Number of Crashes	Type						Severity		
		Angle	Rear-End	Turning	Animal	Off-Road	Other	Injury	PDO <sup>1</sup>	Fatality
149-153	7	0	2	0	2	3	0	2	5	0
239 - 243	9	0	0	0	1	7	1	1	8	0
273 - 277	26	7	0	0	5	11	3	9	17	0
293 - 298	15	1	0	0	6	8	0	4	11	0
298 - 301	26	1	0	0	4	18	3	6	20	0

<sup>1</sup> PDO = Property Damage Only

*Weight Restrictions.* Seasonal weight restrictions are placed on the Richardson Highway. From mid to late April the weight restrictions are 85 to 100 percent. From mid to late May the weight restrictions are 100 percent and from early to mid June overloads are allowed.

*Rest areas.* There are 121 rest areas with parking along the Richardson Highway. Seventeen of the rest areas include toilet facilities. Table 0-28 lists the rest areas with toilets.

**Table 0-28 Richardson Highway Rest Areas**

<b>Milepost</b>	<b>Description</b>
65.1	Little Tonsina River State Recreational Site
79.5	Squirrel Creek State Recreational Site
110	Tazlina River Rest Area
147.6	Sourdough Campground
188	Unnamed Pullout
200	Fielding Lake State Recreational Site Access
238	Donnelly Creek Recreational Site
262	Scenic Wayside
266	Delta Visitors Center
267.1	Delta State Recreational Site
274.5	Big Delta State Historical Park
277.8	Quartz Lake State Recreational Area Access
305.3	Birch Lake State Recreation Site
306	Birch Lake Pull off
321.4	Harding Lake State Recreational Area Access
323.2	Salcha River State Recreational Site
346.7	Chena Lakes Recreation Area Access

*Project History.* The Richardson Highway MP 148 to 186 and MP 191 to 265, are the remaining portions of the 1950s roadway facility that have not been upgraded to current standards. Most of the new sections are paved 36-foot-wide, with 40-foot-wide sections between MP 115 to 129 and MP 299 to 344. Some segments of this road have had numerous rehabilitation projects due to the extremely poor foundations in those isolated areas. It is anticipated these segments will continue to need periodic rehabilitation work. The bridges range from 24 feet to 42 feet in width. Most of the existing bridges are generally up to current standards and are in good condition; however, seven bridges are eligible for repair or replacement: the Phelan Creek Bridge (MP 201.5), the Whistler Creek Bridge (MP 223), the One Mile Creek Bridge (MP 228.4), the Darling Creek Bridge (MP 231), the Bear Creek Bridge (MP 233.3), the Ruby Creek Bridge (MP234.7) and the Jarvis Creek Bridge (MP 264.8). Additionally, the Clear Creek Bridge (MP 324) is eligible for repair.

Since 1987, the State has spent approximately \$116,700,000 improving the road.

*STIP.* The 2010-2013 STIP includes the following projects for the Richardson Highway.



**Table 0-29 2010-2013 STIP Richardson Highway Projects**

Project Location/Name	Project Description	Construction Year	Amount
Richardson Highway MP 148-159	Reconstruction Sourdough to Haggard Creek	2012	\$28,050,000
Richardson Highway MP 201	Phelan Creek Bridge Replacement #0579	2012	\$2,500,000
Richardson Highway MP 228	One Mile Creek Bridge #0591	2011	\$16,000,000
Richardson Highway MP 234	Ruby Creek Bridge #0594	2012	\$2,000,000
Richardson Highway MP – 257-265	Reconstruction widen and replace Jarvis Creek Bridge #0595	After 2013	\$12,400,000
Richardson Highway MP 65-74 Rehabilitation	Rehabilitation, restoration and resurfacing	After 2013	\$16,000,000



### Steese Highway (Alaska Route 6)

*Background.* The Steese Highway begins in Fairbanks and continues northeast to Circle. The first part of the route, from MP 0-7 is an NHS route (outside study area) and from 7-162 it is on the AHS. The route was originally blazed in 1894 as a freight trail from Circle to the placer mines along Birch Creek and was extended to Fairbanks when gold was discovered there in 1902. It was upgraded to a road in 1927 to provide access to the Davidson Ditch aqueduct system that brought water from the Chatanika River to the gold fields around Fairbanks. The Steese Highway was named after Gen. James G. Steese, a former president of the Alaska Road Commission.

MP 0 to 51 of the Steese Highway is designated as a State Scenic Byway for scenic, natural, recreation and historic properties.

*Setting.* The terrain through which the highway travels is mountainous to rolling where it follows the Chatanika River or descends to the Yukon River. The road traverses three mountain passes: Cleary Summit; Twelve Mile Summit; and Eagle Summit. The majority of the road traverses Late Precambrian to Early Paleozoic Metamorphic rock. There is exposed graphitic schist in the cut banks of the road between Central and Circle.

The Steese Highway provides access to Fox, Chatanika, Central, Circle Hot Springs (via an 8-mile long access road) and Circle, none of which are incorporated communities. Central, Circle

and Circle Hot Springs all have State-owned airports. Doyon, Limited is the Native Regional Corporation. About half of the length of the Steese Highway is in the Fairbanks North Star Borough and the rest is in the Unorganized Borough. The Steese Highway provides access to the White Mountains National Recreation Area and the Steese Conservation Area.

The economy along the Steese Highway relies on tourism, Fort Knox mine and seasonal support for other mining operations in the area, sport hunting and subsistence.

*Road Design.* The AHS portion of the highway is classified as a Rural Minor Arterial. It has a paved 32-foot wide surface to MP 62. From MP 62 to the end of the road it has a gravel surface that varies from 28 to 22 feet wide.

*Bridges.* There are 21 bridges along the Steese Highway in the study area. The following table provides a complete list of these bridges, along with the bridge type, length, width and whether the bridge is eligible for bridge repair or replacement funds under the Federal Bridge Program according to the 2007 Bridge Inventory Report completed by the DOT&PF Bridge Design Section.

**Table 0-30 Bridge Inventory, Steese Highway (AHS)**

MP	Water Body	Bridge type*	Length	Roadway Width	Year Built	Bridge Funding Eligibility
	Fairbanks Mining Rd U.C.	PCBT/A	121	32.6	2001	Ineligible
32.2	Captain Creek	SS/RC	51	31.0	1967	Ineligible
37.3	Kokomo Creek	SS/RC	51	31.0	1967	Ineligible
38.8	Chatanika River	SSC/RC	317	30.0	1967	Ineligible
40.4	Crooked Creek	SS/RC	56	31.0	1967	Ineligible
41.5	Belle Creek	SS/RC	101	31.0	1967	Ineligible
42.7	McKay Creek	SS/RC	111	31.0	1967	Ineligible
45.5	Long Creek	GTS/LTRA	32	28.0	1980	Ineligible
65.2	Sourdough Creek	GTS/LTRA	44	29.0	1983	Ineligible
69.1	Faith Creek	GTS/LTR	80	28.0	1983	Ineligible
88.6	Reed Creek	SS/RC	57	28.0	1971	Ineligible
93.4	North Fork 12 Mile Creek	SS/RC	123	28.0	1961	Eligible for repair
95.7	Willow Creek	SS/RC	57	28.0	1971	Ineligible
97.6	Bear Creek	SS/RC	47	28.0	1971	Ineligible
99.8	Fish Creek	SS/RC	57	28.0	1971	Ineligible
101.4	Ptarmigan Creek	SS/RC	116	28.0	1971	Ineligible
116.5	Mammoth Creek	SS/RC	47	28.0	1971	Ineligible
125.3	Boulder Creek	SS/RC	52	28.0	1971	Ineligible
127.9	Crooked Creek	SPT/TP	81	14.0	1957	Proposed Replacement

MP	Water Body	Bridge type*	Length	Roadway Width	Year Built	Bridge Funding Eligibility
						(IRR)
131.2	Albert Creek	TTS/LT	76	28.0	1978	Ineligible
147.1	Birch Creek	STT/LTR	355	12.8	1957	Ineligible

\*Bridge Type Key: A-Asphalt, PCBT-Prestressed Concrete Bulb Tee, LT-Laminated Timber, LTR-Laminated Timber Running Plank, LTRA- Laminated Timber Running Plank Asphalt, RC-Reinforced Concrete, SS-Steel Stringer SSC-Steel Stringer Continuous, SPT-Steel Pony Truss, STT-Steel Through Truss, TP- Timber Plank, TTS-Treated Timber Stringer

Source: ADOT Bridge Inventory, August, 2007

**Maintenance** The Steese Highway is maintained by 3 stations: Fairbanks, Montana Creek and Central.

**AADT.** This highway experiences most usage during summer, the peak tourism time of year. The divided portion of the Steese Expressway exhibits an AADT of 29,906.

**Design and Posted Speed Limits.** The Steese Highway has been constructed to 60 mph standards along most of its length. The posted speeds vary between 45 mph and 55 mph.

**Pavement Condition.** The 2006 *Pavement Condition Report* covers the first 11 miles of the Steese Highway. It does not include the pavement along the AHS portion of the Steese Highway. In total, 62 miles of the Steese are paved.

**Crashes.** There were 60 total crashes reported along this route for the five-year period from 2001 through 2005. There were 9, 10, 15, 16 and 10 crashes reported annually over the five-year period. Of the 60 crashes reported on the Steese Highway, 33 were property damage only, 26 were injury, and 1 was a fatal crash. This fatality was located at MP 159 and involved a pedestrian. This fatality was reported within a roadway segment identified for further analysis based on the rate quality control method.

A summary of crash type and severity is provided below for the nine segments identified for further review. General crash trends include collisions with animals, off-road crashes and crashes under icy and nighttime conditions.

**Table 0-31 2001-2005 Selected Crash Data on the Steese Highway (AHS)**

Segment (MP)	Number of Crashes	Type						Severity		
		Angle	Rear-End	Turning	Animal	Off-Road	Other	Injury	PDO <sup>1</sup>	Fatality
11.1 - 14.1	6	1	1	0	2	2	0	3	3	0
14.1 - 17.1	9	1	1	0	4	3	0	5	4	0
17.1 - 20.1	7	1	0	0	1	5	0	4	3	0
20.1 - 23.1	7	0	0	0	0	7	0	5	0	0
29.0 - 34.0	4	0	1	0	3	0	0	1	3	0
38.0 - 42.5	2	0	0	0	0	2	0	1	1	0
52.0 - 55.0	2	0	0	0	0	2	0	0	2	0
158.0 - 160.0	3	0	0	0	0	1	2	0	2	1
160.0 - end	2	0	0	0	0	2	0	1	1	0

<sup>1</sup> PDO = Property Damage Only

*Weight Restrictions.* Seasonal weight restrictions are placed on Steese Highway from MP 11 to 162 in mid April.

*Rest areas.* There are rest areas at Davidson Ditch (MP 58), Nome Creek (MP 77) and Pinnell Mountain (MP 85).

*Project History.* Since 1987, the State has spent approximately \$40,000,000 improving the road.

*STIP.* There is one project in the 2010-2013 STIP for the Steese Highway and that is Steese Highway MP 62 to 81 Rehabilitation and Resurfacing project. It includes minor rehabilitation and resurfacing and repairs to Bridge No. 0825, at Sourdough Creek, and Bridge No. 0430 at Faith Creek.

**Table 0-32 2010-2013 STIP Steese Highway Projects**

Project Location/Name	Project Description	Construction Year	Amount
Steese Highway MP 62-69	Rehabilitate and resurface to include guardrail replacement and signing	2010	\$9,750,000
Steese Highway MP 69-81	Rehabilitate and resurface to include guardrail replacement and signing	2011	\$14,000,000



### **Taylor Highway (Alaska Route 5)**

*Background.* The entire Taylor Highway from MP 0-160 is in the study area and is an AHS route. It begins at the junction with the Alaska Highway near Tetlin and ends in Eagle at MP 160. The route was built in 1953 to provide access to Eagle, Chicken and the historic Forty Mile Mining District. It connects to the Top of the World Highway 96 miles from the Alaska Highway at Jack Wade Junction, allowing road access to Dawson City, Yukon during parts of the year. The first 64 miles of the highway are paved. The highway is not maintained from October through April but is used by snow machines in the winter. The road provides access to the Forty Mile caribou herd for hunting and to the Forty Mile River National Wild and Scenic River System. This is the longest Wild and Scenic River in the Nation. The Highway bisects the Tok Management Unit of the Tanana Valley State Forest. Eagle, Alaska is the home to the National Park Service offices for the Yukon-Charley Rivers National Preserve.

From MP 0 to the junction of the Top of the World Highway, the Taylor Highway is a designated State Scenic Byway for scenic, natural and historic properties.

*Setting.* The terrain through which the highway travels is rolling (the Yukon Tanana upland). The highway goes through an area of metamorphic rock – some of the oldest in Alaska dated at about 600 million years. The first few miles of the road traverse an area of sand dunes created from wind-borne sand and silt.<sup>6</sup>

The Taylor Highway is in the Unorganized Borough. Eagle is the oldest incorporated community in the Interior (1901). The Native Village of Eagle is located about three miles from the incorporated town of Eagle. Chicken is not incorporated. Doyon, Limited is the Native Regional Corporation in the area. Both communities have State-owned airports. Both communities have significant historic districts related to the early mining activity in the area.

The economy along the Taylor Highway relies on tourism, some mining, fur trapping and government jobs, as well as subsistence.

*Road Design.* The Taylor Highway is classified as a Rural Minor Arterial from MP 0 to 96 (Jack Wade Junction) and a Rural Major Collector from MP 93 to Eagle at MP 160. The Taylor

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<sup>6</sup> Cathy Connor, Daniel O'Haire, *Roadside Geology of Alaska*, Mountain Press Publishing, Missoula, 1988.

Highway has some severe grades, up to 9 percent. There are limited shoulders and the road is reported as rough with frost heaves and pavement breaks. Pavement ends at about MP 64.

*Bridges.* There are 16 bridges along the Taylor Highway. The longest bridge is over the Forty Mile River (558 feet). All but the bridge over Chicken Creek are 28 or more feet wide. The Chicken Creek Bridge is a one-lane bridge. The following table provides a complete list of the bridges along the Taylor Highway, along with the bridge type, length, width and condition according to the 2007 Bridge Inventory Report completed by the DOT&PF Bridge Design Section.

**Table 0-33 Bridge Inventory, Taylor Highway**

MP	Water Body	Bridge type*	Length	Roadway Width	Year Built	Bridge Funding Eligibility
42.9	Logging Cabin Creek	PCBT	80	28.0	1977	Ineligible
49.1	West Fork Dennison River	PCBT	189	28.5	1977	Ineligible
50.3	Taylor Creek	TTS/LTR	23	28.4	1977	Ineligible
64.3	Mosquito Fork	PCBT	219	28.0	1977	Ineligible
66.5	Chicken Creek	TTS/TPR	26	17.8	1962	Ineligible
75.3	South Fork 40 Mile River	PCBT	300	28.0	1977	Eligible for repair
81.8	Walker Fork 40 Mile Riv	PCBT	189	28.0	1977	Ineligible
112.5	Forty Mile River	SBGC/LT	558	28.0	1974	Ineligible
113.2	O'Brien Creek	PCBT	189	28.1	1988	
117.1	Alder Creek	PCBT	110	29.1	1988	Ineligible
124.5	Columbia Creek	PCBT	60	28.1	1988	Ineligible
131.6	King Solomon Creek	PCBT	80	28.1	1988	Ineligible
135.7	North Fork King Solomon	PCBT	110	28.1	1988	Ineligible
149.1	Discovery Fork Creek	PCBT	80	28.1	1988	Ineligible
151.8	American Creek No 1	PCBT	110	29.2	1988	Eligible for repair
152.5	American Creek No 2	PCBT	110	28.1	1988	Ineligible

\*Bridge Type Key: LT-Laminated Timber, LTR-Laminated Timber Running plank, PCBT-Prestressed Concrete Bulb Tee, SPGC-Steel Plate Girder-Continuous, TPR-Timber Running Plank, TTS- Treated Timber Stringer

Source: ADOT Bridge Inventory, August, 2007

*Maintenance.* The Taylor Highway has three maintenance stations, one at Eagle, O'Brien and South Fork Station. The Taylor Highway is not maintained during the winter months.

*AADT.* This highway experiences most usage during summer, the peak tourism time of year. The AADT at the junction with the Alaska Highway is 175. AADT at MP 72.8, a maintenance station, is 150, and at the junction with the Top of the World Highway the AADT is 75.



*Design and Posted Speed Limits.* The design speed for the MP 0 to 103 section of the Highway is 40 to 50 mph. There is no established design speed for the road from MP 103 to the end of the road. Posted speed is generally 50 mph.

*Pavement Condition.* Only the first 64 miles of this road are paved. The 2006 *Pavement Condition Report* covers that section of the Taylor Highway. It indicates that 18.5 miles of the road has more than six years of pavement life, 29.7 miles have three to six years, 7.3 miles have one to two years, and 8.5 miles have no pavement life left.

*Crashes.* There were 20 total crashes reported along this route for the five-year period from the years 2001 through 2005. There were 4, 3, 4, 4 and 5 crashes reported annually over the five-year period. Of those 20 crashes reported on the Taylor Highway, 12 were property damage only, seven were injury and one was a fatal crash. This fatal crash was located at MP 65 and was an off-road crash. No fatalities were reported within the roadway segments previously identified for further analysis based on the rate quality control method.

A summary of crash type and severity is provided below for the segment identified for further review. General crash trends include off-road collisions.

**Table 0-34 2001-2005 Selected Crash Data on the Taylor Highway**

Segment (MP)	Number of Crashes	Type						Severity		
		Angle	Rear-End	Turning	Animal	Off-Road	Other	Injury	PDO <sup>1</sup>	Fatality
86-89	4	1	0	0	0	2	1	0	4	0

<sup>1</sup> PDO = Property Damage Only

*Weight Restrictions.* Seasonal weight restrictions are placed on the Taylor Highway. Weight restrictions for MP 0 to 160 are 75 to 100 percent for mid to late April.

*Rest areas.* There are at least 30 pullouts/parking areas along the Taylor Highway. There are five BLM campgrounds/waysides with outhouses: MP 49, West Fork Campground; MP 64 Mosquito Fork Wayside; MP 75.3 South Fork River Wayside; MP 82, Walker Fork Campground; and MP 112 BLM Wayside.

*Project History.* The Taylor Highway has been constructed to roughly 40 to 50 mph standards for much of its length. The existing bridges are generally up to current standards and are in good condition with the exception of the South Fork 40 Mile River Bridge (MP 75.3) which is eligible for repair, and the American Creek No. 1 Bridge (MP 151.8) which is also eligible for repair.

Since 1987, the State has spent approximately \$28,800,000 improving the road.

STIP: The 2010-2013 STIP has two projects on the Taylor Highway.

**Table 0-35 2010-2013 STIP Taylor Highway**

Project Location/Name	Project Description	Construction Year	Amount
Taylor Highway MP 95 – Border	Rehabilitation, restoration and resurfacing	2012	\$10,700,000
Taylor Highway MP 70 – Lost Chicken	Stabilize road foundation and resurface	2011	\$5,000,000



### **Tok Cutoff (Alaska Route 1)**

*Background.* The entire Tok Cutoff from MP 1-125 is in the study area and is an NHS route. It provides a connection between the Richardson Highway (14 miles north of Glennallen) and the Alaska Highway at Tok. The original trail to Eagle from the Tanana Crossing followed a different alignment than the current road connection on the Taylor Highway. The trail that became the Tok Cutoff was started in 1942 as part of the overall Alaska-Canada Highway construction. Tok was a construction camp that sprang up in 1943. Tok Cutoff is paved and is the most direct route between Anchorage and Canada via the Alaska Highway.

*Setting.* The terrain through which the highway travels is flat to rolling to mountainous. The highway follows the Copper River and Slana River in the Wrangell and Mentasta Mountains. It traverses the Mentasta Pass (elevation 2,434 feet) and descends into the Tok River Valley. The Wrangell Mountains consist of a series of volcanoes, with Wrangell Mountain the largest.

The communities along this route include Gakona, Chistochina, Slana and Mentasta Lake. Mentasta Lake is accessed from a six-mile-long road from the Tok Cutoff. Only Chistochina has a public airport, which is owned by the DOT&PF. The route is located entirely within the Unorganized Borough. There are no incorporated communities along the Tok Cutoff. Ahtna is the regional Native Corporation in the area. Tribal governments are also located in Chistochina, Gakona and Mentasta Lake. The road passes by the Wrangell-St. Elias National Park and Preserve and through a unit of the Tanana Valley State Forest

The economy along the Tok Cutoff varies with location. In Gakona, the economy is cash based and relies on tourism. Subsistence is the main economy of Chistochina and Mentasta Lake. The

economy in Slana is mixed between tourism dependent destinations and subsistence. Slana's economy is assisted by being located near a National Park Ranger Station and a State highway maintenance station.

*Road Design.* The Tok Cutoff is classified as a Rural Interstate. The two-lane Tok Cutoff generally has a 36-foot-wide finished width, providing 12-foot lanes and shoulders. One section has a paved width of 26 feet with 5-foot gravel shoulders (MP 38-51). The area from MP 2 to MP 30 has very poor foundation conditions.

*Bridges.* There are 15 bridges along the Tok Cutoff. The following table provides a complete list of the bridges along the Tok Cutoff, along with the bridge type, length, width and whether the bridge is eligible for bridge repair or replacement funds under the Federal Bridge Program according to the 2007 Bridge Inventory Report completed by the DOT&PF Bridge Design Section.

**Table 0-36 Bridge Inventory, Tok Cut Off**

MP	Water Body	Bridge type*	Length	Roadway Width	Year Built	Bridge Funding Eligibility
1.8	Gakona River	STT/RC	229	24.0	1950	Ineligible
17.9	Tulsona Creek	PCBT	85	36.0	1975	Eligible for repair or replacement
34.6	Sinona Creek	PCBT/A	91	36.0	2005	Ineligible
35.4	Chistochina River	PCBT/A	798	36.0	2005	Ineligible
43.9	Indian River	PCBT	164	36.0	1984	Ineligible
60.8	Ahtell Creek	PCBT	110	36.0	1993	Ineligible
64.1	Porcupine Creek	PCCG/A	41	36.6	1982	Ineligible
67.8	Carlson Creek	PCDT	41	36.0	1991	Ineligible
75.6	Slana River	SS/RCA	153	40.0	1980	Eligible for repair or replacement
76.0	Slana Slough	PCBT/A	122	36.0	2006	Ineligible
76.6	Mabel Creek	PCBT/A	122	36.0	2006	Ineligible
83.1	Bartell Creek	PCCG/A	41	40.0	1980	Ineligible
97.9	Little Tok River	SS/RC	136	30.0	1967	Ineligible
104.1	Tok River	SS/RC	241	30.0	1963	Eligible for repair or replacement
110.0	Clearwater Creek	PCBT/A	105	40.0	2006	Ineligible

\*Bridge Type Key: A-Asphalt, PCBT-Prestressed Concrete Bulb Tee, PCCG- Prestressed Concrete Channel Girder, PCDT- Prestressed Concrete Double Tee, RC-Reinforced Concrete, RCA- Reinforced Concrete Asphalt, SDT-Steel Deck Truss, SS-Steel Stringer, STT-Steel Through Truss

Source: ADOT Bridge Inventory, August, 2007

*Maintenance.* The Tok Cutoff Highway has two maintenance stations, Tok and Slana.

*AADT.* The highest AADT of 1,051 was recorded at the Tok Maintenance Station (MP 124). The rest of the route averages about 500.

*Design and Posted Speed Limits.* The entire 125 miles of the Tok Cutoff Highway area has a design speed of 50 to 70 mph. Posted speed is 55 mph.

*Pavement Condition.* The 2006 *Pavement Condition Report* indicates that 48 miles of the Tok Cut-Off pavement have more than six years of life. Eighteen miles have three to six years of life, while 11 miles have one or two years of life. The report states that 50 miles of road (almost half the length) have no pavement life left.

*Crashes.* There were 88 total crashes reported along this route for the five-year period from 2001 through 2005. There were 14, 12, 25, 21 and 16 crashes reported annually over the five-year period. Of those 88 crashes reported on the Tok Cut-Off Highway, 58 were property damage only, 29 involved injuries and 1 was a fatal crash. This fatality was located at MP 15 and the crash involved a vehicle traveling off-road. No roadway segments were identified for further analysis based on the rate quality control method.

*Weight Restrictions.* Seasonal weight restrictions are placed on the Tok Cut-Off. The restriction in mid April is 75 to 100 percent. The restriction from early to mid May is 100 percent, and in early to mid June, overloads are allowed.

*Rest areas.* There are 42 informal and formal parking areas along the Tok Cut-Off. Five of these areas include toilet facilities. The toilets are located at MP 24, the Gold Rush Historical Sign, MP 43.6, Indian River Wayside, MP 64.2 Porcupine Creek State Recreation Area, MP 75.5 Slana River Wayside, and MP 109.2 Eagle Trail State Recreation Site.

*Project History.* The Tok Cut-Off has been reconstructed to 60 mph standards for its entire length. The existing bridges are generally up to current standards and are in good condition.

Since 1987, the State has spent approximately \$62,000,000 improving the road.

*STIP.* The following projects are currently in the 2010-2013 STIP:

**Table 0-37 2010-2013 STIP Tok Cutoff Highway Projects**

<b>Project Location/Name</b>	<b>Project Description</b>	<b>Construction Year</b>	<b>Amount</b>
Tok Cutoff MP 75.6	Repair/Replace Slana River Bridge #0654	2012	\$5,000,000
Tok Cutoff MP 104	Tok River Bridge Replacement #0663	2013	\$11,000,000



### **Top of the World Highway (Alaska Route 5)**

*Background.* The Top of the World Highway from MP 0-14 is in the study area and is an AHS route. It begins at a junction with the Taylor Highway and Jack Wade east to the US/Canada Border. The route was built in the 1950s to provide access to Dawson City, Yukon during parts of the year. The road is 14 miles long. The highway and the border are not maintained from October through April. The border crossing is normally open from 8 am to 8 pm Alaska Standard Time. Its elevation is 4,127 feet.

MP 0 to the Canadian Border on the Top of the World Highway is a designated State Scenic Byway for scenic, natural and historic properties.

*Setting.* The terrain through which the highway travels is rolling to mountainous. The highway goes through an area of metamorphic rock – some of the oldest in Alaska at about 600 million years.<sup>7</sup>

The Highway is in the Unorganized Borough. There are no communities directly served by this road. The airport at Boundary is a public airport owned by the State.

The economy along the Top of the World Highway relies on tourism and mining.

*Road Design.* The Top of the World Highway is classified as a Rural Minor Arterial.

*Bridges.* There are no bridges along the Top of the World Highway.

*Maintenance* The Top of the World Highway is located within the Interior Maintenance District and is maintained out of the South Fork Station.

*AADT.* This highway experiences most usage during summer, the peak tourism time of year. The AADT is 100.

*Design and Posted Speed Limits.* There is no established design speed for the road. Driving conditions dictate the speeds on the Top of the World Highway.

*Pavement Condition.* The road is unpaved.

*Crashes.* There have been no reported accidents on this route in the past five years.

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<sup>7</sup> Cathy Connor, Daniel O'Haire, *Roadside Geology of Alaska*, Mountain Press Publishing, Missoula, 1988.

*Weight Restrictions.* No weight restrictions are listed for this highway, which is not maintained from October through April.

*Rest areas.* There are three pullouts/parking areas and one BLM Wayside (Davis Dome Wayside at MP 12.5) with toilet facilities. Some services are available at the Boundary Lodge. There are no services at the Border.

*Project History.* The Top of the World Highway has been constructed to roughly 40 to 50 mph standards for much of its length.

Improvement projects for this Highway tend to be added to Taylor Highway improvement projects and are not listed separately in the data available. The 2010 – 2013 STIP data indicates no projects for Top of the World Highway. However, the Taylor Highway MP 95 – Border covers the area normally referred to as the Top of the World Highway.

### **3.2 Existing Community Transportation System**

Community roads within the study area provide important access to residential, governmental and commercial services. A review of maps and narratives contained within the BIA 1993 statewide Juneau Area Transportation Plan (a collection of community Tribal Transportation Plans) revealed that most communities within the study area contain less than five miles of local roads. Generally, the roads are gravel and many were constructed without benefit of design. Extreme weather conditions, erosion and lack of surfacing or embankment material contribute to on-going concerns with rutting, flooding and subsidence problems, especially during the spring thaw. In the summer, dust is reported as a common problem, impacting the health of local residents, particularly the elderly.

#### **3.2.1 Community Access Roads**

In addition to roads within the community, several communities also have roads that provide access to NHS or AHS routes. A list of the communities and the highway connections follow in Table 0-38.



**Table 0-38 Community Access Roads**

<b>Community</b>	<b>Access Road Length</b>	<b>Highway Connection</b>	<b>Maintenance Responsibility</b>
Anderson	6 miles	Parks Highway	DOT&PF
Cantwell	1 mile	Parks Highway	DOT&PF
Eagle Village	3 miles	Taylor Highway	DOT&PF
Ferry	.9 miles	Parks Highway	DOT&PF
Healy	2.5 miles	Parks Highway	DOT&PF
Lake Louise	19 miles	Glenn Highway	DOT&PF
Mentasta Lake	6 miles	Tok Cut-Off	DOT&PF
Minto	11 miles	Elliott Highway	DOT&PF
Northway	9 miles	Alaska Highway	DOT&PF
Tanacross	1.5 miles	Alaska Highway	DOT&PF
Tetlin	23 miles	Alaska Highway	Native Village of Tetlin

Source: Alaska DOT&PF, CDS Log

### 3.2.2 Airport Access Roads

The Airport sponsor, which in most cases is the DOT&PF, generally has responsibility for the road into the community. Sometimes this includes the route from the airport to the first connecting road in the community and in other instances the airport sponsor maintains the road from the airport to the community post office. FAA has supplied funding for construction of these roads when the route is used for access to the airport

### 3.2.3 Barge Landing Roads

Generally, the accesses to the barge landing areas are informal and are part of the local road network. One exception is the Nenana Barge Landing Road which is part of the NHS.

### 3.2.4 Community Transit System

Currently, there are limited public transit systems operating in the study area. One system operates out of Gulkana, in the Copper River Basin. Gulkana's bus line operates from Gulkana Village to Copper Center, through Glennallen (about 50 miles round trip). Gulkana Village also provides transit service to Anchorage three days a week and to Valdez and Tok upon request. Nay'dini'aa Na Traditional Village (Chickaloon) is also exploring round trips on a transit system from Chickaloon to Valdez.

Alaska Direct Bus Line provides scheduled service to and from Anchorage, Fairbanks, and Whitehorse through Tok. Their future plans include joining with the other bus transportation companies in the state to provide services from many of the villages, and rural communities to

these hubs, then on to the larger Alaska cities, and medical, shopping and connection with the rest of the world.

In summer 2010, the Native Village of Manley expects to begin regular bus service twice a week from Manley Hot Springs to Fairbanks via Minto. They also plan to provide bus service on seven selected weekends throughout the year.

### **3.3 Existing Aviation System**

The type of aircraft operating in the study area ranges from small piston “tail-draggers” to wide-body international all-cargo jets traveling between Europe and Asia and refueling in Fairbanks. The reasons for flying are numerous, encompassing a wide variety of business and pleasure purposes. In some communities, air transportation is the only means of year-round access to the rest of the State and beyond.

According to the FAA, there are 1,711 registered aircraft in Alaska and, from a search of zip codes, 274 are registered to people living in the Interior.<sup>8</sup> The FAA’s Registry of Active Airmen shows 10,510 pilot certificates in Alaska, of which 1,616 are in the Fairbanks District Office.

The study area contains 68 public use airports, shown in Figure 5. The study area also contains several airports that are not open to public use. The public use airports range from seasonally used Totatlanika River, an unattended airport with a 780-foot long gravel runway, to Fairbanks International Airport, with three runways (one nearly 12,000 feet long) and over 400 based aircraft. Four of the 68 airports are seaplane bases. Several private use, privately owned airports, seaplane bases and heliports are also located in the study area, but are not included in the aviation system inventory because they are not available for public use. In addition, many backcountry strips, gravel bars, lakes and rivers are not on aeronautical charts, but are important to the Interior aviation system. They are mostly used for access to hunting, fishing and recreational areas for subsistence and tourism reasons.

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<sup>8</sup> From FAA Civil Aviation Registry, March 16, 2007

Figure 5 Public Use Airports



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One military airport, Allen Army Airfield at Fort Greely near Delta Junction, is open for public use, with restrictions. The study area also contains two major military airfields that are closed to the public, Ladd Army Field at Fort Wainwright and Eielson Air Force Base, both located near Fairbanks. Clear Creek and Blair Lake are airport facilities owned by the U. S. Army and used for training. While military aviation is a major user of airspace in the study area, there are relatively few military operations at civilian airports. Most military aircraft takeoffs and landings occur at military airfields.

Fairbanks International Airport is the hub of commercial and general aviation activity in the study area. Fairbanks is the link to other parts of Alaska, other states and international destinations for most of the study area residents. Besides serving as the base for the majority of air carriers and air taxis serving the study area, Fairbanks International hosts the Interior's only full-service Fixed Base Operator (FBO), AeroFuel. It is also the Interior Alaska base for the aviation components of the Alaska State Troopers, US Fish and Wildlife, and the Civil Air Patrol. Being the center of population, the Fairbanks area has also been the center of a boom in "light-sport" aviation.<sup>9</sup> Bradley Sky Ranch in North Pole has been growing as a center for sport aviation.

The FAA's Automated Flight Service Station website divides the State into areas, largely defined by river valleys, for the benefit of general aviation pilots. The study area contains all or part of six areas: Upper Yukon Valley, Tanana Valley, Copper River Basin, Susitna Valley, Kuskokwim Valley and Koyukuk Valley. The following overview of the study area airports is organized by these FAA-designated areas.

A primary source of based aircraft numbers and other airport information in the overview is the FAA Airport Master Records (FAA Form 5010). Since the 5010 information is not always up-to-date or reliable, airport managers were called for verification, although several could not be reached or they did not respond to all questions. For 25 airports, the source of based aircraft data was a 2007 survey, conducted by GCR & Associates for the FAA, which required the "N" tail

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<sup>9</sup> In 2004 the FAA created a new rule for the manufacture, certification, operation, and maintenance of light-sport aircraft and a new sport pilot certificate. Light-sport aircraft are low-performance aircraft weighing less than 660 pounds (if lighter-than-air), 1,320 pounds (if not intended for use on water), or 1,430 pounds (if intended for water use). They are heavier than ultralight vehicles and include airplanes, gliders, balloons, powered parachutes, weight-shift-control aircraft, and gyroplanes. A person with a valid driver's license can operate a light-sport aircraft.



number of each aircraft based at the airport. For 164 airports across the state, the number of actual based aircraft was approximately half the number reported on 5010 forms.

### 3.3.1 Upper Yukon Valley

The northern part of the study area is the Upper Yukon Valley. Table 0-39 presents key features of the airports located in the Upper Yukon Valley. Most of the Interior Alaska airports that serve communities lacking access to the statewide road network are located in the Upper Yukon Valley, including Arctic Village, Beaver, Birch Creek, Chalkyitsik, Chandalar Lake, Fort Yukon, Tanana and Venetie. Consequently, there are a higher percentage of lighted airports with instrument approaches in the Upper Yukon Valley than in other parts of the study area, due to the heavy reliance on air transportation for year-round access, including during periods of darkness and poor visibility weather.

Fort Yukon is the largest of the 18 study area airports located in the Upper Yukon River Valley. Fort Yukon Airport hosts commercial passenger/cargo service by multiple carriers, and it serves as a hub for general aviation in the valley.

Stevens Village and Venetie are recently constructed airports. Major projects anticipated to be funded soon include runway and apron rehabilitation at Fort Yukon. In Federal Fiscal Year 2009, Fort Yukon received a \$15 million grant from the American Recovery and Reinvestment Act.

**Table 0-39 Airports in the Upper Yukon Valley**

NAME	ID	OWNER	NPIAS*	PRIMARY RUNWAY				BASED AIRCRAFT
				Size (feet)	Surface	Lights	Inst. Appr.	
<b>Arctic Village</b>	ARC	Native Village of Venetie Tribal Government	X	4,500 x 75	Gravel	X	X	0
<b>Beaver</b>	WBQ	DOT&PF	X	3,954 x 75	Gravel	X	X	0
<b>Birch Creek</b>	Z91	DOT&PF	X	4,000 x 75	Gravel	X		0
<b>Boundary</b>	BYA	DOT&PF	X	2,500 x 60	Gravel**			0
<b>Central</b>	CEM	DOT&PF	X	2,700 x 60	Gravel**	X		0
<b>Chalkyitsik</b>	CIK	DOT&PF	X	4,000 x 90	Gravel	X	X	0
<b>Chandalar Lake</b>	WCR	DOT&PF	X	3,000 x 60	Gravel			0
<b>Chicken</b>	CKX	DOT&PF	X	2,500 x 60	Gravel			0
<b>Circle City</b>	CRC	DOT&PF	X	3,000 x 60	Gravel	X		1
<b>Circle Hot Springs</b>	CHP	DOT&PF	X	3,650 x 80	Gravel	X		0

NAME	ID	OWNER	NPIAS*	PRIMARY RUNWAY				BASED AIRCRAFT
				Size (feet)	Surface	Lights	Inst. Appr.	
<b>Eagle</b>	EAA	DOT&PF	X	3,600 x 75	Gravel	X		0
<b>Fort Yukon</b>	FYU	DOT&PF	X	5,810 x 150	Gravel	X	X	0
<b>Livengood</b>	4AK	DOT&PF		1,415 x 50	Gravel			0
<b>Ralph M Calhoun Mem. (Tanana)</b>	TAL	DOT&PF	X	4,400 x 150	Gravel	X	X	5
<b>Rampart</b>	RMP	DOT&PF	X	3,500 x 75	Gravel**	X		0
<b>Stevens Village</b>	SVS	DOT&PF	X	2,120 x 60	Gravel	X	X	0
<b>Venetie</b>	VEE	Native Village of Venetie Tribal Government	X	4,000 x 75	Gravel-Dirt	X		0***
<b>Yukon Charley River-Coal Creek</b>	L20	National Park Service (NPS)		3,850 x 70	Gravel			0

\*Airports included in the National Plan of Integrated Airport Systems (NPIAS) are eligible for Federal Airport Improvement Program grants

\*\*Runway surface in poor condition

\*\*\*Source – Airport owner unless otherwise noted, source is FAA Airport Master Records, U.S. Terminal Procedures and 2007 Based Aircraft Survey

### 3.3.2 Tanana Valley

The Tanana Valley contains the highest population, the greatest number airports (28), and the most based aircraft (595) within the study area. Table 0-40 lists and describes the Tanana Valley airports.

Fairbanks International Airport is by far the largest and busiest airport in the Tanana Valley and in the study area. However, Fairbanks is not the only place in the study area for international arrivals and departures. Northway, located near the Canadian border is also a gateway airport providing US Customs clearance service. Floatplanes clear Customs at Yarger Lake, near Northway. Northway's 5,000-foot long paved runway was heavily damaged by an earthquake in 2002 and was closed, leaving only a much shorter gravel ski strip available for use until recently. A project was funded in FY2008 to reconstruct the runway to its pre-earthquake dimensions. Tok Junction Airport has served as an alternative Customs clearance location when needed. The Federal Emergency Management Agency (FEMA) recently funded a project to rebuild the longer paved runway at Northway. Another airport in the Tanana Valley with a special role is Tanacross Airport. Located near Tok, Tanacross is a former military airport that the Alaska Department of



Natural Resources uses as a base for aerial wildland firefighting. While the DOT&PF is listed as the owner, Chisana and Kantishna Airports are also partly owned by the NPS. DOT&PF is listed as the owner of these two airports because it is the sponsor for receiving Airport Improvement Program grants.

Allen Army Airfield at Fort Greely, near Delta Junction, is only open to public use with prior permission. Joint military and civilian use of Allen Army Airfield has been proposed to serve the City of Delta Junction's aviation needs as well as the military's. Security concerns associated with the missiles based at adjacent Fort Greely and the Army's minimum insurance requirements have been the primary roadblocks to joint use.

Tetlin is a new airport built to replace a private village airstrip. Minto Airport's runway was relocated and extended to 4,000 feet in 2008. The next major airport improvement project will be at Manley Hot Springs Airport. Funding for the relocation of Manley Hot Springs Airport is anticipated in the near future.

**Table 0-40 Airports in the Tanana Valley**

NAME	ID	OWNER	NPIAS*	PRIMARY RUNWAY				BASED AIRCRAFT
				Size (feet)	Surface	Lights	Inst. Appr.	
<b>Black Rapids</b>	5BK	BLM (US Bureau of Land Management)		2,250 x 40	Gravel-Dirt**			0
<b>Chisana</b>	CZN	DOT&PF	X	3,000 x 50	Turf-Gravel			0
<b>Clear</b>	Z84	DOT&PF	X	4,000 x 100	Asphalt	X		3
<b>Clear Sky Lodge</b>	CLF	Private		2,500 x 20	Gravel-Dirt**			2
<b>Delta Junction</b>	D66	City of Delta Junction		2,500 x 60	Gravel			16
<b>Delta Junction - Allen AAF***</b>	BIG	US Army		4,671 x 150 6,193 x 150 9,216 x 150	Asphalt	X	X	3
<b>Eureka Creek****(BC)</b>	Z22	Unknown		1,500 x 35	Dirt**			0
<b>Eva Creek (BC)</b>	Z23	Public Domain		950 x 40	Gravel**			0
<b>Fairbanks - Chena River</b>	Z25	Public Domain		3,000 x 300 (E/W) 5,000 x 300 (N/S)	Water			6
<b>Fairbanks - Gold King Creek</b>	AK7	DOT&PF		2,558 x 100	Gravel			1
<b>Fairbanks International</b>	FAI	DOT&PF	X	11,800 x 150	Asphalt	X	X	482
<b>Glacier Creek</b>	KGZ	NPS		1,400 x 15	Gravel**			0

NAME	ID	OWNER	NPIAS*	PRIMARY RUNWAY				BASED AIRCRAFT
				Size (feet)	Surface	Lights	Inst. Appr.	
Healy River	HRR	DOT&PF	X	2,920 x 60	Asphalt	X		1
Horsfeld (BC)	4Z5	Public Domain		1,075 x 40	Turf-Gravel			0
Kantishna	5Z5	DOT&PF	X	1,850 x 35	Gravel			3
Kantishna - Stampede	Z90	NPS		1,960 x 40	Turf			0
Manley Hot Springs	MLY	DOT&PF	X	2,875 x 30	Gravel			6
McKinley National Park*****	INR	NPS		3,000 x 68	Gravel			6
Minto	51Z	DOT&PF	X	2,000 x 65	Gravel			0
Nenana	ENN	City of Nenana	X	4,600 x 100	Asphalt	X	X	15
North Pole (Bradley Sky-Ranch)	95Z	Private		4,100 x 60	Treated Gravel			46
Northway	ORT	DOT&PF	X	3,304 x 100	Gravel-Dirt	X	X	0
Quail Creek (BC)	20K	Unknown		1,650 x 30	Dirt**			0
Tanacross	TSG	BLM		5,100 x 150	Asphalt**			0
Tetlin	3T4	DOT&PF	X	3,300 x 75	Gravel	X		0
Tok 2 (BC)	TKJ	Unknown		1,690 x 35	Gravel-Turf			17
Tok Junction*****	6K8	DOT&PF	X	2,509 x 50	Asphalt	X	X	8
Totatlanika River (BC)	9AK	Public Domain		780' x 30'	Gravel**			0

(BC) = Backcountry airport according to DOT&PF

\*Airports included in the National Plan of Integrated Airport Systems (NPIAS) are eligible for Federal Airport Improvement Program grants

\*\*Runway surface in poor condition

\*\*\*Allen Army Airfield is available for civilian use with restrictions

\*\*\*\*Hazardous and recommended for emergency use only

\*\*\*\*\*Commercial or business use prohibited except under permit with the NPS

\*\*\*\*\*Although the FAA's official name for this airport is Tok Junction, it is known as Tok Airport

*Unless noted otherwise source is FAA Airport Master Records, U.S. Terminal Procedures and 2007 Based Aircraft Survey*

### 3.3.3 Copper River Basin

The Copper River Basin contains 13 of the study area airports, as shown in Table 0-41. Glennallen is the largest community in the area, and Gulkana Airport near Glennallen is the largest airport in the Copper River Basin, accounting for half of the 27 based aircraft and the only paved, lighted, instrument runway. Several Copper River Valley airports are within or near the Wrangell-St. Elias National Park and Preserve. Like Kantishna Airport in the Tanana Valley, part of May Creek Airport land is owned by the National Park Service. However, since

DOT&PF is the sponsor for Airport Improvements Program grants, it is listed as the owner. Lake Louise Airport has been virtually closed for several years due to the deteriorated runway condition. The first phase of a two-phase airport improvement project at Lake Louise began in 2008. Provision has been made for phase two funding in FFY2010.

**Table 0-41 Airports in the Copper River Basin**

NAME	ID	OWNER	NPIAS*	PRIMARY RUNWAY				BASED AIRCRAFT
				Size (feet)	Surface	Lights	Inst. Appr.	
<b>Chistochina</b>	CZO	DOT&PF		2,060 x 90	Turf-Gravel			2
<b>Chitina</b>	CXC	DOT&PF	X	2,850 x 75	Gravel			2
<b>Copper Center 2</b>	Z93	DOT&PF		2,200 x 55	Gravel			5
<b>Gulkana</b>	GKN	DOT&PF	X	5,000 x 100	Asphalt	X	X	14
<b>Lake Louise***</b>	Z55	DOT&PF	X	CLOSED 700 x 18	Gravel**			0
<b>Lake Louise Seaplane Base</b>	13S	Private		5,000 x 4,000	Water			1
<b>May Creek</b>	MYK	DOT&PF	X	2,700 x 100	Turf			0
<b>McCarthy</b>	15Z	DOT&PF	X	3,500 x 60	Gravel			0
<b>McCarthy - Jakes Bar</b>	AK0	NPS		1,000 x 25	Gravel**			0
<b>Paxson</b>	PXK	Private		1,800 x 13	Gravel**			0
<b>Tazlina</b>	Z14	DOT&PF		900 x 42	Gravel			0
<b>Tazlina - Smokey Lake</b>	5AK	Private		2,200 x 600	Water			1
<b>Tolsona</b>	58A	Public Domain		4,000 x 1,500	Water			2

\*Airports included in the National Plan of Integrated Airport Systems (NPIAS) are eligible for Federal Airport Improvement Program grants

\*\*Runway surface in poor condition

\*\*\*Airport closed, but will be reopened after runway repair according to DOT&PF

Source: Unless otherwise noted, FAA Airport Master Records, U.S. Terminal Procedures, and 2007 Based Aircraft Survey

### 3.3.4 Susitna Valley

The northern part of the Susitna Valley is located within the study area. There are four airports with a total of three based aircraft located in the Susitna Valley, as shown in Table 0-42.

**Table 0-42 Airports in the Susitna Valley**

NAME	ID	OWNER	NPIAS*	PRIMARY RUNWAY				BASED AIRCRAFT
				Size (feet)	Surface	Lights	Inst. Appr.	
<b>Cantwell</b>	TTW	Private		2,080 x 30	Gravel-Dirt			3
<b>Clearwater*** (BC)</b>	Z86	Public Domain		350 x 20	Gravel-Dirt**			0
<b>Denali - Road Commission 1 (BC)</b>	0Z2	Public Domain		1,000 x 22	Gravel-Dirt**			0
<b>Summit</b>	UMM	DOT&PF		3,840 x 80	Gravel			0

(BC) = Backcounty airport according to DOT&PF

\*Airports included in the National Plan of Integrated Airport Systems (NPIAS) are eligible for Federal Airport Improvement Program grants

\*\*Runway surface in poor condition

\*\*\*Runway unsuitable for aircraft operations

Source: Unless otherwise noted, FAA Airport Master Records

### 3.3.5 Kuskokwim Valley

The upper tip of the Kuskokwim Valley is located within the study area, north of the Susitna Valley. Only one study area airport, Minchumina, is in the Kuskokwim Valley, as shown in Table 0-43. Minchumina Airport is located west of Denali National Park and has two based aircraft.

**Table 0-43 Airports in the Kuskokwim Valley**

NAME	ID	OWNER	NPIAS*	PRIMARY RUNWAY				BASED AIRCRAFT
				Size (feet)	Surface	Lights	Inst. Appr.	
<b>Minchumina</b>	MHM	DOT&PF	X	4,200 x 100	Gravel	X	X	2

\*Airports included in the National Plan of Integrated Airport Systems (NPIAS) are eligible for Federal Airport Improvement Program grants

Source: FAA Airport Master Records and U.S. Terminal Procedures

### 3.3.6 Koyukuk Valley

A small portion of the Koyukuk Valley is within the study area. The four airports in the Koyukuk Valley, shown in Table 0-44, have a total of three based aircraft. The airport with the largest runway, Prospect Creek, is owned by the State of Alaska, but is currently operated by Alyeska Pipeline Service Company.

**Table 0-44 Airports in the Koyukuk Valley**

NAME	ID	OWNER	NPIAS*	PRIMARY RUNWAY				BASED AIRCRAFT
				Size (feet)	Surface	Lights	Inst. Appr.	
<b>Coldfoot</b>	CXF	DOT&PF	X	4,000 x 100	Gravel	X	X	3
<b>Porcupine Creek***</b>	PCK	Private	X	1,040 x 40	Gravel-Dirt**			0
<b>Prospect Creek</b>	PPC	DOT&PF	X	4,988 x 150	Gravel	X		0
<b>Wiseman</b>	WSM	DOT&PF	X	2,000 x 30	Gravel**			0

\*Airports included in the National Plan of Integrated Airport Systems (NPIAS) are eligible for Federal Airport Improvement Program grants

\*\*Runway surface in poor condition

\*\*\*Runway unsuitable for aircraft operations

Source: FAA Airport Master Records and U.S. Terminal Procedures

### 3.3.7 Airport Roles

This section describes specific roles or classifications that Federal and State entities have assigned to airports in the study area and that are documented in FAA-funded aviation plan publications. They are broad in definition and will be re-evaluated and possibly expanded in later aviation system analysis. The National Plan of Integrated Airport Systems identifies the airports that have a significant role in the national system of airports. Within the study area, 37 airports are included in the NPIAS (Figure 6). DOT&PF owns 33 of the NPIAS airports, the Native Village of Venetie Tribal Government (NVVTG) owns two, the City of Nenana owns one, and one is privately owned (Porcupine Creek).

The service level roles identified for these airports in the 2007 – 2011 NPIAS are as follows:

- Fairbanks International Airport is a Primary Commercial Service Airport because it has more than 10,000 annual passenger boardings. Beyond that, the FAA classifies the airport as a Small Hub Commercial Service Airport, which means that it has between .05 and .25 percent of the nation's scheduled passenger boardings.
- Fort Yukon and Ralph M Calhoun Memorial (Tanana) are Nonprimary Commercial Service Airports, which means that they have between 2,500 and 10,000 annual passenger boardings.



Figure 6 Airports in the NPIAS





- The remaining 34 NPIAS airports in the study area are General Aviation Airports. These include Arctic Village, Beaver, Birch Creek, Boundary, Central, Chalkyitsik, Chandalar Lake, Chicken, Chisana, Chitina, Circle City, Circle Hot Springs, Clear, Coldfoot, Eagle, Gulkana, Healy River, Kantishna, Lake Louise, Manley Hot Springs, May Creek, McCarthy, Minchumina, Minto, Nenana, Northway, Porcupine Creek, Prospect Creek, Rampart, Stevens Village, Tetlin, Tok Junction, Venetie and Wiseman.

The 1996 Alaska Aviation System Plan Update classified the state's airports as Regional, Community, or Local. The definitions of these classifications and the classifications assigned to study area airports are in Table 0-45. An update of the Alaska Aviation System Plan was underway at the time this was written.

**Table 0-45 Alaska Aviation System Plan Classifications**

<b>Classification</b>	<b>Definition</b>	<b>Study Area Airports</b>
Regional	Airports that 1) are primary or secondary hubs for passenger, cargo, or mail traffic, 2) provide primary access to populations greater than 1,000, or 3) support economic activities or unusual requirements of regional or statewide significance.	Fairbanks International, Fort Yukon, Gulkana, Nenana
Community	The main airports, heliports, or seaplane facilities that serve rural communities of at least 25 permanent year-round residents.	Arctic Village, Beaver, Birch Creek, Boundary, Central, Chalkyitsik, Chandalar Lake, Chicken, Chisana, Eagle, Manley Hot Springs, McCarthy, Minto, Rampart, Stevens Village, Tanana, Tetlin and Venetie
Local	Airports, heliports, or seaplane facilities that are not in the Regional or Community classes.	All Others, NPIAS and non-NPIAS

*Source: Alaska Aviation System Plan Update, March 1996*

A portion of the Interior study area was also addressed by the 2003 Copper Basin and Upper Tanana Valley Regional Airport Plan, which subdivided the Alaska Aviation System Plan Update's Local classification into Local-Major and Local-Minor airports. Table 0-46 shows the definitions of these subdivisions and the assignment of airports to them.

**Table 0-46 Copper Basin and Upper Tanana Valley Regional Airport Plan Classification Recommendations**

<b>Classification</b>	<b>Definition</b>	<b>Study Area Airports</b>
Regional	No change from Alaska Aviation System Plan Definition	Retain Gulkana Airport as Regional and establish Tok Junction, Tanacross, or a new airport near Tok as a Regional Airport
Community	No change from Alaska Aviation System Plan Definition	Retain Alaska Aviation System Plan classifications
Local – Major	Airports used for special purposes that benefit the public, or used regularly for a variety of general aviation purposes by at least five pilots.	Northway, Copper Center 2, Chistochina (or a replacement in that approximate location), Pippin Lake/Tonsina* (or similar location near the Richardson/Edgerton intersection)
Local - Minor	Airports used in one or more of the following ways: 1) regularly used by fewer than five private pilots for a variety of purposes, 2) used only for emergency or precautionary landings, or 3) used infrequently by transient pilots for recreational flights.	Hoodoos,* Lake Louise Airport, Lake Louise Seaplane Base, Tolsona Lake, Yarger Lake,* and Midway Lake*

\*Not currently public use airports.

Source: *That Copper Basin and Upper Tanana Valley Regional Airport Plan, June 2005*

*The Copper Basin and Upper Tanana Valley Regional Airport Plan* included the following recommendations regarding airport roles:

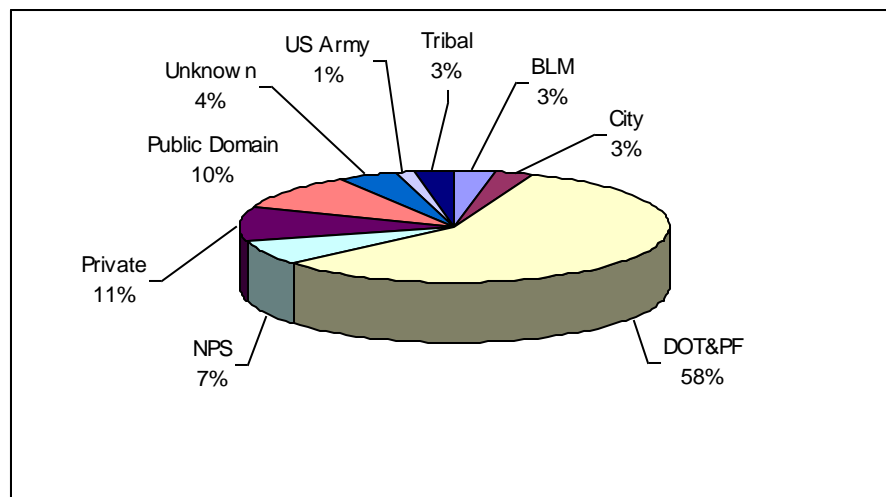
- Establish a Regional airport (with minimum 5,000-foot long runway) to serve the Tok area. Provide a floatplane facility for this area; floatplanes now use Midway Lake.
- Work with DNR to ensure Hoodoos, near Isabel Pass, remains available for emergency/precautionary landings.
- Improve or replace Chistochina to serve the population on the Tok Cut-Off.
- Retain Tazlina Airport if negligible maintenance cost, close, or lease to another sponsor besides DOT&PF.
- Locate an airport site near the Richardson/Edgerton Highway intersection to serve the growing population there.

- Facilitate floatplane use and border customs screening at Yarger Lake, or consider providing a float basin at Northway.

### 3.3.8 Airport Ownership

Table 0-39 through Table 0-44 identified the ownership of each public use airport. Exhibit 0.3 shows that more than half of the airports are owned by the Alaska DOT&PF. The figure also shows that a significant portion (14 percent) of public use airports in the study area have unknown ownership or are in the public domain. These airports lack a sponsor for operating, maintaining or improving the airport.

**Exhibit 0.3 Airport Ownership Distribution**



*Source: WHPacific Inc. analysis of FAA Airport Master Records*

The Native Village of Venetie Tribal Government (NVVTG) owns two airports, Arctic Village and Venetie. Delta Junction and Nenana Municipal Airports are owned by the Cities of Delta Junction and Nenana. The National Park Service owns five airports, located within Denali and Wrangell-St. Elias parks and preserves. Several other public entities own airports in the study area. The U.S. Army owns one (Allen Army Airfield at Fort Greely), the Bureau of Land Management owns two (Black Rapids and Tanacross Airports). Seven airports have private ownership, and the remaining ten airports are listed as having “unknown” or “public domain” ownership.

### 3.3.9 Airport Facilities and Services

Aircraft in the study area use various landing gear configurations, resulting in a variety of runway surfaces at the study area airports. Wheeled aircraft land on asphalt-paved or gravel surfaces, although higher performance aircraft, particularly jets, seldom operate on gravel runways. Depending upon the season and backcountry destinations, a single aircraft might be used at different times throughout the year with normal tires, large “tundra” tires, skis, or floats. Pilots of aircraft with “tundra” tires prefer an unpaved surface for landing. Ski-equipped aircraft typically use snow-packed gravel runways. Float-equipped aircraft operate on lakes, rivers and manmade floatplane basins. Four airports in the study area are seaplane bases, used exclusively by float-equipped or amphibious aircraft or by ski-equipped airplanes in the winter.



*Eagle Airport*

Source: AirNav.com

All but six of the airports have a single runway. Fairbanks International Airport has two paved runways, one gravel runway and a waterlane; all parallel to each other. Allen Army Airfield has three runways, all at different alignments. Chena River has two waterlanes at different alignments. Nenana has a paved runway, a turf runway and a

waterlane, all parallel to each other. North Pole has both a runway and a waterlane. Tok Junction has both a paved runway and gravel ski strip.

Only eight airports have paved runways. They are Allen Army Airfield, Clear, Fairbanks International, Gulkana, Healy River, Nenana, Tanacross and Tok. Every year the DOT&PF performs pavement condition surveys for approximately one-third of 50 airports included in the State’s Airport Pavement Maintenance Management System. Conditions are rated according to the Pavement Condition Index (PCI) method, which assigns a PCI of 100 for a perfect, new pavement. Deductions are made for measured pavement distresses so that a completely failed pavement would have a PCI of 0. The Alaska State Legislature has set guidelines for a minimum PCI condition rating of 70 for runways and 60 for taxiways and aprons. For study area airports, the weighted average airfield PCI and survey dates are as follows: 77.44 at Clear (March 2003), 46.27 at Gulkana (December 2004), 84.69 at Healy River (May 2003), 97.84 at Nenana

(September 2004), 0.00 at Northway (May 2003), and 44.93 at Tok Junction (March 2003). When Northway Airport was surveyed, the pavement was completely failed due to earthquake damage.

The longest runway is at Fairbanks International Airport, 11,800 feet. Allen Army Airfield's longest runway is over 9,000 feet long. Fort Yukon's runway is over 5,800 feet long. Gulkana, Tanacross, and Prospect Creek have runway lengths of approximately 5,000 feet. Half of the airports in the study area have runways shorter than 3,000 feet.

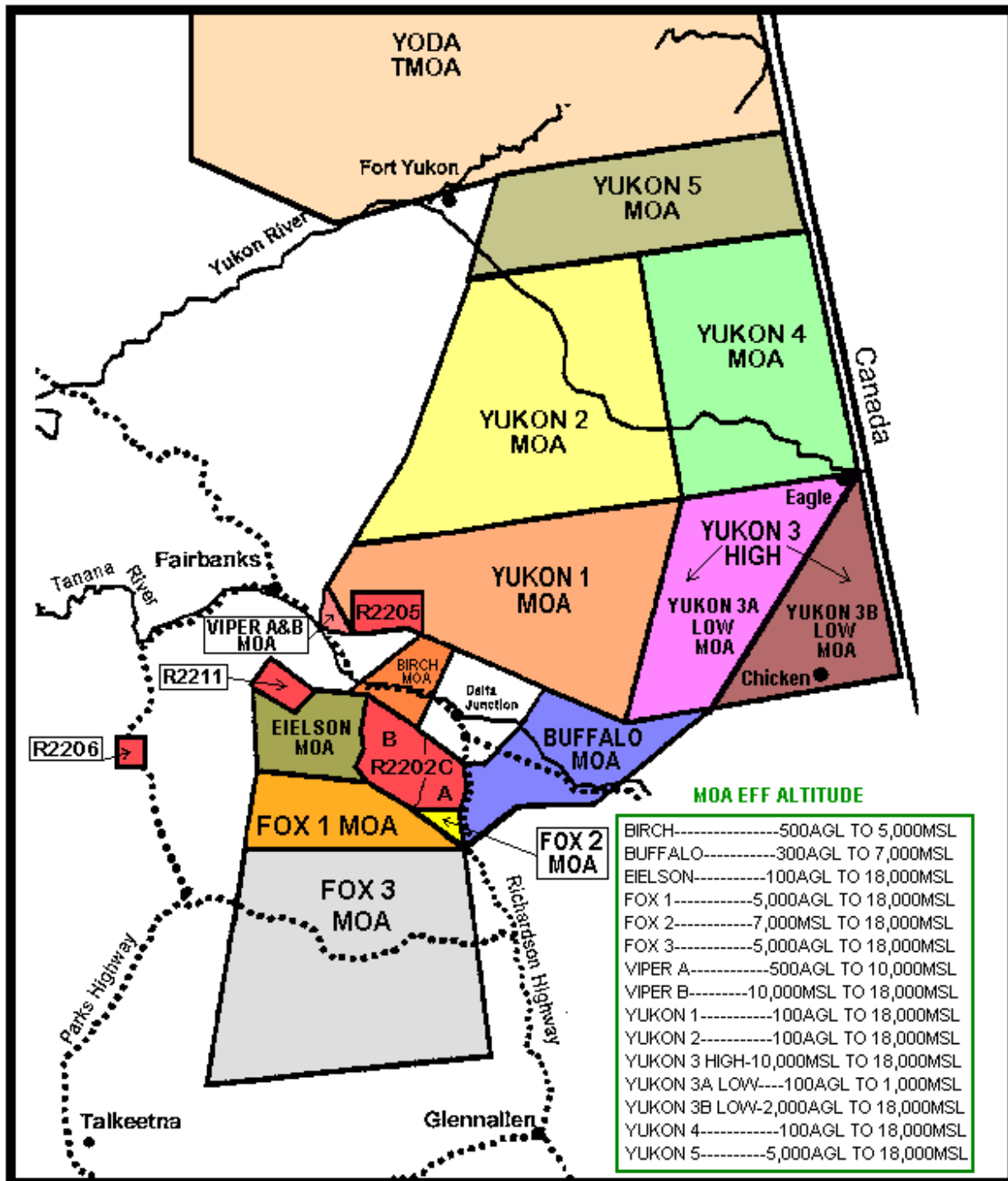
Many of the airports in the study area lack taxiways, tiedown aprons, buildings (such as hangars, terminals, snow removal equipment buildings, aircraft rescue and firefighting facilities), and utilities.

### **3.3.10 Airspace and Air Traffic Control**

As Figure 7 shows, much of the study area is covered by special use airspace, military operating areas (MOA) and restricted airspace, particularly around Fairbanks and Delta Junction. The large amount of military aviation in the Interior has been an issue for civilian aviation at times. For example, in early 2007, the 11<sup>th</sup> Air Force proposed temporary military operating areas (TMOA) between Delta Junction and Fairbanks for Red Flag exercises that would shut down the civilian Instrument Flight Rules (IFR) traffic route from Northway and Gulkana. The Alaska Airmen's Association protested that alternative IFR routes would be longer and higher (and so infeasible for some airplanes), potentially compromising public safety. While compromises allowed the military exercise and civilian aviation to co-exist, the Alaska Airmen's Association has suggested a better location might be found for the Air Force Range.

Controlled Firing Areas (CFA) contain activities that could be hazardous to nonparticipating aircraft. Firing activities are suspended when spotter aircraft, radar, or ground lookout positions indicate an aircraft might be approaching the area. Fort Wainwright has a CFA that extends south about 10 miles across the Tanana River. Poker Flat Research Range is a land-based rocket range located 30 miles northeast of Fairbanks on the Steese Highway. Extreme caution is advised when flying near the facility during launches.

Figure 7 Special Use Airspace



Source: [www.alaska.faa.gov/fai/images/AKcharts/moareas](http://www.alaska.faa.gov/fai/images/AKcharts/moareas)



Class D airspace surrounds Fairbanks International Airport, abutting Ft. Wainwright's airspace and generally extending outward 5.4 nautical miles and up to 2,500 feet above ground level (AGL). Aircraft must contact the Air Traffic Control Tower at Fairbanks International to operate within this Class D airspace.

Fairbanks International Airport, Allen Army Airfield, Eielson Air Force Base, and Fort Wainwright have Air Traffic Control Towers.

The Automated Flight Service Station that serves the study area is located at Fairbanks International Airport. Northway has a seasonally staffed Flight Service Station that is open from March through September.

### **3.3.11 Navigational Aids and Weather Reporting**

Flying in Alaska is challenging for many reasons, not the least of which is the weather. Most of the study area is in a continental climate zone, which provides some advantages over Alaska's coastal areas. The Interior has more days of clear visibility and fewer days of strong wind than coastal areas, although Interior mountains, glaciers and bodies of water affect wind and visibility. The Airport Facility Directory notes wind turbulence, erratic winds, or strong crosswinds for Cantwell, Chicken, Healy River, Kantishna, Jakes Bar, Minto, Northway, Rampart, Summit, Totatlanika River and Yukon Charley River airports.

Compared with coastal areas, the Interior has much greater temperature variability, holding the record for the highest and lowest temperatures in the State (100 degrees at Fort Yukon in 1915 and minus 80 degrees in Prospect Creek in 1971). In spite of deep cold, fast moving fronts, high winds, changeable weather patterns, and vast areas without comprehensive weather reports, F.E. Potts's *Guide to Bush Flying*<sup>10</sup> rates flying in the Alaska Interior as "not so bad" for several reasons. It is basically dry, and precipitation is light. During the winter, in cold dry air, icing during instrument weather is rarely a problem. Cloud levels are fairly easy to top, even without turbocharged engines. Finally, cold temperatures and low elevations provide for good airplane performance.

The chief aviation hazards in the continental zone are wintertime ice fog and summertime cloudiness. The scattered cumulus clouds occasionally grow into small thunderstorms in the

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<sup>10</sup> [www.fepco.com/Bush\\_Flying.html](http://www.fepco.com/Bush_Flying.html)

summertime, but these can generally be circumnavigated. Table 0-47 shows the navigational and weather aids available to pilots operating in the study area.

**Table 0-47 Navigational and Weather Aids**

Location	Navigational Aids	Weather Station Type	Weather Camera
Arctic Village		AWOS	X
Black Rapids			X
Delta Junction	VOR, NDB	ASOS	
Cantwell		Apaid	
Central		Apaid	
Chandalar Lake		Apaid	
Eagle		ASOS	X
Fairbanks	VOR, NDB	ASOS	
Fox	NDB		
Ft. Wainwright		Army	
Ft. Yukon	VOR, NDB	AWOS	
Gulkana		ASOS	
Isabel Pass			
Manley Hot Springs		Apaid	
McCarthy		Apaid	
McKinley Park			X
Minchumina	NDB	AWOS	X
Nenana	VOR, NDB	ASOS	
Northway	VOR, NDB	ASOS	X
Paxson		Apaid	
Prospect Creek		SAWRS	
Slana		Apaid	
Snowshoe Lake		Apaid	
Summit			X
Tanana	VOR, NDB	ASOS	X

Apaid – A person certified by the National Weather Service to provide weather information under the terms of a “per observation” agreement

ASOS – Automated Surface Observing System

AWOS – Automated Weather Observation System

NDB – Nondirectional Beacon

SAWRS - Supplemental Aviation Weather Reporting

VOR – Very High Frequency Omnidirectional Range

Source: [www.arh.noaa.gov/obs.php](http://www.arh.noaa.gov/obs.php), <http://akweathercams.faa.gov/sitelist.php>,  
[www.alaska.faa.gov/fai/imiages/AKcharts](http://www.alaska.faa.gov/fai/imiages/AKcharts),

### 3.3.12 Commercial Aviation Activity

Table 0-48 shows the air carriers providing scheduled service in the study area. The routes these carriers fly are illustrated on Figure 8. Excluded from Table 0-48 and Figure 8 is the seasonal scheduled service Kantishna Air Taxi provides between McKinley National Park Airport, located at the entrance to Denali National Park, and Kantishna Airport, located at the end of the Park road. Kantishna is only inhabited during the tourism season. Wrangell Mountain Air’s

scheduled service is also primarily tourist-driven, although it serves communities inhabited year-around.

**Table 0-48 Air Carriers Providing Scheduled Service in the Study Area**

<b>Carrier</b>	<b>Base</b>
40-Mile Air	Tok
Arctic Circle Air Service	Fairbanks
Ellis Air Taxi	Glennallen
Era Aviation	Anchorage
Evert/Tatonduk Flying Service	Fairbanks
Frontier Flying Service	Fairbanks
Larry's Flying Service	Fairbanks
Tanana Air Service	Fairbanks
Warbelow's Air Ventures	Fairbanks
Wrangell Mountain Air	McCarthy
Wright Air Service	Fairbanks

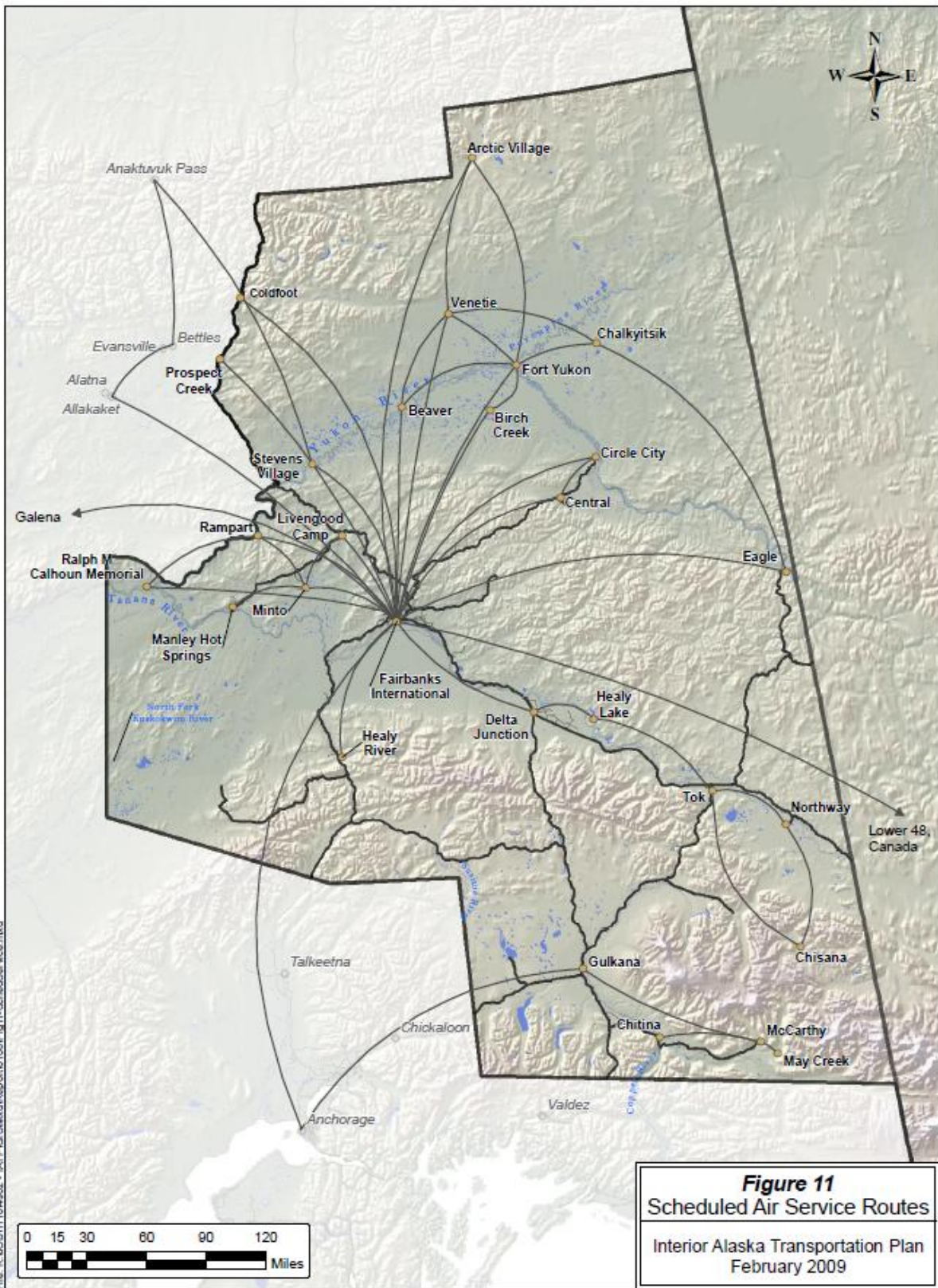
Note: Excludes major airlines serving Fairbanks International Airport

Source: WHPacific Research

Most of these air carriers fly single and multi-engine piston aircraft and turboprop airplanes with ten or fewer passenger seats. The largest passenger aircraft (excluding Fairbanks International's air service) is the 37-seat Dash 8 that Era Aviation flies to Prospect Creek, supporting Alyeska Pipeline crew changes. Frontier Flying Service operates the Beech 1900 aircraft, a 19-seat turboprop. Warbelow's has also purchased a Beech 1900, but is currently operating it in a nine-seat configuration.

Many of the carriers listed in Table 3.55 and other operators fly charters commercially, most for guiding, outfitting, flightseeing and other recreational uses. Guardian Flight and Warbelow's, both based in Fairbanks, provide air ambulance service to the study area communities. Guardian Flight has Learjet 35 and Beech King Air ambulance aircraft. Warbelow's Critical Care Air Ambulance uses a Cheyenne twin turboprop, which can reach the communities with short runways. Everts's DC-6 is the largest cargo aircraft used in the study area (excluding Fairbanks International Airport). It is used primarily for fuel delivery.

Figure 8 Scheduled Air Service Route Map



### 3.3.13 Passenger Traffic

The FAA's Terminal Area Forecasts indicate 23 study area airports had scheduled passenger boardings, or enplanements, in 2005 (the last year of actual data). However, only three airports had more than 2,500 scheduled passenger enplanements, as shown in Table 0-49. In Table 0-49, air carrier aircraft are those with at least 60 passenger seats and commuter aircraft are those with fewer than 60 seats.

**Table 0-49 Scheduled Passenger Enplanements**

Airport	Scheduled Enplanements (2005)		
	Air Carrier	Commuter	Total
Fairbanks International	359,468	53,276	412,744
Fort Yukon	0	8,461	8,461
Ralph M. Calhoun (Tanana)	0	3,478	3,478
Venetie	0	1,849	1,849
Arctic Village	0	1,583	1,583
Eagle	6	1,138	1,144
Chalkyitsik	0	1,024	1,024
Beaver	0	1,020	1,020
Prospect Creek	0	669	669
Stevens Village	0	545	545
Coldfoot	0	403	403
Gulkana (Glennallen)	0	278	278
Rampart	0	244	244
Chandalar Lake	53	101	154
Manley Hot Springs	1	90	91
Minchumina	11	67	78
Nenana	6	54	60
Central	0	39	39
Chicken	0	22	22
Circle Hot Springs	4	10	14
Northway	0	8	8
Wiseman	0	4	4
May Creek	0	2	2
<b>Total</b>	<b>359,549</b>	<b>74,365</b>	<b>433,914</b>

*Source: FAA Terminal Area Forecasts, December 2006, reported for fiscal years*

Fairbanks International Airport accounts for 95 percent of the passenger enplanements, including virtually all the passengers on air carrier aircraft and 72 percent of the passengers on commuter aircraft. Fairbanks International is used by major national and international airlines with non-stop service to 11 cities.

Not all the passenger enplanements in the study area are on scheduled flights. Table 0-50 shows the record of passenger enplanements over the last six years at all airports in the study area,



including military and privately owned airports that are not open to the public. Passengers on general aviation flights are excluded. Unfortunately, air carriers and air taxis are not always required to report passenger statistics to the USDOT. The result is that sudden annual increases or declines in the number of passengers are more likely due to incomplete data than to socioeconomic or air service factors. Nevertheless, from the data in the table, it appears that passenger boardings have declined at most of the airports in the study area. Average annual growth of 0.9 percent from 2000 to 2005 for the total number of enplaned passengers in the study area is due mostly to growth in passengers at Fairbanks International Airport.

**Table 0-50 Enplaned Passengers, Scheduled and Nonscheduled, 2000-2005**

<b>Airport</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>Average Annual Growth to 2005</b>
Arctic Village	1,748	2,120	1,959	1,797	1,596	1,613	-1.6%
Beaver	2,040	1,053	797	978	998	1,023	-12.9%
Birch Creek	598	444	361	460	436	312	-12.2%
Boundary	3					2	-7.8%
Cantwell	56						-
Central	57	22	42	48	50	44	-5.0%
Chalkyitsik	1,110	1,079	957	1,098	1,162	1,030	-1.5%
Chandalar Lake	61	102	38	113	101	96	9.5%
Chicken	27	20	2	3	19	25	-1.5%
Chisana	89	62	34	34	49	33	-18.0%
Chitina	5			6			-
Circle City /New/	333		312	354	355	331	-0.1%
Circle Hot Springs	681	122	142	24	105	102	-31.6%
Coldfoot	1,271	547	342	691	367	427	-19.6%
Delta Junction		751	8	2	16	9	-66.9%
Allen AAF	94	66	11	15	24	1	-59.7%
Eagle	116	155	112	740	726	1,265	61.3%
Fairbanks	388,733	384,828	380,576	388,841	420,394	420,597	1.6%
Fort Yukon	10,498	9,240	7,829	8,876	9,523	8,964	-3.1%
Glacier Creek	5						-
Gulkana	513	749	1,223	290	325	255	-13.0%
Healy River	157	2	108	76	2,259	81	-12.4%
Kantishna	2,420			2,742			-
Minchumina	318	74	159	230	172	165	-12.3%
Manley Hot Springs	118	97	57	129	104	69	-10.2%
May Creek	24	28	18	33	3	2	-39.2%
McCarthy	150	106	112	42	58	57	-17.6%



<b>Airport</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>Average Annual Growth to 2005</b>
McKinley National Park	921		53	468	2	4	-66.3%
Minto	262	192	164	188	202	189	-6.3%
Nenana Municipal	66	32	11	8	49	75	2.6%
Northway	112	39	24	23	18	2	-55.3%
Prospect Creek		812	706	649	695	675	-4.5%
Rampart	568	390	379	321	265	250	-15.1%
Stevens Village	1,986	781	969	942	699	526	-23.3%
Tanacross	5	2	4	40	161	47	56.5%
Tanana (Ralph M Calhoun Memorial)	4,167	3,536	3,857	3,507	3,438	3,433	-3.8%
Tetlin	704	703	80		14	27	-47.9%
Tok Junction	1,635	1,674	227	227	124	163	-36.9%
Venetie	2,294	2,058	2,123	2,054	2,252	1,863	-4.1%
Wiseman	6					4	-7.8%
<b>Total at Public Use Airports</b>	<b>423,951</b>	<b>411,886</b>	<b>403,796</b>	<b>416,049</b>	<b>446,761</b>	<b>443,761</b>	<b>0.9%</b>
<b>Airports Not Open for Public Use</b>							
Chena Hot Springs	12		35	18	23	2	
Pogo Mine Airstrip					386	12	
Eielson AFB	2,280			247	552	5,656	
Ft Wainwright	1,824	1,052	280	1,343	1,730	936	

Source: FAA Air Carrier Activity Information System (ACAIS), for calendar years

### 3.3.13.1 Airport Certification

Only two airports in the study area have operating certificates in accordance with Title 14 Code of Federal Regulations (CFR) Part 139. In Alaska, a Part 139 certificate is required if the airport has scheduled passenger service in aircraft with 30 or more passenger seats.<sup>11</sup> Fairbanks International Airport has a Class I certificate and Prospect Creek has a Class IV certificate. Fairbanks International's ARFF (Aircraft Rescue and Firefighting) Index is C and Prospect Creek Airport's ARFF Index is A. The index is dictated by the longest airplane that provides passenger service; more equipment, water, and/or fire extinguishing foam is required for longer airplanes. Index A requires the least equipment and material, while Index E requires the most.

<sup>11</sup> In other states, Part 139 certificates are required if the scheduled service is in any size of turbojet aircraft or other types of aircraft with at least 10 passenger seats.

### Essential Air Service

As shown in Table 0-51, scheduled service to nine communities in the study area is subsidized by the Federal Essential Air Service (EAS) program. The EAS program was created after airline deregulation in 1978, to ensure that communities with airline service before deregulation would continue to have some service.

**Table 0-51 Essential Air Service Airports**

Community	Subsidized Carrier	Service to Hub	Annual Subsidy	Aircraft Type
Central	Warbelow's	Fairbanks	\$61,421	Navajo
Circle	Warbelow's	Fairbanks	\$61,421	Navajo
Chisana	40-Mile	Pending		
Gulkana	Ellis Air Taxi	Anchorage	\$199,839	C-310
May Creek	Ellis Air Taxi	Gulkana	\$69,759	C-185/C-206
McCarthy	Ellis Air Taxi	Gulkana	\$69,759	C-185/C-206
Healy Lake	40-Mile	Fairbanks	\$51,781	C-206/C-207
Manley	Warbelow's	Fairbanks	\$24,768	C-206/C-207
Minto	Warbelow's	Fairbanks	\$24,768	C-206/C-207

Source: [http://ostpxweb.dot.gov/aviation/X-50%20Role\\_files/060501alaska.htm](http://ostpxweb.dot.gov/aviation/X-50%20Role_files/060501alaska.htm), as of May 1, 2006

### 3.3.14 Aviation System Maintenance Costs

The Alaska DOT&PF, Northern Region, summarized the cost of operating and maintaining airports in the study area over a five-year period (Table 0-52). Airport maintenance costs are rising. The DOT&PF's cost of maintaining Interior airports, excluding overhead costs, increased from \$644,604 in FY 2002 to \$731,069 in FY 2006. This represents an average annual increase of 3.2 percent. For all DOT&PF airports in Northern Region, the average cost of maintaining one "lane mile", including all overhead costs, increased from \$6,016 in FY 2005 to \$7,100 in FY 2006, which is an 18 percent annual increase.

**Table 0-52 Cost of Maintaining Interior Airports**

Airports	5-Year Average Cost*
<b>Paved:</b>	
Clear	\$23,997
Gulkana	\$78,545
Healy River	\$9,795
Tok	\$33,062
<b>Subtotal - Paved</b>	<b>\$145,399</b>

<b>Airports</b>	<b>5-Year Average Cost*</b>
<b>Unpaved:</b>	
Beaver	\$32,902
Birch Creek	\$24,250
Boundary	\$2,731
Central	\$18,896
Chalkyitsik	\$28,299
Chandalar Lake	\$934
Chicken	\$15,298
Chisana	\$0
Chistochina	\$143
Chitina	\$6,706
Circle City	\$21,894
Circle Hot Springs	\$15,277
Coldfoot	\$55,396
Copper Center 2	\$2,010
Eagle	\$41,338
Fort Yukon	\$64,112
Kantishna	\$0
Lake Louise	\$0
Livengood Camp	\$545
Manley Hot Springs	\$5,524
May Creek	\$0
McCarthy	\$14,367
Minchumina	\$41,156
Minto	\$2,245
Northway	\$31,643
Prospect Creek	\$151
Rampart	\$46,836
Stevens Village	\$30,570
Summit	\$1,003
Tanacross	\$8
Tanana	\$65,712
Tazlina	\$0
Tetlin	\$9,348
Wiseman	\$549
<b>Subtotal - Unpaved</b>	<b>\$579,843</b>
<b>TOTAL</b>	<b>\$725,242</b>

\*These direct annual costs, averaged for FY 02 – FY 06, include personnel, equipment and commodity costs. No indirect costs for district and regional overhead are included.

Source: Northern Region of Alaska Department of Transportation and Public Facilities

DOT&PF contracts with local people to maintain 12 of their airports in the study area: Beaver, Birch Creek, Chalkyitsik, Chicken, Circle City, Clear, Fort Yukon, Minchumina, Northway, Rampart, Stevens Village and Tanana. The FY 07 maintenance contracts for these airports range from \$9,000 for Birch Creek to \$70,505 for Fort Yukon.

A recent analysis<sup>12</sup> of the cost of maintaining Arctic Village and Venetie Airports reported that those two local sponsor airports, together, cost approximately \$80,380 per year to operate and maintain.

### **3.3.15 Historical and Planned Airport Improvements**

Airport projects are programmed in the Airport Improvement Program (AIP) in a similar way to surface transportation projects in the Statewide Transportation Improvement Program (STIP). DOT&PF solicits project nominations. The Regional offices score the projects and an Aviation PEB finishes the ranking. The AIP project list is then developed by DOT&PF, incorporating the financial constraints of the program. Airports that are included in the NPIAS are eligible for AIP funding. The AIP is funded by the Airport and Airway Trust Fund, which is supported by taxes on air passenger tickets, air cargo and aviation fuel. The Trust Fund concept guarantees a stable funding source whereby users pay for the services they receive. The legislation authorizing the AIP expired September 30, 2007, but it is assumed a similar program will be in place in the future. Primary airports, those with more than 10,000 annual passenger enplanements, receive entitlement funding based upon the number of passengers. Fairbanks International is currently the only primary airport in the study area. Non-primary and general aviation airports receive AIP entitlement funding of up to \$150,000 per year. As the single sponsor of many airports, the DOT&PF can pool these entitlements. NPIAS airports are also eligible for AIP discretionary funding when the funding is available and the project is a type that ranks high enough in the FAA's funding priorities.

AIP funds are distributed through grants that the FAA administers. The AIP program uses a 95-5 matching formula, which means that the FAA pays up to 95 percent of an AIP-funded project's

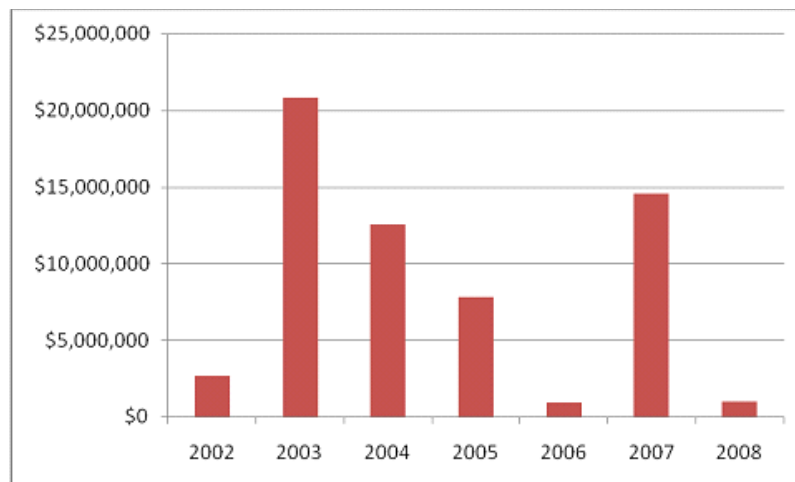
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<sup>12</sup> ASCG Incorporated, Arctic Village Transportation Plan, June 2007, Appendix B, Airport Business Plan: Arctic Village & Venetie Airports, Alaska.

cost. The State pays the remainder for its airports and pays half of the remaining 5 percent for municipal and tribal sponsors. Projects that relate to enhancing airport safety, capacity, security and environmental concerns are eligible for grant funding.

Exhibit 3.5 shows the amount of AIP grants that the study area has received over the last seven years, excluding Fairbanks International Airport. Excluding Fairbanks International, an average of just under \$9 million in AIP grants is spent annually at study area airports. While Exhibit 3.5 shows that the amount of AIP money spent at study area airports has varied widely from year to year, the amount of AIP money available within Northern Region has not fluctuated so sharply. In 2002, 2006 and 2008, grants went to other airports within the Region.

### Exhibit 3.5 History of AIP Grants for Interior Airports, 2002 – 2008



Source: FAA Alaskan Region Airports Division, Airport Improvement Program, FY 1982 – FY 2008.

Note: Excludes Fairbanks International Airport

Projects in the study area included master plans, new airports (Stevens Village, Tetlin and Venetie), land acquisition, access roads, runway safety areas, runway/taxiway/apron rehabilitations and expansions, runway and taxiway lighting, snow removal equipment (SRE) and/or SRE storage buildings, and ARFF equipment and/or ARFF buildings. Table 3.53 shows the history of AIP-funded projects.

**Table 0-53 History of Airport Improvement Program Projects**

<b>Name</b>	<b>Airport Improvement Projects</b>	<b>Total Cost</b>
Arctic Village	Snow Removal Equipment (SRE) (1999, 2001), SRE Building (2001, 2005), Runway (RW) Rehab (2001, 2004, 2005)	\$6,922,375
Beaver	Apron, RW, RW Lighting (1992), SRE, SRE Building (1993)	\$1,075,140
Birch Creek	Land, Access Road, SRE, RW Lighting, Apron, Taxiway (TW), Extend RW, Rehab RW (1991), Rehab TW, Construct Apron, RW Lighting, Access Road, Land, Extend RW (2000), Rehab RW, TW, Apron (2006)	\$4,723,893
Boundary	Extend RW, Land, TW (1992), Rehab RW (open)	\$1,039,166
Central	Access Road, RW, Apron, Land, RW Lighting (1993)	\$1,179,369
Chalkyitsik	RW Lighting, RW, Apron Lighting, Apron, TW, Nav aids, RW Lighting, SRE, Improve Building, Extend RW, RW Lighting, SRE (1993)	\$2,656,044
Chandalar Lake	Access Road, Extend RW, TW, Land, Apron (1999)	\$1,426,118
Chicken	SRE, Land, RW, Apron, Improve ARRF Building (1999), Acquire land, SRE (2008)	\$1,670,687
Chisana	Master Plan (1995, 2006)	\$244,728
Chistochina	Relocation Study PH.1 (2007)	\$150,000
Chitina	Extend RW, Apron, Access Road, Land, TW (1991), SRE Building (1999), SRE (2006), Survey, Rehab RW (2007)	\$1,802,315
Circle City	Land, Apron, Access Road, RW Lighting, RW (1988)	\$3,058,409
Circle Hot Springs	Rehab RW (2006)	\$168,720
Clear	RW Lighting, Land, Extend RW, TW, Apron, Access Road (1999), Rehab RW (2005), Survey, rehab RW (2007)	\$2,166,956
Coldfoot	Rehab TW (1993), Extend RW, Apron, Rehab TW, SRE, RW Lighting (1999), Rehab RW (2008)	\$2,366,752
City of Delta Junction	Master Plan for Allen Army Airfield (Base Realignment and Closure) (2003)	\$228,285
Eagle	Apron, Extend RW, TW, RW Lighting, Access Road, Land (1992), Rehab RW (open)	\$1,328,632
Fort Yukon	Access Road, Land, ARRF Equipment (1992), ARRF Equipment, Rehab RW, Apron Lighting (1997), SRE & Rehab RW (open)	\$2,154,506
Gulkana	RW, Apron Lighting, Expand Apron, TW, Extend RW, Expand Apron (1986), SRE, Apron Lighting, Expand Apron, Extend RW, Improve SRE Building, Rehab TWs (1991), Access Road, SRE, Extend RW (1995), Master Plan (2000), SRE (2008)	\$4,265,746
Healy River	RW, Apron, RW Lighting, Land (1992), Extend RW, Expand Apron, Extend TW (2000)	\$1,822,892
Kantishna	Master Plan (1995, 2002)	\$342,322
Lake Louise	Construct Apron, RW, TW (2007)	\$2,730,897
Lake Minchumina	Apron, RW, Land, RW Lighting, Access Road (1996), SRE, SRE Building (1998)	\$2,941,732
McCarthy	SRE (1998), Land, Apron, SRE Building, Road, Rehab RW, Rehab TW (1999), RW (2001) SRE Rehab RW (open)	\$3,722,725
Minto	Master Plan (2000), Construct RW, Apron, SRE Building, SRE, Survey (open)	\$9,907,044



Name	Airport Improvement Projects	Total Cost
Nenana Municipal	RW, TW, Apron, Drainage, Service Road, RW, Extend RW, ARFF Equipment, Land (1986), ARFF Equipment, Apron Lighting, Drainage, SRE, Extend RW, RW Lighting, Drainage, SRE, Rehab RW, Rehab Apron, Expand Apron, Rehab TWs (1990), SRE, RW Lighting, Rehab RW, Security Equipment (1996), Rehab RW (2004), SRE (2005), Rehab RW, RSA, SRE Building, SRE (2006), SRE (2007, 2008), Fence, Rehab RW (open)	\$12,011,746
North Pole (Bradley Sky-Ranch)	Master Plan (2004)	\$445,312
Northway	Rehab RW, RW Lighting, Rehab Apron (1986), Rehab RW, Apron Lighting, Rehab Apron (1996), SRE Building (1999)	\$3,667,949
Ralph M Calhoun Memorial (Tanana)	Rehab RW, RW Lighting (1988), Expand Apron, Rehab RW, Runway Safety Area, SRE Building (2004)	\$12,304,628
Rampart	TW, Extend RW, Apron, RW Lighting, Apron Lighting, Navaids, Land (1991), Master Plan (1992), Improve SRE Building, Expand Apron, Rehab RW (2005)	\$4,556,696
Stevens Village	Apron, Improve SRE Building, SRE (2005), SRE Building, New Airport Phase 2 (open), survey (open)	\$12,692,386
Tetlin	Master Plan (2000), New Airport, SRE Building, SRE (2008)	\$9,525,455
Tok Junction	Access Road, Apron Lighting, Expand Apron, Apron (2000), TW (2002), Rehab RW (open)	\$1,842,695
Venetie	SRE (2000), SRE (2002), New Airport (2003, 2004, 2007), SRE Building (2007)	\$7,305,679

Dates show the year the grant closed. Project may have been completed earlier.

Source: FAA Alaskan Region Airports Division, Airport Improvement Program, FY 1982 – FY 2008.

The spending plan for NPIAS airport improvements appears in Table 0-54. Fairbanks International Airport is not included in Table 0-54, as its development is outside the scope of this study. The major short-term capital improvements planned for Fairbanks International are Taxiway Alpha Reconstruction/Expansion, Cargo Apron Construction, Runway Reconstruction and Terminal Area Development.

**Table 0-54 Planned Airport Improvements**

Project	FFY 09	FFY 10	FFY 11	FFY 12	After FFY 12
Beaver Airport Improvements					\$5,000,000
Birch Creek SRE Building					\$500,000
Chalkyitsik Airport Improvements (C)			\$10,400,000		
Chistochina Airport Relocation Study--Stg 2	\$300,000				
Chitina Airport Paving					\$900,000
Chitina SRE Bldg Upgrade					\$150,000
Circle TWY & Apron Rehabilitation					\$1,500,000
Coldfoot Airport Improvements					\$6,500,000
Eagle Airport Improvements					\$1,900,000

Project	FFY 09	FFY 10	FFY 11	FFY 12	After FFY 12
Fort Yukon Apt Improvements (Economy Recovery)	\$13,653,708				
Gulkana Apron & Taxiway Repaving					\$1,900,000
Lake Louise Runway Rehabilitation-Stg 2 (C)		\$2,300,000			
Lake Minchumina Apt Improvements			\$5,000,000		
Manley Airport Relocation (C)		\$13,800,000			\$13,800,000
Nenana Fencing & RWY Rehab			\$1,050,000		
Prospect Creek Airport Improvements					\$5,600,000
Tok RWY Expand & CW-RWY Construction					\$3,500,000

Note: Excludes Fairbanks International Airport and snow removal equipment. (C) means a contingency project if funding becomes available.

Source: Statewide Aviation, DOT&PF, Draft FY '08 – '12 AIP Spending Plan

In addition to funding for capital improvements, the DOT&PF funds deferred maintenance projects for its airports. In FY 2007, a total of \$3,750,000 was allocated statewide. Northern Region's allocation of \$1,460,000 included projects such as applying dust palliative, repairing or replacing lighting system parts, installing rotating beacons and installing wind cone systems.

### 3.3.16 Aviation Accidents

The National Transportation Safety Board's database of aviation accidents<sup>13</sup> was consulted to detect trends over the last 20 years. Accidents are reported by identifying the closest community, although few of the accidents occurred at airports. Many aviation accidents occurred at lakes, gravel bars and other remote areas that are not airports. Of the 416 accidents analyzed, about one-third were reported as occurring in Fairbanks. Table 0-55 shows where the greatest numbers of accidents occurred in the last 20 years, while Exhibit 0.4 and Exhibit 0.5 show the distribution of accidents over the years and the months.

<sup>13</sup> <http://www.nts.gov/ntsb/Response2.asp>

**Table 0-55 Aviation Accident Location, 1987-2007**

<b>Number of Accidents</b>	<b>Location</b>
Over 100	Fairbanks
20 - 30	Delta Junction, Glennallen, North Pole
10 - 19	Cantwell, Nenana, Northway, Chitina, Eagle, Tok, Arctic Village, Gulkana, Paxson
5 - 9	Coldfoot, Fort Yukon, McCarthy, Tanana, Clear, Minto, Central, Denali Park, Beaver Creek, Copper Center

Source: WHPacific, Inc. Analysis of National Transportation Safety Board (NTSB) Data

Table 0-56 lists the accidents with fatalities that occurred in the study area over the last 20 years.

**Table 0-56 Fatal Aviation Accidents, 1987-2007**

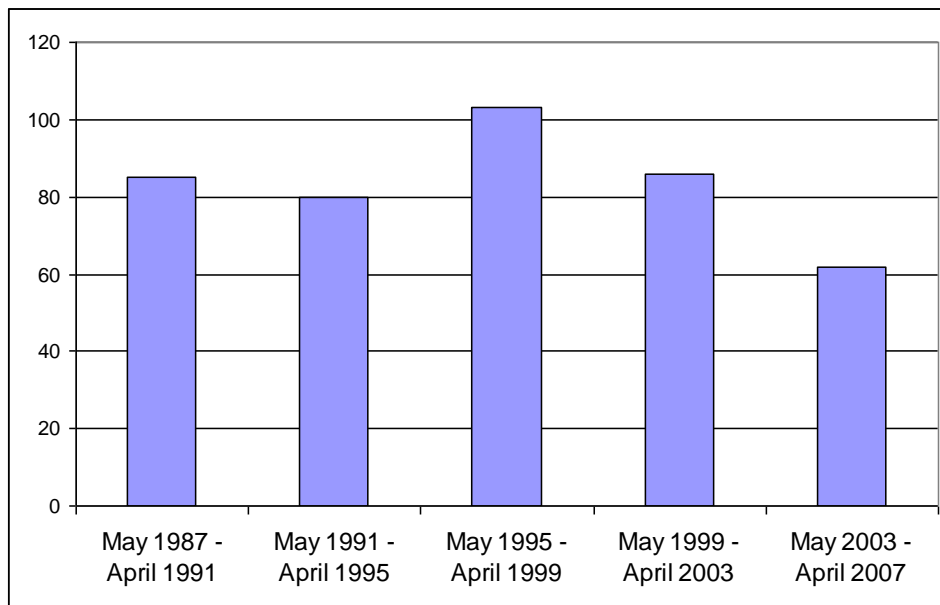
<b>Location</b>	<b>Year</b>	<b>Number of fatalities</b>	<b>Type</b>
Beaver Creek	1992	2	Public Use
Cantwell	1995	2	Part 91
Cantwell	1998	1	Part 91
Cantwell	2002	2	Part 91
Central	1987	1	Part 91
Central	2002	1	Part 91
Chitina	1999	1	Part 91
Clear	1990	1	Part 91
Coldfoot	1987	1	Part 91
Coldfoot	1988	1	Part 91
Coldfoot	1990	1	Part 91
Coldfoot	1995	2	Part 91
Delta Junction	1993	1	Part 91
Delta Junction	1994	3	Part 91
Denali Park	2005	2	Part 91
Eagle	1992	3	Nonscheduled Part 135
Eagle	1994	2	Part 91
Eagle	1996	3	Part 91
Fairbanks	1987	3	Part 91
Fairbanks	1989	3	Part 91
Fairbanks	1989	1	Nonscheduled Part 135
Fairbanks	1990	2	Part 91
Fairbanks	1993	4	Part 91
Fairbanks	1993	4	Part 91
Fairbanks	1993	1	Part 91
Fairbanks	2005	2	Part 91
Fairbanks	2005	1	Part 91
Glennallen	1996	2	Part 91

Location	Year	Number of fatalities	Type
Gulkana	1994	1	Part 91
May Creek	1996	2	Part 91
Minchumina	1988	1	Part 91
Minto	1996	1	Part 91
Nenana	2005	2	Part 91
Tanacross	1989	1	Part 91
Tanana	1999	1	Nonscheduled Part 135: air taxi & commuter

Source: WHPacific, Inc. Analysis of NTSB Data

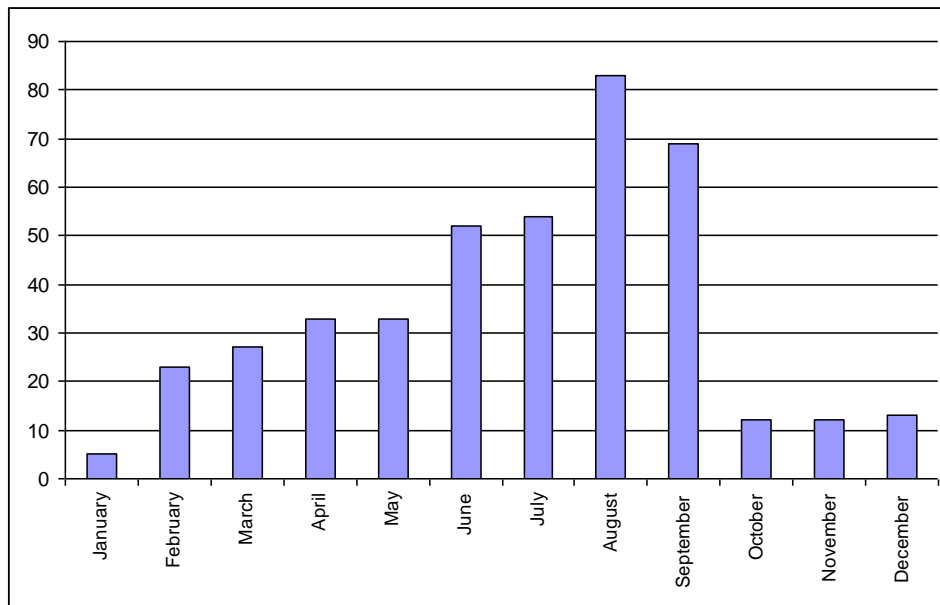
Most accidents happen to general aviation pilots flying under Federal Aviation Regulation (FAR) Part 91 and are not fatal. Over the 20-year period examined, the number of accidents peaked in the late 1990s and has been declining since then. Not surprisingly, more accidents occur in the months when aviation activity is heaviest.

**Exhibit 0.4 Accident History by Five-Year Increments**



Source: WHPacific Analysis of NTSB Data

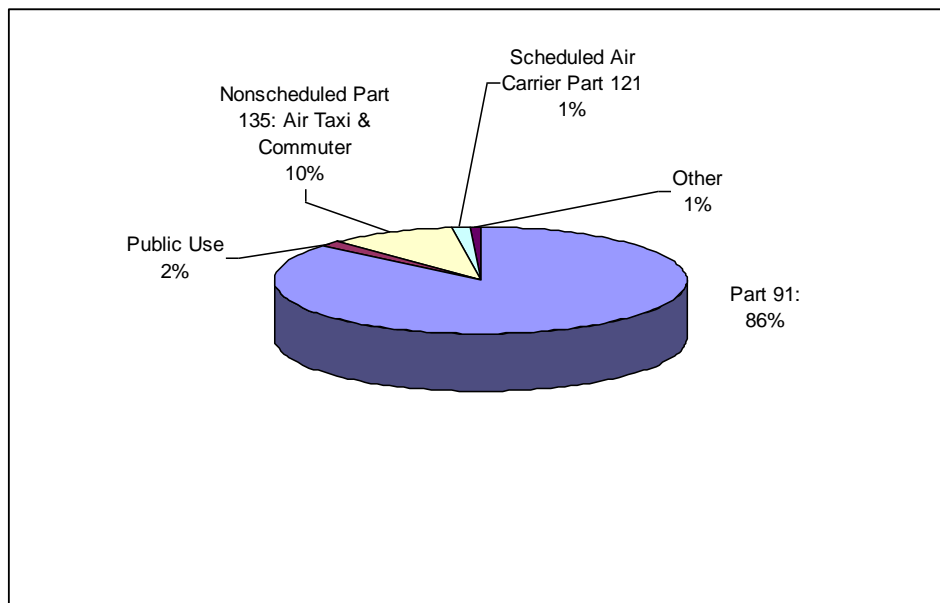
**Exhibit 0.5 Accidents by Month**



Source: WHPacific Analysis of NTSB Data, 1987-2007

Exhibit 0.6 illustrates that most of the accidents occur to pilots operating under FAR Part 91 (general aviation).

**Exhibit 0.6 Accidents by Type**



Source: WHPacific Analysis of NTSB Data, 1987-2007

The FAA is specifically committed to reducing aviation accidents in Alaska. As part of its nationwide goal for increased safety, the FAA’s plans for 2007 through 2011 include one

strategy focused on Alaska: expand and accelerate implementing safety and air navigation improvement programs in Alaska.

The FAA identified the following initiatives for this strategy:

- Achieve full operational capability of WAAS (Wide Area Augmentation System).
- Expand the Capstone Program as part of the National Airspace System with the goal of statewide implementation. (The Capstone program was recently absorbed in the nationwide Next Generation Air Transportation System program.)
- Continue to optimize weather camera benefits and explore alternative technologies.
- Support the Medallion, Circle of Safety and Alaska Flight Service Safety programs.
- Improve rural airports to permit 24-hour VFR access.
- By FY 2009, establish an improved statewide public Required Navigation Performance/Area Navigation (RNP/RNAV) WAAS enabled route structure.

The FAA has set specific performance targets to reduce the number of general aviation and Part 135 accidents in Alaska by FY 2009.

### **3.4 Existing Major Trail System**

Trails in the Interior have long played an important cultural and historical role. Native residents depended on trails for subsistence fishing, hunting and trapping, and to travel to nearby communities for trade and social gatherings. Historically, trading routes, particular in the Copper Basin, were well guarded to avoid competition between the coastal and interior traders. The Ahtna people were particularly protective of the identity of the local trails so as not to endanger their role as middlemen in the trade between interior and coastal Natives.

Revised Statute 2477 (RS2477) is found in section 8 of the Mining Law of 1866. It granted states and territories unrestricted rights-of-way over federal lands that had no existing reservations or private entries. The law remained in effect until Congress repealed it in 1976. In Alaska, the opportunity to establish new RS2477 rights-of-way generally ended December 14, 1968, when the federal government issued PLO 4582—the “land freeze”—to prepare for settlement of Alaska Native land claims. Though no new rights-of-way could be established after federal land was reserved or appropriated, or after the law was repealed in 1976, these actions did not extinguish pre-existing rights.



RS 2477 states: “The right of way for the construction of highways over public lands, not reserved for public uses, is hereby granted.”<sup>14</sup>

In 1897, during the gold rush era, the military constructed the Valdez-Eagle Trail following traditional routes used by the local Native population. In 1902, Felix Pedro discovered gold in the Fairbanks area which prompted construction of the Valdez-Fairbanks trail. A few years later it was upgraded to a wagon route and a stage traveled the trail with horse-drawn sledges in winter and wagons in summer with roadhouses established about a day's journey apart, usually 30 miles or less.

“In the old days people seldom stayed in the village. Always they were on the trail hunting and camping. In July whitefish were dried and cached at fish camps. Then the people went moose hunting, caching the meat. In the winter they visited the caches and then when the caribou came they killed the caribou. After the moose season people went up to the head of the Nebesna to secure sheepskins for the winter. They would return to the village, make their clothes and then take the winter hunting trails to Ladue Creek, the Chisana Basin and the White River. In the spring when the leaves came out they returned to the village. They would take birch bark and sew it together to make new tents and then wait for the caribou to come back again.”

*Chief Sam of the Tanana Athabaskans*

In the winter months, trails and the frozen rivers in the Interior play an important role in both recreation and in the transportation

system. Trails are used for recreational dog mushing, snow machining, four wheeling and hiking. They provide access to neighboring communities and are used for subsistence activities such as hunting, trapping and wood gathering. In the summer, their use is more limited but still important, primarily for summer subsistence activities near the community.



*A major trail in Beaver*

WHPacific photo

<sup>14</sup> Alaska Department of Natural Resources, *Fact Sheet, Title: RS2477 Rights-of-Way. September 2001.*

### 3.4.1 Trail System Description

Today, many of the trails in the study area remain well traveled for traditional uses. The width and condition of the trails vary but generally range from four to ten feet in width. Their condition depends upon use and the season. Generally, the trails are in better condition in the winter months. Some of the trails used in summer months have rudimentary bridges used for minor water crossings and some have trail markings.

The following table provides information about major trail segments that connect villages to each other or to the highway system. This trail data was collected through interviews and public meetings. Trail segments are shown on Figure 9.

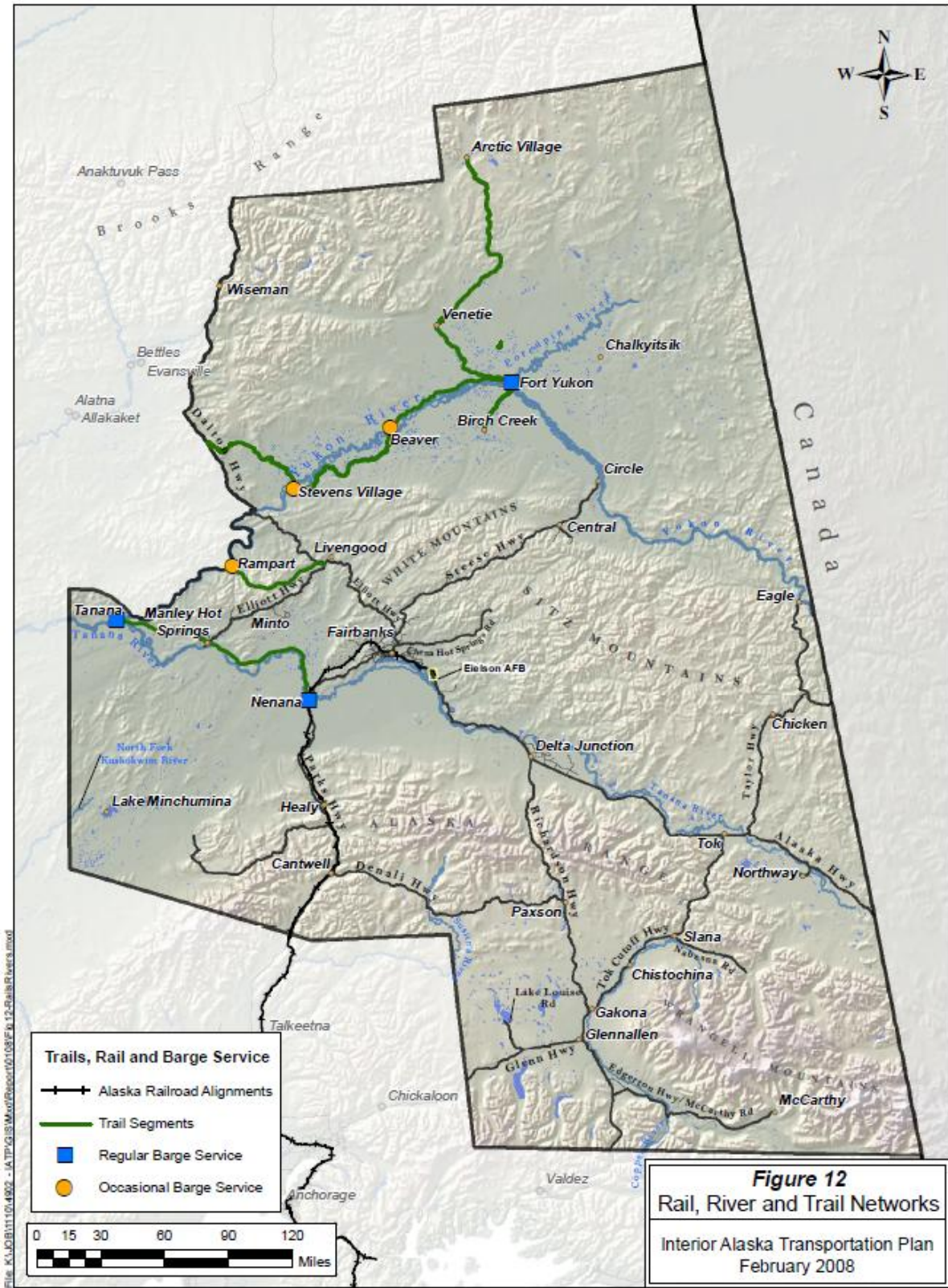
**Table 0-57 Interior Alaska Trail Segments**

<b>Trail Segments</b>	<b>Distance (miles)</b>
Arctic Village to Venetie	82.5
Birch Creek to Fort Yukon	30
Beaver to Fort Yukon	70
Beaver to Stevens Village	80
Circle to Ft. Yukon	86
Manley to Tanana	65
Manley to Nenana	40
Nenana to Lake Minchumina	126
Rampart to the Elliott Highway	40
Stevens Village to the Dalton Highway	28
Venetie to Fort Yukon	55

In many other parts of the State where winter travel by trail is common, there is a growing trail marking system, generally consisting of wooden tripods lashed together with wire. The markers are placed 200-400 feet apart and often reflective tape is used to enhance visibility during low light and inclement weather conditions. Many of these trail markings were erected as part of DOT&PF trail marking projects.

In the Interior, there is generally less of a need for permanent winter trail markings than other areas of Alaska. Trails often follow rivers or connect between lakes. There also is generally more vertical relief in the Interior and blowing snow is less problematic than in some of the flatter, windier areas of the state.

Figure 9 Trail, Rail and River Networks





## 3.5 Existing Railroad System

### 3.5.1 Railroad History

As with states in the lower 48, Alaska's development was influenced by the growth of the railroad industry. In the Interior, the first railroad connections were constructed to access rich mineral deposits, primarily gold and copper. From 1905 to 1917, the Tanana Valley Railroad, a 44-mile narrow-gauge railroad, operated from Chena, a settlement on the Tanana River, to Fairbanks with a branch to Chatanika in the Tanana Valley. The Copper River and Northwestern Railway was built by the Kennecott Corporation between 1907 and 1911 to take copper ore from Kennecott to Cordova, a distance of 196 miles. The good ore in the mines ran out and the last train ran on September 11, 1938.

On March 12, 1914, the US Congress agreed to fund construction and operation of a railroad in Alaska. A route from Seward to Fairbanks was chosen and the estimated construction cost was \$35 million. Three years later, the Federal government purchased the Tanana Valley Railroad, principally to obtain its Fairbanks terminal facilities. By 1923, the Alaska Railroad track reached the town of Nenana on the Tanana River and the Government Railroad was complete with a continuous rail line from Seward to Fairbanks.

These first trains hauled modern equipment and machinery into the Interior. Before the railroad was completed, this large equipment had to be shipped to Valdez, and then hauled up the Richardson Trail to Fairbanks. The overland trip usually took two to three weeks to complete. An even longer seasonal route was across the Pacific and Bering Sea and up the Yukon and Tanana Rivers on stern wheel steamers. This route often took a month or more. With the railroad, equipment could travel from the ship at Seward to Fairbanks in four to five days. The railroad not only took freight from the Richardson Trail and river boats, but it also took passenger and tourist business.

The construction of military bases in Anchorage and Fairbanks had a large impact on the railroad. These bases were located on the rail route to provide heavy transport for the military. The next big growth in the State that affected the railroad was the building of the Alaska Pipeline that started in the mid 1970s and lasted to the early '80s. This huge project changed industry statewide along with the railroad. Pipe and related equipment comprised the majority of freight during this period.



In 1985, the State of Alaska purchased the Alaska Railroad from the Federal Government. Chartered to operate as a public corporation, all operating expenses and improvements are paid out of revenues generated by passengers, freight services and real estate.

### 3.5.2 Railroad System Description

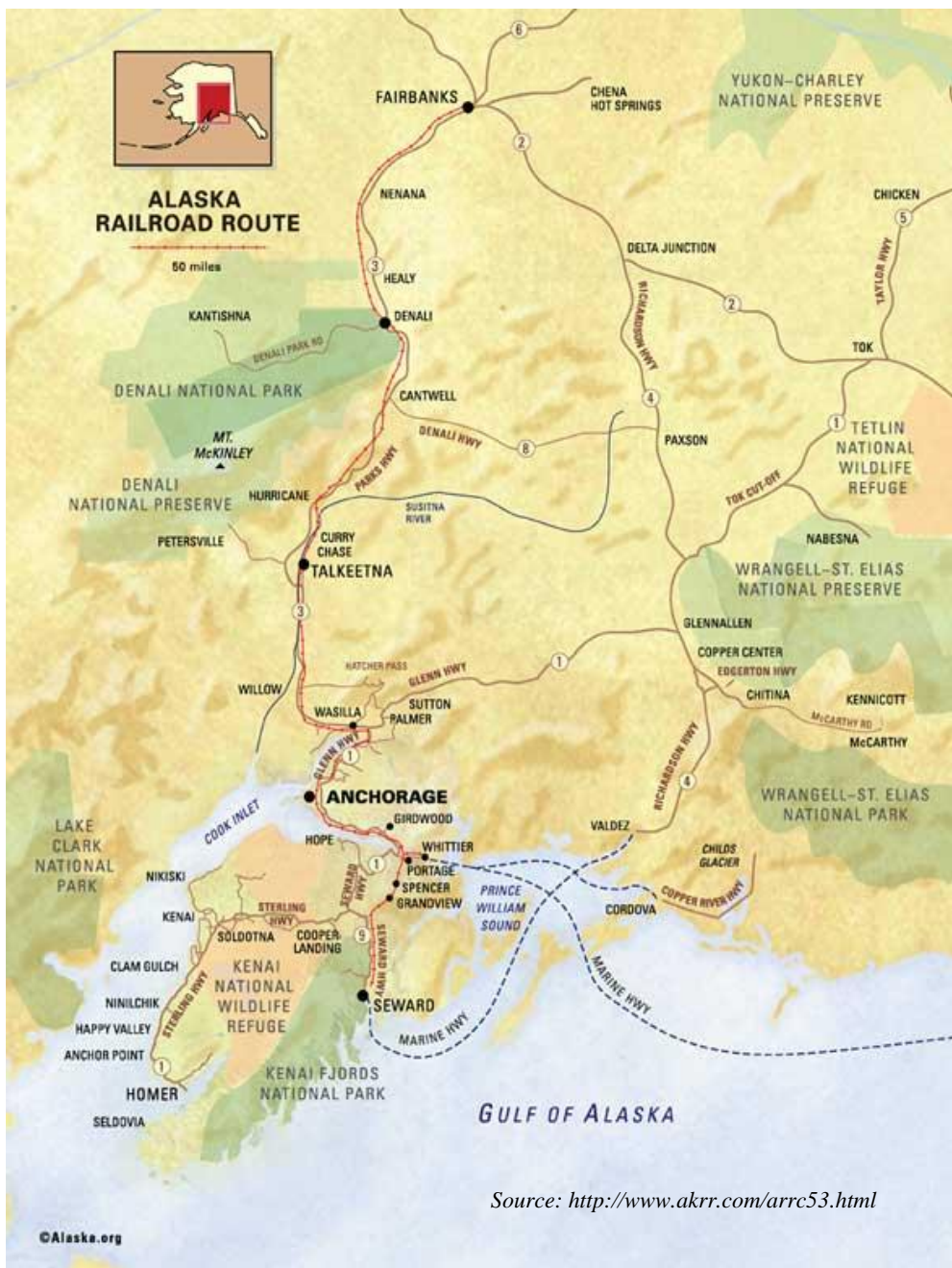
Today, the Alaska Railroad extends from Seward to Fairbanks. About 160 miles, from Summit to Fairbanks, is within the study area. The railroad connects to the Port of Nenana where goods are placed on barges for transport to river communities. A rail spur serves the Usibelli Coal Mine in Healy and a 26-mile spur known as the Eielson Branch connects Eielson AFB to the main rail line and represents the actual current end of the line for the Alaska Railroad. Most of the track in this area is in good condition, due in part to the low density of traffic on this portion of the railroad. The rail network is shown in the map on the following page and in Figure 9. ARRC's proposed Northern Rail Extension will connect all military bases in Alaska to the Joint Pacific Area Range Complex located south and east of Fairbanks.

#### 3.5.2.1 Fleet Mix

ARRC's main fleet is comprised of 29 SD70MAC locomotives, 23 GP 38/40-2 locomotives, one Diesel Multiple Unit self-propelled, and approximately 1,000 rail cars. Additionally, the Flint Hills Refinery leases three hundred 20,000-gallon tank cars for use in moving refined petroleum products from North Pole south, mainly to Anchorage. Additional flat cars are being acquired for use by the U.S. Army to transport Stryker Brigade equipment to the Donnelly Training Area and to the Port of Anchorage. The ARRC also has some theme cars for sightseeing and special occasions. Passenger cars number 48, including single-level domes, double deckers, dining and baggage cars.

The fleet mix in service includes flat cars, hopper cars, covered hoppers, tank cars, box cars and various specialty cars. ARRC connects to Burlington Northern Railroad, Union Pacific Railroad,

and Canadian National Railroad via rail barges at Seward and Whittier, through Prince Rupert and Seattle. As a result, ARRC has experience handling all types of rail cars.



### 3.5.2.2 Passenger Traffic

Passenger service on the Alaska Railroad includes daily service in the summer from Anchorage to Fairbanks and back with stops in Wasilla, Talkeetna and Denali Park. The trip takes approximately 12 hours. In the summer, daily trips from Anchorage to Seward and Whittier link



to Interior service. Additionally, the railroad provides summer service between Talkeetna and Hurricane; the only access for some residents in this area that is without roads. In the winter, there is scheduled service between Anchorage and Fairbanks and between Talkeetna and Hurricane.

Most Alaska Railroad passengers are recreational riders. Many are tourists who take rail trips to Denali National Park and Fairbanks. Many different tour packages are also available from ARRC directly. Others railroad passengers are independent travelers from within the State or Outside. Additionally, some users of the railroad between Anchorage and Fairbanks have remote cabins that they use the railroad to access.

Table 0-58 shows the ARRC passenger ridership to or from destinations within the study area over the past five years.

**Table 0-58 ARRC Passenger Ridership 2002-2006**

<b>Passenger Ridership - Abstract*</b>					
	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Anchorage/Denali	73,679	70,541	85,306	89,512	94,207
Anchorage/Healy					12
Anchorage/Nenana	16	11	1	13	8
Anchorage/Fairbanks (thru)	4,478	5,021	6,362	6,173	3,878
Wasilla/Denali	827	609	231		
Wasilla/Fairbanks	140	132	136	210	191
Talkeetna/Fairbanks	421	638	599	635	807
Denali/Fairbanks	139,305	126,806	46,600	109,973	126,180
Denali/Nenana	9	20	73		
Denali/Talkeetna	80,213	62,684	81,276	44,566	54,583
Denali/Whittier					28,852
Nenana/Fairbanks	19	54	11	4	12
<b>Total</b>	<b>299,107</b>	<b>266,516</b>	<b>320,595</b>	<b>251,086</b>	<b>308,730</b>

\* Only those segments which include passengers originating or with destinations from Broad Pass to Fairbanks are included

Source: Alaska Railroad, personal correspondence

### 3.5.2.3 Freight

More than 80 percent of the freight that comes to Alaska comes through the Port of Anchorage and is distributed throughout the state. Hundreds of thousands of tons of freight are shipped to Fairbanks for resupply on the North Slope. On average, 4 to 5 million tons of cargo are moved by rail annually in the Interior. Petroleum products from the Fairbanks area refinery represent the majority of the traffic originating in the region. They use about 30,000 railcars a year.

Coal from Usibelli for the University, military and Golden Heart Utilities (GHU) represents a few thousand railcars destined for Fairbanks, one of the largest single commodities going into the Interior. Coal is also shipped to Asia via Seward. Currently at 1.2 million tons per year, the export coal market is expected to grow.

### **3.5.3 Railroad Maintenance**

ARRC's Fairbanks shop handles most equipment maintenance issues that arise on the northern end. Typically, “heavy” repairs to locomotives and/or railcars may be handled in the Anchorage shop. The main issue in the area north of Broad Pass is track maintenance, especially in the Goldstream Valley. There, poor quality soils lead to the same problems on the railroad as are faced by the highway department—springtime/early summer frost heaves. These typically result in “slow orders” or temporary speed restrictions on trains in certain areas of the track in May and June. These issues are usually handled by early July when most temporary speed restrictions are lifted.

Winter conditions typically mean snow, but the railroad generally is not greatly affected unless the storm condition is especially severe. Colder than normal temperatures require more frequent inspections of the track to ensure track integrity, operable signals, etc.

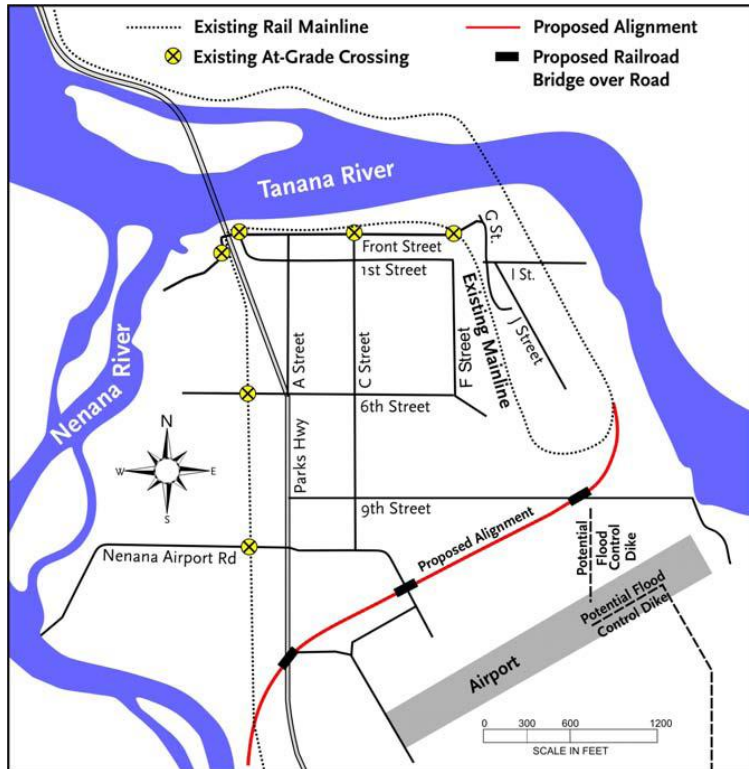
### **3.5.4 ARRC Projects**

The Railroad has a representative on the Fairbanks Metropolitan Area Transportation System (FMATS) technical committee. Since Fairbanks is not included in the study area, this coordination is not directly relevant to this study. Coordination on railroad projects within the study area is less formal; however, in the design phase formal DOT&PF action is sometimes required.

The DOT&PF funds at-grade separation projects in their program when warranted. These are generally included as part of highway improvement projects. ARRC has several projects underway or planned within the study area, as described below.

#### **3.5.4.1 Nenana Rail Realignment to avoid downtown Nenana**

The purpose of this project is to realign the railroad mainline track around the downtown area of Nenana. This would improve the safety of rail/highway crossings and railroad operations. Six at grade crossing cause safety concerns in Nenana. This includes the potential for train-vehicle



Source: [alaskarailroad.com/](http://alaskarailroad.com/)

collisions, as well as occasionally blocking crossings, and delaying access to key facilities such as the medical clinic. The realignment would also reduce noise and vibration to nearby residential areas.

### 3.5.4.2 Northern Rail Extension Project – North Pole to Delta Junction

ARRC expects to construct and operate a new rail line between North Pole and Delta Junction. This project would involve about 80 miles of new rail line extending the existing Eielson Branch at the

Chena River Overflow Structure and connecting it to a point near Delta Junction. Final design and construction will depend on funding. An Environmental Impact Statement is currently underway and ARRC has received approval from the Surface Transportation Board to proceed with the project.

### 3.5.4.3 Denali Park Passenger Train Turnaround Track (Denali “Wye” Track)

Alaska Railroad would like to re-establish a “wye” track to allow trains to turn around at Denali National Park, which is not currently possible. In 2005, 266,418 passengers used the Denali Park Rail Station. In 2006, that number grew to 303,741. Passenger trains average 20 coaches carrying up to 1,500 passengers. Prior to 2005, all trains operating through Denali Park continued on to either Anchorage onto Fairbanks. In 2005, a new train service provided direct Whittier to Denali transport. These trains must continue on to Fairbanks to be serviced and turn around. An exchange of Federal land is needed to configure the turnaround track. Congress approved the land exchange in May 2008, but additional work is needed before it is finalized.

#### **3.5.4.4 Canadian Rail Link**

Alaska has been interested in connecting the rail system to Canada for some time. In the early 1980s HB 47 of the 10<sup>th</sup> Legislature directed DOT&PF to acquire the necessary right-of-way for a project. DOT&PF filed necessary applications with DNR and with BLM. The DNR file was closed April 23, 1996 and the DOT&PF requested that the BLM application be relinquished on March 6, 1998. No right-of-way was ever actually acquired and relinquishing the applications eliminated what interest DOT&PF and DNR had in the corridor. The legislation was repealed as well.

AS 42.40.460 is more current legislation that states that a corridor may be identified to connect the rail line to Canada, but no corridor has yet been determined. This legislation supports the Northern Rail Extension project.

There continues to be interest in a rail link. Five recent developments that may enhance the potential for completing this railroad linkage include: the announced sale of the British Columbia Railway by the Province of British Columbia to the Canadian National Railway; the legislation passed by the State of Alaska to promote the construction of a natural gas pipeline; the legislation enacted by the State of Alaska to create a new railroad corridor to the Yukon Territory and to authorize the issuance of revenue bonds; the extension of the Alaska Railroad from Eielson Air Force Base near North Pole to Fort Greely near Delta Junction for the missile defense operations; and the increased cost of crude oil and natural gas with growing concerns about reserves and supplies.

The 2007 *Rails to Resources to Ports Study*, prepared for the Yukon Government and the State of Alaska, examines the feasibility of a rail connection through Alaska, Yukon and Northern B.C. linking North Pacific Rim markets in the shortest trade corridors between North Asia and North America, via a U.S. Port. The study indicates that the value of mineral resources in northwestern Canada and Alaska has sharply risen. This could spur rail infrastructure investment would increase economic productivity, development and sustainability in these regions.

## **3.6 Existing River Transportation System**

### **3.6.1 River Transportation History**

Historically, river drainages in Interior Alaska have served as major transportation routes conveying both people and goods. Prior to the Klondike Gold Rush, the rivers were primarily used by local indigenous populations to travel back and forth between camps and trading centers. The Klondike Gold Rush saw a large increase in the use of these waterways, primarily the Yukon River and, later, the Tanana River. Miners and their support groups, such as suppliers, built substantial towns along these rivers in a relatively short time. These communities had churches, schools, town halls, post offices and many other amenities. Many of these communities did not last long, but some became permanent homes for, mostly, Native Alaskans.

Interior traffic was affected significantly by the completion of the Alaska Railroad in 1923 (decreasing the dependency on the rivers which were only accessible in the summer). There was a further decline in river traffic in the 1920s and '30s when Nenana replaced Fairbanks as the principal port of the Yukon and Tanana River System. World War II brought a temporary revival of river traffic until the Alaska Highway was finished.

Today, barge traffic originating in the Port of Nenana remains the primary means of providing bulk fuel and heavy freight for some river communities in the study area.

### **3.6.2 River Transportation System Description**

Local waterways continue to be used in the Interior for transportation of people and goods between seasonal camps and villages, generally by skiffs and canoes. Barge traffic has become more limited in the study area as freight delivery shifted to air and highway-based service; however, fuel and larger items such as construction materials are generally transported by barge.

While there are many rivers in the study area, only the Yukon and Tanana Rivers serve barge traffic (Figure 9). These rivers are generally ice free from mid May through mid October.

The Nenana Port Authority operates the dry cargo loading and unloading facilities, dock, bulkhead and warehouse. The Port of Nenana serves the entire Middle Yukon, however only Fort Yukon and Tanana have regularly scheduled deliveries; Rampart, Stevens Village and Beaver could receive service but generally do not, with the exception of some fuel deliveries. Table 0-59 shows the number of barge dockings for Fort Yukon and Tanana, the number of

possible stops for Beaver, Rampart and Stevens Village, and the number of barge trips originating or terminating in the Port of Nenana.

**Table 0-59 Potential Annual Barge Stops per Village**

	<b>Inland Barge</b>	<b>Crowley</b>	<b>Ruby</b>	<b>Total</b>
Beaver	0	4*	0	4
Fort Yukon	0	4	0	4
Nenana	24**	0	3	27
Rampart	0	4*	0	4
Stevens Village	0	4*	1***	5
Tanana	24	12	3	39

\*Barge can stop if needed, but does not always do so

\*\*12 trips outbound from Nenana and 12 trips inbound

\*\*\*Possible stop next year with up to three trips to Fort Yukon perhaps next year

The Tanana River is shallow, with a maximum draft for loaded river barges of 4.5 feet; by comparison, the Yukon River has very few shallow areas. Controlling depths, which limit barge service, on the Yukon River are seven feet at Stevens Village and three to five feet at Circle.

The only formal dock facilities in the study area are at Nenana which has a dry dock facility and the ability to transfer freight and fuel from railroad cars to barges. Tanana has two landings, one by the airport and the other downtown near the commercial store. Neither landing is optimal, and both have their problems. The airport landing is inconvenient and requires surface transportation of materials from the airport to the destination at the store in town. The in-town landing can be very congested, requiring that the barge move private boats and sometimes log rafts out of the way.

Fort Yukon had a concrete pad but river erosion rendered it useless. Sometimes river conditions

cause the barge to have to land at the downriver end of town. When this occurs, operators must pay a fee to cross private property to the road system to deliver goods.

Crowley Maritime (also known as Yutana Barge Line in Nenana) serves this part of the Upper Yukon River area. Inland Barge is also a local Nenana barge provider that



*Yukon River at Stevens Village*

ASCG Incorporated



primarily serves villages downstream. Ruby Marine, a new provider as of 2007, is based in Nenana. All three providers could serve Rampart, Stevens Village, Beaver and Fort Yukon. However, Inland Barge will only stop at the smaller villages occasionally and Ruby Maritime does not propose to compete with Crowley. Crowley visits Fort Yukon with three trips per season, two in spring and one in the fall. The last few years have seen small shipments by Crowley to Stevens Village to support construction projects.

Crowley Maritime delivers 150-200 tons of bulk materials to Fort Yukon each year (building materials, equipment, trucks, long wait items, oversized items) and about 2,360 tons of fuel. Inland Barge does not provide fuel to Tanana and may only provide a drum or so of fuel on regular trips to other areas. Ruby Maritime has no company history for comparison.

Freight for Crowley Maritime, Inland Barge and Ruby Maritime, originates in the railbelt. Bulk dry goods for Crowley Maritime are trucked to Fairbanks and some fuel and bulk dry goods are sent by rail to Nenana. Fuel for Crowley Maritime comes from North Pole, both Flint Hills and Petro Star Refineries. However, Ruby Maritime proposes to obtain most of its fuel from Kenai refineries via Anchorage by truck.

In past years, the barges participated in a popular backhaul operation, where they picked up items like car batteries and scrap metal from the villages, and transported them to Nenana where they were shipped via rail to Anchorage.

### **3.6.3 Barge System Maintenance**

Operating costs and other monetary information of freight movements on the rivers are proprietary and unpublished.