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Abbreviations & Acronyms

AAC	Aircraft Approach Category
AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ADF&G	Alaska Department of Fish and Game
ADG	Airplane Design Group
AEA	Alaska Energy Authority
AFB	Air Force Base
AGIA	Alaska Gasline Inducement Act
AGL	Above Ground Level
AHS	Alaska Highway System
AIP	Airport Improvement Program
ALP	Airport Layout Plan
AMATS	Anchorage Metropolitan Area Transportation Solutions
ANCSA	Alaska Native Claims Settlement Act
ANGDA	Alaska Natural Gas Development Authority
ANILCA	Alaska National Interest Lands Conservation Act
AOPA	Airline Operators and Pilots Association
APEB	Aviation Project Evaluation Board
ARC	Airport Reference Code
ARFF	Aircraft Rescue and Fire Fighting
ARRA	American Reinvestment and Recovery Act
ARRC	Alaska Railroad Corporation
ASOS	Automated Surface Observing System
ATF	Alaska Transportation Fund
AVC	Automatic Vehicle Classifiers
AWOS	Automated Weather Observation System
BIA	(U.S.) Bureau of Indian Affairs
BLM	(U.S.) Bureau of Land Management
BRAC	Base Realignment and Closure
CAGR	Compound Annual Growth Rate
CAS	Collision Avoidance System
CATG	Council of Athabascan Tribal Governments
CBP	Customs and Border Protection
CFA	Controlled Firing Area
CFR	Code of Federal Regulations
CMAQ	The Congestion Mitigation and Air Quality Improvement program
cpg	cents per gallon
Crashes/MVM	Crash rates per million vehicle miles
DCCED	(Alaska) Department of Commerce, Community, and Economic Development
DF	Direction Finder
DNR	(Alaska) Department of Natural Resources
DOT&PF	(Alaska) Department of Transportation and Public Facilities
EAS	Essential Air Service
EO	Executive Order
EPA	(U.S.) Environmental Protection Agency
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FBO	Fixed Base Operator
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMA	Forest Management Agreement
FNSB	Fairbanks North Star Borough

FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GA	General Aviation
GAO	General Accounting Office
GARVEE	Grant Anticipation Revenue Vehicle
GDL	Graduated Driver License
GF	General Fund
GHU	Golden Heart Utilities
GO Bonds	General Obligation Bonds
GPS	Global Positioning System
GSP	Gross State Product
GVEA	Golden Valley Electric Association
HBRR	Highway Bridge Replacement and Rehabilitation
HCM	Highway Capacity Manual
HFST	High Float Surface Treatment
HSIP	Highway Safety Improvement Program
IATP	Interior Alaska Transportation Plan
IFR	Instrument Flight Rules
ILS	Instrument Landing System
ISER	Institute of Social and Economic Research
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
JV	Joint Venture
LED	Light-Emitting Diode
LNG	Liquefied Natural Gas
LOS	Level of Service
LSR&T	Local Service Roads and Trails
LTL	Long Term Lease
M&O	Maintenance and Operations
MMS	Maintenance Management System
MOA	Military Operations Area
MOU	Memorandum of Understanding
MP	Milepost
mph	miles per hour
MPO	Metropolitan Planning Organization
NAS	National Airspace System
NCPP	National Center for Pavement Preservation
NDB	Non-directional Beacon
NHS	National Highway System
NHTSA	National Highway Traffic Safety Administration
NPI	Northwest Pacific Industries
NPIAS	National Plan of Integrated Airport Systems
NVVTG	Native Village of Venetie Tribal Government
PEB	Project Evaluation Board
PLD	Public Lands Discretionary
PM	Particulate Matter
PMS	Pavement Management System
PTR	Permanent Traffic Recorders
RSA	Road Safety Audit
RV	Recreational Vehicle
RSA	Road Safety Audits
RNP/RNAV	Required Navigation Performance/Area Navigation
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act-A Legacy for Users
SAWRS	Supplemental Aviation Weather Reporting Station
SHSP	Strategic Highway Safety Plan
SRE	Snow Removal Equipment
STIP	Statewide Transportation Improvement Program
SUAIS	Special Use Airspace Information Service
TAF	Terminal Area Forecasts
TCC	Tanana Chiefs Conference

TFR	Temporary Flight Restriction
TMOA	Temporary Military Operating Area
TSA	Transportation Security Administration
UAA	University of Alaska Anchorage
UAV	Unmanned Aerial Vehicle
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USF&WS	United States Fish and Wildlife Service
VFR	Visual Flight Rules
VLJ	Very Light Jet
VMT	Vehicle Miles Traveled
VOR	Very High Frequency Omnirange
WAAS	Wide Area Augmentation System
WAMCATS	Washington/Alaska Military Cable and Telegraph System
WWII	World War Two

Preface

This document is a component of the Statewide Long Range Transportation Plan. The most recent State Plan was adopted February 29, 2008 and is titled Let's Get Moving 2030 (LGM 2030). The Interior Alaska Transportation Plan will also be adopted by the Commissioner of the Alaska Department of Transportation and Public Facilities as a component of LGM 2030.

Long Range Transportation Plans are required by the Federal Highway Administration. LGM 2030 is a policy level document and relies on area plans for a more detailed look at regional transportation networks and recommendations. Different geographic regions of the State require discussion of different types of solutions. For example, the Southwest and Southeast plans had a heavy investment in the Marine Highway infrastructure. The Western Alaska Plan was more directed at barge and airport investments.

The Interior Alaska Transportation Plan is primarily focused on highways since most of the interior planning study area is served by a surface transportation system. However, the plan encompasses barges, trails, transit and aviation as well as travel on the Alaska Railroad.

The plan conforms to planning requirements of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETY-LU). In particular, it complies with the requirements for tribal government to government coordination, broad outreach to the public and environmental impacts documentation.

A separate, stand alone, document (the Interior Alaska Transportation Plan Documentation of Compliance with Federal and State Requirements) contains the record of outreach and environmental documentation.

The Interior Alaska Transportation Plan can be downloaded from http://projects.ascg.com/iatp/Documents.asp or you may call the Department of Transportation and Public Facilities at (907) 451-5151 to request a copy.

Executive Summary

The purpose of the Interior Alaska Transportation Plan (IATP) is to develop a 20-year regional transportation plan that guides future investments toward vital transportation projects consistent with the DOT&PF overall mission, addresses regional needs, and enhances the movement of people and goods within the Interior of the state and points beyond. As a necessary component of the Statewide Transportation Plan, the IATP analyzes railroads, highways, rural interconnecting roads and trails, aviation and river transportation. It takes into account not only the objectives that support the purpose of the Interior plan, but the overarching goals for transportation across the state.

Background and Setting

In a region as expansive as Alaska's Interior, it is important to have a solid understanding of the various geographic, economic, and cultural factors that contribute to the area's transportation needs.

With a study area encompassing approximately 132,200 square miles, the terrain varies greatly; wide valleys and flat tundra, vast wetlands, rolling foothills, deep moraines, wild rivers, active volcanoes and dissected uplands, lowland basins and mountain passes. Such a varied display of geography often poses constraints when determining the configuration and direction of transportation routes in the Interior.

Though Fairbanks is the economic hub of activity in the Interior, there are about 50 other communities within the study area—most of which can be accessed by the highway system—that also contribute to the region's diverse economy. Economic drivers include fishing, logging, agriculture, mining, construction, military, transportation and tourism.

The Interior is also varied culturally. A number of communities within the study area are primarily Native with federally recognized tribal governments. Other communities arose with post-World War II construction, agricultural efforts, homesteading, mining, pipeline and highway development and the Military.

As this diverse region continues to grow, the dependence on its transportation systems will also continue to grow. For this reason, the following transportation inventory, resource and economic development impact assessment, forecast, and analysis were conducted, followed by a review of financing and ending with recommendations and implementation strategies.

Transportation Inventory

The transportation inventory catalogues the existing highway system, including both the National Highway System and the Alaska Highway System, providing information on subjects such as roadway classifications, existing traffic volumes and roadway operations, waysides and pullouts, and pavement conditions. Highway corridor assessments are also included to provide comprehensive data for individual, high volume highways. In addition, data on community and airport access roads, barge landing roads, community transit systems, and existing aviation systems is contained in the inventory.

Such data makes accurate analysis possible in terms of impact assessments, forecasting, and overall analysis of the Interior transportation system.

Resource and Economic Development Impacts

The transportation inventory data were used to analyze current conditions and resource trends for this diverse economic region and, based on such trends, to determine possible ways in which resource development in the area may affect the Interior’s transportation systems. Based on projected development needs, the most pertinent transportation issue currently facing the Interior region is the possibility of increased access needs for activities such as mining, tourism and gas pipeline construction.

Forecast

Once the transportation inventory and impact assessments have been completed, it is possible to do transportation forecasting. The forecasting in the IATP focuses on population projections of the Interior’s communities, historical traffic volume growth trends and the expansion of resource development. The process ultimately results in the forecasting of traffic volumes in the year 2030, providing a separate methodology for the forecasting of aviation traffic volumes as well. Consideration was also given to railroad, river and trail use patterns.

Analysis

One of the most important aspects of any plan is the comprehensive analysis that ties the plan's previous sections together and provides more multidimensional interpretations of the data. The analysis includes roadway capacity determinations based on data from the IATP forecasts, crash data and safety plan strategies, overall system needs, preservation and management, maintenance operations and, as in the transportation inventory, individual highway corridor assessments that address the unique challenges faced with each major highway.

An aviation analysis was also conducted that focused on airport coverage, the role of airports in the region, and National Plan of Integrated Airport Systems inclusion, as well as other issues such as emergency access and security.

Financing

Alaska relies heavily on Federal funds for both surface transportation and aviation needs. Costs for projects in Alaska are disproportionately higher because many construction locations are remote. Alaska must look for additional Federal and non-Federal funding sources in order to keep up with needs and desires both in the IATP study area and in the state as a whole.

This section provides information on historic funding levels and expected funding levels. It also discusses alternative financing such as State General Obligation Bonds and Private Public Partnerships. This section highlights road, aviation and railroad funding opportunities.

Recommendations and Implementation

Rounding out the IATP is the chapter that provides recommendations for highway capital improvements, as well as other multi-modal improvements. Details provided include the project type, estimated cost, and priority. The two major highways with the most recommended improvements are the Dalton Highway and the Richardson Highway, with the majority of both highways' projects being classified as short-term projects and totaling $310,400,000 and $132,000,000 respectively. The Steese Highway has only one recommended project, rehabilitation and resurfacing from mileposts 62 to 81 at a cost of $7,000,000. Additional short term projects are recommended for the other area highways.

This section also provides information on proportions of funding allotments provided by the State and other agencies, such as the Federal Highway Administration, for each short-term transportation capital improvement recommendation.

As a contributor to the Statewide Long Range Transportation Plan, this plan is designed to provide a blueprint for transportation activities in the Interior over the coming years. Based on interviews, studies, and extensive local knowledge, the recommendations presented will serve as a guide to providing the Interior with the safest, most reliable transportation access possible. The Interior Alaska Transportation Plan will be updated as necessary to meet the changing multi-modal transportation needs of the region.

1 Introduction

In fall 2006, the State of Alaska Department of Transportation and Public Facilities (DOT&PF), Northern Region initiated the development of the Interior Alaska Transportation Plan (IATP). This plan joins five other regional, multi-modal transportation plans that make up the Statewide Transportation Plan required by State[1] and Federal[2] law. The plan considers the State and Federally mandated Statewide Long Range Transportation Plan (*Let's Get Moving 2030*), Statewide Aviation System Plan and Strategic Highway Safety Plan (SHSP). The Federal requirement is very important, as Federal transportation funds must be allocated in a manner consistent with transportation plans following Federal guidelines.

1.1 Plan Purpose

The purpose of the IATP is to develop a 20-year regional transportation plan that guides future investments toward vital transportation projects consistent with the DOT&PF overall mission, addresses regional needs, and enhances the movement of people and goods within the Interior of the state and to points beyond. It analyzes all modes of transportation—railroad, highways, rural interconnecting roads and trails, aviation and river transportation.

Several objectives will help to achieve the plan's purpose.

- To inventory existing conditions, prepare traffic forecasts based on a sound socioeconomic analysis and recommend facilities to accommodate future demand.
- To prepare a strategy to address impacts to the transportation system due to economic development, resource development and changes in military operations.
- To develop corridor assessments along specific routes between major traffic generators or destinations.
- To identify potential safety concerns, and outline solutions to improve safety.
- To prepare an implementation strategy for the 5-year, 10-year, and 20-year planning levels, that is economically feasible and meets the needs determined in the analysis.

[1] Alaska Statute 44.42.050

[2] 23 Code for Federal Regulations (CFR) 450.214

1.2 Planning Factors

On August 10, 2005, President George W. Bush signed the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009. The legislation contains guidance for development of statewide transportation plans. It states : “each State shall carry out a continuing, cooperative, and comprehensive statewide transportation planning process that provides for consideration and implementation of projects, strategies, and services that will address the following factors:

1) Support the economic vitality of the United States, the States, metropolitan areas, and non-metropolitan areas, especially by enabling global competitiveness, productivity, and efficiency;
2) Increase the safety of the transportation system for all motorized and non-motorized users;
3) Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and non-motorized users;
4) Increase accessibility and mobility of people and freight;
5) Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
6) Enhance the integration and connectivity of the transportation system, across and between modes throughout the state, for people and freight;
7) Promote efficient system management and operation; and
8) Emphasize the preservation of the existing transportation system.”[3]

These factors will be reviewed and incorporated into the IATP planning process.

1.3 Outline

The plan is divided into the following chapters:

- Chapter 1 provides an overview of the plan, its purpose, study area, planning process, public involvement activities, issues, and goals.
- Chapter 2 gives background information about the study area.

[3] **Public Law 109-59 Section 6001.135. (c) (1), August 10, 2005.**

- Chapter 3 provides an inventory of the existing transportation systems within the study area.
- Chapter 4 provides a forecast of anticipated growth within the region.
- Chapter 5 discusses the potential impacts of various factors on transportation in the Interior.
- Chapter 6 contains an analysis of each of the transportation systems.
- Chapter 7 provides an analysis of transportation finance systems
- Chapter 8 provides recommendations for improvement and guidelines for their implementation.

1.4 Study Boundaries

The study area is bounded on the east by the Canadian border and on the north by the North Slope Borough border. The west boundary follows the Dalton Highway beginning at MP 232 to MP 57 at the Yukon River then to just west of Tanana where it goes directly south to include Lake Minchumina. From there, the boundary heads east to intersect with the Parks Highway at MP 163.2, and continues east to the Susitna River. It intersects the Glenn Highway at MP 118.4. From there, the boundary heads east to intersect with MP 69 on the Richardson Highway and directly east to the Canadian Border (Figure 1). Fairbanks is inside this boundary but the Fairbanks Metropolitan Planning Organization (MPO) boundary is excluded from review and recommendations. The MPO has a separate planning process from the State's.

Figure 1 Study Area

1.5 Planning Process and Public Involvement

The planning process began in fall 2006 with a series of kick-off meetings and interviews with key stakeholders in the planning area. Public meeting locations included Fairbanks, Glennallen, Healy, Nenana and Delta Junction. In addition, interviews were conducted with numerous staff from federal, State, and local agencies; Native groups such as Doyon Native Corporation, Tanana Chiefs Conference (TCC), and the Council of Athabascan Tribal Governments (CATG); and stakeholders such as the Alaska Railroad (ARRC), the Fairbanks Convention and Visitors Bureau, and the Airline Operators and Pilots Association (AOPA). A summary of public involvement for this project is located in Appendix A.

ASCG Incorporated

Public meeting with Copper Valley Chamber of Commerce members

At these meetings and during the interviews, the steps of the planning process for the IATP were presented. These include the following:

- Inventory of existing conditions;
- Traffic forecasts based on a sound socioeconomic analysis;
- Analysis of resource development and military operations;
- Consideration of the SAFETEA-LU Planning factors;
- Analysis of roads, airports, regional trails, railroads and river transportation;
- Outline of recommended transportation facilities to accommodate future demand; and
- An implementation strategy that is economically feasible and meets the needs determined in the analysis for the 5-year, 10-year, and 20-year planning horizon.

1.6 Overview of Previous Planning Documents

The planning team conducted a review of relevant planning documents on the study area. Each of the transportation plans previously developed by DOT&PF for different regions of the State was reviewed. Each plan covered all relevant modes; but, depending on the primary means of transportation in that region, each plan had a different emphasis focusing on the area's transportation needs. For example, the *Northwest Alaska Transportation Plan* focused more on winter trails and aviation, while the *Prince William Sound Area Transportation Plan* was more concerned with the Alaska Marine Highway System.

Other documents reviewed included the 2020 and 2030 Statewide Transportation Plan, highway corridor studies, community long range transportation plans (where available), tourism and economic development documents, resource management and environmental impact studies, and the previous Interior regional transportation plan completed in 1982. An annotated list of documents reviewed is located in Appendix B.

1.7 Planning Issues

Several factors have the potential to influence, or be influenced by, transportation in Interior Alaska. These include economic development opportunities, changes in military usage, potentially conflicting needs of various user groups, health and safety concerns, and transportation funding. Some of the major issues to be considered in the plan are identified below:

Gas Pipeline

According to the US Department of Energy, the natural gas pipeline "will provide access to Alaska's 35 trillion cubic feet of proven natural gas reserves." Access is a critical component to gas pipeline development plans. The Parks, Alaska, Richardson, and Dalton Highways in the Interior will likely become important supply lines as construction efforts ramp up. Several studies are underway to analyze various Pipeline corridors including Parks Highway Natural Gas Pipeline Corridor Feasibility Study (spur line from Fairbanks to Wasilla), Prudhoe to Valdez with a spur line to Cook Inlet for Liquefied Natural Gas (LNG) transport, and the Alaska Highway Route.

The State of Alaska has taken a very proactive role in supporting natural gas pipeline development. In 2002, legislation was enacted (Alaska Statute 41.41.010) that set up a 7-member appointed Alaska Natural Gas Development Authority Board whose goal is to help get natural gas to Alaskans. The mission of the Board, is to plan and construct a …

"gas transmission pipeline, together with all related property and facilities, to extend from the Prudhoe Bay area on the North Slope of Alaska either to tidewater at a point on Prince William Sound and the spur line from Glennallen to the Southcentral gas distribution grid or to tidewater at a point on Cook Inlet, … includ(ing) planning, design, and construction of the pipeline and facilities…."

On May 11, 2007, the State legislature passed the Alaska Gasline Inducement Act (AGIA) that sets up terms and conditions for competitive bid process for companies interested in building an Alaska Natural Gas Pipeline. AGIA is intended to attract an independent pipeline builder, who, if awarded the license, will be the State's surrogate and thus tasked with getting the three producers (Exxon, BP & Conoco-Phillips) to make a commitment so a pipeline can be financed.

Resource Development

Economical transportation is a critical element of viable mineral resource development operations. Rich deposits of silver, gold, copper, lime, nickel, platinum, palladium, gravel, coal and other minerals are located within the study area. However, it is only practical to extract these deposits if the cost of transportation is reasonable. Current mining operations include: Usibelli Coal Mine near Healy; Pogo Mine near Delta Junction; Fort Knox Mine near Fairbanks; and mineral exploration in the Tangle Lakes region, Delta River and in the Doyon Region as a whole. There are also numerous small scale placer mines operating in the Interior. Although not currently accessible, there are known deposits of limestone in the Livengood vicinity. In addition to minerals, there are also timber, agriculture and potential natural gas resources, (including recent natural gas exploration in the Nenana Basin).

Pavement Management

In 2005, the Federal Highway Administration (FHWA) analyzed pavement preservation practices within Alaska. The resulting report made several observations and outlined recommendations for the State to follow. According to the report, in its current reactive approach, the DOT&PF relies to a large extent on a policy of "worst first." The result is that by the time these roadway improvement projects are programmed, the roads have sustained structural damage and will be more expensive to fix.

Seasonal weight restrictions on highways in the Interior are also an issue. Applying primarily to truckers hauling goods and resources along the Interior highways, weight limits vary from season to season and negatively impact the movement of goods. Many would like to see weight restrictions eliminated.

Military Impact

As residential and other incompatible land uses grow around military bases in the Lower 48, the need has increased to conduct military training in less developed areas such as Interior Alaska. This has led to an increase in military training exercises at Eielson Air Force Base (AFB), Fort Wainwright, and Fort Greely.

U.S. Air Force Photo, Airman 1st Class Jonathan Snyder

Red Flag exercises, Eielson Air Force Base

For example, in 2006, more than 5,000 military personnel participated in the annual Northern Edge training exercise, which involves Pacific, Alaska, and Air Combat Commands and Pacific Air Forces, as well as the Navy, Army and Marine Corps; and in 2007, more than 1,300 military service members from the U.S., France, and Australia participated in a two-week Red Flag training designed to facilitate teamwork between U.S. and coalition forces. While aviation exercises, which are increasing in both scope and quantity, lead to airspace issues, convoys transporting troops and equipment along the Richardson Highway and the Parks Highway present an issue for road users. The change in unit classification at Fort Wainwright from a Light Infantry Brigade to a Stryker Brigade Combat Team has led to a significant increase in personnel as well as increased traffic on the highways due to vehicle convoys traveling to training areas.

The ARRC is also considering military use. Currently, they are examining a route between North Pole and Delta Junction that would be used to help transport military troops and equipment.

Railroad

Operating year-round passenger service between Anchorage and Fairbanks, ARRC has several projects in progress or under consideration in the study area. These include the Fairbanks Area Rail Line Relocation, a Nenana Rail realignment to avoid downtown Nenana, the Northern Rail Extension Project – North Pole to Fort Greely and a railroad connection between Alaska and Canada. The Alaska-Canada rail was studied under the previous version of the *Interior Alaska Transportation Study*. Other projects are also being considered, several with the goal of moving natural resources to market, including facilitating the gas line and mining endeavors.

Tourism

Tourism in Alaska remains an important part of the overall economy. Most of the growth over the years has occurred in cruise and package tours including ARRC packages to Denali National Park and Fairbanks. More cultural tourism is occurring, such as Arctic Village/Arctic Circle, Fort Yukon, Yukon River and Anaktuvuk Pass tours. Winter tourism is also a growing market in the Interior.

Significant portions of the Dalton, Steese, Taylor/Top of the World, Richardson, Parks and Glenn Highways have received Alaska Scenic Byway status. A portion of the Parks Highway was designated a National Scenic Byway in October 2009. Designation of a route as a National Scenic Byway can facilitate Federal funding for needed preservation and improvements in support of tourism.

Aviation

Several developments may affect air transportation within the study area such as military exercises, pipeline construction and technological advances. Population and economic growth might generate an increase in air traffic resulting in the need for facility improvements and expansion. Other aviation issues could include implementation of Phase III of the Capstone program including more Global Positioning System (GPS) instrument approaches; commercial, general aviation, and all-cargo fleet changes; and access to backcountry strips.

Transportation Financing

Transportation financing in Alaska is changing. Earmarked funds are siphoning off needed transportation dollars in Interior Alaska and maintenance funds have not kept up with current needs. State motor fuel taxes, the second lowest rate nationwide at eight cents per gallon, are transferred to Alaska's general operating fund and not to a dedicated highway fund. Millions in State General Funds are spent on transportation projects each year; however, there is no comprehensive State program set up specifically for transportation projects

There are numerous Federal programs that the State currently uses to finance highway and aviation improvements such as the Surface Transportation Program, Safety Program, Bridge Rehabilitation and Replacement funds, Earmark funds, Airport Improvement Program, etc. In addition, there are numerous Federal discretionary funding sources such as the Public Lands Discretionary (PLD) and the Bridge Discretionary funds. However, even with these funding streams, the amount received by the State is not enough to keep up with the growing demand.

Other funding sources, notably, the Bureau of Indian Affairs Indian Reservation Roads program and Denali Commission Access program, are two other sources of transportation funds. While these funds benefit community transportation projects, they are generally not used for regional highway projects.

Rural Community Transportation Issues

While this study does not focus on community road issues, the State recognizes that remote communities, especially those without access to the highway system, face unique challenges. Rising fuel costs contribute to the difficulty of transportation to remote areas, whether by river, road, or air. Some communities, currently not on the road system, are considering the benefits of connecting to the highway system in order to reduce fuel and freight costs and to provide access to hub communities for shopping, medical services and other amenities.

Dust control is a concern in rural communities throughout the study area wherever local roads and airports are not paved. Particulate matter (PM) is referred to as PM 10 or PM 2.5, relating to the size of the airborne particles. The Environmental Protection Agency (EPA) has issued a new ruling (March 2007) covering PM 2.5. Parts of the Fairbanks North Star Borough have exceeded the EPA standards covering PM 2.5 and have been designated as "non-attainment" (December 2009). The rest of the study area is in compliance with the new rule but airborne particles contribute to respiratory ailments that particularly affect the very young and the elderly.

Economic development is an ongoing community concern and many communities want local employment when transportation projects are constructed in their jurisdiction. Community leaders have indicated they would like to complete projects with local labor forces or have local workers considered for jobs by outside contractors.

1.8 Goals and Objectives

Development of goals and objectives began by analyzing the original Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) Planning Factors and the Planning Factors from SAFETEA-LU. Commonalities between the two sets of Planning Factors were identified and then combined into the five goals stated below. The SAFETEA-LU Planning Factors were then used to develop the individual objectives.

The goals and objectives address the transportation planning issues in the study area and the planning factors identified in SAFETEA-LU as stated previously. These goals and objectives are grouped into five categories: economy; health, safety, and security; funding; preservation; and efficiency, and are presented in Table 1-1. Objectives that address the SAFETEA-LU planning factors are noted.

Table 1-1 Goals and Objectives

Goals	Associated Objectives	
Economic **1. Support the economic vitality of the State, metropolitan and non-metropolitan areas, especially by enabling global competitiveness, productivity and efficiency. Prioritize projects that support, protect or enhance economic development.**	a) Facilitate access to mineral resources when economically feasible and supported by local communities. *(Meets SAFETEA-LU planning factor 1,5)*	e) Support the continued existence of backcountry airstrips, which serve an important role in the area economy as well as provide emergency landing areas. *(Meets SAFETEA-LU planning factor 2, 4, 6, & 8)*
	b) Support upgrades to roads, bridges and airports to meet industry needs. *(Meets SAFETEA-LU planning factor 1, 2, 3, 4, 6, 7, & 8)*	f) Minimize transportation system directional flow imbalance by developing backhaul potential. *(Meets SAFETEA-LU planning factor 1, 4, 5, 6, & 7)*
	c) Support ARRC improvements and expansion to facilitate economic development. *(Meets SAFETEA-LU planning factor 1, 4, 5, 6, & 7)*	g) Maximize the potential of scenic byway programs to increase tourism. *(Meets SAFETEA-LU planning factor 1 & 5)*
	d) Support access from rural communities to the State Transportation System. *(Meets SAFETEA-LU planning factor 2, 4, 6, & 8)*	h) Upgrade airport facilities for the design aircraft, appropriate level of instrument approach and forecast demand. *(Meets SAFETEA-LU planning factor 2, 3, & 4)*
Health, Safety and Security **2. Improve the overall Interior Regional Transportation System to promote the health, safety and security of residents and visitors and for all motorized and non-motorized users.**	a) Eliminate at-grade railroad crossings where practicable and provide adequate safety features where at-grade crossings are unavoidable. *(Meets SAFETEA-LU planning factor 2 & 8)*	f) Evaluate highway vertical and horizontal alignments, accident statistics, and pavement design to ensure that deficiencies are addressed. *(Meets SAFETEA-LU planning factor 2 & 8)*
	b) Continue to work on dust control efforts. *(Meets SAFETEA-LU planning factor 2 & 5)*	g) Implement the National Highway Safety Improvement Program and the SHSP, including goals for accommodating cyclists and pedestrians. *(Meets SAFETEA-LU planning factor 2, 3, 6, & 7)*
	c) Work with villages to increase trail marking on inter-village trails and roads where desired. *(Meets SAFETEA-LU planning factor 2 & 8)*	h) Address potential conflicts between civilian and military aviation. *(Meets SAFETEA-LU planning factor 2, 3, & 8)*
	d) Provide rest stops or waysides along highways at reasonable intervals. *(Meets SAFETEA-LU planning factor 1, 2 & 5)*	i) Identify solutions to aviation safety problems such as improved weather information, navigation aids and instrument approaches. *(Meets SAFETEA-LU planning factor 2,3 & 7)*
	e) Promote projects that provide Interior communities with usable and safe access to clean water and basic sanitation. *(Meets SAFETEA-LU planning factor 5)*	

Goals	Associated Objectives	
Funding **3. Diversify Transportation Funding**	a) Continue to support road and waterfront projects considered in the Denali Access Program. *(Meets SAFETEA-LU planning factor 5)*	d) Encourage National Scenic Byway System designation to increase funding opportunities for highway improvements and enhancements. *(Meets SAFETEA-LU planning factor 1, 2, & 5)*
	b) Support a State funded Capital Improvement Program for road and airport projects. *(Meets SAFETEA-LU planning factor 5 & 7)*	e) Recommend appropriate inclusions and exclusions of airports in the National Plan of Integrated Airport Systems (NPIAS). *(Meets SAFETEA-LU planning factor 5 & 7)*
	c) Continue partnerships with local Tribal governments to coordinate use of BIA funds. *(Meets SAFETEA-LU planning factor 5 & 7)*	f) Maximize the use of competitive discretionary funding streams such as PLD, Highway Bridge Replacement and Rehabilitation (HBRR), Federal Aviation Administration (FAA), etc. *(Meets SAFETEA-LU planning factor 4, 6, & 7)*
Preservation **4. Emphasize preservation of the existing transportation facilities.**	a) Implement programs to ensure that deficient highways and bridges are brought into compliance with standards. *(Meets SAFETEA-LU planning factor 7 & 8)*	d) Promote land use compatibility and unobstructed airspace around airports to maintain safe operating conditions and allow for future growth. *(Meets SAFETEA-LU planning factor 2, 3, 5, & 7)*
	b) Improve pavement structures to reduce the need for seasonal weight restrictions. *(Meets SAFETEA-LU planning factor 2, 7 & 8)*	e) Extend the life of existing pavement. *(Meets SAFETEA-LU planning factor 8)*
	c) Promote access management strategies along State owned highway corridors. *Meets SAFETEA-LU planning factor 4, 6, & 7)*	
Efficiency **5. Provide efficient and cost-effective regional transportation facilities. Promote efficient system management and operation and enhance the integration and connectivity of the system.**	a) Use "life cycle costs" financial analysis to determine the tradeoffs in capital investments to minimize ongoing operating and maintenance costs. *(Meets SAFETEA-LU planning factor 7 & 8)*	d) Review gaps and overlaps in service area coverage in the system of public use airports; identifying minimum facility and service improvements needed for airports, based on their roles within the system. *(Meets SAFETEA-LU planning factor 5 & 7)*
	b) Maintain or acquire rights of way for future access corridors. *(Meets SAFETEA-LU planning factor 5, 6, & 7)*	e) Support multimodal connectivity projects for people and freight. *(Meets SAFETEA-LU planning factor 6)*
	c) Support transit projects within and between Interior communities and areas outside the region. *(Meets SAFETEA-LU planning factor 4, 6, 7)*	

Note: SAFETEA-LU Planning Factors

1) Support the economic vitality of the United States, the States, metropolitan areas, and non-metropolitan areas, especially by enabling global competitiveness, productivity, and efficiency;
2) Increase the safety of the transportation system for all motorized and non-motorized users;
3) Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and non- motorized users;
4) Increase accessibility and mobility of people and freight;
5) Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
6) Enhance the integration and connectivity of the transportation system, across and between modes throughout the State, for people and freight;
7) Promote efficient system management and operation; and
8) Emphasize the preservation of the existing transportation system.

Source: Title 23. U.S.. Code as amended by SAFTEA-LU

2 Background and Setting

2.1 Regional Setting

The Interior Alaska planning area encompasses approximately 132,200 square miles or 20 percent of the state. If the Interior Alaska planning area were a state, it would rank as the fifth largest state in the Union falling between New Mexico and Montana in size. It contains one State forest, 15 State recreation areas, three national parks/preserves and three national wildlife refuges. Two highway international border crossings as well as 54 percent of Alaska's National Highway System roads are within the study area. The study area includes all of the Fairbanks North Star Borough, and portions of the Matanuska-Susitna (Mat-Su) Borough and Denali Borough; however, 83 percent of the study area is outside an organized borough. The study area is made up of 41% federal land, including Bureau of Land Management, Fish and Wildlife Service, and National Park Service land; and 38% state land, including state-owned and state-selected land[1]. Nearly all the remaining land is Native owned, with less than 1 percent held by private individuals.

Figure 1 shows land ownership distribution for the study area.

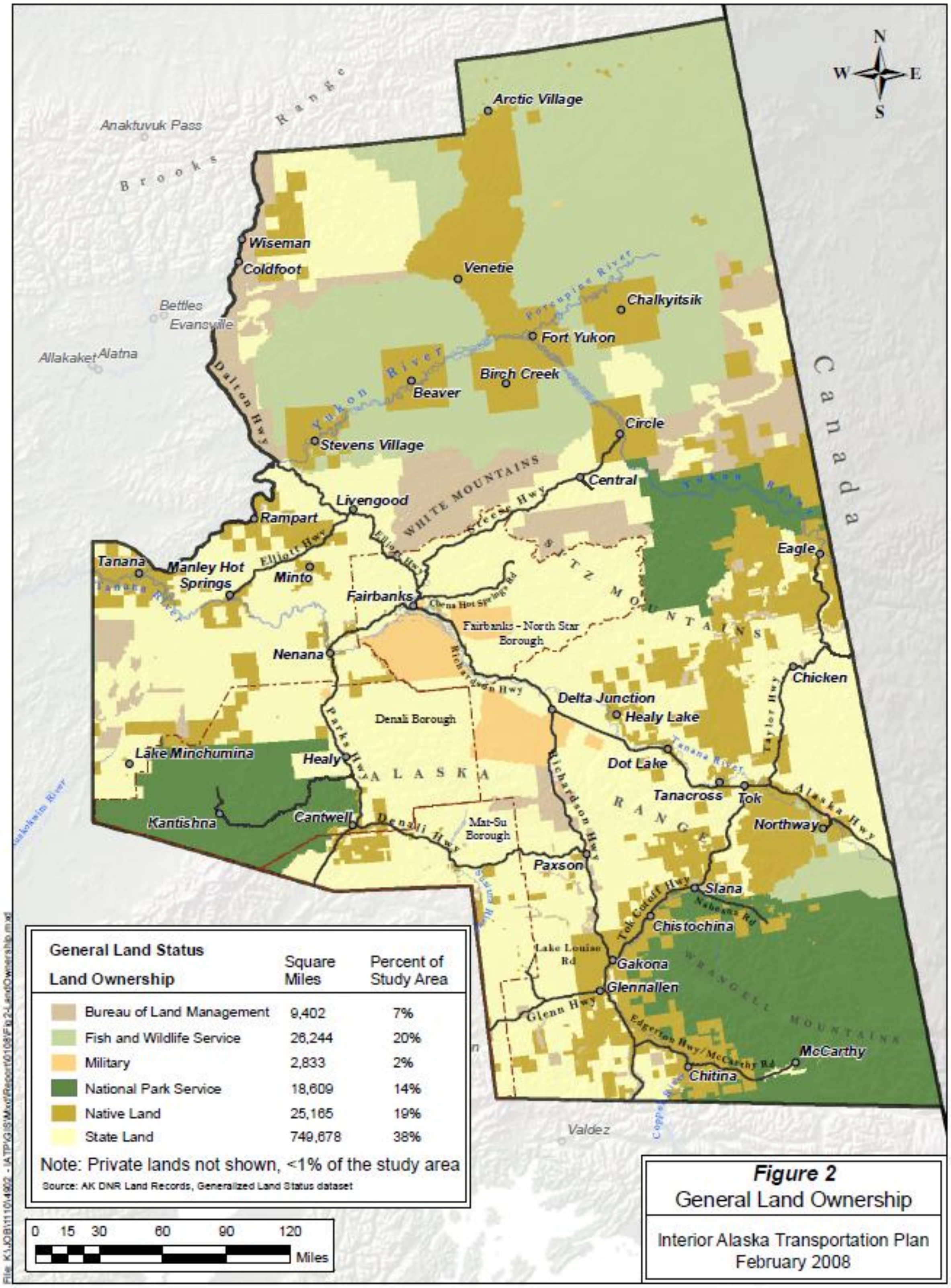
2.2 Communities

There are approximately 50 communities in the study area that range in population from fewer than a dozen to over 31,000 (Fairbanks). All but twelve of the communities in the study area have access to the contiguous highway system. Three of the communities are governed as Home Rule Cities (Fairbanks, Nenana, and North Pole), four are second class cities (Anderson, Eagle, Fort Yukon, and Delta Jct.), and one is a first class city (Tanana).

[1] These numbers are generalized numbers, which reflect combined federal and state land ownership records at the PLSS section level for the State of Alaska. We do not have a land ownership GIS file that has greater detail than the section level.

Source for the land status file used to calculate these numbers: Alaska Department of Natural Resources, Information Resource Management Section, "Alaska General Land Status," 2006.

Figure 1 General Land Ownership



The remaining 43 communities are unincorporated. The unincorporated areas rely on a local Borough or the State for basic governmental services. In addition, many communities have a significant Native population and some have a federally recognized Tribal Government. See Table 2-1 for a summary of community information.

Table 0-1 Planning Area Community Information*

Community	2006 Pop.	% Native Pop.	% Pop. Below Poverty Level	Incorporated Status	Federally Recognized Tribal Govt.	Highway Access
Anderson	279	6.5%	17.55%	2nd Class City	None	Parks Hwy
Arctic Village	147	92.1%	46.28%	Unincorporated	Arctic Village Traditional Council	None
Beaver	64	95.2%	11.11%	Unincorporated	Beaver Village Council	None
Big Delta	738	2.1%	30.3%	Unincorporated	None	Alaska Hwy
Birch Creek	33	100%	37.04%	Unincorporated	Dendu Gwich'in Tribal Council	None
Cantwell	204	27%	2.05%	Unincorporated	Native Village of Cantwell	Parks Hwy
Central	97	9.7%	22.46%	Unincorporated	None	Steese Hwy
Chalkyitsik	79	97.6%	52.63%	Unincorporated	The Chalkyitsik Village Council	None
Chicken	14	0%	0%	Unincorporated	None	Taylor Hwy
Chisana	9	0%	0%	Unincorporated	None	None
Chistochina	104	63.4%	28.57%	Unincorporated	Chistochina Village Council	Tok Cut-Off
Chitina	110	48.8%	12.69%	Unincorporated	Chitina Traditional Indian Village	McCarthy/Edgerton Hwy
Circle	90	85%	42.03%	Unincorporated	Circle Native Community	Steese Hwy
Coldfoot	13	0	0	Unincorporated	None	Dalton Hwy
Copper Center	452	50.6%	18.8%	Unincorporated	Native Village of Kluti-Kaah	Richardson Hwy
Delta Junction	840	5.6%	19.4%	2nd Class City	None	Richardson/Alaska Hwys
Dot Lake	27	5.3%	5.56%	Unincorporated	Native Village of Dot Lake	Alaska Hwy
Eagle	137	7%	16.5%	2nd Class City	Native Village of Eagle	Taylor Hwy
Eielson AFB	4,552	N/A	5.96%	Unincorporated	N/A	Richardson Hwy
Ester	1,841	7.8%	8.06%	Unincorporated	None	Parks Hwy
Fairbanks	31,182	13.3%	10.5%	Home Rule City	None	Rich., Parks, Steese and Elliott Hwys
Fort Yukon	570	88.7%	18.55%	2nd Class City	Native Village of Fort Yukon	None
Fox	377	9.7%	8.74%	Unincorporated	None	Steese Hwy
Gakona	214	17.7%	10.78%	Unincorporated	Native Village of Gakona	Tok Cut-Off

Community	2006 Pop.	% Native Pop.	% Pop. Below Poverty Level	Incorporated Status	Federally Recognized Tribal Govt.	Highway Access
Glennallen	589	12.1%	8.04%	Unincorporated	None	Richardson Hwy
Gulkana	101	73.9%	40.74%	Unincorporated	Gulkana Village Council	Richardson Hwy
Healy	993	5.3%	4.89%	Unincorporated	None	Parks Hwy
Healy Lake	29	73%	9.09%	Unincorporated	Healy Lake Traditional Council	None
Kenny Lake	417	13.4%	25.88%	Unincorporated	None	Edgerton Hwy
Lake Louise	91	10.2%	56.67%	Unincorporated	None	Glenn Hwy
Lake Minchumina	19	12.5%	0%	Unincorporated	None	None
Livengood	28	13.8%	15.38%	Unincorporated	None	Elliott Hwy
Manley Hot Springs	74	23.6%	9.7%	Unincorporated	Manley Village Council	Elliott Hwy
McCarthy	70	0%	15.2%	Unincorporated	None	McCarthy/Edgerton Hwy
Mendeltna	72	7.9%	0%	Unincorporated	None	Glenn Hwy
Mentasta Lake	126	71.1%	35.56%	Unincorporated	Mentasta Lake Village Council	Tok Cut-Off
Minto	202	92.2%	26.42%	Unincorporated	Native Village of Minto	Elliott Hwy
Nelchina	51	9.9%	17.81%	Unincorporated	None	Glenn Hwy
Nenana	549	47.3%	17.83%	Home Rule City	Nenana Native Association	Parks Hwy
North Pole	1,595	7.2%	8.74%	Home Rule City	None	Richardson Hwy
Northway (Jct.& Village)	264	82.1%	21.05%	Unincorporated	Native Village of Northway	Alaska Hwy
Paxson	37	0%	0%	Unincorporated	None	Richardson Hwy
Rampart	16	91%	17.95%	Unincorporated	Rampart Village Council	None
Slana	103	15.3%	23.48%	Unincorporated	None	Tok Cut-Off
Stevens Village	68	95.4%	61.8%	Unincorporated	Stevens Village IRA Council	None
Tanacross	149	90%	33.33%	Unincorporated	Native Village of Tanacross	Alaska Hwy
Tanana	281	81.5%	22.95%	1st Class City	Native Village of Tanana	None
Tazlina	186	30.2%	8.1%	Unincorporated	Native Village of Tazlina	Richardson Hwy
Tetlin	150	97.4%	48.2%	Unincorporated	Native Village of Tetlin	
Tok	1,459	19%	10.5%	Unincorporated	None	Alaska & Richardson Hwy
Tonsina	95	9.8%	6.73%	Unincorporated	None	Richardson Hwy
Two Rivers	627	6.6%	0%	Unincorporated	None	Chena Hot Springs Road
Venetie	184	96.5%	42.79%	Unincorporated	Venetie Village Council	None

**Source: http://www.commerce.state.ak.us/*

This plan will consider Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898), dated February 11, 1994. This Executive Order requires Federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health and environmental effects, including the interrelated social and economic effects of their programs, policies, and activities on minority populations and low-income populations in the United States. These requirements are to be carried out to the greatest extent practicable, consistent with applicable statutes and the National Performance Review. Individual characteristics of Environmental Justice are to be addressed during the project recommendation phase or on a project by project basis. The Department is also committed to Tribal consultation with federally recognized tribes during the planning, design and construction process.

2.3 History and Culture

The following paragraphs contain facts about the robust history of the area to help explain the diverse cultures and people living in the Interior.

Until the latter part of the 19th Century, the area was sparsely populated by Native Alaskan groups, largely Athabascan. These groups traditionally had a nomadic way of life, centered upon subsistence hunting, fishing and gathering. The following description is from *Athabascans of Interior Alaska, Appendix A: A Brief Description of Alaskan Athabascan Culture.*[2]

> Movement from place to place was an essential part of the lives of most Alaskan Athabascans. The local band was generally the social unit which stayed together in the travels for food.
>
> The following excerpt from Olson's Master's Thesis describes the yearly movements of one group, the Minto Lower Tanana:
>
> There was a regular pattern to the hunting and fishing migrations which demanded that the people be on the move almost continually throughout the year. They had to travel in small bands. Late in the fall, men who controlled the moose or caribou fence would gather their friends and relatives and set out for the small encampment near the fence.

[2] http://ankn.uaf.edu/curriculum/Athabascan/Athabascans/appendix_a.html

This is where the log houses were located. They would remain in this camp until mid-December or January. If there was to be a potlatch, they would travel to a central point where they would meet others for the celebration. If any were going down the Kuskokwim, they would start in January and return about three months later. Later on in January, they would be back out in small bands searching for caribou or moose, and trapping smaller animals and birds until late in the spring. In the warm weather, they would move to the lakes before break-up to trap beaver and muskrats. As summer approached they moved to their fish camps on the small rivers where they fished and hunted water fowl until the fall.

Changes to this lifestyle began in 1741 when Vitus Bering, a Danish navigator serving the Russian navy, established a Russian presence in Alaska. Although Russian influence in the Interior was minor, the strongholds established by the Russians during their 126-year occupancy had a ripple effect. Additionally, the English influenced the Interior when their Hudson Bay Company established a trading post at Fort Yukon in 1847. Bigger lifestyle changes came after the United States took possession of Alaska in 1867.

Between 1867 and 1886, American influence in Alaska was largely concentrated in Southeast, Alaska. The biggest influences at the time were from the Alaska Commercial Company and their canneries. Then, in 1886, gold was discovered in the Interior at Forty Mile River, followed by a discovery at Birch Creek. The find at Birch Creek established Circle City as a supply center, and by 1893, Circle had a substantial population, a number of saloons, a school, a hospital and a church. There were other gold discoveries in the Interior as well, such as Pedro Dome near Fairbanks, which spurred development.

http://www.alaskahighwayarchives

Early Alaska road builders

This influx of Euro-American people into the Interior after 1886 changed the Native lifestyle significantly. Missionaries came to the area with their respective religions and built churches and schools.

The 1896 Klondike discovery resulted in the United States increasing military presence in Alaska. Army Posts were established at Eagle, Valdez, Nome, Haines and at the junction of the Yukon and Tanana Rivers. The gold discoveries led to more military trail and road building as well as establishment of a telegraph line into the interior of the Territory. Numerous roadhouses and trading posts were also built.

In 1899, the military began seeking the best route from Valdez into the Copper River Valley. By 1901, the Trans-Alaska Military Road extended from Valdez to Eagle. A spur trail was built from Gulkana to Fairbanks in 1902/03. Between 1901 and 1904 the U.S. Army Signal Corps constructed the Washington/Alaska Military Cable and Telegraph System (WAMCATS) between Valdez and Eagle.

The Board of Road Commissioners for Alaska was established by President Theodore Roosevelt under the War Department, Division of the Army in 1905. The Board began upgrading a trail between Circle and Birch Creek in 1906. The Richardson Trail had regular stage service by 1907.

Congress gave some thoughts to farming in Alaska and extended the Homestead Act to the Territory during these early years. Both agriculture and homesteading would become important to the Interior.

The Copper River and Northwestern Railroad was completed by the Alaska Syndicate to carry copper ore from the mines at Kennicott through Chitina to the Port of Cordova in 1911. Construction of the Alaska Railroad was begun in 1915 and completed in 1923. The route connected Fairbanks and Nenana to tidewater at Seward.

http://www.alaskarails.org

President Warren G. Harding prepares to drive the Golden Spike signifying completion of the Alaska Railroad.

President Harding celebrated this connection by setting the golden spike in Nenana.

The Board of Commissioners for Alaska was officially renamed the Alaska Road Commission in 1926. Between 1905 and the early 1930s, the Board of Road Commissioners of Alaska/Alaska Road Commission continued to build new routes and improve existing roads in the study area. In 1933, the Alaska Road Commission was transferred to the Department of the Interior from the War Department.

During the 1920s, the Alaska Road Commission became involved in aviation and began to build airfields. By 1936, there were 74 airfields in Alaska, several of them in the study area. These included, but were not limited to, Fort Yukon, Circle, Eagle, Fairbanks and Nenana. During World War Two (WWII) American planes were flown from the continental United States via Alaska to Siberia, as authorized by the Lend-Lease Act of 1941, an act to promote the defense of the United States. Many of the routes they flew lay over remote and roadless wilderness where pilots made their way in stages from the safety of one hastily built airfield to the next. Alaska was the exchange location. United States Army Air Corps pilots from the 7th Ferrying Squadron flew planes from their points of manufacture in the US states to Great Falls, then across Canada to Ladd Field near Fairbanks, Alaska, now Fort Wainwright. From there, pilots of the USSR Air Force flew the planes over western Alaska and across Siberia to the warfronts.

WWII and the associated construction boom in Alaska made other significant impacts statewide including the construction of the Alaska Highway, a 1,522-mile-long road from Dawson Creek, British Columbia, to Fairbanks, Alaska through rugged, unmapped wilderness. Northway Junction and Tok were established as road camps during development of the Alaska Highway in the 1940s.

Although there was homesteading in the interior as early as 1902, the post-WWII homesteading activity was substantial. Several communities in the study area were established as a result of the homesteading activity. North Pole was homesteaded in the 1940s. Homesteading in the 1950s included Rex (north of Nenana) and Big Delta. Kenny Lake was homesteaded in the 1960s and Slana was homesteaded in the 1980s.

Local schools impacted the nomadic way of life for the local indigenous populations. The first public school in the study area was constructed in the 1950s by the BIA. Prior to that time, the various church sponsored schools were the centers of education.

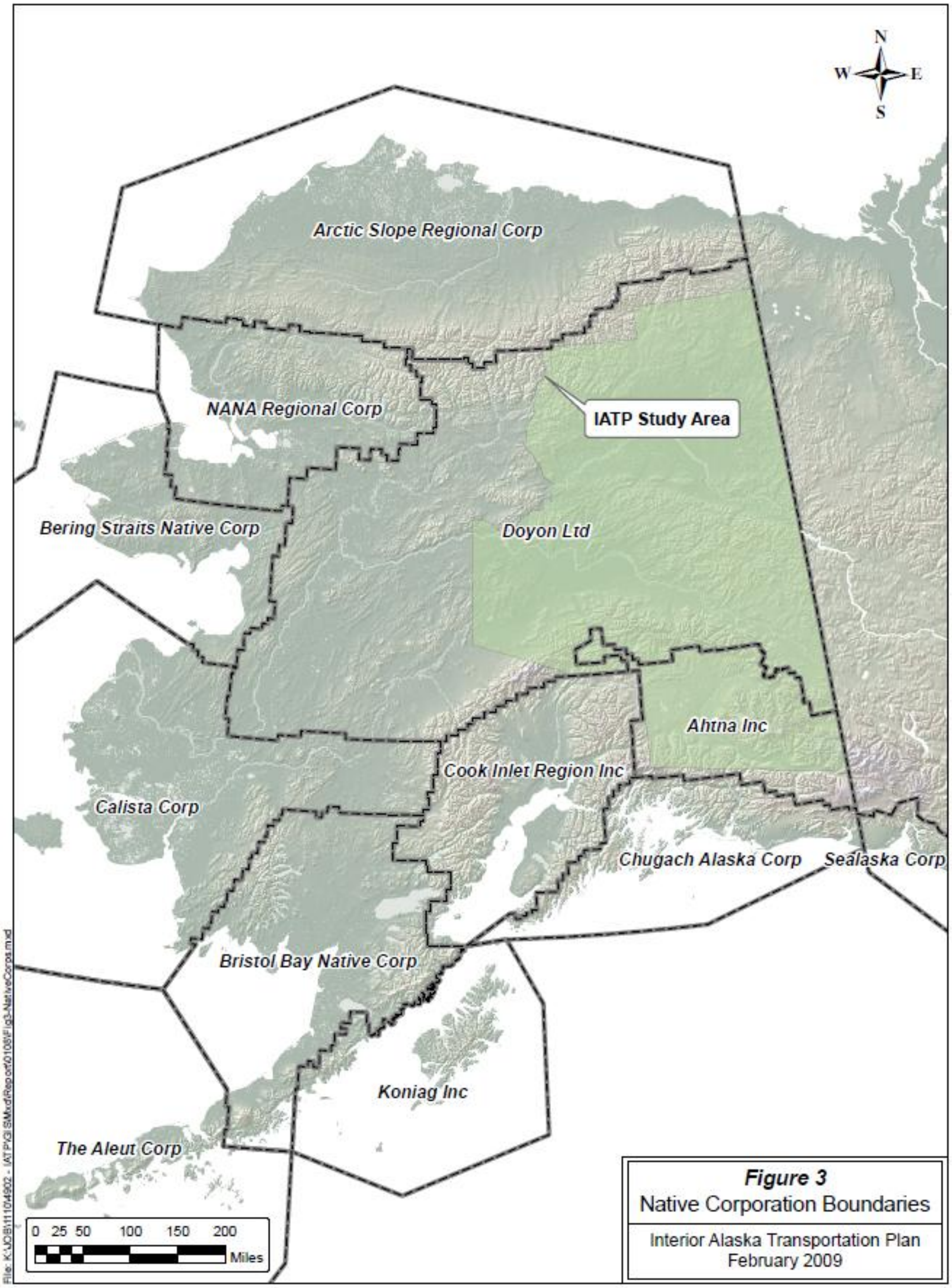
In 1956, the Alaska Road Commission was transferred to the Bureau of Public Roads when Congress placed Alaska under a modified section of the Federal-Aid Highway Act. Alaska became the 49th State in 1959 and a department of highways was formed to manage road construction and maintenance. Over a period of 20 years (1953-1973), several highways were constructed or improved which greatly enhanced transportation in the Interior.

In 1969, oil was discovered at Prudhoe Bay on Alaska's North Slope. The nation was in the throes of an energy crisis and pushed for an 800-mile-long pipeline. Alyeska built a 360-mile road from the Yukon River to Prudhoe Bay to supply the oil facilities on the North Slope. Today, the Dalton Highway is a 415 mile road from Livengood to Prudhoe Bay. It was built at a cost of $125 million. It continues to be used primarily by truckers and pipeline support vehicles as well as tourists interested in driving to the Arctic Circle and beyond.

Congress passed Alaska Native Claims Settlement Act in 1971. This legislation granted Alaska Natives title to 44 million acres of land, and set up 13 Native regional corporations and more than 200 village corporations, capitalizing them with $962.5 million. The cash payments were provided to compensate Natives for lands they had used for centuries but had lost in the settlement. The settlement ended all previously established Native reservations and reserves, barring one (Metlakatla in Southeast Alaska). The establishment of regional and village corporations greatly increased the Native footprint in the economy of the State and in political influence. A map of Regional Corporation boundaries is shown in Figure 2.

Congress passed the Alaska National Interest Lands Conservation Act (ANILCA) in 1980, establishing more than 100 million acres of Federal land in Alaska as new or expanded conservation system units. These units take the form of national parks like Wrangell St. Elias National Park and Preserve and Yukon Charlie Rivers National Park and Preserve and wildlife refuges like Tetlin National Wildlife Refuge and Yukon-Flats National Wildlife Refuge. Several Interior communities now find themselves inside or near these parks and preserves. Some communities involved include Beaver, Cantwell, Chitina, Circle, Eagle, Fort Yukon, Healy and McCarthy.

Figure 2 Regional Corporation Boundary Map



The discovery of oil, mineral development, and expansion into the Interior led to communities that are diverse in economy, lifestyle and population. There are communities that are traditionally native—primarily Athabascan—and other communities where non-native populations are predominate. Surface transportation access plays a part in this diversity. More traditional communities tend to be those with no direct highway access, but there are exceptions. All the communities in the study area exhibit a blend of lifestyles as a result of the many and varied influences and activities over the history of the Interior.

2.4 Economy

Fairbanks is the primary economic hub for the Interior and the transportation hub for North Slope development. A substantial amount of goods are delivered to Fairbanks for redistribution in the outlying communities. The Glennallen area, however, relies on goods from Anchorage delivered via the Glenn Highway.

Many individuals outside urban areas rely on subsistence for a portion of their personal economy, supplementing their income with fishing, hunting, trapping, or gardening.

Several factors contribute to a regional economy in the study area including a limited commercial salmon fishery, a lumber industry, agricultural products, large and small scale mining, the military, the construction industry, transportation and tourism (including culture tours and guiding for hunting and fishing). Additional details about the economy are found in subsequent chapters.

2.5 Environmental Overview

This section provides a brief overview of the study area, with an emphasis on factors that impact the transportation network and are important in the evaluation of the SAFETEA-LU planning factors.

2.5.1 Climate

Interior Alaska experiences a continental climate characterized by wide daily and annual temperature ranges, low humidity and relatively light and irregular precipitation. Lower elevations, such as the Yukon Flats and the Tanana Valley, experience extreme cold in the winter as well as high summertime temperatures.

Overall, maximum and minimum annual mean temperatures do not vary significantly throughout the study area. As expected, increased precipitation, snowfall, and snow depth are recorded in mountain ranges and passes.

Table 0-2 provides a general summary of climate conditions.

Table 0-2 Regional Climate Information

Averages*	Copper Basin Region	Denali Region	Fairbanks Region
Average Annual Mean Maximum Temperature	30 F	37 F	37 F
Average Annual Mean Minimum Temperature	16 F	16 F	17F
Average Annual Precipitation (in.)	15	17	11
Average Annual Snowfall (in.)	56	130	67
Average Annual Snow Depth (in.)	7	11	8

**Approximate averages based on weather stations located within the study area.*
Data taken from the Western Region Climate Center, http://www.wrcc.dri.edu.

Temperature inversions, frequent in winter, generally occur under clear skies, when winds are light, and surface temperatures are extremely low. However, locations only a few hundred feet above the surface can be significantly warmer.[3]

Interior Alaska generally does not normally experience severe high winds. However, wind velocities from 50 to 100 miles per hour have been recorded in communities near mountain passes. Healy and Delta Junction are examples of these communities. These severe wind conditions often occur in the winter months and, when combined with intense cold, they create a safety hazard to the traveling public.

Ice fog occurs in Interior Alaska during extended periods of extreme cold. Generally this requires temperatures at or below −30 F, causing water droplets to freeze into extremely tiny crystals of ice in midair. Dense ice fog is most often seen in and near Fairbanks where it is created by the freezing of water vapor present in automobile exhaust and combustion products

[3] Data taken from *Alaska Climatology*, http://climate.gi.alaska.edu/climate/index.html, accessed on June 21, 2007.

www.dec.state.ak.us

Ice fog in Fairbanks

from heating and power generation. Visibility may be limited by the ice fog and cause hazards to both vehicular and pedestrian traffic.

In summer, throughout the study area, occasional wind gusts cause dust and fine particulates to hamper visibility. Glacial silt from streambeds, deltas, and other sources are often the main cause.

2.5.2 Geography/Topography

The topography and geography within the study area varies from wide valleys to flat tundra, vast wetlands, wild rivers, rolling foothills, deep moraines, active volcanoes, dissected uplands, lowland basins, and mountain passes. Generally, highway construction follows natural contours and topography. Topographical constraints often determine the configuration and direction of transportation routes throughout the study area.

The existing road system within the study area traverses five mountain passes and four summits ranging from 2,000 to 4,086 feet. The passes in the Interior include Broad Pass at milepost (MP) 201.3 on the Parks Highway, Isabel Pass at MP 197.5 on the Richardson Highway, Mentasta Pass at MP 45.6 on the Tok Cut-Off, Tahneta Pass at MP 122 of the Glenn Highway, and Snowshoe Pass at MP 28 of the Elliott Highway, as shown on **Error! Reference source not found.**. The summits include Clearly Summit at MP 20.7 on the Steese Highway, Twelvemile Summit at MP 85.5 on the Steese Highway, Eagle Summit at MP 107.5 on the Steese Highway, and Maclaren Summit at MP 36.9 on the Denali Highway.

Other significant topographic features in the study area include the Yukon Tanana Uplands, Tanana Flats and the Alaska Range which contains the highest mountain in North America, 20,320-foot tall Mount McKinley.

The Yukon-Tanana-Kuskokwim plateaus area of the Interior is considered one of the major physiographic regions of the North American Subarctic. In contrast to the Canadian Shield and


ASCG photo

Approaching Stevens Village by air

Cordilleran areas of the Subarctic, this region was not glaciated during the later stages of the Pleistocene.

Railroads preceded highways in some parts of the study area. The highway and rail corridors do not always coincide because trains cannot navigate steep grades or sharp curves. The Alaska Railroad avoided steep grades and tried to follow gradual slopes and level ridges wherever possible. However, both the highway and railroad systems meander through several mountain passes and across river valleys.

The highway corridors within the study area also act as major visual flight corridors for small aircraft transiting to and from the United States and Canada and throughout the study area. Many of the airport facilities are found along highways, such as the Glenn, the Richardson, and the Alaska Highways. These airports and associated communities offer pilots and passengers excellent road accessibility. The physical characteristics of the highways, land, mountain passes, water bodies, extensive valleys, and flats also provide visual landmarks to pilots. These terrain features not only provide visual confirmation of a pilot's location, but also signal upcoming changes in weather conditions. Air travel is the primary means of intrastate transportation to remote camps and communities.

2.5.3 Soils

Much of the Interior of Alaska contains poorly drained soils, but well-drained soils such as Cryothents are also found. The Tanana Soil—designated as the "State Soil", along with waterlogged soils (Inceptisols) and bog soils (Histosols) characterize many of the soil types within the study area. The Tanana soil consists of shallow, moderately permeable soils formed in materials weathered from limestone and contains permafrost within 50 inches of the surface. The soil does not drain well naturally, but will warm up and drain well if it is cultivated. This makes the Tanana Soil good for agriculture.

Inceptisols soils are characterized by poor drainage and waterlogging over sands, silts, and gravels. Histosols are poorly drained and occur on young landscapes where there are wetlands. They contain at least 20-30 percent organic matter by weight and are more than 16 inches thick. Often, soils on north facing slopes are shallow and poorly developed, with continuous permafrost.[4]

2.5.4 Permafrost

Much of the study area contains permafrost, which is often less than 100 feet thick. The active layer on top of the permafrost may be several feet in depth. Permafrost is generally absent on the sun-warmed southern slopes of hills and along the inner sides of riverbeds. Permafrost is discontinuous in the major river valleys. It is predicted that the permafrost in the Interior of Alaska will begin to thaw over immense areas as early as 2015, with major thawing most likely to occur by 2040. Minor increases in temperature will bring sinking buildings, roller-coaster roads, and boreal forest changing into wetlands.

Rolling roadbed due to permafrost

http://www.tfhrc.gov/trnsptr/rttaug96/images/arctic.jpg

As the climate continues to warm, repair and maintenance costs may increase. The Institute of Social and Economic Research (ISER) at the University of Alaska Anchorage (UAA) has estimated the future costs for Alaska public infrastructure at risk from climate change. These costs show that damage from climate change could add $3.6 to $6.1 billion (10 to 20 percent) to future costs for public infrastructure from now to 2030 and $5.6 to $7.6 billion (10 to 12 percent) from now to 2080. It is anticipated that in the next 25 years, the warming climate will necessitate costly repairs and replacement of infrastructure. Most expensive will be the costs for roads,

[4] http://www.alaskool.org/resources/regional/yukon_reg_profile/permafrost.htm

runways, and water and sewer systems which are particularly vulnerable to thawing permafrost, flooding, and coastal erosion.[5]

Continued thawing of the permafrost dries the vegetation and tundra. The dry vegetation will act as fuel for wildfires and will likely cause more wildfires to start. Once a fire destroys the vegetation, there is no cover to insulate the permafrost. After fires, the permafrost is not recovering in many areas. As a result, in just a few years the existing ecosystem within the study area may change to an entirely different system.

2.5.5 Fire

Wildfires are a frequently recurring hazard in the study area. In June 2006, fire surrounded the Parks Highway near Nenana, endangering structures, motorists, travelers, homes, property, and communities. The Taylor Complex fire in 2004 burned five miles northeast of Tok near the Taylor Highway and the Alaska Highway. In May 2003, a wildfire sparked 80 miles south of Fairbanks. Fire also quickly spread across Fort Greely and the Richardson Highway in June 1999.

Photo by SPC Kerensa Hardy, Ft. Greely Public Affairs.

Fire south of Ft. Greely, June 13, 1999

Knowledge and management of transportation systems and community facilities are essential to minimize fire losses and maximize fire protection. The transportation system can not only effectively mobilize resources, equipment, and personnel to these sites, but also provide safe evacuation routes for displaced residents. In the past, limited ground mapping severely hindered the State's ability to manage wildfires and natural and man-made hazards. Emergency personnel lacked the information to quickly locate and access areas in danger. High-resolution QuickBird satellite imagery from DigitalGlobe has mapped key areas, which are electronically shared with State agencies. This imagery provides infrastructure mapping of roads

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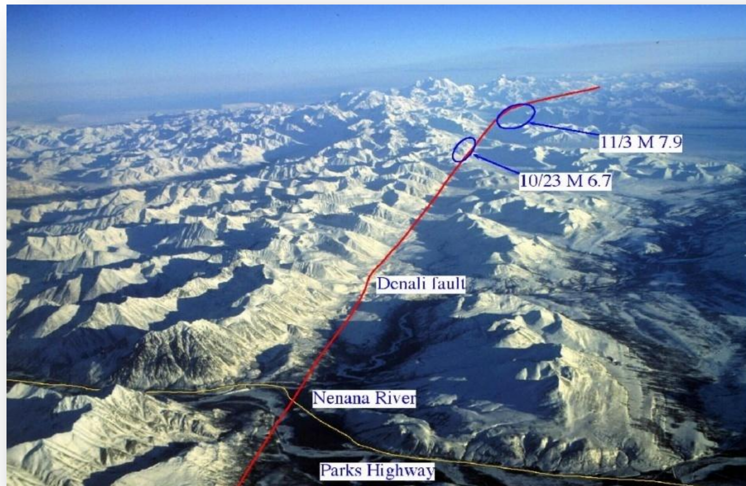
[5] Institute of Social and Economic Research, University of Alaska Anchorage, "Estimating Future Costs for Alaska Public Infrastructure At Risk from Climate Change" June 2007.

and access trails, an inventory of airstrips and airstrip approach information, shows fuels hazards, identifies defensible space, and is used for maps of sewer, water, power, and structural locations and sources.

2.5.6 Seismic Activity

Seismic faults are common in the study area and include the Denali-Totschunda Fault, the Kaltag Fault, the Kobuk Fault, the Susitna Glacier Thrust Fault, and the Tintina Fault.



This high-altitude view shows the epicenter of the November 2002 earthquake, located approximately 42 miles east of the Parks Highway.

Photo and interpretation by Wesley K. Wallace, Geophysical Institute, University of Alaska Fairbanks.

The largest inland earthquake in North America in almost 150 years struck Alaska on November 3, 2002. This magnitude 7.9 earthquake, one of the largest ever recorded on U.S. soil, occurred on the Denali-Totschunda fault system, which is one of the longest strike-slip fault systems in the world. This event caused significant damage to the transportation systems in Interior Alaska. Multiple landslides and rock avalanches occurred in the Alaska Range with the largest slide on the Black Rapids Glacier near the Richardson Highway. While the earthquake caused few injuries and no deaths, it did create numerous landslides and damaged roads and bridges at a cost of at least $35 million.

The inspections by DOT&PF revealed that the earthquake damaged four of the State's major highways and six bridges. Two of the highways, the Parks and the Alaska Highway sustained limited damage while the Richardson Highway and the Tok Cut-Off were impassable for many miles. More than 20 miles of the Richardson Highway roadbed was damaged by the quake. The earthquake shifted the road sideways by eight feet at the fault line, caused rock slides along extended sections, and left cracks up to five feet wide across both lanes and as deep as eight feet.

Photo source: DOT&PF

Earthquake damage to Tok Cutoff Highway, 2002

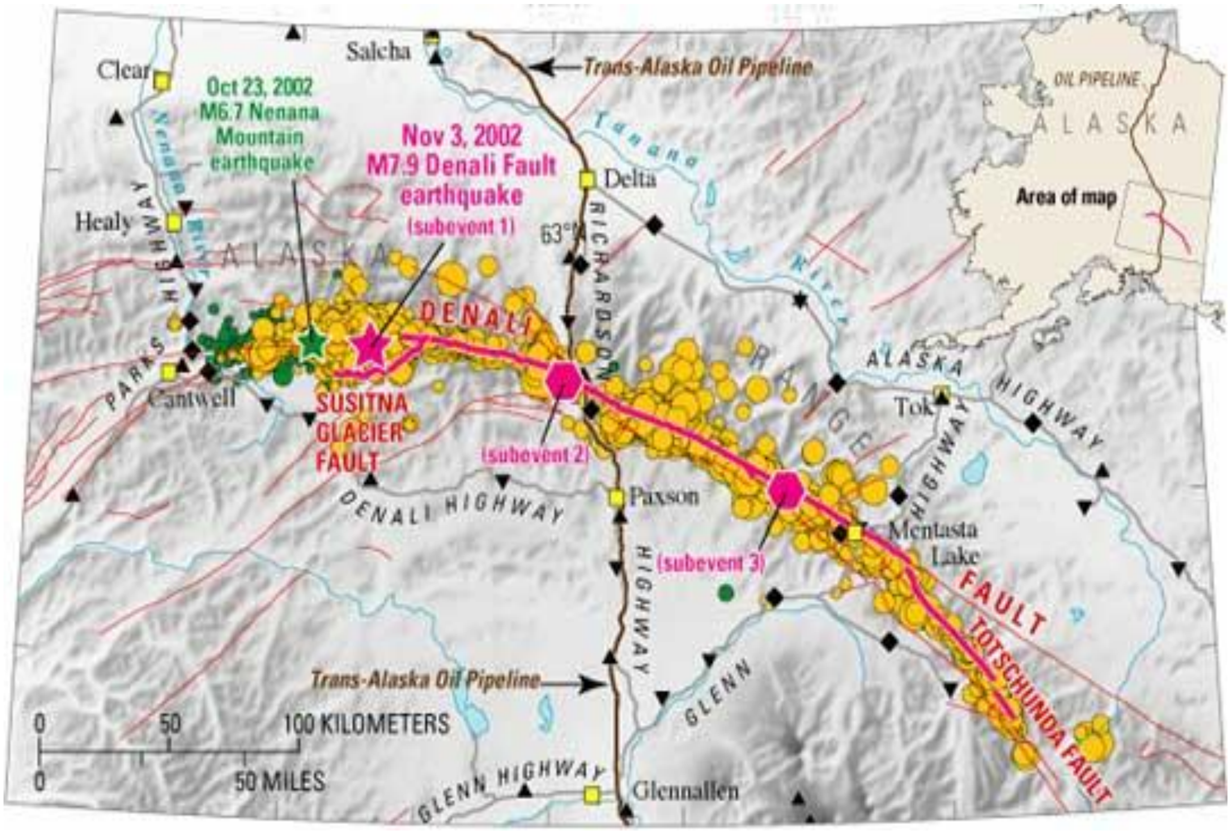
Severe damage was found along the Tok Cutoff Highway and extended for more than 50 miles. The road dropped six feet in some sections and extensive pavement sections collapsed. Large cracks, ranging from inches to several feet wide and up to 12 feet deep, shattered the paved surface for miles. There was a lateral shift of 22 feet at the fault.

The rural communities of Mentasta, Northway, Tetlin, and Slana were without road access. Emergency vehicles could not reach these residents. Mentasta Lake Road and Northway Road were also impassable and the Northway Airport suffered severe damage.

Six bridges within the study area sustained damage. Pressure of liquefied soil moved the bridge abutment walls about ten inches. The Tanana River Bridge, located approximately 11 miles south of Tok shifted off its steel supports by nearly four inches. This span weighed more than 1.1 million pounds.

Repairs and reconstruction on the Tok Cutoff was particularly difficult, as the area continued to experience strong aftershocks in the month following the initial quake. The aftershocks prevented the soils from stabilizing.[6]

[6] Information regarding the earthquake damage and repairs was obtained from an article by Shannon McCarthy, *Responding to an Earthquake*, Public Roads, Vol. 67, No. 3, Nov/Dec 2003, USDOT & FHWA.



Map courtesy of the Alaska Earthquake Information Center, UAF Geophysical Center.

Aftershock sequence from the Nenana Mountain and Denali Mountain events.

The Denali Fault event was preceded by the magnitude 6.7 Nenana Mountain event on October 23, 2002. The Nenana Mountain and Denali Fault earthquakes both generated a vigorous aftershock sequence of over 35,000 aftershocks through the end of 2004.

2.5.7 Drainages/Floodplains

Major drainages of the Yukon, Porcupine, and Tanana Rivers, and associated lakes, tributaries, and valleys, together with the Alaska, Brooks, and Wrangell-St. Elias Mountain Ranges also provide regional development boundaries throughout the area. There are alluvial river floodplains such as the Yukon River and Yukon Flats, Tanana River, Minto Flats, Kantishna River, Porcupine River and others. Four major rivers, the Yukon, Tanana, Koyukuk, and upper Kuskokwim, provide the area's outstanding hydrologic features. All four rivers form wide valleys, with extensively braided channels; in some areas, the valleys contain hundreds of small lakes, wetlands, and marshes. Elevations are generally less than 2,000 feet.

2.5.8 Hazard Management

The Alaska DOT&PF manages natural and manmade disasters under two emergency plans. One is the Alaska Emergency Operations Plan, which outlines the actions that the State, local communities and the private sector should take in the event of a disaster. The other is the State's Emergency Highway Traffic Regulation, updated in 1998, which outlines procedures for coordinating major military deployments with civilian traffic management in the event of a national emergency. There are also a growing number of Hazard Mitigation Plans being developed for individual communities.

1.1.9 Biological Resources

2.5.9.1 Terrestrial Wildlife

The Interior Region offers good habitat for a number of mammals commonly used for subsistence and sport hunting. Mammals found within the study area include moose, caribou, grizzly and black bear, dall sheep, wolves, and furbearers. Furbearers include marten, mink, red fox, muskrat, ermine, coyote, red squirrel, hare, beaver, lynx, otter, and wolverine.

Photo: Dave Sanches

Caribou on the Richardson Highway

Of particular concern to vehicular traffic are the migratory caribou herds. There are six major caribou herds in and adjacent to the Interior Region: Chisana, Delta, Fortymile, Macomb, Nelchina, and Porcupine. These herds often migrate across major portions of the Alaska Highway, the Dalton Highway, the Denali Highway, the Parks Highway, the Steese Highway, the Richardson Highway and the Tok Cut-off, causing vehicular accidents.

Moose-vehicle collisions occur even more frequently along highways throughout the region, particularly along the Richardson Highway and Chena Hot Springs Road, where collision rates are among the state's highest.[7]

2.5.9.2 Aquatic Wildlife

Several species of fish exist in the Interior Region waterways. Resident and anadromous fish are found in all of the major rivers. Dolly Varden/Arctic Char; and Trout were listed for some drainages and not for others. A review of the Fish Distribution Database at the Alaska Department of Fish and Game (ADF&G), Sport Fish Division, reveals these species continue to be available in these rivers today. Many lakes and streams within the study area also contain several fish species including whitefish, northern pike, arctic grayling and lake trout.

2.5.9.3 Avian Wildlife

Numerous bird species can be found in the study area. They include migratory birds such as swans, geese, ducks, cranes, raptors, passerines as well as resident bird populations; ravens, black cap chickadees, common red poles, grouse, grey jays, and ptarmigan.

http://tea.armadaproject.org/_birch1.jpg

Birch Trees in the fall

According to ADF&G, a Species of Special Concern: "is any species or subspecies of fish or wildlife or population of mammal or bird native to Alaska that has entered a long-term decline in abundance or is vulnerable to a significant decline due to low numbers, restricted distribution, dependence on limited habitat resources, or sensitivity to environmental disturbance."

Interior Region species of special concern include the American Peregrine, Arctic Peregrine, Northern Goshawk, and Olive-sided Flycatcher.

[7] DOT&PF, *Moose-Vehicle Accidents on Alaska's Rural Highways*, 1995.

2.5.9.4 Vegetation

Vegetation within the study area is highly varied due to changes in topography and soil type. Vegetation types include willow, alder, birch, aspen, spruce (white and black), larch, poplar, blueberry and cranberry bushes, lichen and mosses to name a few. Many of the tree species meet requirements for harvest.

2.5.10 Cultural Resources

Well-documented cultural resource sites appear throughout the study area. Some sites date back about 11,000 years, which has been defined as the American Paleoarctic tradition dating to 8,000 to 10,000 years ago. About 6,000 years ago, a new group of people became the first pan-Arctic culture, spreading south as far as the Alaska Peninsula and east as far as Greenland and Hudson's Bay. In historic times this area was primarily the home of Athabascan peoples. The Athabascans have been defined as a group of mostly forest dwelling, hunting and gathering Indians, organized into bands, speaking a group of fairly closely related languages. The Athabascan people can be traced back 4,000 years.[8]

2.5.11 Environmental and Other Impacts

Any development associated with this planning effort requires detailed and in-depth analysis for the environment and for socio-economic impacts. Projects such as roads or pipelines that may impact wildlife habitats will require substantial study. These resources are of local and State importance and emphasis would need to be placed on how the development can be managed to allow continued health and vitality of these resource populations.

[8] Smithsonian Institute, “The Handbook of North American Indians, Book 6, Subarctic” 1981.

3 Transportation Inventory

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


Photo: Alaskarider.com

Richardson Highway, Isabel Pass

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

NATIONAL HIGHWAY SYSTEM (NHS)			
Highway	**Mile Post**	**Geographic Boundary**	**Classification**
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
ALASKA HIGHWAY SYSTEM (AHS)			
Highway	**Mile Post**	**Geographic Boundary**	**Classification**
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

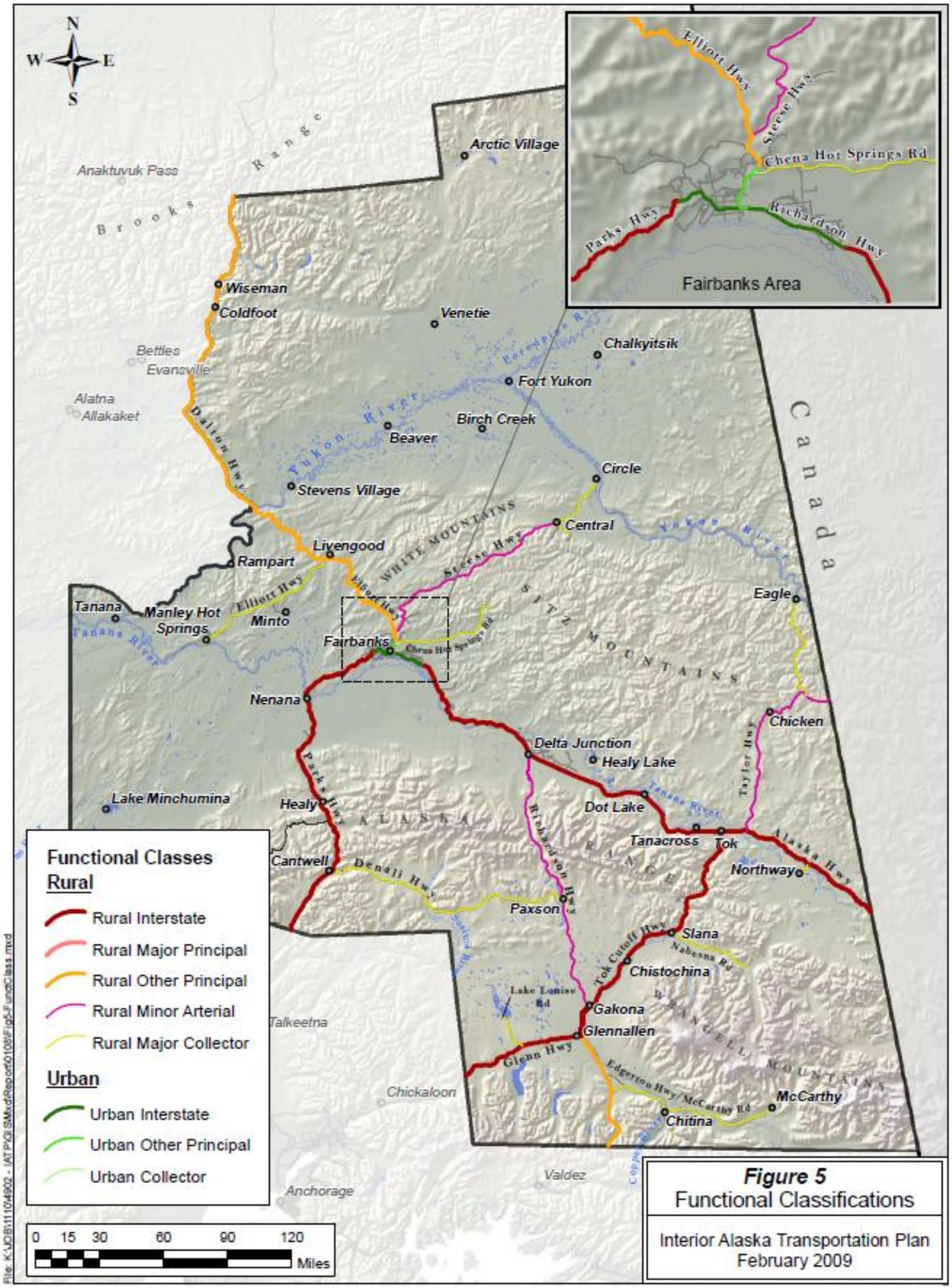
Other agencies also use functional classification for roadways under their various jurisdictions throughout the study area. For example, the Bureau of Indian Affairs (BIA) provides functional classifications for routes within Native communities in Alaska.

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
Steese 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[1].

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.

[1] Highway Maintenance District Cost summary provided by Northern Region, 2007

Table 0-5 Alaska Scenic Byways

Name of Byway	Segment Description	Milepost Location	Date of Designation	Intrinsic Qualities	Miles
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
				Total Miles	**1,015**

*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.

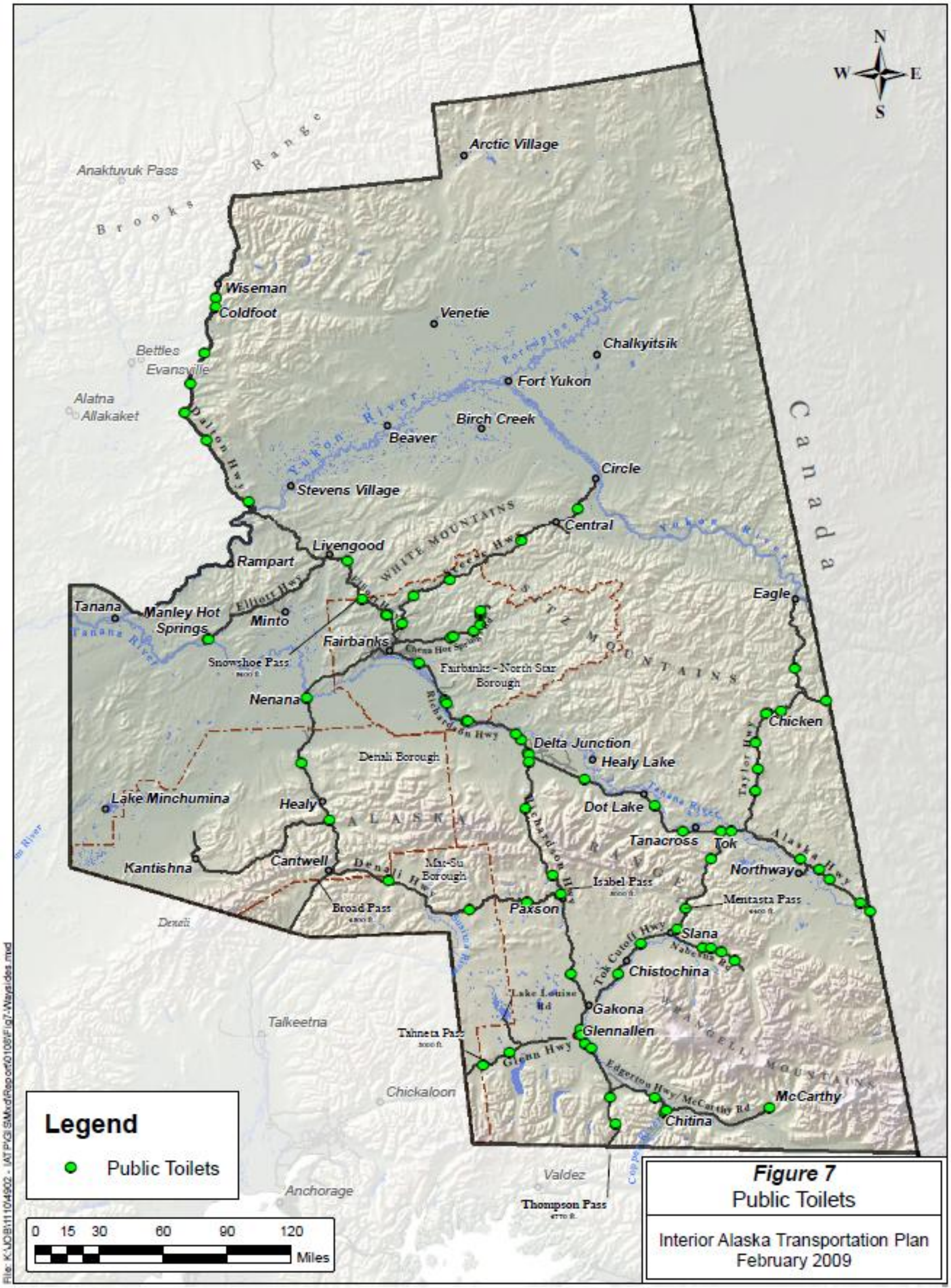
Traveler safety and comfort facilities are essential on the highway system because it helps drivers fight fatigue, which is a major cause of serious accidents. The National Highway Traffic Safety Administration (NHTSA) estimates that approximately 100,000 police-reported crashes in the United States 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
National Highway System		
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
Alaska Highway System		
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

Figure 4 Public Toilets



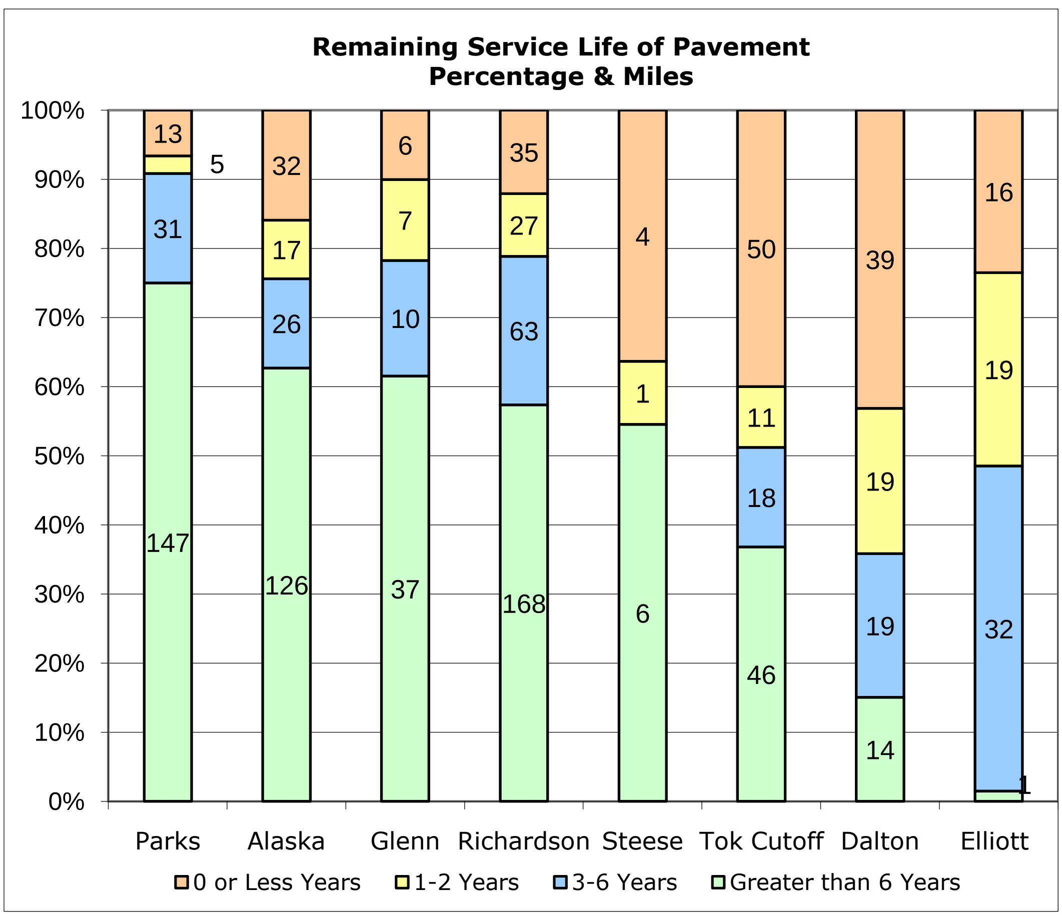
3.1.8 Pavement Conditions

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.

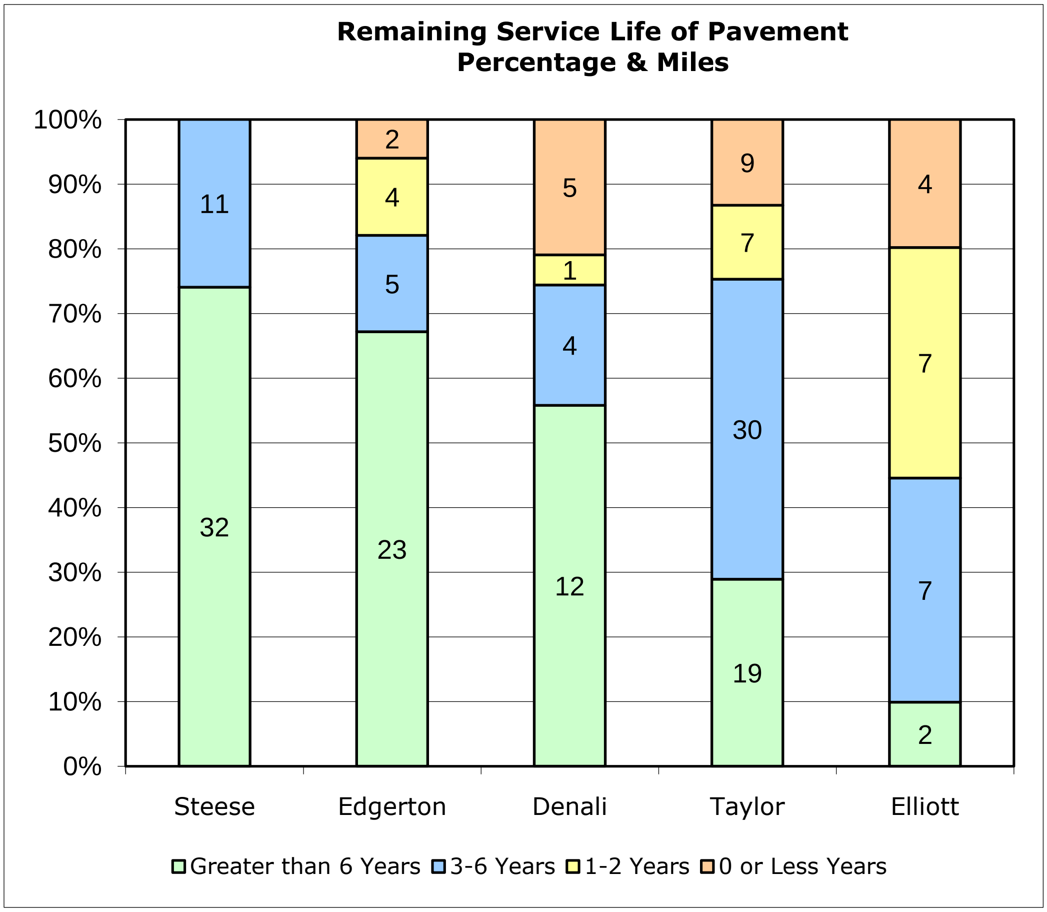
Exhibit 0.1 Pavement Conditions - National Highway System



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

Highway	Amount Spent
National Highway System	
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
Alaska Highway System	
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

Project Name and Funding Year	Project Description	Total Estimated Cost (with match)
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

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.[2] 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 2nd 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

[2] *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

MP	Water Body	Bridge type*	Length (feet)	Roadway Width (feet)	Year Built	Bridge Funding Eligibility
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 to1236) 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[1]	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

[1] 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 to100 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 2010-2013STIP 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. 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.

http://calphotos.berkeley.edu

Truck on the Dalton Highway

The Dalton Highway is designated as a State Scenic Byway.

Setting. The portion of the Dalton Highway in the study area generally travels though 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.

http://images.travelpod.com/

Yukon River Bridge

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 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

MP	Water Body	Bridge type*	Length	Roadway Width	Year Built	Federal Bridge Funding Eligibility
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 [1]	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

[1] *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.[3]

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.

[3] *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

MP	Water Body	Bridge type*	Length	Roadway Width	Year Built	Bridge Funding Eligibility
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 [1]	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

[1] *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".[4]

[4] *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.

Edgerton Highway

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 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) with 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.”[5]

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.

[5] *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 [1]	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

[1] *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 2nd 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 1st/2nd/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

(MP)	Crashes	Angle	Rear-End	Turning	Animal	Off-Road	Other	Injury	PDO [1]	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

[1] *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 2nd 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

MP	Water Body	Bridge type*	Length	Roadway Width	Year Built	Bridge Funding Eligibility
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 [1]	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

[1] *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

Milepost	Description
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 [1]	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

[1] *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.[6]

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

[6] *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 [1]	Fatality
86-89	4	1	0	0	0	2	1	0	4	0

[1] *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

Project Location/Name	Project Description	Construction Year	Amount
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.[7]

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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[7] *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

Community	Access Road Length	Highway Connection	Maintenance Responsibility
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.[8] 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.

[8] From FAA Civil Aviation Registry, March 16, 2007

Figure 5 Public Use Airports

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.[9] 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

[9] 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.	
Arctic Village	ARC	Native Village of Venetie Tribal Government	X	4,500 x 75	Gravel	X	X	0
Beaver	WBQ	DOT&PF	X	3,954 x 75	Gravel	X	X	0
Birch Creek	Z91	DOT&PF	X	4,000 x 75	Gravel	X		0
Boundary	BYA	DOT&PF	X	2,500 x 60	Gravel**			0
Central	CEM	DOT&PF	X	2,700 x 60	Gravel**	X		0
Chalkyitsik	CIK	DOT&PF	X	4,000 x 90	Gravel	X	X	0
Chandalar Lake	WCR	DOT&PF	X	3,000 x 60	Gravel			0
Chicken	CKX	DOT&PF	X	2,500 x 60	Gravel			0
Circle City	CRC	DOT&PF	X	3,000 x 60	Gravel	X		1
Circle Hot Springs	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.	
Eagle	EAA	DOT&PF	X	3,600 x 75	Gravel	X		0
Fort Yukon	FYU	DOT&PF	X	5,810 x 150	Gravel	X	X	0
Livengood	4AK	DOT&PF		1,415 x 50	Gravel			0
Ralph M Calhoun Mem. (Tanana)	TAL	DOT&PF	X	4,400 x 150	Gravel	X	X	5
Rampart	RMP	DOT&PF	X	3,500 x 75	Gravel**	X		0
Stevens Village	SVS	DOT&PF	X	2,120 x 60	Gravel	X	X	0
Venetie	VEE	Native Village of Venetie Tribal Government	X	4,000 x 75	Gravel-Dirt	X		0***
Yukon Charley River-Coal Creek	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.	
Black Rapids	5BK	BLM (US Bureau of Land Management)		2,250 x 40	Gravel-Dirt**			0
Chisana	CZN	DOT&PF	X	3,000 x 50	Turf-Gravel			0
Clear	Z84	DOT&PF	X	4,000 x 100	Asphalt	X		3
Clear Sky Lodge	CLF	Private		2,500 x 20	Gravel-Dirt**			2
Delta Junction	D66	City of Delta Junction		2,500 x 60	Gravel			16
Delta Junction - Allen AAF* **	BIG	US Army		4,671 x 150 6,193 x 150 9,216 x 150	Asphalt	X	X	3
Eureka Creek**(BC)**	2Z2	Unknown		1,500 x 35	Dirt**			0
Eva Creek (BC)	2Z3	Public Domain		950 x 40	Gravel**			0
Fairbanks - Chena River	2Z5	Public Domain		3,000 x 300 (E/W) 5,000 x 300 (N/S)	Water			6
Fairbanks - Gold King Creek	AK7	DOT&PF		2,558 x 100	Gravel			1
Fairbanks International	FAI	DOT&PF	X	11,800 x 150	Asphalt	X	X	482
Glacier Creek	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.	
Chistochina	CZO	DOT&PF		2,060 x 90	Turf-Gravel			2
Chitina	CXC	DOT&PF	X	2,850 x 75	Gravel			2
Copper Center 2	Z93	DOT&PF		2,200 x 55	Gravel			5
Gulkana	GKN	DOT&PF	X	5,000 x 100	Asphalt	X	X	14
Lake Louise* **	Z55	DOT&PF	X	CLOSED 700 x 18	Gravel**			0
Lake Louise Seaplane Base	13S	Private		5,000 x 4,000	Water			1
May Creek	MYK	DOT&PF	X	2,700 x 100	Turf			0
McCarthy	15Z	DOT&PF	X	3,500 x 60	Gravel			0
McCarthy - Jakes Bar	AK0	NPS		1,000 x 25	Gravel**			0
Paxson	PXK	Private		1,800 x 13	Gravel**			0
Tazlina	Z14	DOT&PF		900 x 42	Gravel			0
Tazlina - Smokey Lake	5AK	Private		2,200 x 600	Water			1
Tolsona	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.	
Cantwell	TTW	Private		2,080 x 30	Gravel-Dirt			3
Clearwater* (BC)**	Z86	Public Domain		350 x 20	Gravel-Dirt**			0
Denali - Road Commission 1 (BC)	0Z2	Public Domain		1,000 x 22	Gravel-Dirt**			0
Summit	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.	
Minchumina	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.	
Coldfoot	CXF	DOT&PF	X	4,000 x 100	Gravel	X	X	3
Porcupine Creek* **	PCK	Private	X	1,040 x 40	Gravel-Dirt**			0
Prospect Creek	PPC	DOT&PF	X	4,988 x 150	Gravel	X		0
Wiseman	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

Classification	Definition	Study Area Airports
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

Classification	Definition	Study Area Airports
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:

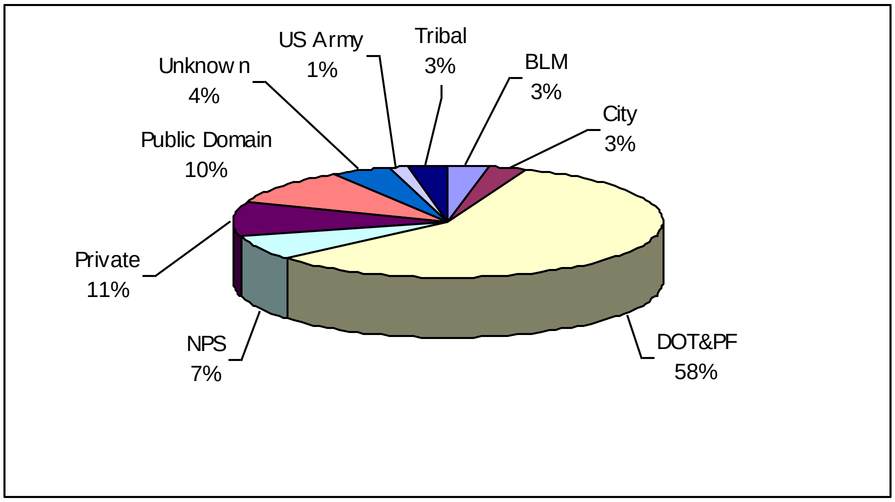
- Establish a Regional airport (with minimum 5,000-foot long runway) to serve the Tok area. Provide a floatplane facility for this area; floatplanes now use Midway Lake.
- Work with DNR to ensure Hoodoos, near Isabel Pass, remains available for emergency/precautionary landings.
- Improve or replace Chistochina 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.

Source: AirNav.com

Eagle Airport

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.

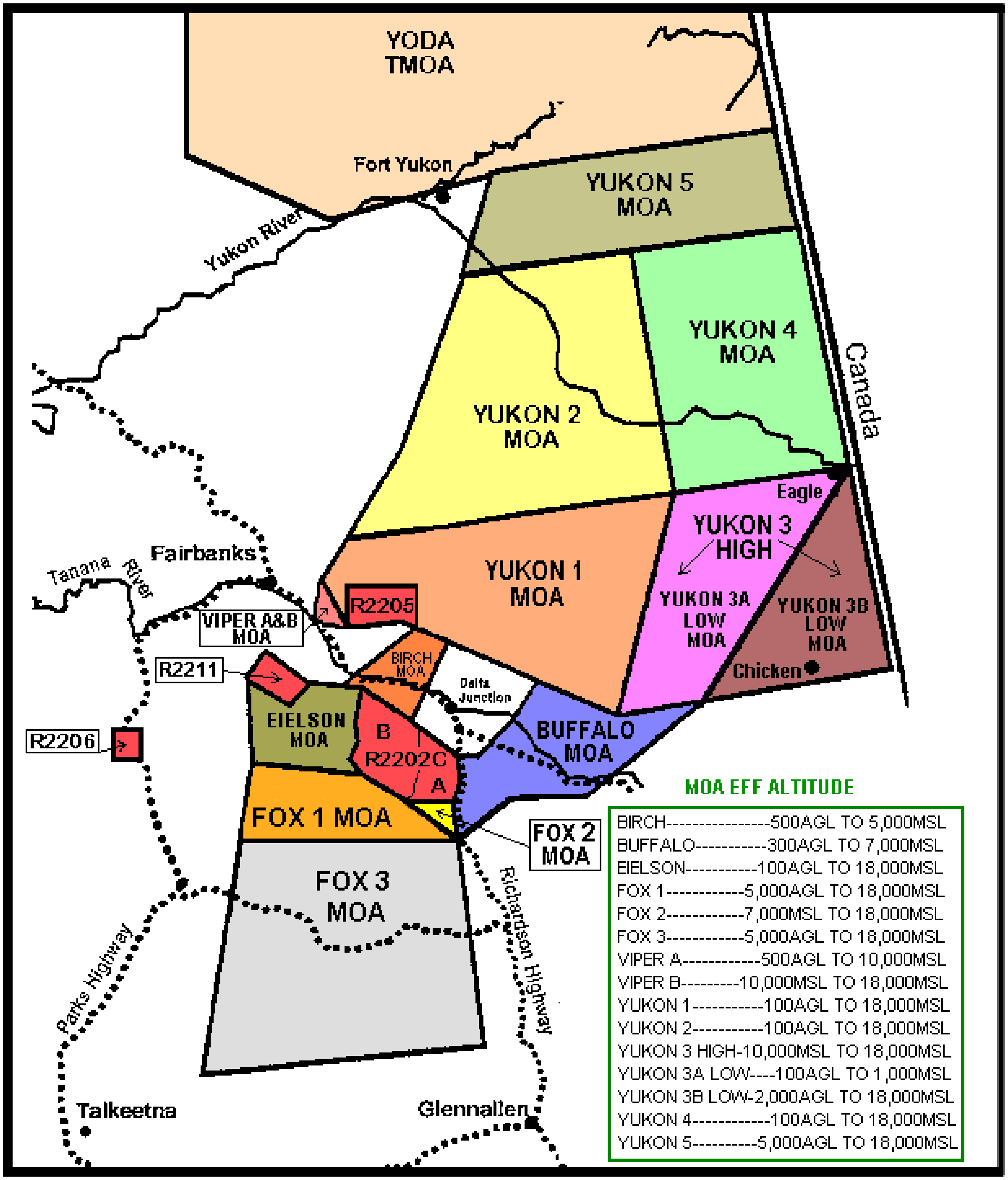
Many of the airports in the study area lack taxiways, tiedown aprons, buildings (such as hangars, terminals, snow removal equipment buildings, aircraft rescue and firefighting facilities), and utilities.

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 11th 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/moaareas

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*[10] 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

[10] 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 Omnirange

Source: www.arh.noaa.gov/obs.php , http://akweathercams.faa.gov/sitelist.php , 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

Carrier	Base
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

	Scheduled Enplanements (2005)		
Airport	**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
Total	359,549	74,365	433,914

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

Airport	2000	2001	2002	2003	2004	2005	Average Annual Growth to 2005
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%

Airport	2000	2001	2002	2003	2004	2005	Average Annual Growth to 2005
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%
Total at Public Use Airports	**423,951**	**411,886**	**403,796**	**416,049**	**446,761**	**443,761**	**0.9%**
Airports Not Open for Public Use							
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.[11] 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.

[11] 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*, 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*
Paved:	
Clear	$23,997
Gulkana	$78,545
Healy River	$9,795
Tok	$33,062
Subtotal - Paved	***$145,399***

Airports	5-Year Average Cost*
Unpaved:	
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
Subtotal - Unpaved	***$579,843***
TOTAL	**$725,242**

*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[12] 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.

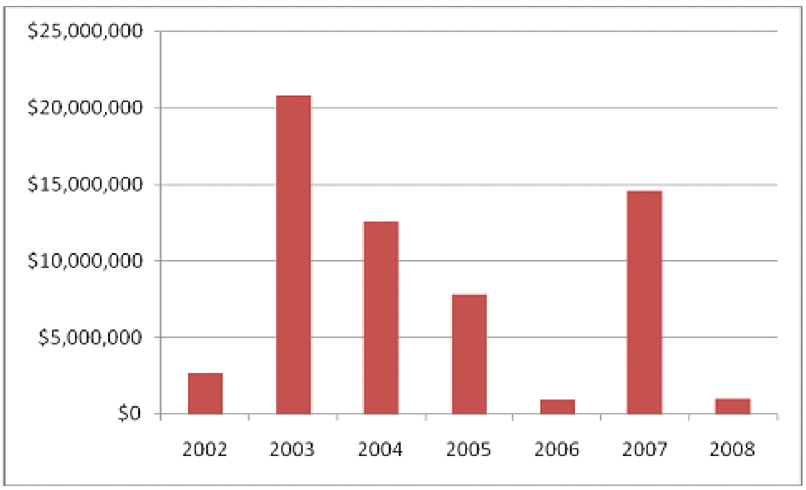
AIP funds are distributed through grants that the FAA administers. The AIP program uses a 95-5 matching formula, which means that the FAA pays up to 95 percent of an AIP-funded project's

[12] 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

Name	Airport Improvement Projects	Total Cost
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, Navaids, 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), ARFF 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[13] 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.

[13] http://www.ntsb.gov/ntsb/Response2.asp

Table 0-55 Aviation Accident Location, 1987-2007

Number of Accidents	Location
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

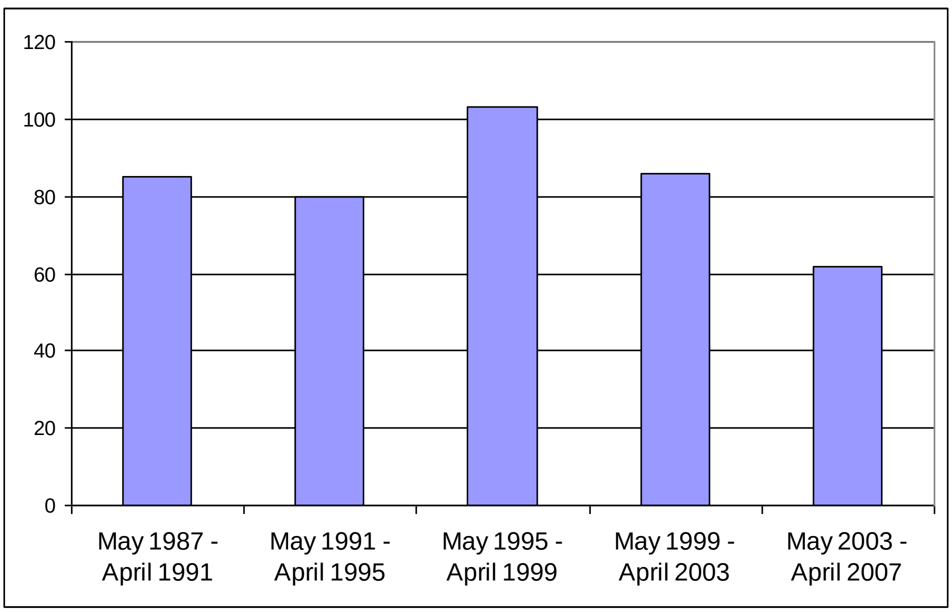
Location	Year	Number of fatalities	Type
Beaver Creek	1992	2	Public Use
Cantwell	1995	2	Part 91
Cantwell	1998	1	Part 91
Cantwell	2002	2	Part 91
Central	1987	1	Part 91
Central	2002	1	Part 91
Chitina	1999	1	Part 91
Clear	1990	1	Part 91
Coldfoot	1987	1	Part 91
Coldfoot	1988	1	Part 91
Coldfoot	1990	1	Part 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

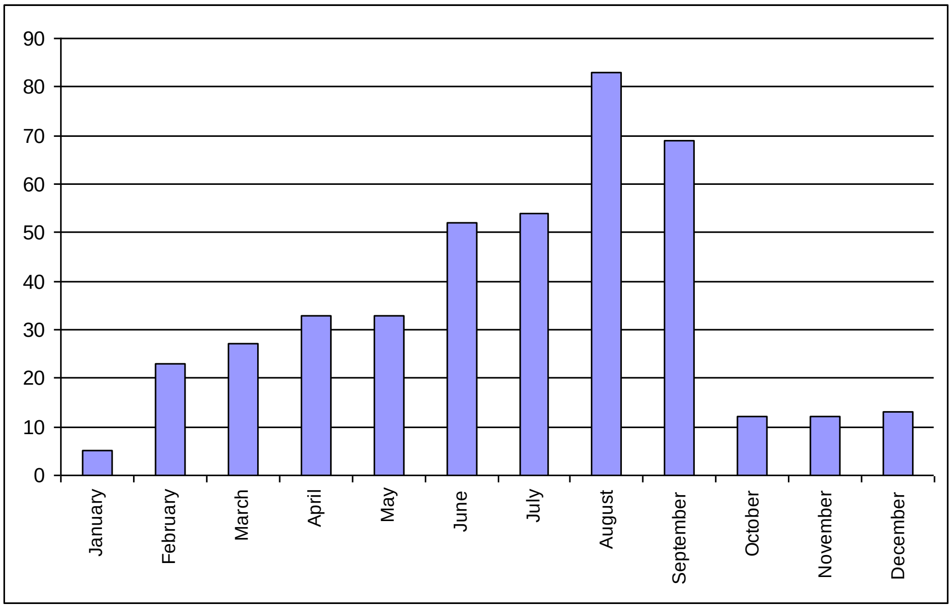
Most accidents happen to general aviation pilots flying under Federal Aviation Regulation (FAR) Part 91 and are not fatal. Over the 20-year period examined, the number of accidents peaked in the late 1990s and has been declining since then. Not surprisingly, more accidents occur in the months when aviation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

Exhibit 0.4 Accident History by Five-Year Increments



Source: WHPacific Analysis of NTSB Data

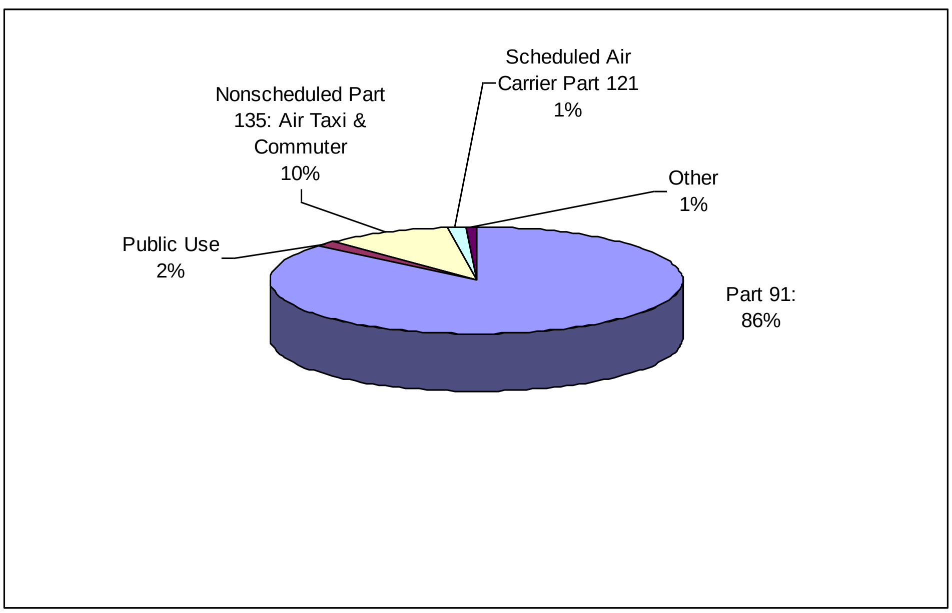
Exhibit 0.5 Accidents by Month



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."[14]

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.

WHPacific photo

A major trail in Beaver

[14] 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 conditional 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

Trail Segments	Distance (miles)
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.

www.akrr.com

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.

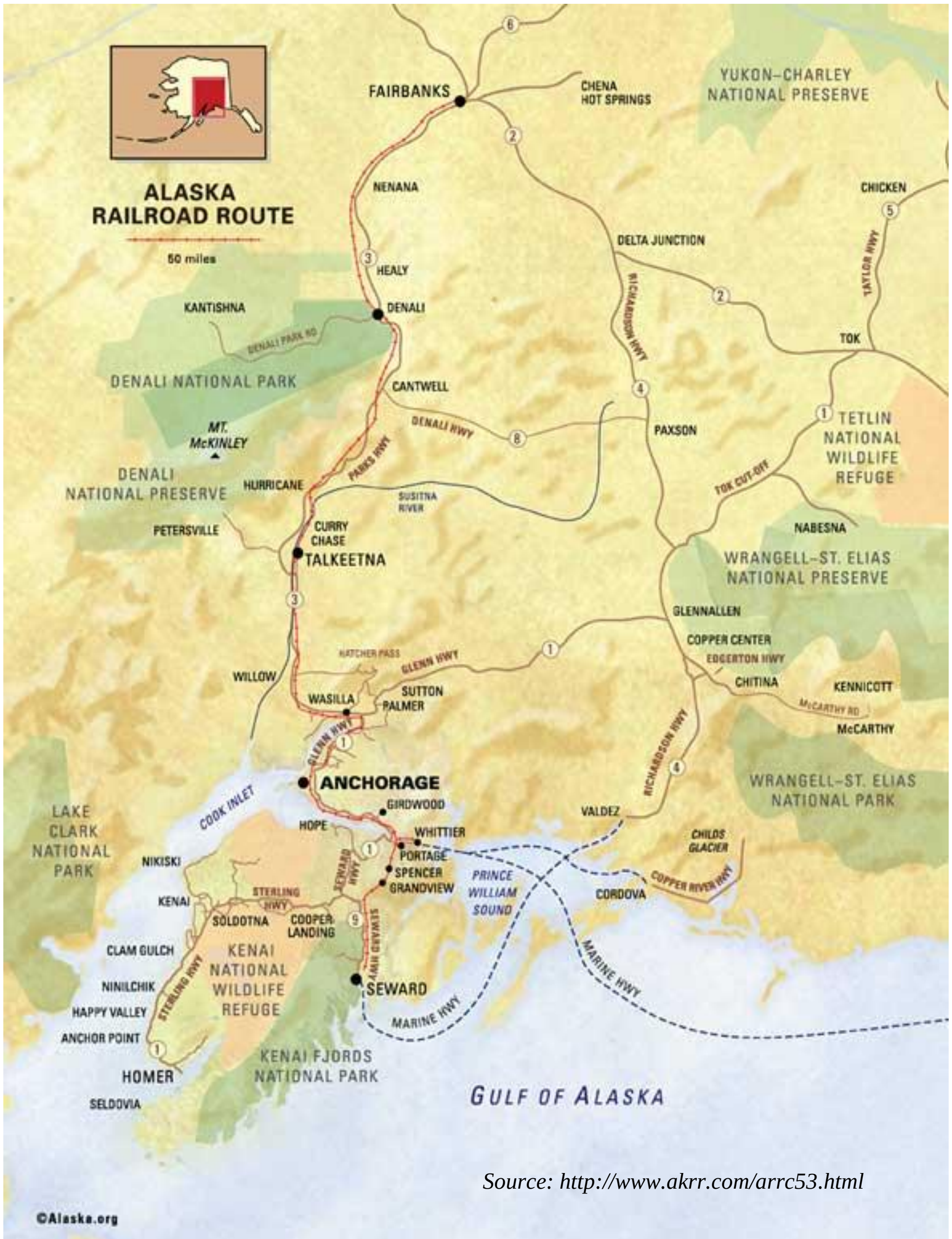
3.5.2 Railroad System Description

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.



Source: http://www.akrr.com/arrc53.html

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

	Passenger Ridership - Abstract*				
	2002	**2003**	**2004**	**2005**	**2006**
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
Total	299,107	266,516	320,595	251,086	308,730

* 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.

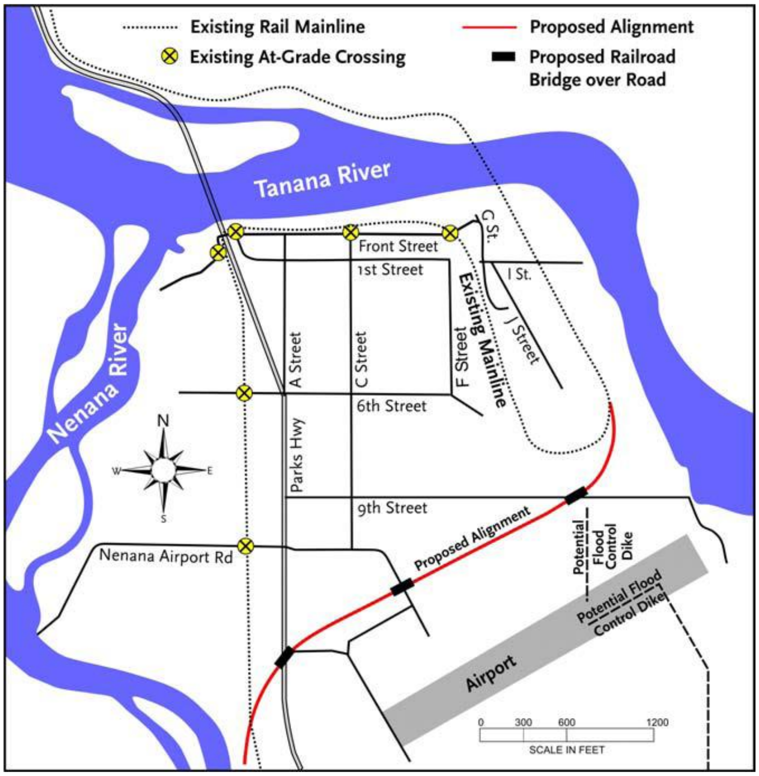
3.5.4 ARRC Projects

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/

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 10th 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 the 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

	Inland Barge	Crowley	Ruby	Total
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.


ASCG Incorporated

Yukon River at Stevens Village

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 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.

4 Resource and Economic Development Impacts

This chapter discusses the current conditions, trends and possible opportunities for resource development within the study area and their potential access needs. The industries addressed are minerals, gas and oil, alternative energy, tourism, agriculture and timber. Research for this chapter included interviews with resource agencies and developers, website research and relevant reports.

4.1 Mineral Industry

The study area has a rich history of gold development. In addition, there are major deposits of coal and other minerals which have the potential to be commercially developed someday. Mineral exploration is on the rise and mineral development will likely continue to play an important part of the economy of the region and contribute to the need for transportation improvements in the future.

4.1.1 Mineral Industry Current Conditions

Three of the State's six major mineral production sites are found in the study area and are an integral part of the study area economy. These are Pogo Mine (gold), Fort Knox Mine (gold, sand and gravel) and Usibelli Mine (coal).

The following is a list of other significant mineral deposits being actively extracted in the study area (per Szumigala and Hughes).

Wind River (lead and zinc)	Hot Springs (placer gold, lead, tin)
Tolovana (placer gold)	Fairbanks (gold, tungsten)
Fort Knox (gold)	Ryan Lode (gold)
Grant Mine (gold)	True North (gold)
Dolphin (gold, arsenic, bismuth, antimony)	Mt. Prindle (uranium)
Circle (placer gold, tin, tungsten)	Three Castle Mt. (lead, zinc)
Bonnifield (copper, lead, zinc, silver)	Delta (copper, zinc, lead, silver gold)

Mosquito, Peternie (molybdenum)
Slate Creek (asbestos)
Coal Creek (tin, copper tungsten)
Nim (copper, gold, silver)
Chistochina (copper, placer gold)
Kennecott (copper, gold)
Taurus (copper, gold)
Fortymile (placer gold)
Golden Zone (gold, copper, silver)
Zackly (copper, gold, marble)
Nebesna (gold)

4.1.1.1 Pogo Mine

The Pogo Mine is owned by Pogo Joint Venture (JV), a JV between Sumitomo Metal Mining Co., Ltd., Sumitomo Corporation and Teck Cominco Ltd. Teck Pogo Inc. operates the mine for the JV. It is located about 38 miles northeast of Delta Junction. Hard rock underground gold mining began in 2006, although the mine was in development for several years prior to 2006. The first bar of gold was produced in February 2006. Teck Pogo Inc. milled 649,000 metric tons of ore in 2007 and produced 260,000 ounces of gold. Ore is processed on-site. Pogo predicts a 10-12 year life for the operation, although the mine's life could be extended if exploration locates additional deposits in the area.

A 49-mile all-season private road (Shaw Creek Road) provides access to the mine site from the Richardson Highway at approximately Milepost 287. Workers travel to the mine site by bus and live at the mine during their work rotations. The Mine employs approximately 215 workers directly and about 100 others work for contractors[1].

The DOT&PF's Average Annual Daily Traffic (AADT) count on the Richardson Highway at Shaw Creek is about 1,660 vehicles. Teck-Pogo estimates traffic on the mine road averages approximately 50 vehicles per day (both semi-tractor trailers and light vehicles). Adding 50 more vehicles per day does not trigger the need for geometric changes in this section of the Richardson Highway, although this might change if the mine operation grows significantly or if Teck-Pogo decides to stop bussing operations.

DOT&PF replaced the Shaw Creek Bridge in 2010. This project improves the intersection of the Richardson Highway and Shaw Creek Road by adjusting the approach from Shaw Creek Road and improving the sight distance and turning radius.

[1] Pogo Mine 2006 Annual Activity and Monitoring Report, Page 1, Teck-Pogo Inc.

4.1.1.2 Fort Knox Mine

Fort Knox Mine is a conventional truck and shovel open pit mine continuously operated since 1996. Fort Knox processed 13,362,000 metric tons of ore and produced 333,383 ounces of gold in 2006. Kinross Gold USA, Inc. estimates the mine's life will end in 2011. After 2011, they will re-handle low-grade, stockpiled ore via a leach pad until 2015. Additional discoveries could extend the life of the operation.

Fort Knox is located approximately 20 miles from Fairbanks at the end of a five-mile access road located off the Steese Highway. AADT on the Steese Highway at the junction of Fairbanks Creek Road, near the Twin Creek Road (access to Fort Knox Mine) is 265. Workers live in the Fairbanks area and commute to the mine. According to a 2007 Fort Knox annual activity report, the mine employed 395 people on two shifts per day, 365 days of the year.

Ore is processed on site and the gold is shipped over the existing highway system. The gold is refined in the Lower 48. It is unlikely that additional surface transportation infrastructure will be necessary to support current or planned operations.

4.1.1.3 Usibelli Mine

The Usibelli Mine in Healy is the only operating coal mine in Alaska. It was started in 1943 and is family-owned and operated. It includes both surface and underground mining and has an estimated 30 years of reserve coal at current production rates (about 1.4 million tons/year). The mine employs about 95 people, almost one tenth of the Healy population.

The mine is accessible from the existing public road network (Parks Highway to Healy Spur Road). The Healy Spur Road has about 1,525 AADT at the junction with the Parks Highway. The Parks Highway in the area has an AADT of about 3,365. The southbound turning pocket to the Healy Access Road on the Parks Highway will probably accommodate the traffic needs in the area for the foreseeable future.

Coal is shipped by rail north to Fairbanks or south to Seward, where it leaves the state. The Usibelli Mine generally ships a full train of coal to Seward twice a week. A typical train has about 70 cars. Each car holds 100 tons of coal, or 7,000 tons of coal per train. Summer traffic from passenger trains can affect the mine operations, but to date, schedules have been coordinated.

4.1.1.4 Other Mining Operations

Polar Mining Inc. (gold, silver, screened aggregate) and **Earth Movers of Fairbanks, Inc**, (gold placer mine) also have sizeable operations in the Fairbanks area. A few smaller gold placer operations in the study area include an operation northeast of Fairbanks and near the Canadian border in the southeast part of the study area. The study area saw a large increase in smaller mining activity in 2006. Employees in the industry nearly doubled between 2005 and 2006 (453 to 821). Operators nearly tripled (37 to 100).

Ahtna Native Corporation. The Ahtna region is host to a large array of metallic mineral deposits, and some unique deposit types. Most of the mineral occurrences are situated on Ahtna lands that lie within Wrangell-St. Elias National Park and Preserve. Of the 55 known mineral occurrences, nine are historically-producing dormant mines, 27 are development prospects, and the remaining 19 are exploration prospects of varying importance. Eight of the occurrences are placer gold deposits.

While some very significant deposits have been discovered, the region has seen very little mine development. Identified minerals include gold, copper, zinc, chrome, platinum, palladium, tin, lead, tungsten and uranium.

Doyon Limited. There are12.5 million acres of Doyon Limited lands. They include historical placer gold mining districts and geologically attractive environments, such as, the Tintina Gold Belt. The Tintina Gold Belt is a world class gold deposit. Pogo, Fort Knox, True North, Vinasale, Donlin Creek and Shotgun are part of that belt. The Ambler Schist Belt is favorable for world-class base metal deposits (Bornite, Arctic and Chandalar Copper Belt) and sedimentary basins favorable for oil and gas deposits (Kandik, Yukon Flats, Nenana).

A feasibility study was completed in July 2007 on coal gasification in Healy, Alaska. The proposed location is six miles north of the current coal mining operations at Two Bull Ridge. A new mining operation nearby at Jumbo Dome would be developed to supply coal to the proposed facility. The study concluded that the proposed project is feasible.

4.1.1.5 Potential Exploration/Production Areas

The 1981 Interior Alaska Transportation Study listed many areas where there was potential for production at some point. Although there is coal at Jarvis Creek, the deposits at Healy are still the only ones under production. The Delta Mineral Belt (south of Tok) and the Golden Zone near Denali Park were specifically identified as areas where there was exploration going on. The Denali Mining Belt was last explored in 2001. The Golden Zone is still under exploration today. The Richardson District was in exploration through 2004.

The Gold King area mining claims were subject to a bankruptcy court proceeding in 2004 where the claims were sold to the Federal government.

There are substantial deposits of limestone in the study area. At one time, DNR permitted a mine for limestone in the Wickersham Dome area (1996). Globe Creek Mining and Fairbanks Exploration Inc. were involved in this effort.

The north flank of the Alaska Range, including the Johnson and Robertson River drainages, were also identified in the 1981 plan as having potential for large, high-grade deposits. That area has not been in active exploration since 1986 (DGGS yearly reports of exploration and production).

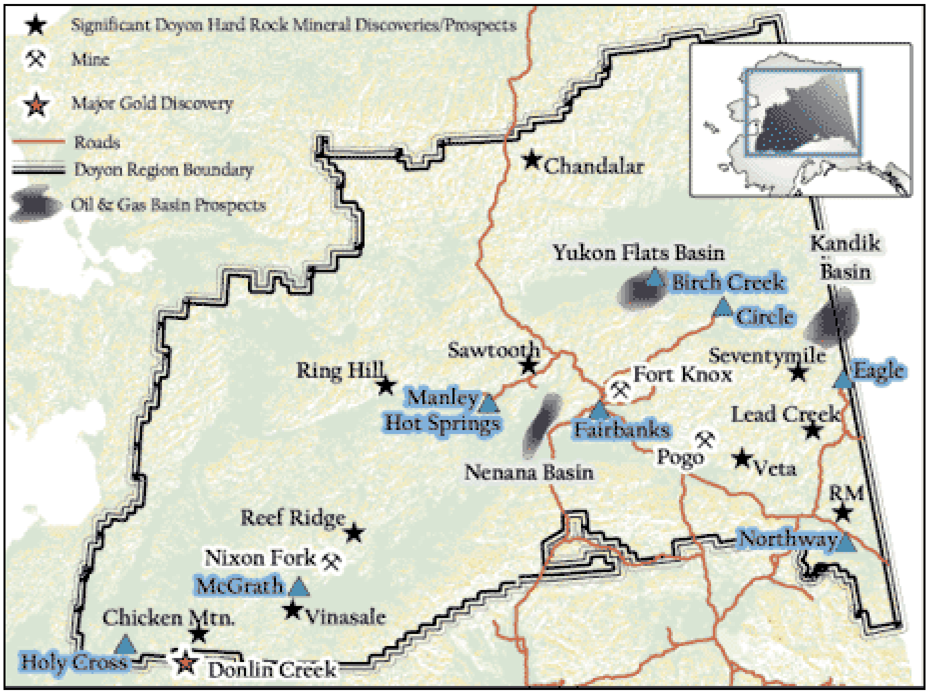
4.1.2 Mineral Industry Trends

Mineral exploration in the Interior is growing. Pogo Mine, Fort Knox and Usibelli are pursuing exploration for more resources even as they are in active production. In the last year, the mineral industry has also seen a trend toward greater exploration on small-scale production and potential mineral resources are being explored on Ahtna and Doyon Corporation lands.

The BLM recently (January 2007) completed a report of several years of mineral investigations in the Delta River Mining District Area, East-central Alaska. This report covers much of the study area. The report concludes: "Mineral exploration activity is likely to continue in the Delta River Mining District study area with special attention given to the nickel-copper-PGE potential of the mafic-ultramafic rocks in the southern part of the area. To date no deposits of sufficient tonnage and grade to be considered economic have been discovered. There is a chance that a small tonnage-high grade deposit may be discovered that would make underground mining economically feasible. Alternatively, the discovery of a high tonnage-low grade deposit is also a possibility. A deposit of this size may be mined by surface mining techniques. Any potential mining operations would likely take 8 to 10 years or more to go from discovery to production given the design, economic feasibility, environmental. Logistical and permitting requirements that precede mine development."

While the mineral industry spent $331 million in development statewide in 2006, (up from $209 million in 2005),[2] about $176 million was spent on mineral exploration. Much of those expenditures occurred in mining operations located in the study area. Active exploration in the study area is shown in Figure 1 and is described below:[3]

Figure 1 Active mineral exploration in the study area



Source: www.doyon.com/lands/resources.overview.aspx

Ongoing explorations include:

Teck Cominco Inc. continued exploration on the Pogo Property, West Knoll, South Pogo, 4021, Cholla Ridge, Chorizo, Spring Grid and Tam Ridge. No results were announced. Rimfire Minerals Corporation conducted a mapping and reconnaissance geochemical sampling survey in the Goodpaster area. No results were announced. International Tower Hill Mines Ltd. acquired all Alaskan mineral properties from AngloGold Ashanti. They drilled eight holes and found good gold deposits. Tower Hill also acquired the Livengood project and drilled seven holes, finding gold. They also acquired Coffee Dome, Giles, West Pogo, Chisna and Blackshell. Testing indicated vein-style gold at Blackshell. In addition, Tower Hill entered into an agreement with Doyon, Ltd for the West Tanana property, collected soil samples and outlined a

[2] Resource Development Council, August 16, 2007, http://www.akrdc.org/issues/mining/overview.html

[3] Alaska's Mineral Industry 2006: A Summary by D.J. Szumigala and R.A. Hughes.

large gold-arsenic-bismuth-tellurium anomaly adjacent to Monday Creek. Full Metal signed an agreement with Doyon for over 800,000 acres of lands in the Fortymile area. They delineated massive sulfide mineralization on the Little White Man (LWM) and Fish prospects. They found copper, lead, silver and zinc. Kinross Gold Inc. continued exploration around the Fort Knox Mine. Best results assayed 0.0612 ounces of gold per ton of ore. Freegold Ventures Ltd. discovered new high-grade gold veins at Golden Summit near Fairbanks. Other tests were conducted at Cleary Hill, the Wackwitz Vein and the Colorado Vein. Results varied from 0.48 ounces of gold per ton to 2.4 ounces of gold per ton. Midas Resources Ltd. explored the Uncle Sam prospect. All drill holes encountered gold in a vein interpreted as very similar Fort Knox. Smaller explorations were conducted in Stone Boy Creek near Pogo, the Delta property near Tok, and in American Creek in the Hot Springs mining district. The ADNR Division of Geology and Geophysical Survey mapped 600 square miles in the Bonnifield Mining District in 2006.Other potential development areas include lands managed by Ahtna Native Corporation and Doyon Limited.

4.1.3 Mineral Industry Potential Access Needs

Most of the major producers have indicated that they have no major infrastructure needs or requirements in the near future. Air support during mineral exploration is typically provided by helicopters that do not require extensive transportation infrastructure. It is assumed that the developer would finance any access routes that become necessary to major mineral development in the future. However, there may be some impacts to adjacent highways. An example could be potential development in the Tangle Lakes area which might impact the nearby Richardson Highway in terms of increased truck and vehicle traffic.

4.2 Oil and Gas Industry

According to the Division of Oil and Gas report on 2006 operations, three current oil and gas exploration licenses are on State land. Only one of the licenses is in the study area--the Nenana Basin. In 2007, the Copper River Basin license was converted to a lease. One oil and gas license application is in the study area, in the Healy Basin.

4.2.1 Oil and Gas Industry Current Conditions

Potential oil and gas reserves are located in the study area. In addition, there is also potential for two gas pipeline developments in the study area.

4.2.1.1 Nenana Basin

It is important to consider Nenana Basin, located south and west of Fairbanks, when discussing resource development in the Interior. The Nenana Basin, also known as the Middle Tanana Basin, consists of a swampy lowland area drained by the Tanana River. The road to Totchakat would access the Nenana Basin for potential gas or minerals as well as agriculture lands. The last estimate for this route was $72 million. In the early 1980s Unocal and Atlantic Richfield drilled exploration wells searching for oil in the Nenana Basin. Atlantic Richfield abandoned these wells when oil prices dropped suddenly in 1984. In 2002, the State of Alaska issued an exploration lease of 483,942 acres to Andex Resources in the Nenana Basin.

Doyon has partnered with Usibelli Energy, Arctic Slope Regional Corporation, and Andex Resources to explore for oil and gas within the Nenana Basin and Yukon Flats areas on approximately 38,000 acres of Doyon land. It is likely the gas would be converted to liquefied natural gas (LNG) and then transported by tanker truck on the Parks Highway.

While the total amount of recoverable reserves are unknown, it is estimated that 250 million barrels of oil and 250 billion to 1 trillion cubic feet of gas are in the Nenana Basin.

4.2.1.2 Copper Basin

The Copper River Basin sits in a lowland area due north of the Gulf of Alaska, bounded by the Alaska Range, the Wrangell Mountains and the Chugach Mountains. Some limited oil and gas exploration occurred prior to the mid-1980s with geophysical surveys and 11 wildcat wells. Several of the wells encountered oil and gas. Mud volcanoes in the Tolsona area emit gas containing a high percentage of methane.[4]

The State issued exploration licensing in 2000 to Forest Oil Corporation for 318,756.35 acres of the Copper Basin. The license was converted to a lease on October 1, 2007. Information on future work in the area is not yet available, except for plans to shoot seismic lines and to drill a well west of Glennallen.

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[4] Petroleum Oil News, Dispelling the Alaska Fear Factor, Chapter 6, 2005

According to the Alaska Journal of Commerce, May 27, 2007, Rutter and Wilbanks Corporation planned to explore the Copper River Basin for natural gas on Ahtna, Inc. land. As of July 2007, news reports indicated Rutter and Wilbanks, Inc. had located favorable reserves of natural gas.

4.2.1.3 Healy Basin

The Healy Basin is on the Yukon-Tanana terrane, drained by the Nenana River and bisected by the Parks Highway. The highest petroleum potential in the basin is for gas and shallow coal bed gas. Usibelli Coal Mine Co. has applied for a gas only exploration license for the minimum $500,000 work commitment for over 200,000 acres of exploration property. Their application is pending and, as of February 2010, is still listed as "proposed".

4.2.1.4 Central/Circle

In December 2007, DNR issued a notice of intent to evaluate oil and gas exploration proposals for the Crooked Creek-Circle Basin area (Central/Circle area). Exploration licenses are issued for areas outside of the State's competitive oil and gas lease sale areas. As of April 9, 2008, one proposal had been received and was under evaluation. BGI North America, LLC proposed the minimum work commitment of $500,000 with a 10-year term. If awarded, BGI would have exclusive rights to explore state land within the license area for deposits of oil and gas. After public comment, ending July 2008, DNR would analyze the comments and determine whether it is in the State's best interest to pursue the license. As of February 2010, the exploration license for the area is still listed as "proposed".

4.2.1.5 Yukon Flats Basin

The Yukon Flats Basin is approximately 15,000 square miles of lowlands near the Yukon River, between the Trans-Alaska Pipeline and the Canadian border. The following discussion is a brief overview of interest shown in the Basin in the past. In 1994, drilling at Fort Yukon discovered gas bubbling from coal. In 2004, deeper drilling at the same site encountered two coal seams, both of which contained methane. Oil companies have shot ten seismic lines in the flats, five in 1972 and five in 1988. Results of the 1988 seismic line explorations were not revealed. A few years ago, the Alaska Division of Geophysical and Geological Surveys detected some shallow coal beds. A recent USGS assessment of the basin showed some potential for oil and gas reserves in the basin that could prove comparable to the volumes of gas in the Cook Inlet.[5]

Recent geological reports in the Stevens Village, Beaver and Fort Yukon area show possible deep basins of oil and gas. Doyon, Limited proposed to trade 150,000 acres of high habitat-value land to US Fish and Wildlife Service (USF&WS) for oil and gas rights to 200,000 acres of Federal lands. This was a significant proposal for oil and gas in the Yukon Flats area. The USF&WS conducted an Environmental Impact Study and was expected to issue a Record of Decision by the end of 2008. The Draft EIS has a very brief discussion about access roads. There are two alternative routes, North and South, both of which connect to the Elliott Highway in the vicinity of Livengood. The USF&WS states that development of the access route will require a separate EA or EIS process. Doyon promotes the route as 35-foot gravel private road. If the access is private, then there will be very low ADT and no improvements are needed to the Elliott Highway other than those already anticipated for the gas pipeline. The trade has been placed on hold, and Doyon, Limited announced new oil and gas exploration activity in the Stevens Village area to be conducted in winter 2010. Exploration will be a joint Doyon and Dinyee project.

4.2.1.6 Kandik Basin

The Kandik Basin straddles the Canadian border on the east side of central Alaska approximately 80 miles from Circle. The basin has several sandstone and limestone formations which often indicate the presence of petroleum reservoirs. There has been limited exploration of the basin to date. In 1976, a well drilled on the Alaska side encountered oil and traces of gas.[6]

4.2.1.7 Delta Junction/Big Delta

The Department of Natural Resources, Division of Oil and Gas has received applications for shallow natural gas leases in the Delta Junction/Big Delta area for acreage just north and west of the City of Delta Junction, but no leases were issued. The alternative highway route for the natural gas pipeline passes next to the Delta Junction lease block.

[5] Petroleum Oil News, Dispelling the Alaska Fear Factor, Chapter 6, 2005

[6] Petroleum Oil News, Dispelling the Alaska Fear Factor, Chapter 6

4.2.1.8 Potential Gas Lines

Two large-scale gas lines may affect the Interior. TransCanada and Denali - The Alaska Gas Line Project are both working on plans for separate 1,700 mile super-sized pipelines to link to existing infrastructure in Canada and the Lower 48 by 2018.[7] One potential pipeline would carry gas from the North Slope to the lower 48 and the other would carry gas to Southcentral Alaska.

The proposed Alaska Natural Gas Pipeline would carry gas from the North Slope to markets primarily in the lower 48. Estimates are that at least 35 trillion cubic feet of identified gas reserves are trapped beneath the North Slope – about 50 percent more than the United States uses in a year.[8]

Enstar, the Anchorage natural gas distributor, is determining a "more precise route, more precise cost and more precise timeline" for a 690-mile small-diameter pipeline to increase natural gas supplies to the population center around Southcentral Alaska. The company is concerned about gas supplies because production from its historic source – Cook Inlet area gas fields – is diminishing. Enstar is considering the North Slope or gas fields in the foothills of the Brooks Range as a source. The pipeline envisioned would follow the rights of way of the Parks and Dalton Highways. Enstar officials believe that the highway route, although longer, would be cheaper than crossing state and Federal parklands. The company must decide whether to sanction the project and spend around $60 million on the second phase of the project, which may be completed by 2015.[9]

The Alaska Natural Gas Development Authority (ANGDA) has been involved in looking into spur lines from the proposed Alaska Natural Gas Pipeline under AGIA. The spur would roughly follow the Glenn Highway to Palmer. ANGDA presented a Power Point presentation in February 2008 that included a slide showing the proposed segments: Segment 1, Delta Junction – Glennallen; Segment 2, Glennallen – Palmer; Segment 3, Palmer – Beluga Gas Reservoir. The Power Point included a slide that showed a timeline, delivering a pipeline with operational gas

[7] *Alaska Business Monthly*, Bridging the gap: What's being done to supply the Railbelt with natural gas? May 2009, p 60.

[8] http://www.stateline.org/live/ViewPage.action?siteNodeId=136&languageId=1&contentId=58284

[9] http:// www.adn.com/oil/story/411458.html

flowing in early 2014. A possible line to Valdez was shown on the map as "Other Proposed Gas Pipelines" along with pipelines up the Yukon and Kuskokwim Rivers.

4.2.2 Oil and Gas Industry Trends

Overall, developed oil and gas production is declining in Alaska. As a result, new exploration in the Interior is occurring to help provide local supplies to nearby communities. If exploration reveals enough reserves to develop these resources, and it is economically viable, then it is likely energy firms will develop these fields.

4.2.3 Oil and Gas Industry Potential Access Needs

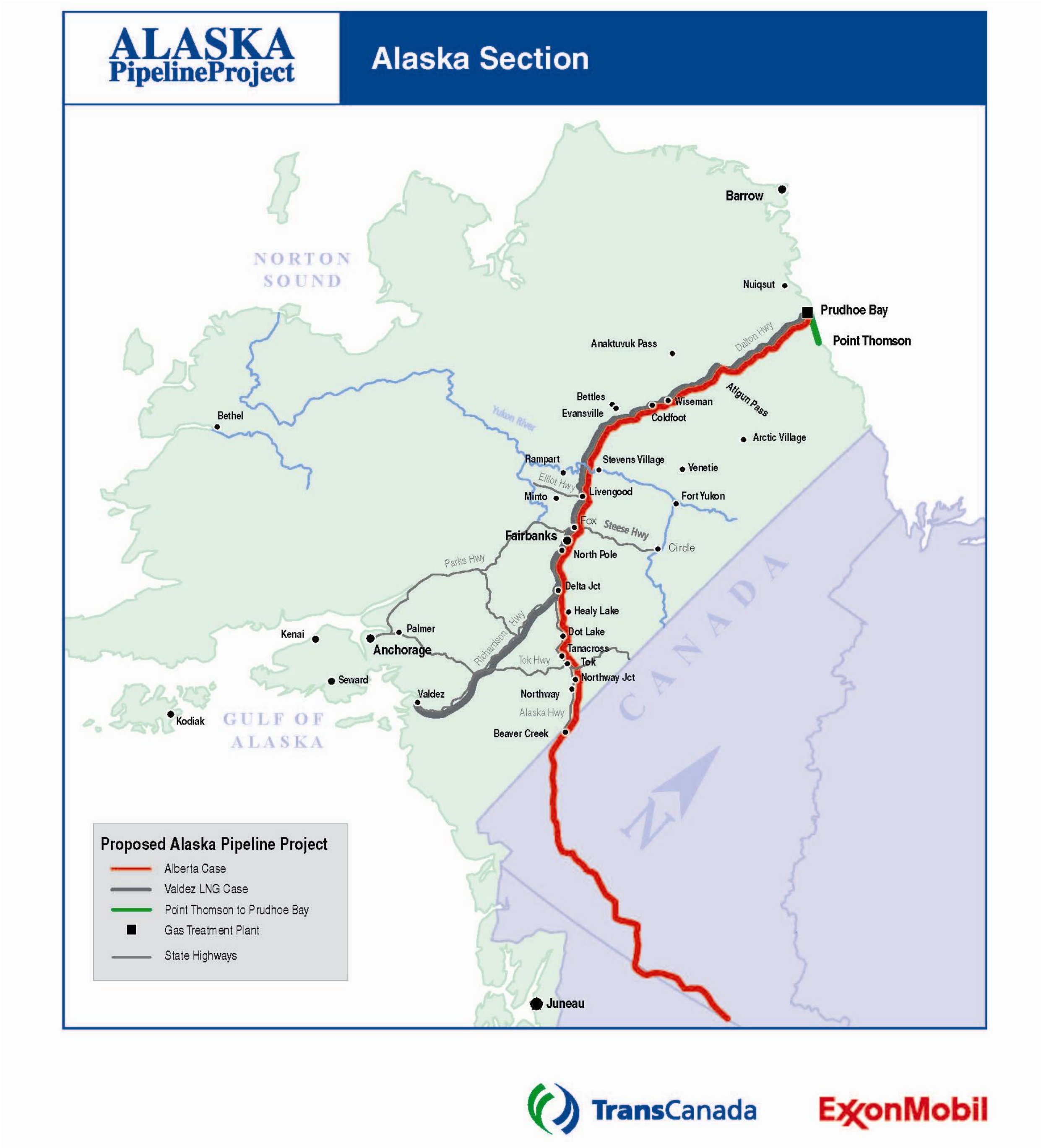
Should oil and gas exploration in the study area prove profitable, it is likely that access roads will be needed. Currently a road feasibility study, funded by the Denali Commission, is exploring potential routes from the Dalton Highway to Stevens Village. Doyon Limited supports this study as a means of providing potential access to lands east of Stevens Village where minerals and oil and gas reserves may exist.

The Alaska Natural Gas Pipeline route has not been determined, but impacts would likely be on the Parks, Alaska, Richardson and Dalton Highways. Enstar's proposed 'bullet' line to Anchorage would likely affect the Parks and Dalton Highways. The Yukon River Bridge on the Dalton Highway is a place where there is potential to provide a takeout point to serve down-river villages with natural gas.

Air support during oil and gas exploration is typically provided by helicopters that do not require extensive transportation infrastructure. The construction of a gas pipeline would require more extensive air support, similar to the surge in air passenger and cargo traffic that occurred during the Trans-Alaska pipeline construction. Within the study area, Fairbanks International Airport would likely absorb the greatest increase in passenger and cargo traffic, although airports located along the pipeline route(s) might experience a substantial increase in traffic, as well.

The proposed Alaska Natural Gas Pipeline along either the Parks or Richardson Highway corridors could benefit communities located on the pipeline route, spurring population and economic growth that would create additional demand for transportation services and infrastructure.

Figure 2 Trans Canada and Exxon Mobil Proposed Alignment for the Alaska Pipeline



Source: www.thealaskapipelineproject.com

The possible Glenn Highway pipeline spur is shown on ANGDA maps as following the highway alignment about halfway from Glennallen to Palmer. The alignment then goes north into the mountains, coming down north of Chickaloon, meeting back up with the Glenn Highway at the Parks Highway/Glenn Highway Wye. The ANGDA website indicates that portion of the alignment to access the Beluga Gas Reservoir is not yet determined. It is possible road improvements will be needed to support this spur line.

4.3 Alternative Energy

4.3.1 Alternative Energy Current Conditions

There are several alternative energy projects underway or proposed within the study area. These include primarily wind and hydroelectric projects.

4.3.1.1 Wind Power

Golden Valley Electric Association (GVEA), partnered with Alaska Wind & Solar, experimented with wind power in the late 1990s in the Healy area. A single turbine operated from September 1998 through October of 2000 and GVEA terminated the project in June 2001.

In 2006, GVEA constructed five meteorological towers at Eva Creek near Healy to study winds in the area. As evidenced by a recent GVEA application to the Alaska Energy Authority (AEA) for interconnection, wind generated power from the Eva Creek area may become part of their electrical generation base.

4.3.1.2 Hydroelectric Power

Small water turbines, called "Free Flow Power" generators, are being promoted for streams with constant flows to provide electricity to individual or small clusters of homes in rural areas. This technology does not involve dams or other stream blockage. Ten locations in Alaska have sought this technology, two of which are inside the study area: Tanana and Eagle. One preliminary permit has been issued for this technology on the Yukon River[10]. A preliminary permit authorizes the permittee to conduct studies for up to three years to support a license application. It will be at least 2011 before this technology can be implemented.

[10] Federal Regulatory Website, March 2008.

4.3.2 Alternative Energy Trends

Alaska Environmental Power LLC (AEP) constructed one wind turbine in the Delta Junction area in 2008. A second turbine was constructed in 2009 with plans for installing 10 more turbines in 2010. The ultimate wind farm will generate 15 megawatts of power. AEP has applied for grants from the Denali Commission and the AEA.

There is recent interest in resurrecting the Susitna hydroelectric dam[11]. The dam project was closed in 1986 due to the substantial construction cost at a time when oil prices were very low. Three bills were introduced to the 25th Legislature in January 2008 to study the Susitna Hydroelectric Project. The bills did not pass, but may be introduced again in subsequent legislative sessions. Improvements may be necessary to the Denali Highway if the dam is built – the Denali Highway is gravel for most of its length. Width and grade would likely need improvements as well.

Communities in the vicinity of Glennallen, like Gulkana and Copper Center are actively pursuing biofuel technology. Biofuel is a renewable energy resource that takes vegetation and forms it into bricks or pellets for stoves. It can be used in creating both heat and some electricity. Bricks and pellets have slightly different requirements for stoves and are not interchangeable.

4.3.3 Alternative Energy Potential Access Needs

None of the alternative energy projects in operation or proposed currently have a need for new access routes. However, timber sale pioneer roads or other routes used for biofuel might supply needed access for many different uses in the future.

4.4 Timber Industry

Serious commercial interest in Interior forests began in the late 1960s and occurred again in the late 1970s and 1980s. The passage of the Alaska Native Claims Settlement Act (ANCSA) in 1972 and the Alaska National Interest Lands Conservation Act (ANILCA) in 1980 encouraged Native Corporations to survey and assess their new land holdings. Notable project proposals over the last 30 years have included plywood and particleboard plants, compressed fuel logs and log export using river barges. The Toghotthele Corporation organized exports in the 1970s, but little

[11] Anchorage Daily News, January 18, 2008.

commercial activity was realized. Sporadic exports of timber by private landowners and logging operations occurred as prices peaked in the late 1980s and early 1990s, but this trend did not continue.

Several efforts to attract and develop large-scale timber industry in the Interior in the early 1990s failed. In 1994, Interior legislators tried to create forest management agreements (FMAs) or long-term leases (LTLs) on State lands, but their proposed legislation stalled because of organized public opposition in the Fairbanks North Star Borough. In 1993 and 1994, the former Department of Commerce and Economic Development hosted stakeholder meetings to help form an Interior or Boreal Forest Commercial Timber Land Owners Association. Due to budget constraints and lack of private landowner involvement, this group never formed. Continued falling timber prices prevented any further interest in this group.

4.4.1 Timber Industry Current Conditions

Today, the Interior of Alaska holds approximately 22.5 million acres of commercial forest containing 14.25 billion cubic feet of harvestable timber. This includes the Alaska Range north to the Brooks Range and from the western edge of tree line east to the Canadian border.

Most of the commercial timber harvest in the study area is primarily on State (Tanana Valley Forest) and Native corporation (Ahtna, Inc.) land, although the TCC holds offerings on Native Allotments. Two Native Corporations own property within the study area. Doyon, Limited and Ahtna, Incorporated. The Doyon holdings cover nearly the entire study area. However, they are not currently pursuing timber as a marketable resource.[12] There is some small scale logging at various locations in the study area.

Roughly 20 to 30 small mills operate in the Fairbanks North Star Borough. The larger lumber mills process about one to two million board feet annually of grade stamped lumber. Two secondary processors are also located in the borough. In the Delta area, three local timber processors sell log homes and kits, lumber, building materials and three-sided house logs. One mill, operating in Copper Center, focuses on rough-cut lumber, house logs and firewood. In

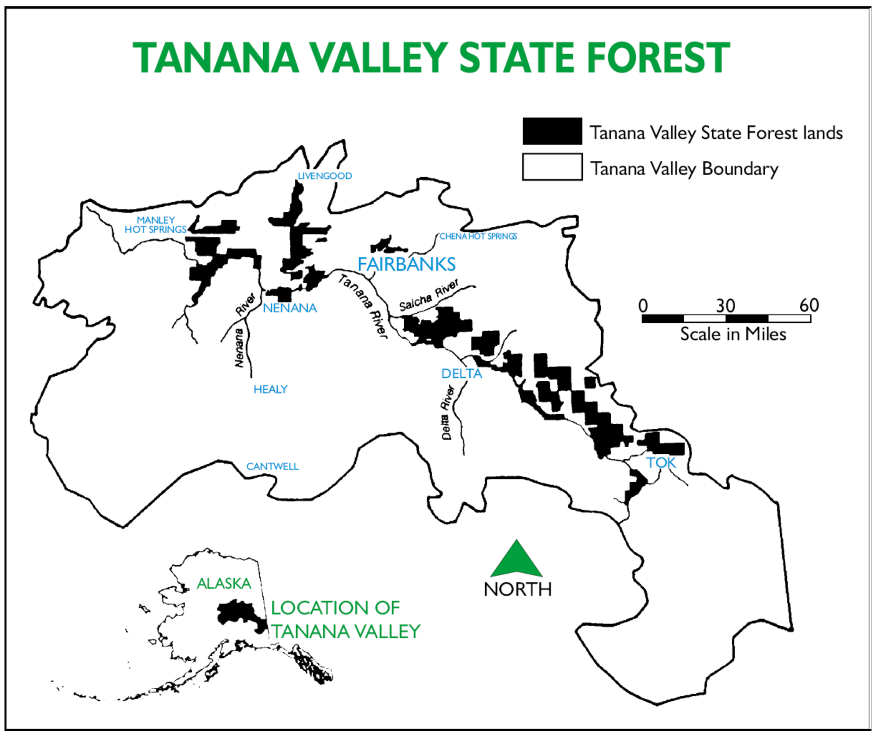
[12] Personal communication April 9, 2008.

Nenana, local lumber sales reached gross sales of nearly $20 million in 2006 due to several large construction projects. Almost all of the locally produced wood is consumed in the study area.

4.4.1.1 Tanana Valley State Forest

The Tanana Valley State Forest stretches from Manley to Tok and contains 1.8 million acres. Of this, about 1.1 million acres is commercial forestland. The Edgerton, Glenn, Richardson and Tok Cut-Off highways provide general road access to the forest. Approximately 85 percent of the forest lies within 20 miles of a state highway. The forest contains mostly paper birch, quaking aspen, balsam poplar, black spruce, white spruce and tamarack. Timber production is the major commercial activity. The Bonanza Creek Experimental Forest, a 12,400-acre area dedicated to forestry research, is also located within the state forest.

The community of Tok has proposed to harvest timber (primarily spruce) north of town for an alternative heating and power fuel, initially for the school and other public buildings. This effort would reduce fire threat as well as providing low-emission and lower-cost power.



Source: http://forestry.alaska.gov/pdfs/tananamaps.pdf

Figure 3 Tanana Valley Forest Location Map

Few private timber sales occur within the Fairbanks North Star and Denali Borough. Mills that operate in the area produce logs, lumber and other locally consumed wood products from stands of white spruce and paper birch. Timber stands targeted for commercial sales average above 3,000 board feet per acre.

Alaska Division of Forestry personnel report that hardwoods grow in the Delta area at a slightly higher percentage to the Interior norm. Individual hardwood and softwood trees in the Delta area are slightly smaller than those around Fairbanks, Nenana and Tanana. The Alaska Division of Forestry's Delta Area includes approximately 480,667 acres of State land, including portions of the Tanana Valley State Forest, which support commercial quality forests and are available for harvest.

The Division of Forestry in Copper River reported two timber sales between 1997 and 2001, totaling 560 acres. A 1968 field inventory for the Copper River area was limited to Chistochina, Chitina, Copper, Gakona, Gulkana, Klutina, Tazlina and the Tonsina Rivers. About 600,000 acres of the original inventory unit was set aside as the Wrangell-St. Elias National Park. The remaining portion has 154,600 acres of timberland with a net volume of about 482.6 million board feet of saw timber. Most of the saw timber is white spruce.

4.4.1.2 Ahtna Inc.

Several timber inventories have been conducted on portions of Ahtna land. The U.S. Forest Service's 1968 inventory identified 440,000 acres of commercial forestland within two million acres of the Copper River Valley. Between 1989 and 1991, the Forestry Department of the TCC conducted timber inventories on Gakona, Gulkana, Tazlina and Mentasta Village lands.

The timber in the Ahtna region is typically small white spruce that may be used as saw logs or house logs; however, best use of this timber is pulp. In 2002, Ahtna began a multi-year contract with Northwest Pacific Industries (NPI), a Matanuska-Susitna Valley firm, to chip large acreages of beetle-killed spruce, cottonwood and aspen on Ahtna lands. In past years, Ahtna has made a few small timber sales of about 150,000 board feet to local mills in the region.

4.4.1.3 Yukon Flats

Boreal forests dominate the Yukon Flats area. According to the Yukon Flats Resource Conservation & Development Area Revised Area Plan of 2001, the Council on Athabascan Tribal Government (CATG) would like to pursue forest industry development. Costs for shipping and transportation are high and there are limited possibilities for creating products for export and in locating and reaching possible markets for such products. The major obstacle identified by the CATG in developing the forest industry is excessive costs.

Tribal entities have also been exploring timber as a viable economic resource. The Stevens Village Natural Resource Department is completing their forest inventory and forest stewardship program and the Circle Village Council is operating a functional sawmill and timber production business.

4.4.2 Timber Industry Trends

The current State timber sale schedule calls for sales to continue between 2008 and 2010. In the Fairbanks area, the schedule is for about 600 acres to be logged per year with a yield of around 700,000 cubic feet of saw logs. In Delta, the estimated sales are between 870 and 2,000 acres of logging to occur with saw logs between about 1,700,000 and 2,700,000 cubic feet.

The forest industry in the Interior has been limited to small mills and cottage industries. In recent years, interest in these resources has increased. Potential products include composite board, flakeboard, fiberboard and waferboard. As the Interior and the Copper River Valley become growing tourist destinations, new buildings in rustic architectural styles may present an opportunity for the local timber industry. The export of logs to Asian markets does not appear feasible, since cheaper and closer higher quality sources are available. Also, foreign markets look increasingly to kiln dried lumber, which would involve a considerable investment by local providers.

There is potential to significantly increase timber production if the gas pipeline is built with a tap to the State Forest area (Delta) *and* if the railroad extension is built. Division of Forestry personnel state that there could be a large pulp mill as well as exports.

4.4.3 Timber Industry Potential Access Needs

During the 1980s, nearly all commercial timber harvesting in the Interior was from the existing road system. Many of the upcoming sales are also located near the road system. The only road building that has historically been required on State timber sales has been onsite, although these roads often provide access to a future timber sale. Also, the Division of Forestry can authorize a purchaser to construct, reconstruct and maintain roads, bridges and other transportation facilities needed for cutting and removing timber.

Notwithstanding the above, the vertical and horizontal curves on the Richardson Highway at Hansen Hollow Road could be improved. One possible solution would be a one-lane, private road alongside the new railroad bridge across the Delta River. This would allow timber trucks to safely navigate the intersection and gain access to known resources.

Other problem areas include the intersection at the top of Tenderfoot north of Delta on the Richardson Highway where sight distance is poor, and Cummings Road east of Delta off the Alaska Highway near the Gerstle River. Division of Timber personnel have stated that, given their limited budget and DOT&PF's role as the lead state transportation entity, they want DOT&PF to accept ownership and maintenance of Cummings Road on the east side of the Gerstle River.

4.5 Agricultural Resources

The Tanana Valley was the agricultural heart of Alaska until the 1930s when the New Deal brought farming families to the Matanuska-Susitna Valley. Farming remains an important activity with most agricultural products sold and consumed locally.

In 1978, the State began the Delta Agricultural Project I near Delta Junction, creating 22 farms averaging 2,700 acres each. In 1982, the Delta II project formed 15 additional farms, averaging more than 1,600 acres each. Tracts of 2,000 to 3,600 acres were sold by lottery, and State loans were made available to purchase and clear the land. A marketing program was undertaken for barley exports. Grain terminals were built and the Alaska Railroad purchased 20 special grain cars, which were never used.

The Delta Barley project ultimately failed. One reason cited for the failure was that the Delta barley farms should have been located at Nenana, which is at lower altitude with a longer growing season and better soil (page 18, Investigation of Agricultural Limestone Demand Requirements and Supply Production in Alaska by A.C. Sanuzi, March 1983). In addition, wild bison herds in the Delta area ate the barley (Bison Depredation on Grain Fields in Interior Alaska by Philip Gipson and Jay McKendrick, 1981), no Pacific Rim buyers wanted to purchase barley from Alaska, and, without rail access, there was no low-cost way to transport the barley.

Other agricultural development initiatives include the following:

- A soil survey of 1,901,600 acres west of Nenana in the Totchakat area examined its agricultural potential. In June 2007, the City of Nenana re-examined the original 1981 study of the Totchakat land's development potential including road and bridge access to approximately 300,000 acres for agriculture and forestry development.
- The 1984 Upper Kuskokwim Regional Strategy Project concluded that small-scale agricultural enterprises supplying a limited, local market would be feasible in the McGrath area.
- The 1985 Yukon-Porcupine Regional Planning Study examined commercial agriculture potential in the area from Tanana to Fort Yukon. The study's minimum development scenario, characterized by domestic and small-scale enterprises, probably represents the actual condition of development to date. The TCC and the University's Cooperative Extension Service have collaborated to create joint programs in gardening, food preservation and animal husbandry that are available to tribal enrollees in many Interior villages. The TCC has repeatedly identified agriculture as an economic development priority. The State of Alaska Division of Agriculture is considering additional agricultural land sales in the Copper River Valley. Some demand may exist for additional agricultural land, as farm tracts in the Delta area are fully occupied and the Farm Service Agency reports that there is regular inquiry about the availability of farmland.

4.5.1 Agricultural Resources Current Conditions

While not a major player in the State's economy, agriculture is a stable industry. However, the cost to transport agricultural products, the lack of adequate processing facilities and dependable seasonal labor creates challenges. Diverse crop production in the study area includes brome hay, vegetables, potatoes, berries, barley and oats for grain and hay, grass seed and greenhouse production of plants and vegetables. Livestock production includes cattle, swine, goats, sheep, yaks, reindeer, bison, elk, musk ox and poultry. The demand for Alaska-produced beef is greater than the supply. Dairy production occurs in Delta Junction (Northern Lights Dairy).

Most crops are grown in the Fairbanks North Star Borough and the Delta Junction areas. Farmers frequently bring fresh produce to the Tanana Farmers Market or sell local produce at roadside stands or local stores. Major operations include pellet and grain feed producers, slaughterhouses, dairy and hay.

Two grain elevators are located in Delta Junction – the Alaska Farmers Cooperative and the former Montana Grain Growers Elevator now owned by two Delta Junction farmers. These facilities are under-utilized.

DNR has a program to auction agricultural lands to the public. In 2008, they successfully auctioned six parcels, ranging from 26 to 120 acres, in the Clearwater area about five miles southeast of Delta Junction off the Alaska Highway. Due to the auction's success (bids went up to 90 percent over the minimum), DNR plans to continue to auction agricultural parcels.

Two USDA-approved slaughterhouses are located in the study area. Delta Meat and Sausage is a private slaughterhouse in Delta Junction and Tanana Valley Meats Farms operates a slaughterhouse and processing plant in North Pole.

Seed potatoes, and to a lesser extent, carrots have been exported to China and Taiwan, but these ventures have been small and no firm export markets have been established. The recent potato blight disease may affect this opportunity. Exports to Canada and the continental United States have also been very small in scale. The ability to sell in quantity to urban markets in Alaska depends on the willingness of retail chains to buy Alaska products. New sales opportunities may exist through niche markets with hotel and restaurant sales, sales to cruise ship and tour lines, and the internet for specialized products such as wild berry jams and birch syrups.

Opportunities include organically grown crops and meat, Alaska's wild harvested and cultivated crops, and native grass seeds and plants for soils disturbed by road construction, military operations, oil field development and mining. Other successfully marketed landscaping products include humus and potting soils

4.5.2 Agricultural Resources Trends

Because of the great distance to external markets, farmers in Interior Alaska have limited markets. Road systems serving the existing agricultural areas are sufficient for local traffic and are tied into the road and rail system that connects the more populated areas of interior Alaska.

Many farmers provide their own transportation services. Most agricultural commodities move by truck. As fuel costs rise, other options may gain more interest and favor. Rail may also be extended closer to some agricultural areas in the coming years (North Pole to Delta Junction) making this transportation option more attractive. Little infrastructure for loading and unloading bulk agricultural commodities exists for any mode of transport (highway, rail, or river).

4.5.3 Agricultural Resources Potential Access Needs

Agricultural parcels auctioned by DNR may require driveway permits for highway access or access via section line easements. The Division of Agriculture places the responsibility for parcel access on the successful bidder.

Some undeveloped areas of potential expansion, such as the Nenana-Totchakat and Delta West agricultural areas, are not accessible by road or rail. [13]

4.6 Tourism

For well over 100 years, visitors have trekked into the Interior of Alaska, drawn by the scenic beauty, remoteness and sense of adventure. Early journeys across the Interior often took several days on established trails, and then eventually on unpaved roads, such as the Richardson route from Valdez to Fairbanks. Early travelers often stopped at roadhouses that were about 25 miles apart.

4.6.1 Tourism Current Conditions

Between May and September 2007, there was an estimated 1.7 million out-of-state visitors. Of this number, the Interior region attracted 534,000 visitors (including 450,000 visitors to Denali alone).[14] In the fall/winter 2007-2008 season an additional 247,400 visitors came to Alaska for a total of 1.9 million year round visitors. In 2008, summer visitation dropped about 5 percent to about 1.6 million visitors. The Cruise industry remained strong,[15] bringing many visitors on package tours to Denali and the Interior via train and bus.

Visitors exiting by highway and ferry continued a three year pattern of decline since 2005, decreasing by 6.8 percent and 2.8 percent respectively between 2007 and 2008. The number of

[13] The Agricultural Industry in Alaska: A Changing and Growing Industry – Identification of Issues and Challenges, prepared the UAF Cooperative Extension Service, May 2006, page 8

[14] *Alaska Visitor Statistics Program V: Summer 2006*, McDowell Group, Inc., April 2007.

[15] Personal Communication, Alaska Department of Commerce and Economic Development, January 2010.

visitors exiting via the Alcan Highway dropped by 18 percent; and exits on the Top of the World Highway dropped by 9 percent. [16] Air travel declined at about ten percent.[17]

Approximately 63 percent of all rural visitors tour the Interior of Alaska, with about 9 percent at some point using the Alaska railroad. Nearly two-thirds of those that visited Denali National Park were likely to visit Fairbanks.[18]

Numerous tourism operators provide activities in the study area. These include tours via the road system in the Fairbanks area, Wrangell-St. Elias National Park and Preserve, Copper River and the Arctic Circle (along the Dalton Highway). Activities for tourists in the study area range from bicycling tours, guided fishing/hunting, rafting, riverboat cruises, backpacking, mountain climbing, horseback riding, flightseeing, gold panning, and dog sled rides. Cultural tour destinations within the study area include Arctic Village, Coldfoot and Fort Yukon. Although independent travelers and Alaska residents purchase tours, most tours are sold with cruise ship packages.

Study area airports used for flightseeing and other air tours include Arctic Village, Chitina, Coldfoot, Copper Center 2, Denali National Park, Fairbanks International, Fort Yukon, Gulkana, Healy River, Kantishna, McCarthy, Tok Junction and Denali Air's private strip located near the entrance to Denali National Park. Backcountry airstrips and lakes that are not registered as airports also support tourism. ERA Aviation also provides flightseeing via helicopter from MP 238 of the Parks Highway, just outside the entrance to Denali National Park.

Many independent tourists drive the highway "loop", travelling the Parks Highway to Fairbanks, down the Richardson Highway, and then leaving the State through Tok or returning to Anchorage via the Glenn Highway. The paved Glenn, Richardson and Edgerton Highways bring travelers to secondary roads such as the McCarthy and Nebesna Roads that enter the Wrangell-St. Elias National Park and Preserve, and the Denali Highway from Paxson to Cantwell. More visitors fly into Alaska and rent cars than drive their own vehicles. Many car rental agencies will not permit rental cars on gravel roads, such as the Nebesna and McCarthy Roads, and the Denali

[16] Personal Communication, Alaska Department of Commerce and Economic Development, January 2010.

[17] Personal Communication, Alaska Department of Commerce and Economic Development, January 2010.

[18] *A Profile of Visitors to Rural Alaska, Alaska Travelers Survey*, McDowell Group, March 2006.

Highway. Some of the documented constraints to tourism development include long travel distances, poor road conditions, high fuel costs, long stretches of roads with construction or maintenance delays, and limited signage or tourist amenities.

4.6.2 Tourism Trends

While travel to Alaska has increased, highway travel has declined slightly as a percentage of all travel to Alaska. The cruise market mode increases every year while other modes remain static or are lower than previous years. Increased fuel prices and a trend toward shorter vacations have contributed to this statistic. The Trend Analysis from the *A Profile of Visitors to Rural Alaska* March 2006 by the McDowell Group additionally states:

> The average length of stay in Alaska decreased from 16.2 to 12.5 nights. This is likely related to the decline in the highway and ferry markets, which tend to stay longer in the state when compared to the air market.
>
> A related issue is the rate of visitation to certain communities. Anchorage visitation went up, while Fairbanks and Tok visitation went down. Highway visitors are more likely to visit Fairbanks and Tok; air visitors are more likely to visit Anchorage.

The *Alaska Visitor Statistics Program V Interim Visitor Volume Report, Summer 2007* by the McDowell Group states that overall visitation was up 5.1 percent over summer 2006. The majority of growth was in the cruise visitor, which was up 7.3 percent between 2006 and 2007. Overall highway exits were down.

According to *Alaska Visitor Statistics Program V: Summer 2006* by the McDowell Group, 587,800 visitors to Alaska entered and exited by air. Approximately 34 percent of the visitors who traveled to and from Alaska rented a vehicle while in the state. Previous visitor studies did not include this statistic so a trend cannot be reported on a “fly and drive” aspect of tourism.

4.6.3 Tourism Potential Access Needs

While the need for new access routes to accommodate tourism has not been identified, improving road conditions, signage and tourist amenities such as maintained rest room facilities may increase tourism or improve the experience.

The aircraft fleet dedicated to flightseeing in the study area is made up of small (up to eight-seat, twin engine) aircraft. These aircraft can operate on smaller (both shorter and narrower) runways than larger aircraft. Airport improvements do not appear to be needed to support increased flightseeing, since most publicly-owned Interior airports already have runways of 2,000 feet or longer. Public airports that do not meet appropriate FAA design standards should be improved to meet them for the safety of pilots and passengers. The number of Interior flightseeing trips occurring at a single airport in a compressed timeframe is far below the levels that occur in Southeast Alaska cruise ports or in Talkeetna (a primary base for Denali Mountain flightseeing). If flightseeing in the Interior grows substantially, additional aircraft parking apron may be needed at some airports.

4.7 Commercial Fishing

A small commercial salmon (Chinook and Chum) fishery occurs on the main stem of the Yukon River and the Tanana River in the summer and fall. Fish wheels are the dominant gear type in the area.

4.7.1 Commercial Fishing Current Conditions

The Alaska Department of Fish and Game (ADF&G) monitors commercial harvests, limiting fishing areas and seasons as necessary. Additional limitations on the commercial fishery include maintaining adequate escapement for spawning stocks and for the subsistence fishery.

In most recent years, there have been harvestable surpluses of summer Chum. However, in 2007 there was no summer chum fishery in the study area and a limited commercial opening for summer Chinook salmon.

The website for The Yukon Panel states: “Most commercial fishers are residents of the Yukon River drainage and many subsistence fishers also participate in the commercial fishery. The cash income derived from the commercial fishery assists many area residents in their subsistence lifestyle. Income earned from commercial fishing is often used to obtain hunting and fishing gear, such as nets, boats and outboard motors utilized in subsistence activities.”

There is no one area of congregation for commercial fishing in this part of the Yukon River. Those who fish commercially most often use the same equipment as they use in subsistence fishing. They sell to small volume, local processors. John Burr, Area Management Biologist, Division of Sports Fish states that there is a quandary between buyers and commercial ticket holders because the fishery has been so variable in the last 8 or so years. Buyers do not necessarily want to gear up to buy if the fishery is canceled or curtailed.

There has been commercial and subsistence fishing at Tanana and Rampart. A cannery was established at Rampart in the 1940s. It is unknown when it was abandoned, but the school has been closed since 1999 due to the low population.

According to John Burr, there are personal use fisheries on the Yukon River at the Dalton Highway Bridge and near Fairbanks on the Tanana River. There are no other personal use fisheries in the study area.

4.7.2 Commercial Fishing Trends

ADF&G assesses each salmon run before allowing commercial fishing. The salmon runs in 2009 were below previous years' estimates and the prediction for 2010 was also low.[19]

The value of the 2007 fall fishery was $18,300, above the 10-year average of $13,700. With a ban on west coast salmon fishing, prices for all salmon will probably increase and above average prices will continue.

4.7.3 Commercial Fishing Potential Access Needs

There have been no additional access needs identified to support commercial fishing.

[19] ADF&G Special Publication 10-02 *Run Forecasts and Harvest Projections for 2010 Alaska Salmon Fisheries and Review of the 2009 Season* February 2010 edited by D.M. Eggers, M. D. Plotnick and A.M. Carroll

5 Forecast

5.1 Introduction

This chapter outlines the development of 20-year traffic forecasts for all highway corridors in the study area and forecasts for passengers, cargo and based aircraft at Interior Alaska's public use airports. Forecasts are used to assess future traffic operations and identify potential deficiencies in the transportation system. The forecasts also help communities within the study area plan for future growth and travel demand.

To complete the forecasts, population projections for the study area were analyzed. In addition, impacts from resource and economic development projects and historical growth patterns were considered.

5.2 Population Projections

The model used in the population projections assumes the continuation of current population migration trends, particularly population declines. These trends have been indentified in Northern Economics' own research and in the research of other such as ISER's *Fuel Costs, Migration, and Community Viability*. The population estimation process is described below:

- The analysis identifies census area/borough-specific compound annual growth rates (CAGRs) for from Alaska Department of Labor and Workforce Development and the University of Alaska-Anchorage's Institute of Social and Economic Research (ISER).
- The analysis assumes that communities, in aggregate, grow at the census area or borough specific compound annual growth rate from ISER or ADOLWD.
- The analysis assumes that the difference between a community's individual CAGR and the weighted average for that community's census area between 2000 and 2007 will continue into the future.
- After estimating individual CAGRs for each community, the resulting population estimates are adjusted to make sure that the results for each community fit the internally consistent set of assumptions developed by the study team.

- In the final step, the analysis aggregates community results into census area and borough level results.

A more detailed discussion of this process and the model's basic assumptions about the future are included in the full population projection memo (See Appendix C Population Projection Memo).

The analysis estimates that almost all of the census areas and boroughs included in this analysis will grow between 2007 and 2030, but that growth rates will be modest. Overall, the weighted CAGR for all communities in the study is expected to be 0.9 percent between 2007 and 2030. However, the data for this analysis show that declining population is an issue for many communities; between 2000 and 2007, 29 of the 59 communities or places experienced negative growth rates. The aggregate population of the project communities in the Fairbanks North Star Borough is expected to grow most quickly, albeit at a modest 1.1 percent CAGR, driven by the construction of the North Slope natural gas pipeline and the City of Fairbanks' role as a regional hub. The analysis projects that the aggregate population of the project communities in the Yukon-Koyukuk Census Area will fall slightly. This decline continues a pattern identified in recent work by ISER and by Northern Economics. The remaining areas will see very modest population growth.

Table 5-1. Study Area Population Projections by Census Area/Borough[1]

Borough/ Census Area	Number of Communities Inside Project Area	2007 Population	2010 Population	2020 Population	2030 Population	2007-2030 CAGR
Matanuska-Susitna Borough	1	91	91	102	114	1.0%
Denali	3	1,444	1,392	1,375	1,348	-0.3%
Yukon-Koyukuk	17	2,290	2,179	1,973	1,843	-0.9%
Valdez-Cordova	17	2,564	2,429	2,275	2,156	-0.8%
SE Fairbanks	10	3,782	3,688	3,734	3,674	-0.1%
Fairbanks North Star	12	90,963	91,193	103,673	116,469	1.1%
Grand Total	60	101,134	100,971	113,133	125,603	0.9%

Source: U.S. Census Bureau Census 1990; U.S. Census Bureau Census 2000; Alaska Department of Labor and Workforce Development 2008; Northern Economics, Inc Estimates 2008.

In aggregate, the populations of non-road system communities within the project's study area are expected to decline at a CAGR of -0.2 percent between 2007 and 2030; from nearly 1,500 to approximately 1,430. While the aggregate population of these communities will be relatively stable, the changes in individual community populations will be highly variable. For example the analysis estimates that the populations of Lake Minchumina, Rampart and Chisana will decline into the single digits by 2030, effectively indicating that the communities may cease to exist in the long-term. The analysis also estimates that some larger communities such as Arctic Village and Fort Yukon will grow slowly during the analytical period.

[1] This table aggregates estimates by census area/borough. The table does not contain comprehensive estimates of actual census area or borough populations because there are communities in some of the census areas and boroughs which are not included in the study area. The analysis does not provide population projections for communities outside the study area. The estimates in this memo are based on current trends and reasonably foreseeable actions and events (RAFE). Events that could significantly change the results of this analysis include large changes in energy prices; the failure of efforts to build the Arctic North Slope Natural Gas Pipeline; major changes in Federal policy either through direct changes in Federal expenditures or through the Base Realignment and Closure (BRAC) process; force majeure events such as rapid climate change, epidemic, or natural catastrophe; major changes in state and Federal transportation policy; large changes in Permanent Fund Dividend checks.

Table 5-2. Population Projections for Non-Road System Communities

Community/ Place	Borough/ Census Area	2007 Population	Estimated 2010 Population	Estimated 2020 Population	Estimated 2030 Population	Estimated 2007-2030 CAGR
Arctic Village	Yukon Koyukuk	155	160	179	200	1.1%
Beaver	Yukon Koyukuk	65	60	45	34	-2.8%
Birch Creek	Yukon Koyukuk	26	26	25	25	-0.2%
Chalkyitsik	Yukon Koyukuk	72	69	62	55	-1.2%
Fort Yukon	Yukon Koyukuk	591	604	650	700	0.7%
Lake Minchumina	Yukon Koyukuk	17	13	6	3	-7.8%
Rampart	Yukon Koyukuk	17	12	3	1	-12.1%
Stevens Village	Yukon Koyukuk	71	67	54	44	-2.0%
Tanana	Yukon Koyukuk	257	244	205	172	-1.7%
Venetie	Yukon Koyukuk	181	177	165	153	-0.7%
Healy Lake	Southeast Fairbanks	37	38	40	42	0.6%
Chisana	Valdez-Cordova	7	6	3	1	-7.3%
Total for Non-Road System Communities		**1,496**	**1,476**	**1,437**	**1,430**	**-0.2%**

Source: Alaska Department of Labor and Workforce Development 2008; Northern Economics, Inc Estimates 2008.

Based on original estimates prepared by ISER (Goldsmith 2005) for the Knik Arm Crossing Environmental Impact Statement, the analysis estimates that the road system communities will grow at an average CAGR of 1.0 percent between 2007 and 2030. Under these conditions, the aggregate population of the study area communities will grow from approximately 99,631 persons in 2007 to 124,173 in 2030. The city of Fairbanks is expected to remain relatively constant in population, while evolving bedroom communities in the Fairbanks area such as Ester and Two Rivers will see faster growth as new residents take advantage of relatively lower land prices. Tourism gateway communities such as McCarthy may also see future growth. Other communities will see population losses. Communities such as Chicken, Livengood, Minto and Nelchina will likely shrink as residents age and more mobile residents seek lower living costs or higher wages in larger communities.

Table 5-3. Population Projections for Road System Communities

Community/ Place	Borough/ Census Area	2007 Population	Estimated 2010 Population	Estimated 2020 Population	Estimated 2030 Population	Est. 2007-2030 CAGR
Lake Louise	Matanuska-Susitna	91	91	102	114	1.0%
Anderson	Denali	234	234	263	292	1.0%
Big Delta	SE Fairbanks	790	776	804	817	0.1%
Cantwell	Denali	183	161	118	84	-3.3%
Central	Yukon-Koyukuk	95	78	46	26	-5.4%
Chicken	SE Fairbanks	19	19	22	24	1.0%
Chistochina	Valdez-Cordova	93	89	86	81	-0.6%
Chitina	Valdez-Cordova	124	119	116	110	-0.5%
Circle	Yukon-Koyukuk	102	99	98	94	-0.3%
Coldfoot	Yukon-Koyukuk	11	10	10	10	-0.4%
College CDP	Fairbanks North Star	12149	11979	12606	12991	0.3%
Copper Center	Valdez-Cordova	337	313	272	231	-1.6%
Delta Junction	SE Fairbanks	974	974	1074	1074	0.4%
Dot Lake	SE Fairbanks	15	13	9	6	-3.9%
Eagle	SE Fairbanks	109	97	73	54	-3.0%
Eielson AFB	Fairbanks North Star	4119	3512	3512	3512	-0.7%
Ester	Fairbanks North Star	2041	2130	2458	2836	1.4%
Fairbanks	Fairbanks North Star	31627	30940	31727	31856	0.0%
FNSB Remainder	Fairbanks North Star	35546	36946	46275	56776	2.1%
Fox	Fairbanks North Star	354	365	444	530	1.8%
Gakona	Valdez-Cordova	236	236	259	278	0.7%
Glennallen	Valdez-Cordova	518	483	421	360	-1.6%
Gulkana	Valdez-Cordova	113	121	166	224	3.0%
Harding-Birch Lake CDP	Fairbanks North Star	245	248	286	322	1.2%
Healy	Denali	1027	997	995	972	-0.2%
Kenny Lake	Valdez-Cordova	411	395	381	359	-0.6%
Livengood	Yukon-Koyukuk	21	18	11	6	-5.1%
Manley Hot Springs	Yukon-Koyukuk	72	69	66	62	-0.6%
McCarthy	Valdez-Cordova	54	58	80	107	3.0%
Mendeltna	Valdez-Cordova	68	67	72	76	0.5%
Mentasta Lake	Valdez-Cordova	109	93	61	39	-4.3%
Minto	Yukon-Koyukuk	180	148	85	47	-5.6%
Moose Creek CDP	Fairbanks North Star	650	675	841	1027	2.0%
Nelchina	Valdez-Cordova	52	44	27	16	-5.0%
Nenana	Yukon-Koyukuk	357	325	264	209	-2.3%
North Pole	Fairbanks North Star	1945	2048	2675	3423	2.5%

Community/ Place	Borough/ Census Area	2007 Population	Estimated 2010 Population	Estimated 2020 Population	Estimated 2030 Population	Est. 2007-2030 CAGR
Northway (Jct.& Village)	SE Fairbanks	147	129	94	66	-3.4%
Paxson	Valdez-Cordova	32	27	27	27	-0.7%
Pleasant Valley CDP	Fairbanks North Star	671	665	710	743	0.4%
Salcha CDP	Fairbanks North Star	995	1020	1220	1430	1.6%
Slana	Valdez-Cordova	108	98	77	59	-2.6%
Tanacross	SE Fairbanks	173	182	237	302	2.5%
Tazlina	Valdez-Cordova	219	230	271	319	1.7%
Tetlin	SE Fairbanks	165	179	201	224	1.3%
Tok	SE Fairbanks	1353	1281	1181	1065	-1.0%
Tonsina	Valdez-Cordova	76	67	49	35	-3.3%
Two Rivers	Fairbanks North Star	621	665	919	1022	2.2%
Total Pop. of Road System Communities		99,631	99,490	111,693	124,173	1.0%

Source: Alaska Department of Labor and Workforce Development 2008; Goldsmith 2005; and Northern Economics, Inc Estimates 2008.

5.3 Highway Traffic Forecasts

This section outlines the development of year 2030 traffic forecasts for all highway corridors in the study area. Traffic volume forecasts are used to assess future traffic operations and identify potential deficiencies in the transportation system. The forecasts also help communities within the study area plan for future growth and travel demand. The following sections outline the methodology used to develop future traffic volumes and provide the resulting future highway traffic forecasts within the study area.

5.3.1 Methodology

The existing traffic volumes provided in Chapter 3 represent the baseline traffic volumes for which future traffic volumes were developed. The following key elements were used for developing future year highway traffic forecasts.

- Population Projections
- Historical Traffic Volume Growth Trends
- Resource and Economic Developments

Population projections for the communities and census areas/boroughs were analyzed along with potential resource and economic development. These were then compared to highway traffic volume growth trends to establish annual growth rate factors.

5.3.1.1 Population Projections

Existing and future population projections are an important planning tool used to develop highway traffic forecasts. In order to project future highway traffic volumes, available population data was reviewed to assess general growth trends of communities throughout the study area. The overall forecast process considered historical population growth trends at the statewide, census area/borough, and community scales. The analysis found that almost all of the boroughs and census areas in the study area will grow between 2007 and 2030, but that growth rates will be modest (0.9 percent annual average). Variations within the boroughs and census areas are expected as some communities are projected to grow while others decline.

5.3.1.2 Historical Traffic Volume Growth Trends

Historic traffic volumes were reviewed along each of the major highway facilities within the study area for the past 20 years for all highway facilities with permanent traffic recorders (PTR) and 10 years for all remaining facilities. The facilities were divided up according to general traffic growth trends, major highway junctions, and population centers. Fixed recorders along the routes track Annual Average Daily Traffic (AADT) volumes and provide a year-by-year comparison of AADTs for each facility. Historic trends were identified and used to generate growth rates.

In general, the facilities that experienced the greatest traffic volume growth over the period analyzed were those that provide connections between major communities, such as Fairbanks and Anchorage. Portions of the Richardson Highway, Parks Highway, Steese Highway and Alaska Highway serving the major communities also experienced increases in AADT. Most of the other facilities saw a modest growth in traffic volumes.

5.3.1.3 Resource and Economic Development

The study of resource and economic development examined major industries including minerals, gas and oil, alternative energy, tourism, agriculture and timber. The study of the current conditions, trends and possible development opportunities associated with resource and economic development within the study area were closely examined to assess how they might influence highway traffic forecasts. As outlined in the *Resource and Economic Development* section of this report, findings suggest that although there is potential for significant growth in these areas, the overall impacts of resource and economic development in the study area are somewhat uncertain and varying. However, of these major resource industries, the potential for two new gas pipelines (Alaska Natural Gas Pipeline and Enstar Gas Pipeline) would have the greatest near-term impact to the transportation system. If construction of either pipeline were to begin, the associated short-term spike in population and employment would generate additional traffic on Interior highways. In particular, the anticipated increase in truck traffic would have a heavy impact on highway operations and the existing highway infrastructure.

5.3.1.3.1 Alaska Natural Gas Pipeline

Steps toward developing the Alaska Natural Gas Pipeline are currently underway by the State for a new gas pipeline between the North Slope and destinations throughout the lower 48. Although neither a producer nor definitive route has been selected, if and when construction of this large-scale gas pipeline was to begin, it would have a significant effect on the Interior highway transportation system.

As outlined by the DOT&PF, the facilities most likely to experience the largest increase in added traffic would be those that parallel the projected route of the new gas pipeline; the Dalton Highway, Elliott Highway, Richardson Highway and Alaska Highway. Although adequate capacity currently exists for all of these facilities to safely and efficiently accommodate regional traffic growth, a surge in construction activity resulting in not only higher truck volumes, but longer and more frequent truck trips, would trigger the need for major infrastructure improvements.

5.3.1.3.2 Enstar Gas Pipeline

The Enstar Gas Pipeline will begin in the North Slope and extend to Southcentral Alaska. Although a specific route for this new gas pipeline has yet to be determined, the most likely route will either be a parallel route to the Dalton Highway and either the Parks or Richardson Highway to the Glenn Highway. These highway facilities and adjacent supporting facilities will likely experience major increases in truck traffic during the construction of the gas pipeline, similar to what is identified for the Alaska Natural Gas Pipeline. As previously mentioned, areas of interest for the highway system include operations, safety, accessibility, circulation and infrastructure needs. These and other issues will be further explored in the Transportation Analysis chapter of this report.

Resource Roads

Ahtna, Department of Natural Resources, and the National Park Service have lands across the Copper River, where there are stands of cottonwood, white spruce and willow. Ahtna is planning to build a wood pellet plant in the Glennallen area. The pellets would be produced from Ahtna timber, 80 percent of which is located on the other side of the Copper River. The potential for minerals, oil and gas resources, geothermal and subsistence resources is very good in this area, also, and would be greatly improved by better year-round access. A bridge is needed to access these lands, timber and other resources.

The Copper River is narrow in several places between Gulkana and Tazlina. There are maintained roads east of the Gulkana airport (Alyeska/Ahtna maintained), east of the Richardson Highway in Tazlina (the Old School Road), and east out of Copperville (the Copperville Road) that would be good conduits to a bridge across the Copper River. It is recommended that a feasibility study be conducted to select the best site for the necessary bridge.

It is important to consider the Nenana Basin when discussing resource development in the Interior. The road to Totchakat would access the Nenana Basin for potential gas or minerals as well as agriculture lands. The last estimate for this route was $72 million. The Nenana Native Association applied to Denali Commission for Nenana Totchakat Road funding in 2006. The road would be accessed off 10th Avenue in Nenana. The State and the City of Nenana have about $50,000 (total) to do a feasibility study for the route which includes updating the cost estimate. The City will manage the project.

5.3.2 2030 Forecast Traffic Volumes

Year 2030 forecast traffic volumes were development based on a review of population projections, historical traffic volume growth trends, and resource and economic development. As previously mentioned, resource and economic development can have a significant impact on forecast highway traffic volumes. Development of major industries such as gas, minerals, agriculture and timber all have the potential to generate spikes in highway traffic under both near- and long-term conditions. While population and historical traffic volume growth trends can be easily measured and monitored, the overall impacts of resource and economic development are more uncertain with a larger potential for variability. The potential for any number of future resource and/or economic development projects does exist and very likely represents the condition of highest forecast traffic levels. Future impacts of potential resource and/or economic development should be considered as specific projects become more clearly defined.

Based on a review of population projections and historic traffic volumes, annual growth has been occurring at a moderate rate of one to three percent for most highway segments, with some segments recently experiencing modest growth (less than a half percent), while others have experienced higher rates of up to seven percent. A closer review of the historic traffic volumes also reveals that growth rates slightly vary based on near- and long-term trends, with near-term trends resulting in lower growth rates (potentially influenced by recent higher fuel costs). As such, two levels of traffic forecasts (low and medium) were developed to show this range. For the low forecasts, traffic volumes on facilities serving major communities and population centers were grown by a respective 0.50 percent per year, while an annual growth rate of 0.25 percent was applied to all remaining facilities. These growth rates were determined based on more recent trends seen throughout the study area. The medium forecasts were based on 10 to 20 year historical trends. Table 5-4 summarizes the year 2030 forecast AADT volumes.

Table 5-4 2030 Forecast Traffic Volumes

Highway	Mileposts	Geographic Boundary	2007 AADT	Low Forecast		Medium Forecast	
				Annual Growth	AADT	Annual Growth	AADT
Alaska Highway	1222 – 1314	Canadian Border – Tok	715	0.25%	760	1.0%	880
	1314 – 1422	Tok – Delta Junction	1,575	0.50%	1,760	1.0%	1,940
Dalton Highway	0 – 230	Elliott Highway – Study Area Boundary	280	0.25%	300	1.0%	340
Denali Highway	0 – 135	Richardson Highway – Parks Highway	280	0.25%	300	2.0%	410
Edgerton Highway/ McCarthy Road	0 – 91	Richardson Highway - McCarthy	380	0.25%	400	2.8%	620
Elliott Highway	0 – 68	Fox – Dalton Highway	1,205	0.50%	1,340	1.5%	1,620
	68 - 154	Dalton Highway – Manley Hot Springs	120	0.25%	130	1.0%	150

Highway	Mileposts	Geographic Boundary	2007 AADT	Low Forecast		Medium Forecast	
				Annual Growth	AADT	Annual Growth	AADT
Glenn Highway	127 - 158	Study Area Boundary – Lake Louise Road	970	0.25%	1,030	1.7%	1,350
	158 – 187	Lake Louise Road – Richardson Highway	2,710	0.25%	2,870	1.7%	3,770
Parks Highway	128 – 210	Study Area Boundary – Denali Highway	2,280	0.25%	2,410	4.8%	4,800
	210 - 304	Denali Highway – Nenana Highway	3,365	0.25%	3,560	1.7%	4,680
	304 – 324	Nenana Highway – Sheep Creek Road	7,825	0.50%	8,720	2.2%	11,780
Richardson Highway	69 – 115	Study Area Boundary – Glenn Highway	1,490	0.25%	1,580	1.0%	1,830
	115 – 185	Glenn Highway – Denali Highway	955	0.50%	1,060	1.8%	1,350
	185 - 266	Denali Highway – Alaska Highway	3,195	0.50%	3,560	1.8%	4,520
	266 – 348	Alaska Highway – Laurence Road	10,495	0.50%	11,700	1.7%	14,600
Steese Highway	3 – 11	Farmers Loop – Fox	8,070	0.50%	9,000	2.7%	13,080
	11 – 162	Fox – Circle	265	0.25%	280	2.7%	430
Taylor Highway	0 – 160	Alaska Highway – Eagle City	195	0.25%	210	1.0%	240
Tok Cutoff Highway	0 – 125	Richardson Highway – Tok	580	0.25%	610	1.0%	710
Top of the World Highway	0 – 14	Taylor Highway – U.S./Canada Border	120	0.25%	130	1.0%	150

The highway traffic forecasts shown in Table 5-4 were used to analyze future roadway operations covered under the Transportation Analysis chapter of this report.

5.3.2.1 Comparison to 1981 Interior Alaska Transportation Study

Based on a review of the year 2005 traffic forecasts used in the 1981 *Interior Alaska Transportation Study*, *Volume III Transportation Demand Forecasts* prepared by Louis Berger and Associates, Inc., a comparison of the forecast 2005 highway traffic volumes to the existing 2005 traffic volume data reveals that the existing 2005 traffic volumes are less than what was originally projected. Also, a closer review of the 1981 report shows that the average annual growth rates assumed under the previous study are in line with those used for this study. This assessment was based on a direct comparison of roadway link volumes along the Richardson, Alaska, Parks, Steese, Dalton and Tok Cutoff Highways. Therefore, the annual growth percentages used to forecast the 2030 highway traffic volumes are in line with previous growth assumptions, and as such the 2030 highway forecasts represent a reasonably conservative level of traffic demand.

5.3.3 Truck Traffic

DOT&PF tracks truck volume percentages data for many of the major state highway facilities. The data is obtained from the Automatic Vehicle Classifiers (AVC) located across the State. Table 5-5 summarizes historical truck percentages based on data obtained from the DOT&PF Northern Region annual traffic volume reports.

Table 5-5 Truck Percentages (1999 – 2007)

Highway	1999	2000	2001	2002	2003	2004	2005	2006	2007
Alaska (Gardiner)	26	32	33	37	29	-	36	31	-
Alaska (MP 1411)	-	-	-	-	-	-	-	-	26
Alaska (MP 1310)	-	-	-	-		-	-	-	34
Dalton	-	-	-	-	-	-	-	70	-
Denali	-	-	-	-	-	-	-	-	-
Edgerton / McCarthy	-	-	-	-	-	-	-	-	-
Elliott (North of Fox)	9	9	9	22	15	-	23	20	25
Glenn	-	-	-	-	-	-	-	-	-
Parks (E. Fork)	15	21	24	18	22	-	23	21	24
Parks (Nenana)	18	16	16	10	20	-	23	18	19
Parks (Ester)	13	13	14	14	15	-	-	16	19
Parks (Chena Bridge)	5	5	5	-	-	-	-	6	17
Parks (Lathrop Street)	7	6	6	11	6	-	10	11	11
Richardson (Ernestine)	27	32	32	28	27	-	36	29	-
Richardson (Gulkana)	21	24	24	40	20	-	32	27	27
Richardson (Trims Camp)	21	-	-	40	22	-	34	-	25
Richardson (Moose Creek)	5	7	7	8	7	-	12	12	14
Richardson (3 Mile)	6	5	5	8	6	-	-	10	-
Steese (North of Fox)	6	9	10	12	14	-	-	-	20
Taylor	-	-	-	-	-	-	-	-	-
Tok Cutoff (Tok Junction)	18	19	19	19	22	-	29	29	27
Top of the World	-	-	-	-	-	-	-	-	-

As indicated by the available data summarized in Table 5-5, truck percentages have increased along most all highway facilities over the past nine years. The highway facilities that have experienced the largest percent increase in truck traffic are the Dalton Highway, Elliott Highway, Parks Highway, Richardson Highway and the Steese Highway. As the need for goods and services continues to grow along with major industries, freight will remain as one of the key transport methods. While similar growth trends in truck percentages will likely continue, future development of major industries such as natural gas and minerals can create dramatic increases.

5.4 Aviation Forecasts

This section presents forecasts for passengers, cargo and based aircraft at Interior Alaska's public use airports. Low, medium and high forecasts are included to define a range for the most probable activity levels. The forecasts include totals for all study area airports and are airport-specific for airports that account for at least 1 percent of study area activity. Although planning for Fairbanks International Airport is excluded from the scope of the Interior Alaska Transportation Plan, aviation activity in the study area is undeniably dominated by that airport. Consequently, Fairbanks International Airport is included in the forecasts.

5.4.1 Methodology

The aviation forecasts were based on 2007 data and the out-year for forecasting is 2030. The forecasting process considered:

- Population Projections
- Resource and Economic Developments
- Other Assumptions about the Aviation Industry
- Historical Records of Aviation Activity
- Previous Forecasts for Interior Airports
- FAA Forecasts

5.4.1.1 Population Projections

Aviation activity typically correlates well with the population of the community and region the airport serves. Consequently, the population forecasts prepared for the Interior are assumed good indicators of future aviation activity.

5.4.1.2 Resource and Economic Developments

The previous analysis of resource and economic development in the study area was reviewed for affects on aviation activity. These developments are not directly included in the aviation forecast numbers, except as they were considered in the population forecasts. Instead, qualitative discussions follow the forecast tables, describing how resource and economic developments might affect certain airports.

The proposed Alaska Natural Gas Pipeline would affect activity at specific airports located along the highways chosen for the pipeline route. The greatest impact would be air freight during construction, but passenger activity could also grow.

Tourist activity could increase passengers and aircraft operations at airports used as the base for flightseeing or as the origin/destination of tours. However, air tourism would need to grow substantially in the Interior before it would stress the capacity of Interior airports. It is difficult to determine the number of tourists using small Interior airports because the tour operators do not report passenger statistics to the USDOT. For example, USDOT records for Coldfoot Airport show only 535 enplaned passengers in 2007, while Air Arctic, flying for the Northern Alaska Tour Company, reported enplaning 5,535 passengers at Coldfoot in 2007. Passengers who flightsee from Copper Center 2 and McKinley National Park Airports are also not reported to the USDOT. While the exact numbers of Interior air tourists are unknown, it seems none of these airports experiences the high levels of flightseeing that occur at cruise ship ports in Southeast Alaska or at Talkeetna, south of Denali National Park.

5.4.1.3 Other Assumptions about the Aviation Industry

Many things besides population and economic growth can influence aviation. For example, the soaring cost of fuel has seriously and adversely affected discretionary general aviation travel and the airlines. However, over the forecast period, it is assumed that such factors will not have a significant impact on passenger, cargo and based aircraft levels in the study area. Specific assumptions include the following:

- Aging airplanes such as the DC-3, DC-6 and C-46 from the World War II era will continue to operate on the Interior's short, unpaved runways. These airplanes can deliver bulk cargo and fuel to communities lacking adequate barge and road access.[2]
- Changes in Federal regulations, laws and subsidies will not change Interior Alaska aviation substantially. For example, it is assumed that:
    - Postal subsidy for fourth-class mail and the bypass mail program will continue.[3]

[2] If these aged aircraft cannot be kept flying or if a cost effective alternative to them cannot be found, the cost of living in these remote communities will increase. The result may be more people moving away from those communities.

- The Essential Air Service subsidy program will continue.[4]
- Alaskan waivers for airport certification, aircraft noise, etc. will continue.

5.4.1.4 Historical Records of Aviation Activity

Most of the historical records about aviation activity at study area airports are not very accurate or complete. Reporting of passenger enplanements and cargo data to the USDOT has improved in the last five years, but reporting is still voluntary for some air carriers and air taxis operating with Part 135 certificates. The 2007 inventory of based aircraft at 161 Alaskan airports found that the actual number of based aircraft at these airports was about half the number reported for them in the Airport Master Records (FAA Form 5010). These data problems affect the validity of the Interior Alaska aviation forecasts.

5.4.1.5 Previous Forecasts for Interior Airports

Forecasts for state aviation system plans are usually less detailed than forecasts prepared for individual airports in their master plans, so system plan forecasts often adopt forecasts from recent airport master plans. This is not possible with the majority of study area airports. From a review of master plans and airport layout plans, only Nenana Municipal's Airport Layout Plan (2002) and Bradley Sky Ranch Airport's Draft Final Master Plan (2003) have useful forecasts of aviation demand.[5] Individual airport forecasts are also available for four study area airports that were included in the Northwest Alaska Transportation Plan (2004)—Manley Hot Springs, Minto, Rampart and Tanana. Table 5-6 presents the recent forecasts that are available for six study area airports.

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[3] Within Alaska, the bypass mail program has subsidized air cargo deliveries to remote communities through a program that allows air cargo to be shipped at the same rate as third class mail. Even if the bypass program survives in the long-term future, the US Postal Service is aggressively seeking ways to reduce program costs.

[4] The Essential Air Service program began after airline deregulation in 1978 to subsidize a minimum amount of air service to small communities who had service before 1978 and subsequently lost it due to airline economics. The nationwide program has been criticized for several years as being ineffective; each renewal of airport improvement legislation threatens the funding and continued existence of the program.

[5] Several other airport layout plans project future Airport Reference Codes, which is discussed in the Transportation Analysis chapter.

Table 5-6 Existing Aviation Forecasts from Other Plans

Airport	Forecast Component	Base Year	Actual	Forecast Year	Forecast	Ave. Annual Growth
Bradley Sky Ranch (North Pole)	Based Aircraft	2003	73	2023	145	3.5%
	Aircraft Operations	2003	12,410	2023	26,100	3.8%
Manley Hot Springs	Population	1995	95	2025	86	-0.3%
	Passenger Enplanements	1995	174	2025	221	0.8%
	Mail (tons)	1995	17	2025	18	0.2%
Minto	Population	1995	235	2025	308	0.9%
	Passenger Enplanements	1995	148	2025	616	4.9%
	Mail (tons)	1995	12	2025	18	1.4%
Nenana	Based Aircraft	2001	15	2021	23	3.5%
	Air Cargo Operations	2001	0	2021	360	NA
	Air Taxi Operations	2001	50	2021	95	3.3%
	General Aviation Operations	2001	3,120	2021	4,780	2.2%
	Total Operations	2001	3,170	2021	5,235	2.5%
Rampart	Population	1995	76	2025	54	-1.1%
	Passenger Enplanements	1995	827	2025	1,334	1.6%
	Mail (tons)	1995	42	2025	46	0.3%
Ralph M. Calhoun (Tanana)	Population	1995	303	2025	368	0.6%
	Passenger Enplanements	1995	4,685	2025	5,680	0.6%
	Mail (tons)	1995	303	2025	430	1.2%

Source: Northwest Alaska Transportation Plan (2004), Nenana Municipal Airport Layout Plan (2002), North Pole Airport Master Plan (Draft Final 2003)

5.4.1.6 FAA Forecasts

The FAA prepares forecasts for all airports that are in the National Plan of Integrated Airport Systems (NPIAS) and updates them annually in the Terminal Area Forecast (TAF)[6]. The Terminal Area Forecast does not include cargo. Historical enplaned passenger numbers in the TAF are an actual census taken from the USDOT T-100 database; however, Part 135 carriers providing service in aircraft with fewer than 10 seats are not required to report. In 2000, the FAA Alaskan Region surveyed small operators and found the majority of passenger enplanements were not reported; passenger reporting is thought to have improved since then. The TAF uses historical data on based aircraft and operations from Airport Master Records, the same source that the FAA's 2007 inventory of based aircraft found to be very inaccurate.

[6] This chapter used the December 2007 version of the Terminal Area Forecast, http://aspm.faa.gov/main/taf.asp

The FAA's TAF tends to project future activity at the same level as the current activity reported in the Airport Master Record for small airports lacking control towers and master plans. Indeed, all of the TAF forecasts for based aircraft and operations at study area airports (excluding Fairbanks) show 0 percent annual growth through 2025. All but 10 study area airports show 0 percent future growth in passengers. TAF projections for no future based aircraft growth are typical for small airports throughout the country, not just in Alaska.

Table 5-7 shows that the FAA projects lower growth for Alaska than for the nation as a whole. All of the Alaska growth rates are two-thirds to three-quarters of the US average growth rates, except the growth rate for instrument operations, which is nearly as high as the national rate. This shows that the FAA expects Alaska to undergo a stronger shift from visual to instrument flights than the national average. The impact of more instrument flights is discussed more in the Transportation Analysis chapter.

Table 5-7 Terminal Area Forecast State and National Growth Rates

Forecast Component	Average Annual Growth Rate for Alaska 2006 – 2025	Average Annual Growth Rate for US 2006 – 2025
Enplaned Passengers	1.8%	2.9%
Based Aircraft	0.5%	0.8%
Aircraft Operations	0.8%	1.1%
Instrument Operations	1.8%	1.9%

Source: FAA Terminal Area Forecasts, Dec. 2007, FAA Aerospace Forecast Fiscal Years 2008-2025, March 2008.

5.4.2 Purpose of Aviation Forecasts

Usually, aviation demand forecasts determine the size and timing of needed airport improvements. However, passenger, cargo, and based aircraft numbers are so low at most Interior Alaska airports that forecasts for these indicators of aviation activity have little effect on future airport needs. For example, runway capacity is not an issue at the study area airports, since a single runway can handle approximately 200,000 annual aircraft operations, and none of the study area airports (excluding Fairbanks) have annual aircraft operations over 20,000 (10 percent of capacity). Also, passenger and cargo terminal size is not an issue for the study area airports. A few airports have small passenger shelters and at a few airports, individual operators provide passenger waiting area and temporary storage for cargo in their hangar/office facilities. In addition, increases in numbers of based aircraft will affect very few airports; the majority of airports have no based aircraft, and most that have based aircraft have aprons and/or land available for aircraft storage.

Nevertheless, the aviation demand forecasts in this chapter indicate the busiest airports within the system and where significant future growth or decline is anticipated. The most important factors for determining individual airport facility needs in Interior Alaska will be evaluated in the Transportation Analysis chapter. These factors are the airport reference code, instrument approach capability, and FAA design standards.

5.4.3 Enplaned Passenger Forecasts

Table 5-8 shows the total enplaned passengers for 2007 in the study area and lists the airports accounting for at least 1 percent of the total number of enplaned passengers.

Table 5-8 Enplaned Passengers in 2007

Airport	Enplaned Passengers	Airport Share
Fairbanks International	442,274	95%
Fort Yukon	9,081	2%
Tanana (Ralph M. Calhoun)	3,719	1%
30 Other Airports	9,822	2%
Total	464,896	100%

Note: The 30 airports with shares less than 1% range from Venetie (1,766 enplanements) to Delta Junction (5 enplanements).
Source: USDOT T-100 database

The TAF shows the following growth rates for enplaned passengers from 2006 to 2025:

All NPIAS Airports in Alaska	1.8%
Arctic Village	0.3%
Beaver	1.1%
Chalkyitsik	1.0%
Fairbanks International	1.4%
Fort Yukon	1.1%
Manley Hot Springs	2.7%
Rampart	1.8%
Stevens Village	0.2%

Tanana (Ralph M. Calhoun)	1.1%
Venetie	0.2%

Table 5-9 presents the passenger enplanement forecasts for the study area. The low forecasts use the same annual growth rates as the Interior Alaska population forecasts. The high forecasts use the same growth rates as the TAF. The medium forecasts average the high and low forecasts.

Table 5-9 Enplaned Passenger Forecasts

	Study Area	Fairbanks International	Fort Yukon	Tanana (Ralph M. Calhoun)
2007 Actual	464,896	442,274	9,081	3,719
Low 2030 Forecast	571,285	543,486	10,661	2,507
Ave. Annual Growth	0.9%	0.9%	0.7%	-1.7%
Medium 2030 Forecast	636,011	576,206	11,170	3,645
Ave. Annual Growth	1.4%	1.2%	0.9%	-0.1%
High 2030 Forecast	700,736	608,926	11,679	4,783
Ave. Annual Growth	1.8%	1.4%	1.1%	1.1%

Source: USDOT T-100 Database and WHPacific, Inc. Analysis

Table 5-9 shows that it is likely the Fort Yukon Airport will pass the 10,000 annual passenger enplanement threshold for the FAA's primary airport designation. According to current Federal legislation, a primary airport receives annual entitlement funding of at least $1 million for airport improvements, considerably more than the $150,000 maximum entitlement funding for airports with fewer enplanements.

Neither Fort Yukon nor Tanana is on the road system, so unusually high passenger growth resulting from the Alaska Natural Gas Pipeline construction or operation is not projected for them.

Passenger growth alone is unlikely to cause air carriers to shift to larger aircraft. Frontier Flying Service already serves Fort Yukon with 19-seat airplanes. It is doubtful a carrier will want to provide scheduled service to Fort Yukon in a 30-seat airplane, which is the next larger size typically used by passenger airlines. One reason is that the larger airplane would require a more restrictive and thus, more expensive, operating certificate for both the air carrier and the airport.

Although only 555 enplaned passengers were reported for Prospect Creek Airport in 2007, Prospect Creek has a certificate[7] to allow commercial service in airplanes with 30 or more seats. Alyeska operates the DOT&PF-owned airport, using the airport primarily for crew changes at the adjacent Pump Station No. 5 of the Trans-Alaska Pipeline. The proposed Alaska Natural Gas Pipeline, routed along the Dalton Highway, may cause an increase in passengers at Prospect Creek, since it is a public airport on the road between Fairbanks and Deadhorse that can handle larger passenger airplanes.

Passenger service may grow or be initiated to other airports along the pipeline route. Few of these airports have much passenger activity now, being located on highways that provide year-round access to commercial airline service in Fairbanks, Anchorage, or Valdez. For example, the Tok Junction Airport is located in a population center far from a commercial service airport, but reported only 224 passenger enplanements in 2007. A considerable increase in passengers could be handled at Tok, but only in small airplanes, unless significant airport improvements are made.

5.4.4 Air Cargo Forecasts

Table 5-10 shows the 2007 enplaned, deplaned, and total pounds of cargo (freight and mail) in the study area and lists the airports accounting for at least 1 percent of the total.

[7] Within the study area, only Fairbanks International and Prospect Creek have Part 139 certificates. One of the more costly Part 139 requirements is aircraft rescue/firefighting equipment and personnel. Part 139 does not specifically require a building to house the equipment, but is a practical necessity in Alaska. Alaska is exempt from certification for airplanes under 30 seats; in other states, the certification is required for airplanes with at least 10 seats and for any capacity jet providing passenger service.

Table 5-10 Air Cargo Activity in 2007

Airport	Enplaned Pounds	Deplaned Pounds	Total Pounds	Airport Share
Arctic Village	27,580	936,677	964,257	2%
Eagle	24,994	234,255	259,249	1%
Fairbanks International	21,432,694	14,498,591	35,931,285	86%
Fort Yukon	197,011	2,306,086	2,503,097	6%
Tanana (Ralph M. Calhoun)	78,204	627,882	706,086	2%
Venetie	19,072	482,022	501,094	1%
24 Other Airports	232,270	925,844	1,158,114	3%
Total	22,011,825	20,011,357	42,023,182	100%

Note: The 24 other airports with reported cargo range from Beaver (203,501 pounds) to Boundary (1,710 pounds).

Source: USDOT T-100 database. Cargo includes freight and mail.

Table 5-10 shows that only Fairbanks International enplanes more cargo than it deplanes, which illustrates that the airport is a point of origin/transshipment to bush communities. Excluding Fairbanks, 90 percent of cargo is deplaned and only 10 percent is enplaned at the communities, on average. Excluding Fairbanks, 42 percent of deplaned cargo in the study area is mail. At Fairbanks, 27 percent of deplaned cargo weight is mail. The higher percentage of mail at the rural airports illustrates the impact of the bypass mail program.

Fairbanks' airport master plan[8] projected annual growth of 4.1 percent for enplaned and deplaned cargo from 2000 through 2020, but the projection appears to be higher than what has actually occurred. The plan also noted that the conservative growth rate for cargo in the most recent official statement for bond sales was 1.3 percent per year. In addition, the plan presented a trend model for forecasting cargo through the year 2020, with annual growth of 1.7 percent declining to 1.4 percent.

The recent draft airport master plan for Anchorage[9] provided a forecast of cargo outbound from Anchorage to Fairbanks, which reflected an average annual growth rate of 2.65 percent from 2005 through 2027. This growth was assumed to result from a gradual population increase and the assumed construction of a natural gas pipeline to the lower 48. The forecast also assumed the continuance of the bypass mail program, a continuance of the historical relationship between

[8] Fairbanks International Airport Master Plan Update, June 2004.

[9] Draft Ted Stevens Anchorage International Airport Master Plan, February 2007.

intrastate Alaska air freight and US domestic air freight, and it assumed fuel prices would not experience long-term spikes. The 2.65 percent annual growth rate is used to determine the probable high range of air cargo growth in Interior Alaska.

The Northwest Alaska Transportation Plan study area was adjacent to and slightly overlapped the Interior Alaska Transportation Plan study area. Analysis in the Northwest Alaska Transportation Plan is relevant to remote communities in the Interior, which also benefit from the bypass mail program. Since bypass mail service began in the 1980s, mail volumes in Northwest Alaska increased threefold. During the same time, passenger traffic on these flights more than doubled. The historical average mail volume per person was one ton per resident per year.[10] The Northwest Arctic Transportation Plan projected cargo growth using population projections and growth of about five pounds of mail per person per year, consistent with historical growth.

Table 5-11 shows the air cargo forecast for the Interior and for the six airports that account for at least 1 percent of cargo in the study area. The low forecasts use the annual growth rates from the Interior Alaska population forecasts, increased by 0.9 percent per year to account for per person growth in cargo. The high forecasts use the growth rate recently projected for outbound air cargo from Anchorage to Fairbanks, adjusted for differences in population growth. The medium forecasts average the high and low forecasts.

[10] For Interior communities off the road system, deplaned cargo in 2007 averaged 1.2 tons per person.

Table 5-11 Air Cargo Forecasts (pounds)

	Study Area	Arctic Village	Eagle	Fairbanks	Fort Yukon	Tanana	Venetie
2007							
Actual	42,023,182	964,257	259,249	35,931,285	2,503,097	706,086	501,094
Low							
2030 Forecast	63,341,425	1,520,536	196,393	54,159,125	3,606,060	586,984	524,659
Ave. Annual Growth	1.8%	2.0%	-1.2%	1.8%	1.6%	-0.8%	0.2%
Medium							
2030 Forecast	70,448,153	1,690,768	219,166	60,235,626	4,011,526	654,745	584,559
Ave. Annual Growth	2.3%	2.5%	-0.7%	2.3%	2.1%	-0.3%	0.7%
High							
2030 Forecast	77,554,881	1,861,000	241,939	66,312,126	4,416,992	722,506	644,460
Ave. Annual Growth	2.7%	2.9%	-0.3%	2.7%	2.5%	0.1%	1.1%

Source: USDOT T-100 Database and WHPacific, Inc analysis

The forecasts for Arctic Village and Fort Yukon show significant growth in the low, medium, and high forecasts[11]. In other areas (except Fairbanks International), the projected change in cargo is so slight that no appreciable change in the number of flights or the size of aircraft is expected. Fort Yukon is now second to Fairbanks in the amount of cargo and has been designated a postal hub. The Transportation Analysis will examine the potential of larger airplanes serving Fort Yukon.

The proposed Alaska Natural Gas Pipeline construction would generate more cargo activity at airports along the highways. Construction spikes of air cargo at these airports have not been projected, due to uncertainties associated with the pipeline. The airports affected and their air freight levels will depend on construction logistics plans not yet in place. Fairbanks International is the only public use airport in the study area ready for heavy cargo aircraft (255,000 pounds or more) with adequate runway length/strength, hardstand aircraft parking, and some cargo handling facilities. Prospect Creek on the Dalton Highway, Allen Army Airfield and Tanacross Airport on the Alaska Highway, and the Nenana and Clear Airports on the Parks

[11] The growth at Arctic Village and Fort Yukon airports is based on population growth projections prepared by Northern Economics. Passenger growth rates are similar to population forecast growth rates. Higher growth rates for air cargo are due to an increase in cargo per person over time, consistent with analysis from the Northwest Arctic Transportation Plan. Increases in hunting and construction activity also factor in.

Highway have adequate runway length for some large cargo aircraft (41,000 up to 255,000 pounds). The potential use of these airports by large cargo aircraft will be discussed in the Transportation Analysis.

5.4.5 Based Aircraft Forecast

Table 5-12 shows the based aircraft in the study area in 2007 and lists the airports accounting for at least 1 percent of the total.

Table 5-12 Based Aircraft in 2007

Airport	Based Aircraft	Airport Share
Chena River*	6	1%
Copper Center 2*	5	1%
Delta Junction*	16	2%
Fairbanks International	514	71%
Gulkana	14	2%
Manley Hot Springs	6	1%
McKinley National Park*	7	1%
Nenana Municipal	15	2%
North Pole (Bradley Sky-Ranch)*	76	11%
Tanana (Ralph M Calhoun)	5	1%
Tok 2*	17	2%
Tok Junction	8	1%
15 Other Airports	30	4%
Total	719	100%

*The airport is not in the NPIAS, and its based aircraft were not inventoried in 2007.
Source: 2007 Inventory by GCR Associates and Airport Master Records

Nearly all the based aircraft in the study area are single engine piston. Delta Junction Airport, Gulkana Airport and Bradley Sky Ranch each report one multi-engine airplane. The FAA's latest national forecasts[12] project the active, piston-powered general aviation and air taxi fleet will grow only 0.5 percent annually.

Table 5-13 shows the based aircraft forecast for the whole study area and for the 12 airports that account for at least 1 percent of study area based aircraft. The medium forecast uses Interior

[12] FAA Aerospace Forecast Fiscal Years 2008-2025.

Alaska population growth rates. The high and low forecasts use growth rates that are plus or minus 10 percent of the population growth rates.

Table 5-13 Based Aircraft Forecast

	Actual	Low	Medium	High	Forecast Range
	2007	2030	2030	2030	Annual Average Growth Rate
Study Area	719	864	884	904	0.8% to 1.0%
Chena River	6	7	7	8	0.8% to 1.0%
Copper Center 2	5	4	4	4	-0.8% to -0.6%
Delta Junction	16	19	20	20	0.8% to 1.0%
Fairbanks International	514	617	632	646	0.8% to 1.0%
Gulkana	14	12	12	12	-0.8% to -0.6%
Manley Hot Springs	6	6	6	7	0.2% to 0.4%
McKinley National Park	7	7	8	8	0.3% to 0.5%
Nenana Municipal	15	11	11	11	-1.5% to -1.3%
North Pole (Bradley Sky-Ranch)	76	153	164	175	3.1% to 3.7%
Tanana (Ralph M Calhoun)	5	3	3	4	-1.9% to -1.5%
Tok 2	17	16	17	17	-0.2% to 0%
Tok Junction	8	8	8	8	-0.2% to 0%

Source: Table 5-12 and WHPacific, Inc. analysis

Excluding Fairbanks International Airport, a significant change in based aircraft is expected at only one airport. Bradley Sky Ranch has the strongest based aircraft growth projected, since North Pole has nearly the highest population growth rate projected in the Interior. The forecast for Bradley Sky Ranch in Table 8 is consistent with its master plan forecast for 3.5 percent annual growth. Bradley Sky Ranch has become a center for sport aviation, a fast-growing segment of aviation. It attracts ultralight enthusiasts from areas beyond North Pole. Bradley Sky Ranch is one of six privately owned airports in North Pole, but the only one open to public use. The FAA funded an airport master plan for Bradley Sky Ranch, but the plan was aborted due to unresolved ownership issues and the airport has not been added to the NPIAS. Federal airport improvement funding may be needed to accommodate the high level of aviation activity expected in the North Pole area, an issue that will be addressed in the Transportation Analysis.

One of the thresholds for NPIAS inclusion is for an airport to have at least 10 based aircraft.[13] Tok 2 and Delta Junction Airports are the only non-NPIAS airports in Table 8 with more than 10 based aircraft. Tok 2 Airport is too close to the DOT&PF's Tok Junction Airport to be considered a NPIAS candidate. The Transportation Analysis will address the potential need for a NPIAS airport to serve Delta Junction.

5.4.6 Design Aircraft Considerations

The FAA defines the design, or critical, aircraft as the most demanding aircraft that regularly uses an airport. Regular use is defined as at least 500 annual aircraft operations (takeoffs and landings). For rural Alaska airports lacking year-round road access, the 500 operations threshold is sometimes disregarded to provide for medevac and cargo aircraft access to the community.

While the based aircraft forecast does not indicate that any airports will need to change their design aircraft in the future, future transient aircraft activity could necessitate a change in design aircraft. Nationwide, the FAA forecasts 3.7 percent annual growth in turbine powered aircraft. Nine-seat turboprops provide passenger service to many study area airports. Frontier Flying Service provides passenger service in 19-seat turboprop airplanes and Era Aviation uses a 37-seat turboprop to serve Prospect Creek. Within the study area, carrier fleets may shift from piston-powered to turboprop aircraft and to slightly larger capacity aircraft, most likely on routes that include Fort Yukon.

The FAA forecasts 5.6 percent annual growth for turbojet aircraft nationally, fueled by business aviation. Business jet traffic is light in the Interior, currently limited to Fairbanks, where the Fixed Base Operator sells jet fuel and provides ground services and passenger/pilot amenities for corporate jets. Business jet traffic may increase with some of the Interior economic development scenarios, but these expensive aircraft are not likely to be used on unpaved airfields, due to the higher potential for damage compared to paved airfields. In addition, most business jets now flying need longer runways and larger runway safety areas than exist at most study area airports.

The new Very Light Jets (VLJ) may revolutionize aviation in America--or they may not. VLJs, also called microjets or personal jets, are a new class of airplane that offers performance

[13] Many Alaska airports with fewer than 10 based aircraft are included in the NPIAS because they are in remote locations, serve Native Alaskan populations, or are a long distance from another NPIAS airport.

comparable to high-end business jets at a fraction of the price. A VLJ costs between $1 and $3 million, weighs less than 10,000 pounds, seats up to seven people, can fly 1,000 miles at speeds of 300 to 400 mph, and can fly at altitudes up to 40,000 feet, where it is easier to find a smooth ride than at lower altitudes. VLJs are quieter, less polluting and more energy efficient than piston and turboprop aircraft of similar size. Two companies received FAA certification for the jets in late 2006—Eclipse Aviation (Eclipse 500) and Cessna Aircraft Company (Mustang) and several other aircraft manufacturers are developing VLJs. In 2007, DayJet began operating a "per seat, on demand" air taxi business with an Eclipse fleet in the southeastern US. (Both DayJet and Eclipse ceased operating in late 2008, most likely due to the economic recession).

In the long term, VLJs are an intriguing possibility for Alaska because they can use runways as short as 3,000 to 3,500 feet. In addition, they are in the same FAA category for speed and wingspan as a Super Cub; consequently, the FAA airport design standards (such as safety and object free areas) are the same. Gravel kits may be available for VLJs, but the risk and cost of damage might still discourage their use on unpaved runways. Their lack of cargo-carrying capacity may discourage using them for scheduled service to rural airports, but they may be effective air ambulances, if their interiors are large enough. A major disadvantage now is the lack of used VLJs. A price tag comparable to a new turboprop airplane does not attract those Alaskan air carriers who usually purchase airplanes phased out of lower 48 service.

The Transportation Analysis chapter will address airport improvements needed for the changing fleet in the study area. It will assign airport reference codes, which determine FAA design standards. The airport reference codes will be appropriate for the using aircraft.

6 Transportation Analysis

6.1 Highway Transportation Analysis

The highway transportation analysis considers the following factors:

- Roadway Operations: planning assessment based on highway traffic forecasts.
- Safety: crash data assessment, special interest areas, safety plans (Highway Safety Improvement Program (HSIP), SHSP), and predictive safety improvements.
- Roadway Conditions and System Needs: roadway system needs, planned improvements, resource needs (i.e. pipeline), railroad (grade separation), and local community access.
- Maintenance & Operations: maintenance stations, deferred and preventive maintenance, and maintenance management systems.
- Pavement Preservation and Management: pavement preservation, pavement management, and weight restrictions.
- Security: border crossing and the Alyeska Pipeline.
- Tourism Enhancements: scenic byways and rest areas (signage and accessibility).

6.1.1 Roadway Capacity

Using the 2030 forecast traffic volumes, a comprehensive roadway capacity evaluation was completed for all of the major rural highways. A planning level assessment based on the existing highway characteristics and 2030 traffic forecasts revealed no major roadway capacity constraints. Under long-term conditions, all roadway facilities within the study area will continue to operate at a LOS C or better, with most facilities forecast to operate at LOS A and B. As discussed in *Section* **Error! Reference source not found.** *Highway Traffic Forecasts*, the potential impacts of future resource and economic development would have the greatest impact on rural highway operations. However, based on the future traffic operations assessment assuming a relatively average (i.e. medium growth) annual growth in highway traffic, traffic volumes would have to double or even triple on average in order to impact the capacity needs in the system.

6.1.2 Safety

An analysis of safety issues in the Interior was conducted as part of the *Transportation Analysis*. It builds upon the safety analysis documented in *Section* **Error! Reference source not found.** *Existing Highway System*, where a comparison of observed and critical crash rates (rate quality control method) was used to identify 27 locations on the existing roadway system with potential safety concerns. For each of these locations, the following steps were taken to complete the crash analysis and safety assessment.

1) A closer review of available crash and traffic volume data was conducted to identify locations where the rate quality control method may be overemphasizing the observed crash rate based on relatively low traffic volumes and no observable crash patterns or trends.

2) For those locations where the rate quality control method seemed appropriate, all available crash data was evaluated in more detail to identify crash patterns and specific trends.

3) Based on the assessment of crash data and follow-up field observations at key locations, either specific safety improvements were recommended or a strategy for addressing potential safety concerns was provided.

4) Existing studies and safety improvement plans were reviewed to identify any existing or planned improvements.

In addition to the safety issues identified through the rate-quality control method, several other highway segments were examined upon recommendation from DOT&PF staff familiar with local conditions. A similar process to that detailed above was used to analyze these segments and to develop a set of recommendations.

6.1.2.1 Assessment of Rate Quality Control Method

As with all rate based methods, locations with very low traffic volumes may be over-represented in the resulting ranking of sites. For this reason, highway segments identified through this method with low traffic volumes and fewer than five reported crashes with no identifiable trends were omitted from further analysis. Of the 27 locations identified under existing conditions, 15 highway segments were carried forward for additional analysis.

6.1.1.2 Crash Data Assessment

Crash data for each of the highway segments with potential safety concerns were reviewed to identify crash patterns and trends. For many of these highway segments there were no definitive patterns or trends, and therefore several mitigation options and strategies were provided for further consideration. These segments are summarized in Section 6.1.6 *Highway Corridor Assessment*.

6.1.1.3 Special Interest Areas

Although an evaluation of crash data is one method of identifying locations with potential safety concerns, many crashes go unreported for a variety of reasons (i.e. uninsured drivers and alcohol related crashes); therefore, other methods must be relied upon to pinpoint these locations. Field observations can reveal many highway safety related concerns, particularly locations with the potential for increased numbers of crashes or crash severity. In this manner, several highway locations were identified for further review and assessment. Available crash data for each of these special interest areas were reviewed along with anecdotal evidence of the issues, and recommended next steps were identified. These special interest areas are located along the Parks, Richardson and Taylor Highways and are summarized in Section 6.1.6 *Highway Corridor Assessment*.

6.1.1.4 Safety Plans

Funding for safety projects comes primarily from the State's Highway Safety Improvement Program (HSIP). The objective of this program is to identify and fund highway safety projects that maximize lives saved and injuries eliminated per dollar spent. Under this program, DOT&PF Traffic and Safety staff members identify locations with high accident rates on Alaska roads, evaluate corrective measures, fund the most cost-effective ones, and evaluate their effectiveness after the projects are completed. The most recent HSIP does not identify any projects within the study area.

The State's Strategic Highway Safety Plan (SHSP), completed in 2007, set out to detail the steps to reduce Alaska's most serious transportation safety problems. This comprehensive, data driven plan addresses the four "E's" of safety: Engineering, Education, Enforcement and Emergency Response. Rather than focus on specific locations, the SHSP lays out a set of strategies for addressing a variety of safety-related issues. Specifically, the plan focuses on the following three "emphasis areas:"

1. **Driver Behavior** – Crashes involving impaired driving, speed and aggressive driving, young drivers, and unlicensed/suspended/revoked drivers;

2. **Special Users of the Transportation System** – Crashes involving pedestrians, motorcyclists, and bicyclists; and

3. **Highways** – Lane departure crashes, crashes at intersections, and crashes involving moose.

The following strategies outlined in the SHSP are focused on the emphasis areas of "Driver Behavior" and "Highways". The strategies identified in Table 6-1 and 2 apply generally across the Interior, and can be implemented broadly to reduce a variety of crashes.

Table 6-1 Driver Behavior Strategies (SHSP 2007)

I.D. Number	Strategy
Strategies for Reducing Crashes Involving Impaired Driving	
AL.1	Alaska Highway Safety Office (AHSO) and Alcohol Safety Action Program (ASAP) will structure and conduct a statewide alcohol assessment in FY 08
AL.2	Gain support for establishing a Governor's Road Safety Advisory Commission
AL.3	Continue to develop a DUI tracking system
AL.4	Study the issue of expanding the DUI vehicle impoundment to all communities
AL.5	Implement, track progress, and evaluate the effectiveness of the new driver licensing act which requires that drivers convicted of DUI carry a marked license during sentencing, probation, and/or parole
AL.6	Identify methods for reducing the number of blood test refusals – Tier II
AL.7	Strengthen Alcohol Beverage Commission (ABC) enforcement – Tier II
AL.8	Outreach to Health Care Professionals
Strategies for Reducing Crashes Involving Speed and Aggressive Driving	
AG.1	Consult with Department of Law regarding legislation defining aggressive driving
AG.2	Consult with Department of Law regarding possible implementation and evaluation of an aggressive driving law
AG.3	Traffic School
Strategies for Reducing Crashes Involving Young Drivers	
YD.1	Graduated driver license (GDL) law enforcement
YD.2	Study issues involved with legislative exemptions for young drivers in rural Alaska
YD.3	Educate the public and elected officials on the most recent research regarding effective GDL elements
YD.4	Driver Education Study
YD.5	Facilitate parental supervision of learners and intermediate drivers and encourage selection of

I.D. Number	Strategy
	safer vehicles for young drivers
Strategies for Reducing Crashes Involving Unlicensed/Revoked/Suspended Drivers	
USR.1	Develop an electronic employer notification process

Table 6-2 Highway Strategies (SHSP 2007)

I.D. Number	Strategy
General Strategies	
HG.1	Preserving Alaska's main road corridors
HG.2	Explicit consideration of safety in DOT&PF highway design
HG.3	Implement Highway Safety Corridor Program
Strategies for Reducing Run-off-road Crashes	
HR.1	Shoulder rumble strips
HR.2	Curve delineation
HR.3	Widen shoulders on rural two-lane highways
Strategies for Reducing Head-on Crashes	
HH.1	Centerline rumble strips
HH.2	Install passing lanes
HH.3	Headlights on at all times
HH.4	Install cable rail in medians of divided highways
Strategies for Reducing Intersection Crashes	
HI.1	Develop a comprehensive Access Management Policy
HI.2	Single-lane roundabouts
HI.3	Red light running countermeasures
HI.4	Pedestrian countdown timers
Strategies for Reducing Crashes Involving Moose	
HM.1	Get moose away from roads by managing adjacent habitat
HM.2	Get moose away from roads by managing roadside moose browse
HM.3	Provide safer wildlife crossings through roadway improvements
HM.4	Create winter connectivity snow trails and diversionary tree cutting to encourage moose to stay away from road surfaces

While the SHSP identifies centerline rumble strips as a strategy for reducing head-on crashes, DOT&PF Northern Region does not advocate the use of centerline rumble strips and has indicated a strong aversion for the following reasons:

1. The installation of rumble strip grooving at the pavement seam allows water to collect and penetrate into the base course. This penetration and subsequent freeze-thaw cycles increase pavement deterioration.

2. Centerline rumble strips make summer pavement patching challenging due to the potential liability incurred by removing a safety feature where it had been installed previously and the need for specialized equipment to reinstall rumble strips (if required) after patching operations are complete. Centerline rumble strips also reduce snow plow efficiency.

6.1.1.5 Access Management

Access management involves controlling access to state-owned rights-of-way through driveway permits and plat reviews. The goal is to minimize the number of access points on a given stretch of highway, since numerous driveways on a short length of highway can be a safety hazard. When a developer decides to subdivide a parcel of land there has to be a way for the property owners to access the highway system. Instead of allowing a separate driveway for each lot, DOT&PF prefers that an access road be constructed that connects the subdivision to the highway. This process begins when the developer submits preliminary plat's to DOT&PF for review. DOT&PF will normally make comments regarding access control if the proposed subdivision accesses a state right of way.

6.1.2 Roadway Conditions and System Needs

In addition to those segments identified through the safety assessment, other portions of highways were examined based on conversations with DOT&PF staff, field observations, existing conditions analysis, and past studies. Detailed summaries of these highway segments are provided in Section 6.1.6 *Highway Corridor Assessment*.

Many of these facilities are undivided two-lane roadways with segments of narrow shoulders, ditches, steep grades, poor surface conditions, and/or sharp horizontal/vertical curves. Speeding drivers or those unfamiliar with these roadways may have difficulty maneuvering through these sections, especially during winter conditions and low-light conditions where visibility is limited. Projects to repair these facilities range from a simple resurface/rehabilitation to a more involved and more expensive reconstruction. Project recommendations should fall under the following categories: Safety, Rehabilitation, or Reconstruction.

Table 6-3 summarizes roadway condition concerns and lists potential treatments.

Table 6-3 Roadway Condition Concerns and Potential Treatments

Roadway Geometry Concerns	Potential Treatments
Narrow Shoulders	• Provide additional shoulder width (roadway reconstruction)
Ditches	• Provide additional shoulder width (roadway reconstruction) • Fill ditches and provide for drainage • Install guardrails
Poor Surface Conditions	• New pavement or gravel surfacing
Sharp Horizontal/Vertical Curves	• Realign roadway to eliminate curvature • Install guardrail and/or chevron signs • Install advanced signing
Steep Grades	• Flatten slopes where possible • Install advanced signing
Lack of pedestrian/bicycle facilities	• Provide additional shoulder width (roadway reconstruction) • Construct multi-use pathways parallel to existing facilities

6.1.2.1 Planned Improvements

As summarized in Chapter **Error! Reference source not found.** *Transportation Inventory (Project Programming - Section* **Error! Reference source not found.***)*, the 2006-2009 STIP projects address many of the various transportation issues identified under this *Highway Transportation Analysis* section pertaining to roadway conditions, traffic operations, safety and pedestrian and bicycle needs.

In addition to the STIP project list, approximately $2.0 billion in infrastructure improvements (roads, bridges, airports, M&O facilities) have been identified to support the construction of the Alaska Natural Gas Pipeline along the Dalton, Elliott, Richardson and Alaska Highways.

As outlined in the *Highway Traffic Forecasts* section of this report, the potential for the Alaska Natural Gas Pipeline and Enstar Gas Pipeline would have the greatest near-term impact to the transportation system of any potential resource development. The anticipated increase in truck traffic would have a heavy impact on highway operations and the existing highway infrastructure.

Compared with the construction of the Trans-Alaska Pipeline System, the proposed Alaska Natural Gas Pipeline would result in significantly heavier truck loads. The gas pipeline would be buried, requiring heavy volumes of earth movement during construction. It would also involve heavier pipes (0.5" versus 1.25"). These and other factors would place significant strain on affected facilities and additional maintenance would be required.

6.1.3 Highway Corridor Preservation & Management

Corridor preservation is vital to the overall mission of the DOT&PF. Pavement management programs provide significant benefits to highway agencies using data collection methods to monitor pavement conditions and make project recommendations. Corridor preservation mainly deals with the overall condition of the road corridor. Much of the information needed to determine the condition of the road corridor is collected by the maintenance and operations crews; however, some information is relayed to project planners by the traveling public. Information such as guardrail conditions, wayside and rest area conditions, brushing and signing improvements are just a few examples. Projects such as these can be conducted by maintenance crews, but some larger scale projects such as wayside improvements will have to go through STIP process.

6.1.3.1 Pavement Management Systems

The Pavement Management System (PMS) is used to monitor the pavement condition of state highways. General pavement conditions and recommendations are reported on an annual basis. Through the PMS, pavement data is collected and analyzed. The PMS provides information to support decisions regarding preventative maintenance, planning and budgeting decisions. Pavement ride quality and rutting conditions are surveyed annually (semi-annually for the more minor roads) during the summer months to assess current conditions and to predict future maintenance and project needs.

6.1.3.2 Pavement Preservation

Pavement preservation is a proactive approach to maintaining and improving safety and mobility along the highway system. In addition to prolonging useful pavement life, it can reduce the need for roadway rehabilitation and reconstruction that can be costly, time consuming and can create travel delays for motorists and the movement of goods and services. Pavement preservation programs generally consist of preventative maintenance, routine maintenance and minor rehabilitation.

6.1.3.3 Improvements to Pavement Preservations Practices

In 2005, a joint venture by the Federal Highway Administration (FHWA), National Center for Pavement Preservation (NCPP) and DOT&PF analyzed current pavement preservation practices within Alaska and published its findings in the *Pavement Preservation Technical Appraisal* report, September 2005. This report identified a variety of issues and areas for improvement such as providing more staff training and consistency in general terminology, improving upon public relations and education, and enhancing performance monitoring and research and development. For these and many other identified issues, a series of observations and recommendations were provided. Table 6-4 provides a summary of issues, observations and recommendations from the *Pavement Preservation Technical Appraisal* report.

Table 6-4 Pavement Preservation Practices

Issue	Observation	Recommendation
Terminology	Conflicting terminology is hindering effective communication.	Define, document, and distribute common terms to establish a common understanding base.
Preservation Guidelines	Current efforts are not tied to a recognizable program.	Create and establish pavement preservation guidelines.
Champion	Each entity makes continuous contribution to the programs, thus achieving synergy and ensuring success.	Need a champion to lead the endeavor to establish and extend a successful pavement preservation program.
Pavement Management System (PMS)	The PMS is viewed positively throughout the regions and a generally high confidence in its data is observed.	Provide sufficient additional staff resources to allow PMS capabilities to be extended, additional data to be collected and analyzed, candidate preservation strategies to be generated, and network optimization to be undertaken.
Training	Need and desire for training were found in the department.	Give training courses in Basic Pavement Preservation Concepts, Pavement Preservation for Maintenance and Construction Personnel, Treatments, Inspector Training, Preservation Strategies Development, and PMS.
Pavement Preservation Assistance	FHWA's division office has made limited assistance	FHWA's division office could be more active in helping ADOT & PF establish a genuine pavement preservation program.
Pavement Management System Usefulness	ADOT & PF is not taking full advantage from the benefits it should be able to gain from PMS.	Understand the capabilities of modern PMS and assess Alaska's Highway network.
Program Implementation	Lacks programmatic agreements for pavement preservation with FHWA Alaska Division and other resource agencies on safety and environmental projects.	Negotiate formal agreements with FHWA Division Office to allow issuance of blanket clearances when undertaking preservation projects.
Preservation Treatment	Centered on the application of hot mix asphalt (HMA) treatments in	Central Region should broaden its preservation treatments.

Issue	Observation	Recommendation
	Central Regions	
Tracking Life Extensions	Does not track pavement preservation performance and costs on a project on project basis.	Should establish formal procedures for tracking life extensions of pavement preservation treatments and costs of all projects.
Cost Effectiveness	Does not track cost effectiveness	Track performances and costs
Public Relations	The Alaska public and media do not appear to appreciate pavement preservation and its need.	Educate the public and use the media for this purpose.
Legislative Relations	Routinely keeps legislators informed about the efforts to minimize deficient pavements.	Exploit the legislative interests already displayed and aggressively promote the concept, emphasizing the long and short-term political and economic benefits.
Project Selection	Pavement preservation plays little or no part in project selection.	Evaluate the system as a whole and provide a list of candidate projects by categories together with intra-category quotas (percentage).
QC Uniformity	In one region, maintenance and construction forces use the same specifications, but they have different quality control procedures.	Quality control be standardized statewide.
Performance Monitoring	Does not track the life-extending values of pavement preservation treatments or track the expected performance of previous rehabilitation or reconstruction projects.	Begin tracking pavement longevity and performances of all projects constructed during the previous twenty years.
Research and Development	Has several needs related to research and development	Address the research areas in: • Life-extending benefit of pavement preservation treatment • When to apply pavement preservation treatment for maximum effectiveness • Longevity of reconstruction and rehabilitation project • Effective, non-destructive snow plowing techniques for chip-sealed pavement

These recommendations to enhance pavement preservation practices will improve roadway travel and reduce long-term maintenance costs. However, the rate of deterioration increases rapidly in the later years of a pavement's useable lifetime. With regular maintenance and under typical conditions (20-year useable pavement life), the first 40 percent drop in quality or roughness occurs within approximately 15 years, while the next 40 percent drop in quality occurs within the next 2 ½ years. Without regular preventive maintenance, pavement deterioration may accelerate and require early replacement. On average, every dollar spent on preventive maintenance when pavement quality is still fair, corresponds to four to five dollars required for major pavement rehabilitation or reconstruction that is required once the quality becomes very poor. These factors make deferred maintenance very expensive and support the merits of an ongoing PMS.

6.1.3.4 Selection of Pavement Preservation Projects

The methodology used to select pavement preservation projects varies between DOT&PF regions. In general, project recommendations are largely based on a review of annual pavement conditions reported by the PMS and feedback from maintenance and operations crews. Each project recommendation is evaluated by DOT&PF Region staff and prioritized based on factors such as project location; safety and mobility impacts; estimated cost; and available resources and funding.

6.1.3.5 Freight Truck Transportation and Weight Restrictions

Many of Alaska's goods and products are shipped to/from/within Alaska by truck. The National Highway System serves the majority of the intrastate and interstate freight movements and these highways provide vital freight movement throughout the Interior. Due to the freeze-thaw cycles experienced by all of Alaska highways, weight restrictions are generally applied in the spring months (April through June) to sections of roadways that are susceptible to damage due to inadequate subsurface conditions.

As summarized in Chapter 3 *Transportation Inventory (3.1.4 Weight Restrictions / Freight Truck Transportation)*, the five most recent years of available data (2002 to 2006) were reviewed in an effort to identify general weight restriction trends/groupings that could be used to identify future improvement areas and/or potential problem areas. Based on an assessment of historical seasonal weight restriction data, no obvious trends or groupings were identified. As stated in Section 3.1.4 of this report, the duration and locations of weight restrictions along most highways can vary annually.

When road and bridge infrastructure is unable to support truck movements, trucks must either detour around the restricted roads or limit the weight of truck loads, both of which add to the cost of freight shipments and potentially the cost of goods to consumers. DOT&PF has recently begun exploring the feasibility of eliminating weight restrictions by improving weaker sections of highway. As programs aimed at eliminating weight restriction are further developed, these programs should be integrated with other improvement programs that address capacity and safety needs.

A recent study focusing on eliminating weight restrictions along the Parks Highway estimated the cost to repair 10 highway segments, totaling 43.3 miles, to be approximately $65 million ($1.5 million per lane-mile). Levels of highway improvements and costs can vary significantly based on existing conditions, highway usage, annual weather conditions, and approach to construction and phasing. Several additional estimates have been prepared for highway improvements to eliminate weight restrictions along the Parks Highway ranging between $97 million and $115 million, based on different phased approaches.

6.1.4 Maintenance and Operations

Maintaining the State's highway infrastructure is a top priority, as it is vital to the safety of the traveling public and movement of goods and services. DOT&PF M&O responsibilities related to highway transportation include a wide variety of preventative upkeep and repairs to pavement, bridges, traffic signals, striping, street illumination, signs and guardrails. Additional responsibilities include snow removal and vegetation management. These responsibilities are carried out by M&O staff located at 26 maintenance stations throughout the study area.

As many of the highway needs identified by M&O staff are summarized under Section 6.1.2 *Roadway Conditions and System Needs*, the following section focuses on the needs of maintenance stations and provides recommendations for potential improvements. Also provided is an overview of the two major types of maintenance (deferred and preventative) and a summary of the new Maintenance Management System (MMS) being used by DOT&PF to streamline many existing tasks and to improve project tracking.

6.1.4.1 Maintenance Stations

Roads and bridges are not the only facilities requiring maintenance within the study area. The facilities that house equipment, machinery and M&O staff in remote locations also require maintenance and upkeep. These facilities are especially critical because of the extreme seasonal cold temperatures in Interior Alaska. Overall facility upgrades are essential to achieve adequate operating conditions at many of these maintenance stations. While several of these stations are functional due to the availability of local housing and services for M&O employees, major improvements are needed to ensure adequate M&O services continue to be available. Although closures of maintenance stations occasionally occur due to inadequate facilities and/or lack of employees, this can overburden adjacent maintenance stations such as in the case of the East Fork and Cantwell stations. The East Fort station was responsible for approximately 31.1 miles of the Parks Highway and was closed in late 2001. The adjacent maintenance station located in Cantwell that once covered the M&O needs of approximately 36.9 miles of the Parks Highway is now responsible for approximately 68 miles of highway. Detailed summaries of maintenance station needs are provided in Section **Error! Reference source not found.** *Highway Corridor Assessments*.

6.1.4.2 Deferred Maintenance

Deferred maintenance is the practice of postponing annual maintenance activities to future years based on the priority of needs and available funding. Funds for deferred maintenance activities along Alaska's highways are supplied by State General Funds. Deferred maintenance primarily involves a variety of restoration, preservation and repair activities of the following roadway elements.

- pavement
- bridges
- gravel surfaces
- guardrails
- shoulders/slopes/ditches
- drainage
- paint striping
- lighting
- traffic signals
- vegetation management

The following is a summary of recent statistics regarding deferred maintenance.

- Of the four major areas that require deferred maintenance activities (aviation, harbors, highways, and public facilities), highways represent over half of the total deferred maintenance costs.

- The top three deferred maintenance activities for Northern Region are bridge repairs, pavement repairs, and environmental management.

6.1.4.3 Preventative Maintenance

Preventative maintenance is aimed at preserving and extending the useful life of existing highway infrastructure via cost-effective treatments. This type of maintenance effort is a proactive approach with goals of improving safety and mobility, reducing congestion and construction delays, and providing for longer lasting facilities. Preventative maintenance treatments are applied to locations not necessarily with the highest needs, but rather at locations where these cost-effective treatments are used to prolong a facility's life.

Preventative maintenance projects can be drawn from the PMS, which identifies highway corridor and pavement needs. These projects are usually designed by M&O staff. Preventative maintenance can include the following roadway and bridge improvement activities.

- milling
- profiling
- micro-surfacing
- chip sealing
- seal coats
- joint and crack sealing
- joint repairs
- drain cleaning
- bridge painting/roadway striping
- deck rehabilitation
- seismic retrofit
- shoulder/slope/ditch repairs
- drainage restoration
- illumination
- guardrails
- pavement overlays

6.1.4.4 Maintenance Management System (MMS)

Over the past four years, DOT&PF has been transitioning to an MMS to automate, streamline and track many of the activities preformed by M&O staff. The MMS is currently being used to track and organize budget expenditures, deferred maintenance, budget requirements and services provided to the public. As this historical data continues to grow, much of this information will be used to improve existing processes and help forecast future highway needs and budgets. In addition, the MMS is also used to automate timesheet reporting and streamline work plans.

6.1.5 Security

Security planning is a rapidly growing component to many states' overall planning efforts. While security needs and priorities can vary widely from state to state, maintaining a well functioning highway system and coordinating security issues between state, regional and Federal agencies is critical to security planning.

The two border crossings that serve Alaska and Canada within the Interior, located along the Alaska Highway at Port Alcan and the Top of the World Highway at Poker Creek, play an integral role in highway security. The Port Alcan border crossing is operational year round with 24-hour service, while the Poker Creek border crossing provides daytime service from mid-May to late-October. Operations and maintenance of all border crossings are the responsibility of the US Customs and Border Protection (CBP), the largest component of the Department of

Homeland Security. These international borders are subject to all immigration and customs laws. Although the CBP is responsible for maintaining the roads at the border crossings during the winter months (i.e. plowing and salting), these efforts are closely coordinated and occasionally performed by DOT&PF M&O. According to M&O staff, the CBP is currently leading an effort to enhance security at both border crossings to improve vehicle monitoring at checkpoints.

6.1.6 Highway Corridor Assessment

6.1.6.1 Alaska Highway (Alaska Route 2)

The Alaska Highway is approximately 198 miles in length and provides an east/west connection between the US/Canada border and Delta Junction. The major connection points to neighboring highways are the Richardson Highway at MP 1422, Tok Cutoff Highway at MP 1314.7 and the Taylor Highway at MP 1301.7.

Traffic Volume Forecast and Roadway Capacity. Forecast year 2030 AADT along most of the corridor range between 800 and 2,000, with higher traffic volumes forecast near Delta Junction. Based on these forecast traffic volumes, a qualitative planning level assessment of the Alaska Highway reveals no major roadway capacity constraints over the near- and long-term.

Safety. The descriptions and potential treatments identified in Table 6-5 can help to address the highest priority safety concerns along the Alaska Highway.

Table 6-5 Crash Summary Analysis (2001-2006), Alaska Highway

Segment	Location (milepost)	Crash Summary / Contributing Factors	Potential Treatments / Corrective Measures / Strategies
1231 - 1234	-	No identifiable trends. 6 of 7 accidents involved driver inattention or inexperience	• Provide additional driver information/notification • Continue monitoring to identify any trends and isolate causes
1281 - 1286	1285	Three off-road crashes occurred at this curved and graded section of roadway.	• Install guardrail, chevrons, rumble strips and/or advance warning signs • Realign roadway to eliminate curvature
1406 - 1411	-	15 of 17 crashes involved animals	• Brush cutting to divert animal crossings

Beyond these highway segments, no special interest areas were identified for further analysis based on field observations or anecdotal evidence.

Roadway Conditions and System Needs. The Alaska Highway is paved throughout and in generally good condition; however, regular maintenance is needed on several highway segments due to extremely poor foundations. Some of the worst pavement conditions are located near the border (MP 1222 to1236) and either side of Northway Junction (MP 1254 to 61 and MP 1265 to 71). The majority of the highway is 36 feet wide except near Tok where it is 40 feet wide. The 2006 *Pavement Management Report* 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. Major infrastructure improvements will be needed along the Alaska Highway should the construction of the Alaska Natural Gas Pipeline move forward and parallel this facility.

Maintenance & Operations. Deferred and preventative maintenance needs identified by M&O staff are summarized in Table 6-6.

Table 6-6 Maintenance Project Needs, Alaska Highway*

Project	Estimated Cost
Deferred Maintenance	
Guardrail Repair/Replacement - Replace 630' and raise 430' of guardrail that has subsided and fallen away from the roadway at Dot Lake corner.	$100,000
Culvert Replacement (MP 1226-1266) - Replace 13 culverts.	$100,000
Total	$200,000
Preventative Maintenance	
Reclaim and Resurface (MP 1412-1422)	$5,500,000
Culvert Repair / Replacement	$3,000,000
Total	$8,500,000

*Based on year 2008 deferred maintenance and 2007 preventative maintenance project lists.

Also, general conditions at all three maintenance stations (Northway, Tok and Delta Junction) located along the Alaska Highway are marginal to substandard. Overall facility upgrades and improvements to shops and warm storage buildings are needed.

6.1.6.2 Dalton Highway (Alaska Route 11)

The Dalton Highway is primarily a north/south facility that begins at its intersection with the Elliott Highway and extends north to Deadhorse. The portion of the Dalton Highway in the study area is approximately 230 miles long.

Traffic Volume Forecast and Roadway Capacity: With an average annual growth of approximately 1 percent, the forecast year 2030 AADT along most parts of the Dalton Highway are estimated to range between 300 to 500 AADT. However, with the potential construction of the Alaska Natural Gas Pipeline and Enstar Gas Pipeline, traffic volumes would increase considerably, particularly heavy vehicle volumes. Although no major roadway capacity constraints are anticipated over the near- and long-term, development of either pipeline would have a major impact on highway operations and the existing highway infrastructure.

Safety: A review of historical crash data did not reveal any major crash trends, and no specific areas (special interest areas) were identified for further analysis based on field observations or anecdotal evidence. However, several highway segments were identified as areas with system needs to improve highway mobility, accessibility, and/or general highway conditions.

Roadway Conditions and System Needs: Approximately 50 percent of the highway is unpaved (gravel surface) and generally travels though rounded hills and mountainous terrain. The majority of the highway is approximately 32 feet wide. Primary areas of improvement for the Dalton Highway are road geometry and culvert repairs. Poor road geometry, particularly segments with steep grades, can degrade highway mobility, accessibility and general highway conditions. Many segments along the Dalton Highway require reconstruction and possible new alignments. Culvert failures are also an area of concern that can create lengthy road closures and require extensive resources to repair. Two specific locations that require immediate culvert repairs are at Rosie Creek (MP 172) and Mark Creek (MP 345).

Maintenance & Operations: Primary maintenance issues along the Dalton Highway are permafrost, subsidence, increasing gravel-surfacing wear, intense truck traffic and weather events. The remoteness of the highway also creates challenges in maintaining the overall highway, especially in rural areas were transport of supplies and equipment may be difficult. Deferred and preventative maintenance needs identified by M&O staff are summarized in Table 6-7.

Table 6-7 Maintenance Project Needs, Dalton Highway*

Project	Estimated Cost
Deferred Maintenance	
Asphalt Repairs (Hot Mix) (MP 19-23) - Extend the life of the existing surface, provide a smoother and safer roadway, and reduce future maintenance costs.	$40,000
Dan Creek Bridge Decking - Replace worn sub deck and wearing surface.	$250,000
Total	$290,000
Preventative Maintenance	
Not available at this time.	-
Total	-

*Based on year 2008 deferred maintenance and 2007 preventative maintenance project lists.

Additional maintenance needs include facility upgrades to the shops and warm storage facilities at the Jim River maintenance station. The two remaining stations (Seven Mile and Coldfoot) are generally in adequate condition and no major improvements are currently needed.

6.1.6.3 Denali Highway (Alaska Route 8)

The Denali Highway is approximately 135 miles in length and provides an east/west connection between the Richardson and Parks Highways. The highway is generally closed between October 1 and mid-May.

Traffic Volume Forecast and Roadway Capacity. Forecast year 2030 AADT along the Denali Highway range between 300 and 400 and no major roadway capacity constraints are anticipated over the long-term.

Safety. A review of historical crash data did not reveal any major crash trends or areas of safety concern, and no special interest areas were identified for further analysis based on field observations or anecdotal evidence.

Roadway Conditions and System Needs: The highway terrain throughout the entire length is generally rolling to mountainous, and the majority of the highway is approximately 26 feet wide. As it leaves the Richardson Highway at Paxson, the grade abruptly increases into the foothills of the Alaska Range. The highway is only paved for the first 21 miles west of Paxson and 3 miles east of the Cantwell Junction. According to the 2006 *Pavement Condition Report*, 12 miles of the paved portion 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 there are paved turnouts and/or parking adjacent to the road. In addition to the general maintenance needs of the majority of the gravel surface, four of the nine bridges located along the Denali Highway are eligible for repair or replacement: Gulkana River (MP 0.2); Tangle River (MP 21.4); Rock Creek (MP 24.9); and Seattle Creek (MP 110.9).

Maintenance & Operations: Deferred and preventative maintenance needs identified by M&O staff are summarized in Table 6-8.

Table 6-8 Maintenance Project Needs, Denali Highway*

Project	Estimated Cost
Deferred Maintenance	
Brush Cutting - Cut brush back from road surface and reestablish sight distance on roads that have not been brush cut for several years.	$100,000
Gravel Resurfacing - Provide gravel resurfacing funds for the portion of Denali Highway that is within the Cantwell station coverage.	$100,000
Dust Control (Calcium Chloride Application) – Apply 100 tons.	$60,000
Culvert Rehabilitation/Installation - Reduce washouts, shoulder erosion and time spent steaming culverts each spring.	$100,000
Ditching Rehabilitation (MP 60-131) - Reestablish drainage in locations that cannot be reached with graders and slopers.	$125,000
Ditching (MP 60-131) - Reestablish drainage in locations that cannot be reached with graders and slopers.	$150,000
Sign Study and Installation - Conduct a sign study to locate all signs needed on this corridor.	$200,000
Chip Seal - The first section of the Denali Highway adjacent to the Parks Highway in Cantwell is in need of a single application chip seal to extend the life of the existing surface. The deteriorated condition of the existing chip seal results in a high maintenance cost. This project will extend the life of the existing surface, provide a smoother and safety roadway, and will reduce maintenance costs	$100,000
Total	$935,000
Preventative Maintenance	
Surface and Miscellaneous Improvements (MP 22-30)	$4,500,000
Total	$4,500,000

*Based on year 2008 deferred maintenance and 2007 preventative maintenance project lists.

Maintenance of the Denali Highway is conducted out of the Cantwell and Paxson stations. Although no immediate needs were identified by M&O staff for either maintenance station, the Cantwell station currently serves an area typically covered by two stations (Cantwell and East Fork). M&O staff has identified the reopening of the East Fork station on the Parks Highway as an immediate need to support the Denali Highway.

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

The Edgerton Highway begins at its intersection with the Richardson Highway and extends southeast for approximately 31 miles to Chitina. East of Chitina, the Edgerton Highway becomes McCarthy Road and is approximately 60 miles in length and terminates at McCarthy.

Traffic Volume Forecast and Roadway Capacity. Traffic volumes for year 2030 are estimated to be approximately 600 AADT. These volumes can be accommodated by the existing two-lane facility.

Safety. A review of historical crash data did not reveal any major crash trends or areas of safety concern. Also, no special interest areas were identified for further analysis based on field observations or anecdotal evidence.

Roadway Conditions and System Needs. The Edgerton Highway is a paved two-lane highway, while the majority of the McCarthy Road is gravel. The 2006 *Pavement Condition Report* indicates that 22.5 miles of the Edgerton Highway 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. The general terrain of both facilities is rolling to mountainous with restrictions to vertical and horizontal roadway alignment. The Edgerton Highway and McCarthy Road are both in relatively good condition and no specific highway needs were identified beyond general roadway maintenance and bridge repair at the Chokosna River and Lakina River bridges.

Maintenance & Operations: Deferred and preventative maintenance needs identified by M&O staff are summarized in Table 6-9.

Table 6-9 Maintenance Project Needs, Edgerton Highway*

Project	Estimated Cost
Deferred Maintenance	
Surface Maintenance - Resurface sections that are damaged due to frost heaving.	$120,000
Total	$120,000
Preventative Maintenance	
Single E-chip (MP 0-16)	$800,000
Total	$800,000

*Based on year 2008 deferred maintenance and 2007 preventative maintenance project lists.

Maintenance of the Edgerton Highway/McCarthy Road is led out of the Chitina maintenance station. This station is in average condition and no major improvements are currently needed.

6.1.6.5 Elliott Highway (Alaska Route 2)

The Elliott Highway is a two-lane facility that connects the Steese and Dalton Highways (68 miles), and extends southwest from its connection with the Dalton Highway to Manley Hot Springs (86 miles).

Traffic Volume Forecast and Roadway Capacity. Year 2030 AADT along the Elliott Highway between the Dalton Highway and Manley Hot Springs is forecast to be approximately 150, and roughly 1,600 AADT between the Dalton Highway and Fox. Although no capacity constraints are anticipated along either highway segment over the long-term, potential resource development of natural gas in the North Slope could have a major impact on highway operations and infrastructure with construction of a new gas pipeline.

Safety., Crash descriptions and potential treatments to address the highest priority safety concerns along the Elliott Highway are summarized in Table 6-10.

Table 6-10 Crash Summary Analysis (2001-2006), Elliott Highway

Segment	Location (milepost)	Crash Summary / Contributing Factors	Potential Treatments / Corrective Measures / Strategies
0 - 3	-	Of the 16 crashes in this segment, 5 involve animals and 7 cross the shoulder or centerline. At least 7 crashes involve driver inattention or falling asleep. There is a variety of straight, curved, level, and graded sections.	• Provide additional driver information/notification • Continue monitoring to identify any trends and isolate causes
7 - 18	-	Of the 19 crashes, 5 involve animals, 8 involve off-road/ditch, and 5 are overturned vehicles. 16 of the crashes occurred on wet or icy conditions.	• Reduce speeds in icy/wet conditions. • Provide additional driver information/notification

Beyond these two highway segments, no specific areas (special interest areas) were identified for further analysis based on field observations or anecdotal evidence.

Roadway Conditions and System Needs. The Elliott Highway between the Steese and Dalton Highways is paved, generally 30 feet wide, and traverses rolling to mountainous terrain. This facility consists of a series of horizontal and vertical curves through the White Mountains, with many bumpy sections. The 2006 *Pavement Condition Report* indicates that one mile of road has more than five years of life and 32 miles have three to six years of life. Nineteen miles have one to two years of life and 16 have no service life left. The highway segment between the Dalton Highway and Manley Hot Springs is gravel, generally 22 to 24 feet wide, and the terrain is generally rolling to mountainous. The gravel section is narrow, has no shoulders, and can be rough. Also, should the construction of the Alaska Natural Gas Pipeline move forward and parallel this facility between the Dalton Highway and Fox, infrastructure improvements such as roadway reconstruction and bridge repairs/replacement would be needed along its entire length.

Maintenance & Operations. Deferred and preventative maintenance needs identified by M&O staff are summarized in Table 6-11.

Table 6-11 Maintenance Project Needs, Elliott Highway*

Project	Estimated Cost
Deferred Maintenance	
Gravel Resurfacing	$100,000
Dust Control (Calcium Chloride Application) – Apply 100 tons.	$60,000
Culvert Rehabilitation/Repair/Installation	$100,000
Brush Cutting	$255,000
Total	$515,000
Preventative Maintenance	
Not available at this time.	-
Total	-

*Based on year 2008 deferred maintenance and 2007 preventative maintenance project lists.

The three maintenance stations within the study area are Fairbanks, Livengood, and Manley. The stations at Fairbanks and Livengood are generally in adequate condition; however M&O staff has identified needs at the Manley station. General conditions at the Manley station are marginal to substandard. Overall facility upgrades and improvements to the shops and warm storage are needed.

6.1.6.6 Glenn Highway (Alaska Route 1)

The Glenn Highway is approximately 187 miles in length and provides an east/west connection between Anchorage and Glennallen, where it connects with the Richardson Highway. Approximately 60 miles of this paved facility is located in the study area (MP 127 – 187).

Traffic Volume Forecast and Roadway Capacity. Traffic volumes for year 2030 are estimated to range between 1,300 and 4,000 AADT, with higher traffic volumes forecast near the Richardson Highway junction. Based on these forecast traffic volumes, a qualitative planning level assessment of portions of the Glenn Highway within the study area reveals no major roadway capacity constraints over the near- and long-term.

Safety. A review of historical crash data did not reveal any major crash trends or areas of safety concern, and no special interest areas were identified for further analysis based on field observations or anecdotal evidence.

Roadway Conditions and System Needs. General highway conditions are good within the study area; however, passing lanes are needed in select areas to improve highway mobility. The road width within the study area is generally 40 feet. The terrain between MP 127 and Glennallen is level to rolling with minimal restrictions to vertical or horizontal roadway alignment. 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 only one to two years of pavement life or none.

Maintenance & Operations. Deferred and preventative maintenance needs identified by M&O staff are summarized in Table 6-12.

Table 6-12 Maintenance Project Needs, Glenn Highway*

Project	Estimated Cost
Deferred Maintenance	
Not available at this time.	N/A-
Preventative Maintenance	
Reclaim and Resurface (MP 127-135)	$4,500,000
Total	$4,500,000

*Based on year 2008 deferred maintenance and 2007 preventative maintenance project lists.

Maintenance of the segment of the Glenn Highway within the study area is led out of the Tazlina and Nelchina stations. No immediate needs were identified by M&O staff for either maintenance station.

6.1.6.7 Parks Highway (Alaska Route 3)

The Parks Highway is the primary facility connecting Anchorage to Fairbanks, while serving many other communities in between. It also provides access to Denali National Park, one of the largest attractors for tourism and recreation in the state. This facility accommodates the highest level of traffic volume of any roadway in the Interior. The portion of the Parks Highway in the study area begins at MP 128 (approximately 82 miles south of the Denali Highway) and extends north approximately 196 miles to Fairbanks. This highway serves as the western terminus of the Denali Highway at MP 210 in Cantwell.

Traffic Volume Forecast and Roadway Capacity. Year 2030 AADT along the Parks Highway between the study boundary (MP 128) and Nenana is forecast at approximately 4,700, and approximately 11,800 AADT between Nenana and Sheep Creek Road. No capacity constraints are anticipated along this highway over the near- and long-term.

Safety. The descriptions and potential treatments identified in Table 6-13 are based on the assessment of available crash data. They can help to address the highest priority safety concerns along the Parks Highway.

Table 6-13 Crash Summary Analysis (2001-2006), Parks Highway

Segment	Location (milepost)	Crash Summary / Contributing Factors	Potential Treatments / Corrective Measures / Strategies
214 - 216	215	6 of the 9 crashes involved guardrail or off-road incidents on this curved, graded section of roadway. 6 were caused by driver inattention and/or unsafe speeds.	• Install guardrail, chevrons, rumble strips, and/or advance warning signs • Realign roadway to eliminate curvature
295 - 297	297	Four crashes occurred at this curve related to inattention, inexperience, and unsafe speeds.	• Install guardrail, chevrons, rumble strips, and/or advance warning signs • Realign roadway to eliminate curvature
345 - 349	-	Of the 25 crashes, 9 involved running off the road or into the guardrail. 7 involved animals, and 3 were overturned. The roadway segment contains a rapid succession of curves and grades.	• Install guardrail, chevrons, rumble strips, and/or advance warning signs • Realign roadway to eliminate curvature

In addition to these highway segments, the following special interest areas were identified for further analysis based on field observations or anecdotal evidence.

6.1.6.7.1 Honolulu Hill (near Milepost 168) and East Fork (near Milepost 186)

Two areas of special interest on the Parks Highway are the roadway sections near Honolulu Hill and East Fork. Although both roadway sections have adequate shoulder widths (approximately 8 feet), the combination of sharp horizontal and vertical curves creates potential safety concerns for motorists. Both highway segments have sections of road with 6 percent grades and curves designed for travel speeds of 35 to 45 mph. Heavy truck traffic and winter conditions affect the overall safety of these highway segments.

Parks Highway (northbound) - McKinley Village Main

Parks Highway (northbound) – Denali Park Entrance

6.1.6.7.2 McKinley Village (Milepost 231.0)

Another special interest area on the Parks Highway is the access point for McKinley Village and the Grizzly Bear Cabins and Campground, located approximately six miles south of the Denali National Park entrance. McKinley Village and the Grizzly Bear Campground are lodging facilities that also provide many outdoor recreational activities such as hiking, rafting, and bicycling. Access is provided along the Parks Highway via a single driveway located immediately south of the Nenana River crossing. Although a review of the crash data in this area revealed no apparent crash trends or patterns, this area has been identified for further review due to a combination of roadway grade, curvature, travel speeds, and type of vehicles entering/exiting the Parks Highway. Because the driveway is located at a sag point of the highway on a slight curve with a posted speed of 55 mph, there is concern about vehicles, particularly heavy vehicles (i.e. tour buses, recreational vehicles, and tractor trailers), entering/exiting the highway and potential conflicts with fast-moving vehicles traveling along the mainline. Potential low-cost improvements that can be explored are providing advance warning signs for an intersection ahead and speed reduction.

6.1.6.7.3 Denali Park Entrance (Milepost 237.5)

The entrance to the Denali National Park and Preserve is located along a relatively flat section of the Parks Highway, approximately 400 feet north of the Riley Creek Bridge. At this location the Parks Highway consists of a two-lane cross section with a dedicated southbound right-turn lane, varying shoulders, and a posted speed of 55 mph. During the summer months, the park entrance experiences its heaviest demand of traffic, particularly tour vans and trucks. This location is a safety concern because of the lack of an exclusive left-turn lane along the Parks Highway to provide refuge for northbound left-turning vehicles. Although shoulder width does exist for vehicles to slowly pass short standing-vehicle queues, this maneuver is not ideal or recommended.

Parks Highway (southbound) – Denali Park Entrance and Riley Creek Bridge

Parks Highway (southbound) – Riley Creek Bridge

While an exclusive northbound left-turn lane at the Parks Highway/Denali National Park Road intersection would separate turning traffic from the high-speed through traffic, constructing the turn lane would likely be a challenge due to the close proximity of the Riley Creek Bridge. In addition to widening the Parks Highway to accommodate a three-lane cross section, widening of the existing bridge structure would be needed. Because the historical crash data at this location do not reveal any apparent trends and because of the likely high cost of widening Riley Creek Bridge, it is recommended that traffic conditions continue to be monitored at the Denali Park entrance. Traffic monitoring methods include using video technology to record daily traffic conditions or conducting a conflict study to further evaluate site concerns. It is also recommended that a left-turn lane warrant analysis be conducted, though traffic volumes are not the only factor used to justify need. A left-turn lane warrant analysis considers traffic volumes and the posted speed to evaluate whether a separate left-turn lane is recommended for traffic operations and/or safety.

6.1.6.7.4 S-Curves (Milepost 315 to 321)

The segment of highway just north of Nenana consists of a series of sharp curves that has contributed to approximately 30 reported crashes over the past five years. The primary crash type is vehicles traveling off the road into ditches or guardrails. Realignment of this highway segment may be the ultimate improvement; however, adequate funding is currently not available. Topography along this highway segment is mountainous and highway realignment will be costly. In lieu of this, oversized advance warning signs were installed to slow travel speeds and inform drivers of steep grades and sharp curves. Although the installation of oversized signage provides for a good interim solution to the safety issue, it is recommended that staff continue to monitor this highway segment and continue to pursue funding for future improvements.

Roadway Conditions and System Needs. The entire length of the Parks Highway is paved and the terrain varies from mountainous, rolling to level depending on which section of road is being traversed. The road within the study area is generally 40 feet in width and general highway conditions are good. Passing lanes are needed in select areas such as Healy and McKinley Village to improve highway mobility. Consequently, several locations were identified as potential or latent safety concerns in addition to those identified through the rate quality control method. 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.

Maintenance & Operations. Deferred and preventative maintenance needs identified by M&O staff are summarized in Table 6-14.

Table 6-14 Maintenance Project Needs, Parks Highway*

Project	Estimated Cost
Deferred Maintenance	
Sign Replacement - Replacement of sign due to snow removal wear and tear.	$290,000
Guardrail Upgrade	$1,150,000
Reclaim and Resurface (MP 251-265)	$500,000
Ditching - Re-establish drainage along both sides of the Parks Highway keep water away from the road base.	$290,000
Total	$2,230,000
Preventative Maintenance	
Resurface and Miscellaneous Improvements (MP 240 -248) - Glitter Gulch to Stampede	$4,200,000
Total	$4,200,000

*Based on year 2008 deferred maintenance and 2007 preventative maintenance project lists.

The 195-mile portion of the Parks Highway within the study area is maintained by M&O staff operating out of five maintenance stations. The majority of these stations are generally in adequate condition; however, M&O staff has identified needs at the Nenana station. General conditions at the Nenana station are marginal to substandard and overall facility upgrades and improvements to the shops and warm storage are needed. Although no immediate needs were identified by M&O staff for the Cantwell station, this station currently serves an area typically covered by two stations (Cantwell and East Fork) and M&O staff has identified the reopening of the East Fork station as an immediate need.

6.1.6.8 Richardson Highway (Alaska Route 2 and 4)

The Richardson Highway is approximately 368 miles in length and provides a north-south connection between Fairbanks and Valdez. Approximately 271 miles of the highway are located in the study area which begins along the Richardson Highway at MP 69 and ends at MP 340. The Richardson Highway junctions with five other highways; the Edgerton Highway (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.

Traffic Volume Forecast and Roadway Capacity. Year 2030 traffic volumes are forecast to be the highest along the highway segment between Laurence Road and the Alaska Highway at approximately 15,000 AADT. Daily traffic volumes along most other segments of the Richardson Highway are forecast between 1,500 and 4,500 AADT. Based on these forecast traffic volumes, a qualitative planning level assessment of the Richardson Highway reveals no major roadway capacity constraints over the near- and long-term.

Safety. The descriptions and potential treatments identified in Table 6-15 are based on the assessment of available crash data. They can help to address the highest priority safety concerns along the Richardson Highway.

Table 6-15 Crash Summary Analysis (2001-2006), Richardson Highway

Segment	Location (milepost)	Crash Summary / Contributing Factors	Potential Treatments / Corrective Measures / Strategies
148 - 151	150	No identifiable trend. 3 crashes occurred at this point, 1 overturn, 1 animal and 1 rear end. All occurred in dry, daylight conditions. 2 crashes were related to driver error.	• Continue monitoring to identify any trends and isolate causes
238 - 242	241	All 4 crashes were related to "out of control" driving (3 off-road, 1 overturn) due to inattention and unsafe speeds.	• Provide additional driver information/notification • Continue monitoring to identify any trends and isolate causes
271 - 274	274	4 intersection-related (angle) crashes at Rikas Rd. 3 crashes at Tanana River Bridge (2 ditch, 1 bridge rail) on ice/slush conditions.	• Provide advanced intersection notification • Remove obstructions to provide adequate sight distance
293 - 295	-	No identifiable trend. Of the 4 crashes, 3 involved animals and 1 was an off-road crash.	• Provide additional driver information/notification • Continue monitoring to identify any trends and isolate causes
295 - 300	300	6 of the 8 crashes were off-road/guardrail crashes at this curved and graded section of highway. Unsafe speeds and driver inattention played a role in 5 crashes.	• Install guardrail, chevrons, rumble strips, and/or advance warning signs • Realign roadway to eliminate curvature

In addition to these highway segments, the section of highway at Meiers Lake was identified as a special interest area needing further analysis based on field observations and anecdotal evidence.

6.1.6.8.1 Meiers Lake (near Milepost 171)

Average roadway widths along most sections of the Richardson Highway near Meiers Lake are approximately 24 feet, and the narrow cross section provides little to no shoulder width.

DOT&PF prefers a minimum shoulder width of six to eight feet. Shoulders are vital to the overall highway system as they add to the area of clear zone that protects drivers from roadside hazards (slopes, water, trees); provide a safe place for vehicles to stop for emergencies or mechanical difficulties; accommodate pedestrian and bicycle use; provide structural pavement support; and improve sight distance in cut sections.

In addition to the narrow roadway cross sections, the combination of sharp horizontal and vertical curves contributes to reasons why this is an area with potential safety concerns. Several highway sections have curves with radii of approximately 800 feet (35 to 40 mph travel posted speed) and grades of up to 7 percent.

Roadway Conditions and System Needs. The Richardson Highway is paved throughout and approximately 165 miles 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, according to the 2006 *Pavement Condition Report.* 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). Portions of the Richardson Highway between Gakona and Delta Junction are some of the highest priority safety areas in the Interior. The section of highway between MP 202 to 266 is narrow and consists of a series of sharp horizontal curves. Most of the highway is a two-lane undivided facility with narrow or non-existent shoulders. In addition, sharp horizontal and vertical curves, poor pavement conditions and sight distance provide further challenges to the traveling public.

Maintenance & Operations. Deferred and preventative maintenance needs identified by M&O staff are summarized in Table 6-16.

Table 6-16 Maintenance Project Needs, Richardson Highway*

Project	Estimated Cost
Deferred Maintenance	
Culvert Replacement (MP 130-150)	$200,000
Culvert Restoration (MP 289-341.5)	$30,000
Drainage Improvement - Remove debris/brush and re-create a flowline.	$95,000
Bridge Resurface - Mill and resurface Tiekel North, Tiekel South and Stuart Creek Bridges.	$120,000
Riprap Stockpiles	$200,000
Fence Repair - Repair fence along the highway between Eielson AFB and Fairbanks.	$30,000
Total	$675,000

Project	Estimated Cost
Preventative Maintenance	
Tazlina Wayside Erosion Control	$400,000
Double E-Chip Application and 1/2 Mile Reclaim and Pave (MP 27-42)	$1,100,000
Reclaim/Resurface and Miscellaneous Drainage Improvements (MP 65-74)	$5,500,000
Tonsina Hill Reconstruction (MP 79-81)	$2,000,000
Reclaim and Resurface (MP 82-86)	$2,300,000
Reclaim and Resurface (MP 174 – 184)	$4,800,000
Mill and Overlay (MP 265.8-275.5)	$5,500,000
Total	$21,600,000

*Based on year 2008 deferred maintenance and 2007 preventative maintenance project lists.

Of the seven maintenance stations located along the Richardson Highway, the Ernestine and Birch Lake stations were identified by M&O staff as needing overall facility upgrades and improvements to the shops and warm storage buildings.

6.1.6.9 Steese Highway (Alaska Route 6)

The Steese Highway begins in Fairbanks and extends northeast for approximately 162 miles to Circle. Approximately 151 miles of this highway is located in the study area, which begins at MP 11 near Fox.

Traffic Volume Forecast and Roadway Capacity. Year 2030 traffic volume forecasts are approximately 13,000 AADT between Fairbanks and Fox, and drop to 400 AADT near Circle. A qualitative planning level assessment of the Steese Highway reveals no major roadway capacity constraints over the near- and long-term.

Safety. Based on the assessment of crash data per the rate quality control method, the highway segment between MP 9 and 12 was identified as having potential safety concerns. Between year 2001 and 2006, seven crashes were reported on the Steese Highway at the intersection with Goldstream Road and four at the Elliott Highway intersection. The predominant crash type reported at each location is angle collisions. Sight distance should be evaluated at both locations and any obstructions should be removed. Also, advance intersection notification signs can be used to warn drivers of vehicles entering the mainline traffic stream. Other than this one highway segment, no special interest areas were identified for further analysis based on field observations or anecdotal evidence.

Roadway Conditions and System Needs. The first 44 miles of the Steese Highway are paved. The section of the Steese Highway between Fox and the Chatanika River Bridge (MP 39) is a two-lane minor arterial with a paved 28-foot width. The road is paved 24 feet wide with no shoulders from the Chatanika River Bridge (MP 39) to Boston Creek (MP 44). East of Boston Creek, the highway is a 28-foot-wide gravel road to Central (MP 128), and narrows to 22 feet for the remaining length to Circle. The majority of the Steese Highway, east of the Chatanika River Bridge has poor surface conditions and needs complete reconstruction to Circle.

Maintenance & Operations. Deferred and preventative maintenance needs identified by M&O staff are summarized in Table 6-17.

Table 6-17 Maintenance Project Needs, Steese Highway*

Project	Estimated Cost
Deferred Maintenance	
Brush Cutting (MP 101-162)	$190,000
Surface Repair (MP 128-162) - 5,000 cy of surface aggregate would finish off repairs to the washed out areas and locations that received new culverts this year.	$100,000
Drainage Improvements - Clean and reestablish most of the ditches between Central and Circle Hot Springs. Erosion has caused silt to fill up the ditches and plug culverts.	$150,000
Total	$440,000
Preventative Maintenance	
Not available at this time.	-
Total	-

*Based on year 2008 deferred maintenance and 2007 preventative maintenance project lists.

The two maintenance stations within the study area are located at Montana Creek and Central. These stations are in good condition and no major improvements were identified by M&O staff.

6.1.6.10 Taylor Highway (Alaska Route 5)

The Taylor Highway begins at its intersection with the Alaska Highway near Tetlin, and extends north to Eagle (approximately 160 miles). This highway connects with the Top of the World Highway at Jack Wade Junction (MP 96).

Traffic Volume Forecast and Roadway Capacity. Year 2030 traffic volumes along the Taylor Highway are forecast between 200 and 300 AADT. No major roadway capacity constraints are anticipated over the long-term.

Safety. A review of historical crash data did not reveal any major crash trends or areas of safety concern, and no special interest areas were identified for further analysis based on field observations or anecdotal evidence.

Roadway Conditions and System Needs. The Taylor Highway is considered to be in the worst condition of any highway in the Interior due to severe (seven to nine percent) grades, limited shoulders, and rough road conditions with frost heaves and pavement breaks. The first 64 miles of the highway are paved and the rest is gravel, with a general width of approximately 28 feet. Of the 64 miles of paved road, 18.5 miles of the road have 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 according to the 2006 *Pavement Condition Report*. Although the low traffic demand and seasonal nature of this roadway has historically reduced its priority ranking for transportation improvements, it is recommended that funding be sought to address the worst sections of the highway, particularly near MP 73. The highway segment between Chicken and Eagle is in very poor condition and needs reconstruction. North of Chicken, the Taylor Highway is a narrow two-lane facility with many sharp curves (switchbacks). Traversing this roadway section, particularly between Wye and Eagle, is very challenging for travel trailers and recreational vehicles. Several miles of one-lane road exist that need to be addressed.

Maintenance & Operations. Deferred and preventative maintenance needs identified by M&O staff are summarized in Table 6-18.

Table 6-18 Maintenance Project Needs, Taylor Highway*

Project	Estimated Cost
Deferred Maintenance	
Culvert Replacement -	$50,000
Stockpile Road Surfacing Material	$500,000
Vegetative Management	$400,000
Calcium Chloride Application – Reduces fugitive dust and binding the surface of the road. Safer road requiring less maintenance.	$200,000
Total	$1,150,000
Preventative Maintenance	
Reclaim, Resurface, and Base Stabilization (MP 43-48)	$3,500,000
Resurface and Base Stabilization (MP 55-57)	$1,300,000
Total	$4,800,000

*Based on year 2008 deferred maintenance and 2007 preventative maintenance project lists.

The three maintenance stations on the Taylor Highway are located at South Fork, O'Brien, and Eagle. General conditions at the South Fork station are marginal to substandard, and facility upgrades and improvements to the shops and warm storage are needed. Due to the seasonal nature of the Taylor Highway, the stations at O'Brien and Eagle are adequate; however, winter opening of this highway would trigger the need for all new maintenance stations.

6.1.6.11 Tok Cutoff (Alaska Route 1)

The Tok Cutoff is approximately 125 miles in length and provides a connection between the Richardson Highway (14 miles north of Glennallen) and the Alaska Highway at Tok.

Traffic Volume Forecast and Roadway Capacity. The year 2030 forecast traffic volumes are estimated to range between 600 and 800 AADT. Based on these traffic levels, no major roadway capacity constraints are anticipated over the near- and long-term.

Safety. A review of historical crash data did not reveal any major crash trends or areas of safety concern, and no special interest areas were identified for further analysis based on field observations or anecdotal evidence.

Roadway Conditions and System Needs. The Tok Cutoff is paved, with a general width of approximately 36 feet. The terrain varies from flat to rolling to mountainous. General highway conditions are good for the entire length of this facility; however, the area from MP 2 to MP 30 has very poor foundation conditions. Per the 2006 *Pavement Condition Report*, 48 miles of the Tok Cutoff pavement have more than six years of life, 18 miles have three to six years of life, 11 miles have one or two years of life and 50 miles have no pavement life left.

Maintenance & Operations. Deferred and preventative maintenance needs identified by M&O staff are summarized in Table 6-19.

Table 6-19 Maintenance Project Needs, Tok Cutoff Highway*

Project	Estimated Cost
Deferred Maintenance	
Vegetative Management	$50,000
Culvert Replacement	$50,000
Total	$100,000
Preventative Maintenance	
Localized Reconstruction/Drainage Improvements/Base Stabilization/Resurfacing (MP 0-2)	$1,750,000
Reconstruction, Drainage Improvements, Base Stabilization and Resurfacing (MP 5-24)	$13,000,000
Total	$14,750,000

*Based on year 2008 deferred maintenance and 2007 preventative maintenance project lists.

Additional maintenance needs include facility upgrades to the shops and warm storage facilities at the Slana maintenance station. This single station is responsible for all maintenance needs along the Tok Cutoff Highway.

Welcome sign near the Canadian Border along the Top of the World Highway

6.1.6.12 Top of the World Highway (Alaska Route 5)

The Top of the World Highway begins at its intersection with the Taylor Highway at Jack Wade Junction and extends east to the US/Canada Border (approximately 14 miles).

Traffic Volume Forecast and Roadway Capacity. Year 2030 traffic volumes along this highway are forecast at 150 AADT and no capacity improvements are anticipated over the long-term.

Safety. A review of historical crash data did not reveal any major crash trends or areas of safety concern, and no special interest areas were identified for further analysis based on field observations or anecdotal evidence.

Roadway Conditions and System Needs. The road surface is unpaved, with a general width of approximately 28 feet, and the terrain is rolling to mountainous. Poor surface conditions regularly plague the unpaved highway and routine gravel surfacing is needed.

Maintenance & Operations. The Top of the World Highway is maintained out of the South Fork station and facility upgrades and improvements to the shops and warm storage are needed.

6.2 Community Transportation System Analysis

While this study is not intended to focus on local community roads, the state recognizes that community road needs in the study area continue to grow. In the STIP criteria, the state prioritizes community dust control projects and access road projects to local airports and sanitation facilities.

In those communities with a Tribal government, there is Bureau of Indian Affairs available through the Indian Reservation Roads program. These funds can be used for planning, maintenance, road design, construction and transit projects. Approximately $2.4 million was available within the study area to tribal governments through the IRR program as shown in Table 6-20. This number fluctuates from year to year based on the BIA formula.

Table 6-20 BIA Road Program Funds for Tribes within the Study Area

Tribe/Community	2009 Annual IRR funds
Beaver	$42,275
Birch Creek	$50,280
Cantwell	$25,892
Chalkyitsik	$78,084
Cheesh-Na (Chistochina)	$44,564
Chitina	$29,331
Circle	$37,252
Dot Lake	$27,360
Eagle	$35,391
Fort Yukon	$173,954
Gakona	$34,649
Gulkana	$39,314
Kluti-Kaah	$44,513
Minto	$56,751
Nenana	$96,364
Northway	$69,984
Stevens	$233,277
Tanacross	$46,522
Tanana	$101,180

Tribe/Community	2009 Annual IRR funds
Tazlina	$207,147
Tetlin	$315,913
Venetie	$538,420
TOTAL	**$2,365,669**

Source: Bureau of Indian Affairs

Several local communities are developing transit programs. Gulkana has a bus line that runs between Gulkana and Copper Center. Copper River Native Association has funding for buses and would like to partner with Gulkana to develop and run a bus service cooperative. CRNA has vans to transport elders and others to go to medical appointments, but these vans are aging and will need to be replaced. The Native Village of Tetlin also has funds for transit. They want to buy the 14 passenger vans that provide service twice a week between Anchorage and Whitehorse. They hope to increase service timing on the route.

6.3 Aviation Analysis

The aviation system analysis considers the following factors:

- Airport Coverage: Is there an Interior community that needs an airport and lacks one? Are there other locations where new or improved airports are needed?

- Airport Roles: Are the classifications assigned to Interior airports by the 1996 Alaska Aviation System Plan adequate? Are there minimum facilities needed at any airport, based upon their roles? How might the natural gas pipeline and other economic development affect airport roles and facility needs?

- NPIAS (National Plan of Integrated Airport Systems)/DOT&PF inclusion/exclusion: Are there airports that are significant to the national airport system that are not included in the NPIAS? Are there NPIAS airports that are not significant to the national airport system? Are there airports that DOT&PF should acquire or divest?

- Other Issues: What are Interior aviation system needs concerning airspace, weather information and en route navigational aids, backcountry airports and emergency access, Postal Service hubs, and security?

6.3.6 Airport Coverage

A review of the Interior communities lacking road access found only one without an airport—Healy Lake. In truth, Healy Lake has an airport, but it is not registered with the FAA. 40 Mile Air serves Healy Lake under an Essential Air Service subsidy.

Several other Interior communities lack airports within their communities, but they are no more than approximately 60 road miles from a public use airport. These communities include Big Delta, Dot Lake, Ester, Fox, Gakona, Kenny Lake, Mendeltna, Mentasta Lake, Nelchina, Slana, Tazlina, Tonsina, and Two Rivers.

The *Copper Basin/Upper Tanana Valley Regional Airport Plan* recommended locating a new public use airport to serve small airplanes in the Pippin/Tonsina area along the Richardson Highway, near or south of the intersection with the Edgerton Highway. The number of unregistered, private airstrips is growing along this stretch of the Richardson, so a public use airport was recommended to meet the demand for aviation facilities and to avoid the land use issues associated with the high density of private airstrips that has occurred in the Matanuska-Susitna Borough. This Interior Alaska Transportation Plan supports that recommendation.

Some communities are under-served by their airports. These inadequate airports are Cantwell, Delta Junction, and Chistochina airports. Cantwell has a population of approximately 200. Its location at the intersection of the Parks and Denali Highways and proximity to Denali National Park is an advantage for future economic development. The Cantwell Airport is privately owned and has a gravel/dirt runway that is short, narrow, steep, and not in good condition. DOT&PF owns Summit Airport, also located in Cantwell. With a 3,840 by 80 foot-runway and a public owner, Summit Airport is better situated to serve Cantwell's future aviation needs, although some investment in markers, tiedowns, access road, and maintenance would be required.

Delta Junction and Big Delta have a combined population of nearly 1,800. While nearby Allen Army Airfield has long paved runways and instrument approaches, it is only available to civilian aviation for medevac and firefighting, or with a landing permit that may take up to a week to approve. The City of Delta Junction's airport is one of the study area's busiest, with 16 based aircraft, but it is limited by its 2,500-foot long unpaved, visual runway. Runway extension is constrained by the Richardson Highway and Trans Alaska Pipeline. The airport is not in the NPIAS, which means it does not have access to AIP grant funds. In the past, 40 Mile Air provided scheduled service from Fort Greely's Allen Army Airfield and civilian GA aircraft were based there. After the announcement of Fort Greely's realignment in the mid-1990s, the FAA funded an airport master plan for Allen Army Airfield to become a joint military-civilian airport. The later National Missile Defense mission for Fort Greely led to many airport improvements, but changed the military's position on joint use. Future population growth in Delta Junction and Big Delta, along with economic development from the proposed natural gas pipeline, indicates this population center needs better access to Allen Army Airfield, or a better airport.

More than 300 people live along the Tok Cutoff, in Chistochina, Mentasta Lake, and Slana, and this corridor provides one of the two entrances into Wrangell-St. Elias National Park. Chistochina is the only public airport on the Tok Cutoff. It is used not only by residents, but also by National Park Service pilots and air taxis providing mountaineers and others access into the National Park and Preserve. However, Chistochina Airport is located too close to the Tok Cutoff to meet design standards. The *Copper Basin/Upper Tanana Regional Airport Plan* recommended relocating Chistochina Airport. The DOT&PF is studying its relocation to a site where it can better serve the needs of Chistochina and other communities along the Tok Cutoff.

Airport coverage would be degraded if the McKinley National Park Airport were closed to public use, as the National Park Service has considered in the past. Acoustic counting has proven that it is used steadily and daily through the summer and fall, and not just by NPS pilots. On the route between Fairbanks and Anchorage, McKinley National Park Airport provides an excellent location for precautionary landings in case of changing weather at Broad Pass. The Interior Alaska Transportation Plan opposes closing the airport to public use, while supporting NPS and aviation stakeholder cooperation to ensure the compatibility of aviation with the other Park activities.

6.3.7 Airport Roles

The role of an airport within an aviation system relates primarily to the population it serves and the type and amount of aviation activity it accommodates. The aviation forecasts in Chapter 5 found that projected future growth in passengers, cargo, and based aircraft will not appreciably change the roles Interior airports serve now.

To simplify the understanding of airport roles within a system, planners often classify airports, grouping together the airports that have similar roles and needs. The 1996 Alaska Aviation System Plan Update assigned three classifications to the state's airports: Regional, Community, and Local. *The Copper Basin/Upper Tanana Regional Airport Plan*, which overlapped the southern Interior study area, adopted the Regional and Community classifications, but subdivided the Local classification into Local-Major and Local-Minor. The majority of airports in that area were "Local," and they portrayed a wide enough range of roles to justify dividing them into two classes.

One reason for classifying airports is to establish performance objectives for individual airport classes. These performance objectives help identify development needs that are significant to the system and help measure future improvement in the performance of the airport system.

The 1996 Alaska Aviation System Plan Update identified minimum facility standards for Community airports. The DOT&PF has since modified one of the minimum standards in response to a new FAA requirement. The 3,000-foot minimum runway length standard was changed to meet the FAA requirement for a minimum 3,200 foot-long runway for an instrument approach.[1] The Northern Region DOT&PF has set 3,400 feet as a minimum standard runway length for Community Airports to coordinate with the standard 200 foot-spacing of runway edge lights and to meet the needs of many of the aircraft that FAR (Federal Aviation Regulation) Part 135 carriers use to serve these airports. The Alaska Aviation System Plan Update also set minimum apron and float sizes for Community airports. No minimum facility standards were set for the Regional and Local airport classifications. The Copper Basin/Upper Tanana Regional Airport Plan identified facilities and services appropriate for Regional, Community, Local-Major, and Local-Minor airport classifications.

This Interior Alaska Transportation Plan adopts the four classifications of the Copper Basin/Upper Tanana Regional Airport Plan and proposes a minimum number of facility objectives for the classifications. Figure 1 shows the recommended classifications for the Interior's public use airports.

[1] A shorter runway can have an instrument approach, with penalties to the approach minima.

Figure 1 Recommended Airport Classes

In addition to facility objectives, appropriate Airport Reference Codes (ARC) for airport design are identified for the classifications. The ARC is comprised of the Aircraft Approach Category (AAC) (a letter) and Airplane Design Group (ADG) (a Roman numeral) for the most demanding aircraft regularly using the airport. The FAA defines regular use as at least 500 annual itinerant operations (takeoffs and landings). Table 6-21 defines the various Aircraft Approach Categories and Airplane Design Groups. The ARC determines many FAA airport design standards, such as runway and taxiway width, runway safety area, object free area, and runway protection zone.

Table 6-21 Airport Reference Code Components

Aircraft Approach Category (AAC)		
Approach Category	Approach Speed	Typical Aircraft
A	Less than 91 knots	Cessna 150, 172, 206
B	91 to 120 knots	Beech 1900, King Air, DC-3, DC-6
C	121 to 140 knots	Boeing 727, 737, Gates Learjet
D	141 to 165 knots	Boeing 747, Gulfstream V
E	166 knots or more	
Airplane Design Group (ADG)		
Airplane Design Group	Wingspan	Typical Aircraft
I	Less than 49 feet	King Air, Cessna 150, 172, 206, Gates Learjet
II	49 to 78 feet	Beech 1900, King Air, Cessna Citation
III	79 to 117 feet	Boeing 727, 737, DC-3, DC-6, Gulfstream V
IV	118 to 170 feet	Boeing 757, DC-10
V	171 to 213 feet	Boeing 747
VI	214 to 261 feet	

Source: FAA Advisory Circular 150/5300-13, Airport Design

Airplane Design Group may be determined by tail height, if more demanding than wingspan:	
Airplane Design Group	Tail Height
I	Less than 20 feet
II	20 to 29 feet
III	30 to 44 feet
IV	45 to 59 feet
V	60 to 65 feet
VI	66 to 79 feet

Source: FAA Advisory Circular 150/5300-13, Airport Design

Another important factor for determining FAA design standards is the type of approach to the runway (visual or instrument). For runways with instrument approaches, airport design standards relate to the lowest visibility minimum.[2] For instrument approaches using traditional ground-based navigational aids, nonprecision approaches are those that provide horizontal, but not glidepath, guidance. Precision approaches, such as those using an Instrument Landing System (ILS), provide glidepath as well as horizontal guidance. With the three dimensional guidance that GPS can provide, the terms "nonprecision" and "precision" are becoming outdated. The implementation of WAAS (Wide Area Augmentation System) has made it possible for GPS-aided approaches to have nearly the same approach visibility minima as ILS approaches.

Most of the FAA's airport design standards differ if the approach visibility minimum is under or over ¾ mile. Some airport design standards, such as the requirement for a parallel taxiway, the need for approach lighting, and runway protection zone size, differ if the instrument approach visibility minimum is under or over one mile.

Required runway length does not directly relate to the ARC or instrument approach. Runway length is determined by location-specific conditions, such as elevation and temperature, and the specific aircraft type that regularly uses the airport. For rural Alaska airports lacking year-round

[2] The horizontal visibility minimum of a published instrument approach procedure is the distance from the airport at which a pilot must be able to see the runway environment and then land using the procedure. Instrument approaches also have vertical (cloud ceiling) minima, but they are not significant to airport design standards.

road access, the 500 operations threshold that defines regular use is sometimes reduced to provide for medevac and cargo aircraft access to the community.

6.3.2.1 Regional Airports

According to the 1996 Alaska Aviation System Plan Update, Regional airports:

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.

The System Plan Update assigned four Interior airports to the Regional airport class. Fairbanks International, Fort Yukon, and Gulkana are three of the four airports that continue to serve as Regional airports. Nenana Municipal is not a hub and it does not serve a population greater than 1,000. Consequently, it should be removed from the Regional class.

A recommended addition to the Regional class is an airport serving the Tok area population. Tok Junction is now the busiest airport serving this community, but it has a short runway (approximately 2,500 feet). Options to provide a longer runway are constrained by existing community development and an adjacent landowner unwilling to sell. Tanacross Airport, 10 nautical miles from Tok Junction, is owned by the BLM. DNR uses the airport for wildland firefighting, since it has two runways approximately 5,000 feet long that accommodate their retardant aircraft. The Copper Basin/Upper Tanana Regional Airport Plan recommended Tok should have a Regional airport and recommended a study be undertaken to determine if Tok Junction, Tanacross, or a new airport should be developed into a Regional airport. Plans for the gas pipeline include establishing an office in Tok, suggesting further justification for a Regional airport that can accommodate large (over 12,500 pounds) passenger and cargo aircraft and corporate jets. This Interior Plan endorses the recommendation for a Regional airport to serve the Tok area.

A list of the recommended Regional class airports follows:

Fairbanks International	Gulkana
Fort Yukon	Tok (possibly Tok Junction or Tanacross)

Table 6-22 lists the facility objectives for Regional airports.

Table 6-22 Facility Objectives for Regional Airports

	Minimum	Ultimate
Airport Reference Code	B-II	C-III (or greater if justified)
Runway Length	4,000 feet	5,000 feet (or greater if justified)
Instrument Approach	at least 3/4 mile visibility minimum	lower than 3/4 mile visibility minimum

Source: WHPacific, Inc.

Airport deficiencies compared to the objectives in Table 6-2222 follow:

Fort Yukon: Best instrument approach visibility is 1 mile (for AAC A and B)[3]

Gulkana: Best instrument approach visibility is 1 mile (for AAC A, B, and C)

Tok: Tok Junction Airport runway length is 2,509 feet and the best instrument approach visibility is 1 mile (for AAC A); Tanacross has no instrument approach

In addition to the facilities listed in Table 6-22, Regional airports should ultimately have:

- A full length parallel taxiway serving the primary runway
- A crosswind runway if coverage is below the FAA's 95 percent threshold
- Landing areas for ski- and float-equipped aircraft
- Helipad or plan for the safe coexistence of helicopters with fixed wing aircraft
- Edge lighting for the primary runway and its taxiways
- Automated, real-time weather reporting
- Approach lights where required for the instrument approach and runway end identifier lights for other primary runway ends
- Visual glide slope indicators for both ends of the primary runway
- Compliance with FAA runway safety standards
- Adequate aircraft apron parking to accommodate transient aircraft and those based aircraft not housed in hangars
- Adequate lease land for the development of aviation businesses and hangars
- Both Avgas and Jet A fuel for sale
- Indoor waiting area for passengers and pilots with restroom access
- Snow removal equipment and building
- All-weather access road to the adjacent community

[3] Fort Yukon's runway is 5,810 by 150 feet, already of adequate size for ARC C-III. Other improvements to bring the airport to ARC C-III standards for an approach visibility minimum lower than ¾ mile should be considered in the $11 million airport improvement project programmed for FY 09 or later.

In the long-range planning for these airports, the potential for them to be certified under FAR Part 139 should be considered, including siting an aircraft rescue and firefighting facility for optimum response time.

6.3.2.2 Community Airports

Community airports are the main airports, heliports, or seaplane facilities that serve rural communities of at least 25 year-round residents.

The 1996 Alaska Aviation System Plan Update assigned 18 Interior airports to the Community airport class. Five of these airports serve communities whose populations have fallen below 25 or are not recognized as communities by DCED. These airports should be removed from the Community class: Boundary, Chandalar Lake, Chicken, Chisana, and Rampart. Chandalar Lake is located where Little Squaw Mining Company is exploring for gold, so the population there should be monitored in the future to determine if the airport should be reclassified as a Community airport.

As mentioned previously, the airport serving Healy Lake is not, but should be, registered with the FAA. The airport would meet the requirements of the Community class, since the population is over 25 (37 in 2007), and the airport is the main means of year-round access.

Listed below are the airports recommended for the Community class:

Arctic Village*
Beaver*
Birch Creek*
Central
Chalkyitsik*
Circle City
Eagle
Manley Hot Springs
McCarthy
Minto
Stevens Village*
Tanana (Ralph M Calhoun Memorial)*
Tetlin
Venetie*

*Communities lack year-round road access

Table 6-23 shows the facility objectives for Community airports.

Table 6-23 Facility Objectives for Community Airports

	Minimum for Community Airports with Year-Round Road Access	Minimum for Community Airports without Year-Round Road Access
Airport Reference Code	B-I	B-II
Runway Length	3,400 feet	4,000 feet
Instrument Approach	1 mile visibility minimum	1 mile visibility minimum

Source: WHPacific, Inc.

Airports that lack year-round road access have different facility objectives to allow large cargo aircraft carrying bulk fuel or other essential supplies to reach the community in the winter.[4] These cargo aircraft are generally ADG III, so parts of the airport used by these large cargo aircraft should be designed to accommodate them. In addition to the need for infrequent large cargo deliveries, these airports are more likely to receive air service in Piper Navajo and Beech 1900 aircraft, which require runway lengths of 3,700 feet and 4,000 feet, respectively.[5]

Airport deficiencies compared to the facility objectives in Table 6-23 are:

Birch Creek: No instrument approach

Central: No instrument approach; runway length of 2,700 feet is 700 feet short of recommendation

Circle City: No instrument approach; runway length of 3,000 feet is 400 feet short of recommendation

Eagle: No instrument approach

Manley Hot Springs: No instrument approach; runway length of 2,875 feet is 525 feet short of recommendation. (A $12 million project to relocate the runway and make other improvements is programmed for after FY 09.)

McCarthy: No instrument approach

Minto: No instrument approach; runway length of 2,000 feet is 1,400 feet short of recommendation; however, a $9 million project that includes runway relocation and lengthening is underway.

Stevens Village: No instrument approach

[4] Evert requires a minimum runway length of 4,000 feet for their C-46 and DC-6 cargo aircraft.

[5] Northwest Alaska Transportation Plan, February 2004.

Tetlin:	No instrument approach; while the runway length of 3,300 feet is 100 feet short of the recommendation, it exceeds the FAA's requirement for an instrument approach and is adequate
Venetie:	No instrument approach

In addition to the facilities listed in Table 6-23, Community airports should have:

- Edge lighting for the primary runway
- Automated, real-time weather reporting
- Runway end identifier lights
- Visual glide slope indicators
- Compliance with FAA runway safety standards
- Adequate aircraft apron parking to accommodate transient and based aircraft
- Adequate lease land for the development of an aviation business or hangar
- A shelter for passengers with restroom access
- Snow removal equipment and building
- All-weather access road to the community

6.3.2.3 Local Airports

According to the 1996 Alaska Aviation System Plan, all airports, heliports, or seaplane facilities that are not in the Regional or Community classes are Local airports. Consistent with the Copper Basin/Upper Tanana Regional Airport Plan, this Interior Alaska Transportation Plan recommends subdividing the Local class into Local-Major and Local-Minor, to convey the relative significance of their roles. The distinction should also help prioritize funding for capital and maintenance expenses.

Local-Major airports are used for special purposes that benefit the public, or used regularly for a variety of general aviation purposes by at least five pilots. The Interior airports recommended for the Local-Major classification are:

Allen Army Airfield
Boundary
Bradley Sky-Ranch (North Pole)
Cantwell
Central
Chandalar Lake
Chena River
Clear
Chicken
Chisana
Chistochina
Chitina
Circle Hot Springs
Clear
Coldfoot
Copper Center 2
Delta Junction
Healy River

Kantishna
Lake Louise
Livengood Camp
May Creek
McKinley National Park
Minchumina
Nenana Municipal
Northway
Prospect Creek
Rampart
Stampede
Tanacross and/or Tok Junction*
New Airport in Pippin/Tonsina Area

*If not selected to be the site of a Regional airport

No minimum facilities are recommended for Local-Major airports, although they should be improved to meet the FAA design standards for their appropriate ARC. For the majority of the Local-Major airports, the appropriate ARC is A-I or B-I; FAA design standards for these two ARC are the same. According to their Airport Layout Plans (ALP), the airports with more demanding ARCs than A-I/B-I are as follows:

Clear	B-II
Minchumina	B-II
Nenana Municipal	B-III
Northway	B-III
Rampart	B-II

Several airports lack FAA-required ALPs because they are not included in the NPIAS. Of the airports lacking ALPs, the probable ARCs that are more demanding than A-I/B-I are:

Allen Army Airfield	D-V (widebody jet aircraft delivering ground based interceptors)
Prospect Creek	B-III (Era's Dash 8 and other turboprops)
Tanacross	B-III (firefighting aircraft)

Local-Minor airports are 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 mainly for emergency or precautionary landings, or
3. used infrequently by transient pilots for recreational flights.

The Interior airports recommended for the Local-Minor class are:

Black Rapids
Clear Sky Lodge
Clearwater
Coal Creek
Eureka Creek
Eva Creek
Glacier Creek
Gold King Creek
Horsfeld
Lake Louise Seaplane Base
Jakes Bar
Paxson
Porcupine Creek
Quail Creek
Road Commission Nr 1
Summit
Tazlina
Tazlina / Smokey Lake
Tok 2
Tolsona Lake
Totatlanika River
Wiseman

Most of these airports are owned by private entities or they are in the public domain (located on DNR or BLM lands, but not maintained as an airport by those agencies). Several are backcountry airstrips, which are discussed in more detail in a later section of this chapter.

Only Porcupine Creek and Wiseman are in the NPIAS, which makes them eligible for AIP grant funding. It is not likely that much improvement funding can be justified for any of the Local-Minor airports, except Summit, which, with some improvements, could grow to a Local-Major airport serving Cantwell.

Most Local-Minor airports require minimal maintenance, such as brush cutting, to keep them available for the type of aircraft that use them (short takeoff and landing aircraft in ARC A-I). Local-Minor airports that are particularly important for precautionary landings include Black Rapids and Paxson near Isabel Pass, and Summit near Broad Pass. Weather can change suddenly at these locations, leaving a VFR pilot with the need to make a precautionary landing rather than enter instrument conditions. DOT&PF owns Summit, the BLM owns Black Rapids, and a private lodge owns Paxson, although on a BLM lease. Gold King Creek is an airport recently transferred to DOT&PF from DNR that warrants moderate improvements for safety.

6.3.2.4 Airport Roles in Supporting Resource and Economic Development

Chapter 4 outlined impacts that resource and other economic development might have on the aviation system. Some of the Interior's Local airports are located where they could be used to support mineral exploration. However, no specific needs for airport improvement have been identified for the mineral industry.

Interior airports support the tourism industry. Study area airports used for flightseeing and other air tours include Arctic Village, Chitina, Coldfoot, Copper Center 2, Denali National Park, Fairbanks International, Fort Yukon, Gulkana, Healy River, Kantishna, McCarthy, Tok Junction, and Denali Air's private strip. Although flightseeing is very popular around Denali, the major airport used is Talkeetna, located outside the study area. Backcountry airstrips and lakes that are not registered as airports also support tourism in the study area.

Flightseeing aircraft are small (up to eight-seat, twin engine) and do not require more runway length than other aircraft using the same airports. Public airports supporting high levels of tourism aviation should be improved to meet appropriate FAA design standards to enhance safety for pilots and passengers. The number of Interior flightseeing trips occurring at a single airport at peak times is far below the level that occurs when cruise ships are in port in Southeast Alaska. If flightseeing from an Interior airport were to grow to the level that occurs at a Southeast cruise port, additional aircraft parking apron and improvements for bus/van traffic would likely be needed.

Airports will support the construction of the proposed natural gas pipeline to the lower 48. According to a briefing to the State Legislature in June 2008, planners expect more dependence on air freight and more "just-in-time" delivery of materials than occurred during construction of the Trans Alaska Pipeline. Four study area airports were identified as needing improvements to support the pipeline construction: Prospect Creek, Livengood, Tok Junction, and Tanacross[6]. The DOT&PF prefers not to fund any improvements needed only to support pipeline construction with AIP grants, which require a maintenance commitment for 20 years. Of the four airports needing improvement for the pipeline, only Prospect Creek and Tok Junction are eligible for AIP grants. At this time, the specific improvements have not been identified.[7]

6.3.3 NPIAS and DOT&PF Inclusion/Exclusion

Error! Reference source not found. showed the Interior airports that are included in the NPIAS, and thus deemed significant to the national airport system. To be included in the NPIAS, an airport should have at least 10 based aircraft and be located more than 30 minutes by road from another NPIAS airport. Special circumstances, which are particularly relevant in Alaska, allow airports that do not meet the 10 based aircraft threshold to be in the NPIAS. Airports in remote areas that serve Native American communities or support nationally significant resources are eligible. In addition, any airport used by aircraft transporting the U.S. mail is eligible to be in the NPIAS.

[6] Happy Valley airstrip is not in the study area, but is also needed for pipeline construction. It is located along the Dalton Highway, but is not currently registered as an airport with the FAA.

[7] One project may be to bring Prospect Creek Airport's runway safety area into compliance with FAA standards. DOT&PF and the operator of the airport, Alyeska, want more safety area built out from the runway ends. If AIP grant funds extend the safety area, the DOT&PF will be committed to 20 years of maintenance.

While only the FAA decides which airports belong in the NPIAS, the FAA expects aviation system plans to recommend NPIAS inclusions and exclusions. Airports recommended for potential future inclusion in the NPIAS are:

- Bradley Sky Ranch (North Pole), if it has a municipal sponsor, due to the heavy use and strong growth projected for this airport in Chapter 5. It fulfills a niche role in accommodating light sport aircraft and ultralights for Fairbanks North Star Borough residents. It is better for large numbers of these slow aircraft to be based at a separate airport from Fairbanks International. Since Bradley Sky Ranch is a privately owned airport, this recommendation depends upon its transfer to a public sponsor, such as the City of North Pole, or its replacement with a publicly owned airport. The airport meets other NPIAS criteria, since it has more than 10 based aircraft and is more than 30 minutes' drive from another NPIAS airport.
- Delta Junction Airport, unless joint use can be accomplished with Allen Army Airfield, to provide an appropriate airport for the commercial and general aviation needs of this population center. Delta Junction Airport has more than 10 based aircraft and is more than 30 minutes' drive from another NPIAS airport.
- Tok area Regional airport. (Tok Junction Airport is in the NPIAS now; Tanacross Airport is not.)
- Relocated Chistochina Airport.

Airports recommended for exclusion from the NPIAS are:

- Porcupine Creek, a privately owned airport located less than 3 miles from the NPIAS airport at Coldfoot.
- Wiseman, because it is located only about 10 miles from the NPIAS airport at Coldfoot via the Dalton Highway.

DOT&PF encourages the transfer of its rural airports to eligible local sponsors, such as municipalities and tribal governments. However, this rarely occurs, since the cost of operating and maintaining the airports significantly exceeds the revenue from them. To facilitate airport transfers to local sponsors, the DOT&PF may need to assist local sponsors in obtaining insurance, training management and maintenance personnel, ensuring land use compatibility around the airport, and planning airport development.

The most recent transfer of an airport to the DOT&PF Northern Region was Gold King Creek, a backcountry strip south of Fairbanks and north of the Alaska Range. Gold King Creek Airport was transferred from DNR. Effective protection for backcountry airstrips on DNR and BLM land, particularly the airstrips needed for emergency/precautionary landings, may require the transfer of more airstrips to the DOT&PF.

Tanacross Airport may be transferred to DOT&PF, particularly if it is needed to support the gas pipeline construction. The airport is scheduled to transfer from BLM to DNR in 2011. The DOT&PF could ask for accelerated conveyance in case it is needed for the pipeline or another reason. Tanacross Airport is currently a Priority III conveyance request. If necessary, the DOT&PF could send BLM an emergency conveyance request, which would require approximately six weeks for approval.

6.3.4 Other Issues

6.3.4.1 Airspace

Most Interior airspace issues relate to military flying exercises. Large Military Operations Areas (MOA) cover most of the study area east of Fairbanks to the Canadian border. The Pacific Alaska Range Complex covers more than 60,000 square miles, an area larger than the state of New York, providing “premier training airspaces and ranges”[8] for the Air Force. MOAs are activated when training exercises occur and do not preclude civilian VFR traffic when active. The study area also contains restricted airspace that does prohibit civilian traffic, and controlled firing areas, where the military halts firing activity when civilian traffic is spotted.

The military seek to minimize disruption of commercial and general aviation, and Alaskan civilians recognize the importance of military training and the military’s contribution to the state economy. However, recent growth in military activity and airspace use has raised concerns in the civilian aviation community:

- Following a Base Realignment and Closure (BRAC) 1995 decision to close Fort Greely, the base was chosen for the installation of ground-based interceptors to prevent ballistic missiles from entering U.S. airspace. In 2004, the first interceptor was installed at Fort

[8] Eielson Air Force Base Infrastructure Development in Support of RED FLAG-Alaska Environmental Assessment, August 2007.

Greely. Initially, the Army indicated there would be no Temporary Flight Restrictions (TFR) around the missiles, but TFRs have since been activated in times of elevated national security.

- In 2005, the Army significantly increased training activity in Alaska with more than 100 helicopters based at Fort Wainwright.
- The 2005 BRAC Commission saved Eielson from downsizing through appreciation of the base's proximity to the Pacific Alaska Range Complex. In 2006 Cope Thunder exercises were renamed Red Flag-Alaska to create a training experience similar in structure and intensity to Air Combat Command's Red Flag exercises at Nellis AFB. Part of the transition was the replacement of the F-16C/D aircraft based at Eielson with an aggressor squadron of F-16A aircraft.
- The Army developed a new live fire training area for Unmanned Aerial Vehicles (UAV) near Delta Junction in 2006.
- In late 2007, the Air Force proposed the temporary Delta MOA, which would fill in the gap in MOAs around Delta Junction and along the Alaska and Richardson Highways.
- In 2008, the Air Force proposed the Delta MOA become permanent.
- In 2009, the Army prepared a draft Environmental Impact Study to station up to 84 additional helicopters and conduct additional training in the study area.

The 11th Air Force proposed the Delta MOA, primarily because current Delta corridor restrictions prevent fighters from flying at the most likely altitudes for training in the delivery of precision munitions. IFR route V444 and other jet routes and Federal airways would not be available when the MOA is active, except for medevac, firefighting, and similar emergencies. The Delta MOA would be active a maximum of 60 days per year for major flying exercises occurring four times per year for two weeks at a time, up to 2-1/2 hours, twice per day.

The Aircraft Owners and Pilots Association (AOPA) has led the objections to the permanent Delta MOA, stating that it would remove the only corridor that bisects the Pacific Alaska Airspace Complex. When active, the MOA "severs the IFR airways between Fairbanks, Delta Junction, Northway, and Glennallen… and it subjects VFR traffic to increased exposure to high-speed military traffic along a heavily travelled corridor."[9] While civilian VFR traffic can use active MOA airspace, most VFR pilots choose to avoid sharing airspace with fighter jets performing training maneuvers. IFR traffic, which includes all commercial air carrier flights and some GA aircraft, cannot pass through an active MOA. The alternative IFR route would require a detour of 390 nautical miles with a minimum en route altitude of 10,000 feet that requires two crossings of the Alaska Range. This is not practical or safe for many GA aircraft.

The Alaska Air Carriers Association has stated that when the temporary MOA was activated, medevac aircraft have been delayed from returning to their base, which affects their timely response to another incident. The Association believes that the MOA as proposed would have a continued negative impact on emergency medical air service and air commerce to the communities of the Upper Tanana Valley.

The Delta MOA could be detrimental to the establishment of new air service from Fairbanks to the lower 48 or the initiation of air service to Delta Junction. Particularly in this time of airline losses from rising fuel costs and high levels of system delay, an airline would not be amenable to rerouting nearly 400 nautical miles around the MOA or scheduling around 2-1/2 hour blocks of time. The gas pipeline will likely cause an increase of IFR traffic along this route, in corporate aircraft and passenger and cargo charters, even if scheduled flights do not.

Compromises are being worked on. To improve the situation for VFR pilots, Eielson Range Control operates SUAIS (Special Use Airspace Information Service) to provide pilots with nearly real-time information about MOA status, the approximate locations of military aircraft, and range activity. The AOPA has proposed the MOA be divided into a high and low complex, so that the entire area is not active at the same time.

DOT&PF is on the Alaska Civil-Military Aviation Council and should actively participate in the technical subcommittees tasked to find workable compromises. While aviation system users are represented on the Council and are diligent in identifying impacts to civil aviation, the State needs to be as diligent in identifying impacts on the civilian economy, such as air service restrictions.

[9] Letter to Mr. James W. Hostman, Elmendorf AFB, from Pete Lehmann, AOPA, April 30, 2008.

Not all airspace issues relate to the military. Other groups deploy UAVs, such as the Department of the Interior, CBP, and the University of Alaska. Until UAVs can sense and avoid aircraft, they will remain a concern for civil pilots. TFRs established around areas where UAVs fly can disrupt civil aviation traffic.

6.3.4.2 Weather Information and Enroute Navigation

Real-time weather information enhances aviation safety and efficiency. At airports with instrument approaches, an AWOS or ASOS weather report eliminates the remote altimeter penalty and, thereby, allows use of the published minimum descent altitude. Community airports that should have instrument approaches, but lack AWOS or ASOS equipment, are Beaver, Birch Creek, Central, and Circle,[10] Chalkyitsik, Manley Hot Springs, McCarthy, Minto, Stevens Village, and Venetie. Tok Junction and Prospect Creek are other airports that need real-time weather reporting equipment.

The FAA has installed several weather cameras across Alaska, which provide real-time video accessible to pilots on the Internet. Weather cameras reduce aviation accidents, save lives, and prevent unnecessary fuel usage. At the end of 2007, the FAA's weather camera program changed from a pilot program to a commitment to spend $102 million over the next 26 years for more weather camera installations in Alaska and for continued operation of existing cameras. Since the Interior weather cameras were inventoried (**Error! Reference source not found.**), another is operating, at Knob Ridge between Tok and Delta Junction, and one at the Yukon River Bridge northwest of Livengood. Consequently, there are ten FAA weather cameras in the study area now, and the FAA plans to install fourteen more:

FY 2009	Nenana
FY 2010	Delta Junction Airport
FY 2010	Mentasta
FY 2010	Murphy Dome
FY 2010	Tok
FY 2011	Beaver
FY 2011	Gulkana
FY 2011	Livengood

[10] Circle and Circle Hot Springs are approximately 25 nautical miles apart and are a shorter distance from Central. Potentially, one AWOS could serve all three airports.

FY 2011	Manley Hot Springs
FY 2011	Tazlina
FY 2012	Central
FY 2013	Chalkyitsik
FY 2013	Chistochina Airport
FY 2013	Prospect Creek

After these installations, the Community Airports lacking a weather camera will be Birch Creek, Circle City, McCarthy, Minto, Stevens Village, Tetlin, and Venetie.

Alaska's pioneering Capstone program has been folded into the FAA's nationwide NextGen program. As part of NextGen, the FAA is working to implement an Enroute RNAV (Area Navigation) Airway Structure by September 30, 2009. RNAV routes will allow IFR flight based on GPS WAAS technology. The Alaska Airmen's Association estimates 4,000 aircraft will have WAAS equipment installed in the next five years. The FAA in Alaska is consulting with aviation system users to identify and prioritize RNAV routes that will make it possible to fly at lower altitudes and reach new locations, without land-based navigational aid backup. First in consideration are medevac routes to 15 medical hubs that treat patients from outlying communities. Fairbanks is the medical hub for all the Interior study area except for McCarthy. Of 14 outlying Interior communities, six now have instrument approaches (Arctic Village, Beaver, Chalkyitsik, Fort Yukon, Minchumina, and Tanana). Two communities are being considered for an IFR upgrade (Circle City and Healy). Six others are listed as lacking instrument approaches (Birch Creek, McCarthy, Rampart, Stevens Village, Tetlin, and Venetie).[11]

While the FAA is implementing NextGen, it is also decommissioning older ground-based navigational aids to save money. Non-Directional Beacon (NDB), Very High Frequency Omnidirectional Range (VOR), and Direction Finder (DF) navigational aids are being decommissioned over time, too quickly in the opinion of some pilots who still rely on them. Airport sponsors and aviation system users need to monitor FAA's navigational aid decommissioning plans, particularly those navaids located at airports, to ensure they do not compromise safe and efficient air navigation.

[11] RNAV Routes in Alaska, Updated 6/25/08, www.faa.gov.

6.3.4.3 Backcountry Airstrips and Emergency Access

The value of backcountry airports has been recognized by the Governor's Aviation Advisory Council, which passed a resolution regarding them. The resolution states that backcountry airports on public lands provide a vital form of access for industrial, commercial, and recreational use. They often provide a staging area where larger aircraft transfer passengers and cargo to smaller aircraft that will land at unimproved off-field locations, and they play a role in public safety by providing emergency landing areas in the event of unanticipated weather conditions or mechanical problems. Backcountry airstrips are often poorly charted, making it difficult for pilots to get accurate information about them. Many of these airstrips fall under the jurisdiction of the DNR, who lacks the mandate or expertise to manage them.

The Council resolved that the DOT&PF should establish an office of Backcountry Airports, which should undertake an inventory of historical airstrips on State land to define a network of airstrips for continued access to public lands. The Council also resolved that key airstrips should be transferred from DNR to DOT&PF, as occurred recently with the Gold King Creek strip. Volunteers could maintain backcountry airstrips, since DOT&PF funds for maintaining their currently owned airports are already strained. Recent legislation[12] protects individuals and organizations that voluntarily construct, maintain, or operate airstrips from civil liability. The Experimental Aircraft Association in Anchorage provides a good model with their program to maintain backcountry strips in Wrangell-St. Elias National Park.

Emergency access is one of the roles of backcountry airstrips. However, natural disasters can and have created the need for emergency access by larger airplanes than can use backcountry or other Local class airports. Earthquake damage and flooding have cut off road access to Interior communities within the last ten years. The Emergency Operations Coordinator for the Mount Sanford Tribal Consortium has suggested to DOT&PF that 4,000-foot-long straight portions of the highways could be designated for emergency aircraft use. The dual use of roads as runways is an idea the US military has employed in places like Ramstein Air Base in Germany. Highways in rural Alaska have, on many occasions, served as emergency landing strips for small

[12] A state law in 2005 provided protection from many civil liability claims to volunteers maintaining airports. In early 2008, the Alaska Legislature passed S.B. 139, which clarifies that those who own and operate airstrips without receiving compensation have the same protections as volunteers.

airplanes. The practical application of the suggestion to designate portions of the highway as emergency runways depends on resolving several issues, such as funding to relocate light standards, signs, and other objects close to the highway; maintenance funding; and procedures/equipment for marking and lighting the highway for aircraft landings. Lights or markings on the highway must not cause a pilot in non-disaster conditions to think it is a runway.

It is recommended that the DOT&PF participate with other public agencies to protect backcountry airstrips and plan for emergency access to Interior communities in case of disaster.

6.3.4.4 Postal Service Hubs

The US Postal Service has proposed a change in hub airports in order to reduce their loss in providing mail service to rural Alaska communities. Postal hub airports are served by Part 121 mainline carriers using larger turboprop and turbojet airplanes. Mail is transferred at the hub to Part 135 carriers flying smaller piston and turboprop airplanes to the “spoke” airports. Consequently, facility needs, such as runway length/width and safety area size, can expand substantially if a postal spoke airport changes to a postal hub airport. When Emmonak was designated as a postal hub in 2002, the DOT&PF was forced to undertake several projects to make the runway safe for the resulting increase in traffic. Over $12,000,000 will have been spent to improve the airport, not including cost increases in maintenance and operations.

Initially, the Postal Service proposed Eagle and Tanana as hubs. The proposal has been modified so that no new hubs are proposed for the study area. Fort Yukon is already designated a postal hub, although no air carriers have chosen to provide mainline service.

DOT&PF will need to continue working with the Postal Service and air carriers with mail contracts, to ensure the impact of postal hub changes are recognized and the cost of airport improvements are considered.

6.3.4.5 Security

Civil aviation and airports are subject to Transportation Security Administration (TSA) regulations. Regulations regarding passenger and baggage screening apply to airports with scheduled service in aircraft with 30 seats and in chartered aircraft over 12,500 pounds. New TSA regulations for large cargo aircraft in 2007 increased the workload for DOT&PF’s M&O

personnel and created apron congestion at some larger airports, due to the need to provide a secure area around the parked aircraft.

Nearly all the public use airports in the Interior are considered general aviation airports by the TSA. The TSA does not regulate general aviation airports, but has issued a guidance document for them. Recommendations are scaled to be appropriate for the security risk. Factors such as the size and number of airplanes and the proximity to large populations and security-sensitive installations determine the security risk at an airport. Excluding Fairbanks International, Interior airports do not have large or many aircraft based at them, and the Interior is lightly populated. However, there are several installations of high security sensitivity, including the Trans Alaska Pipeline, the proposed gas pipeline, and ground-based interceptors located at Fort Greely.

While the TSA recommends access control for most general aviation airports, the Interior climate makes fencing and electronic gates very difficult to maintain in good condition. On a case-by-case basis, full perimeter or partial fencing, electronic or manual gates, and signage should be installed at general aviation airports where people or vehicles that should not be on the airport are creating safety, vandalism, or theft problems. Even if they are not Commercial Service airports subject to TSA regulations, Regional class airports should have full perimeter fencing with locked gates around aircraft operating areas.

6.3.5 Summary of Aviation Analysis

The summaries of airport-specific needs are organized in the same manner as the inventory chapter, by regions: Upper Yukon Valley, Tanana Valley, Copper River Basin, Susitna Valley, Kuskokwim Valley, and Koyukuk Valley. A primary source of recommended capital improvement projects is the analysis of facility objectives associated with the airport classes. The other source of improvement projects are the DOT&PF's capital improvements programmed for Airport Improvement Program grants (**Error! Reference source not found.**). Finally, the public weighs in on needs. Postal Hubs and service was brought up. Shelters at remote airports are important and Capstone weather equipment should be standard at any new airport.

The tables that summarize the airport-specific analysis and recommendations address all airports in the NPIAS, all airports owned by the DOT&PF, plus a few other airports that have specific needs significant to the aviation system. The tables show rough order-of magnitude costs for the recommendations. These costs exclude procurement of snow removal and other equipment, maintenance and deferred maintenance projects, and the construction of hangars and other privately funded facilities on leased airport property.

Table 6-24 summarizes airport needs in the Upper Yukon Valley. The Upper Yukon Valley contains 18 public use airports, of which 16 are in the NPIAS (including two owned by the Native Village of Venetie Tribal Government) and 15 are owned by the DOT&PF. The Upper Yukon Valley has the majority of Community Airports in the study area. Most of these Community Airports have sufficient runway lengths, but most lack instrument approaches. The largest investments needed in this region are to preserve runway, taxiway, and apron surfaces.

Table 6-24. Summary of Needs for Upper Yukon Valley Airports

Airport Name	NPIAS Level of Service	Analysis and Needs	Cost
*Arctic Village**	GA	Meets Community Airport Facility Objectives.	NA
Beaver	GA	Meets Community Airport Facility Objectives. Has resurfacing, grading, drainage project programmed.	$5,000,000
Birch Creek	GA	Instrument approach (1-mile min.). Has SRE Building programmed. Needs FAA to program weather camera. Will need resurfacing	$3,000,000
Boundary	GA	No Facility Objectives for Local-Major Airport	NA
Central	GA	700' Runway Extension; Instrument Approach (1-mile min.); Obstruction Removal. Will need resurfacing.	$2,500,000
Chalkyitsik	GA	Meets Community Airport Facility Objectives. Has reconstruction, apron, road relocation, lighting rehab, drainage, SRE Building project programmed.	$10,500,000
Chandalar Lake	GA	No Facility Objectives for Local-Major Airport	NA
Chicken	GA	No Facility Objectives for Local-Major Airport	NA
Circle City	GA	400' Runway Extension; Instrument Approach (1-mile min.). Has taxiway and apron rehab programmed. Needs FAA to program weather camera. Will need resurfacing	$5,000,000
Circle Hot Springs	GA	No Facility Objectives for Local-Major Airport	NA
Eagle	GA	Instrument approach (1-mile min.). Has resurfacing programmed.	$3,500,000

Airport Name	NPIAS Level of Service	Analysis and Needs	Cost
Fort Yukon	Commercial Service	Instrument Approach Improvement to ¾-mile min. Extensive improvement project (safety area, resurfacing, clearance, drainage) and SRE building programmed.	$15,550,250
Livengood Camp	Non-NPIAS	No Facility Objectives for Local-Major Airport. Improvements for gas pipeline support.	$3,000,000
Ralph M Calhoun Memorial (Tanana)	Commercial Service	Meets Community Airport Facility Objectives	NA
Rampart	GA	No Facility Objectives for Local-Major Airport, SRE Building Upgrade programmed	$150,000
Stevens Village	GA	Instrument approach (1-mile min.) Needs FAA to program weather camera. Will need resurfacing.	$3,500,000
*Venetie**	GA	Instrument approach (1-mile min.). Needs FAA to program weather camera. Will need resurfacing	$3,000,000

**Airports listed in italics are not owned by the DOT&PF*

Source: DOT&PF and WHPacific. Inc. Analysis

Table 6-25 summarizes airport needs in the Tanana Valley. The Tanana Valley contains most of the study area population and public use airports. Many of the public use airports are privately owned or backcountry strips without specific improvement recommendations, so only about one-third of the Tanana Valley airports are listed in Table 6-25. The capital improvement needs of Fairbanks International Airport are excluded from the table.

North Pole is a location where a NPIAS airport is needed, due to the large number of based aircraft and high population growth projected. Bradley Sky Ranch could be the North Pole NPIAS airport if it were transferred to public municipal ownership. Another NPIAS inclusion possibility is the City of Delta Junction's airport, so that this substandard airport can be improved or replaced, if joint use of Allen Army Airfield cannot be obtained.

The most expensive project listed in Table 6-25 is a Regional class airport to serve the needs of the Tok population, which might be an expansion of the DOT&PF-owned Tok Junction Airport, the Tanacross Airport, or a new airport. The DOT&PF has programmed a less expensive project for Tok Junction Airport to provide a runway longer than now exists, but the land acquisition required may not be feasible.

Table 6-25 Summary of Needs for Tanana Valley Airports

Airport Name	NPIAS Level of Service	Analysis and Needs	Cost
*Black Rapids**	Non-NPIAS	Important for emergency or precautionary landings, it is recommended DOT&PF work with BLM to ensure it remains open/safe.	NA
*Bradley Sky-Ranch**	Non-NPIAS	No Facility Objectives for Local-Major Airport. A North Pole area NPIAS airport is recommended particularly for light sport aircraft.	TBD
Chisana	GA	No Facility Objectives for Local-Major Airport	NA
Clear	GA	No Facility Objectives for Local-Major Airport	NA
Delta/Allen Army Airfield**	Non-NPIAS	Joint civilian/military use of Allen Army Airfield, or a better, NPIAS airport for Delta Junction is recommended.	TBD
Gold King Creek	Non-NPIAS	No Facility Objectives for Local-Minor Airport, but minor improvements are warranted.	$50,000
*Healy Lake**	Non-NPIAS	Needs to be recognized as an airport, and inspected through the FAA's 5010 program to identify any basic safety needs.	TBD
Healy River	GA	No Facility Objectives for Local-Major Airport	NA
Kantishna	GA	No Facility Objectives for Local-Major Airport	NA
Manley Hot Springs	GA	525' Runway Extension; Instrument Approach (1-mile min.); Obstruction Removal. Airport relocation programmed.	$13,800,000
Minto	GA	2,000' Runway Extension; Instrument Approach (1-mile min.); MIRL; AWOS; SRE Building; $7 million project to relocate/lengthen runway and make other improvements is underway. Needs FAA to program weather camera.	NA
*Nenana Municipal**	GA	No Facility Objectives for Local-Major Airport. Has runway rehab and fencing programmed. Will need resurfacing in longer –term future	$12,000,000
Northway	GA	No Facility Objectives for Local-Major Airport; $15.3 million project funded by FEMA is underway to fix earthquake damage; estimated completion 11/09.	NA
Tetlin	GA	Instrument approach (1-mile min.) Needs FAA to program weather camera.	$450,000
Tok Junction/ *Tanacross**	GA/*Non-NPIAS*	More runway length and better instrument approach. Recommend upgrades for Tok Junction, Tanacross, or another site for a Regional class airport to serve Tok area population. Improvements to support gas pipeline. Tok Junction has $7 mil runway & crosswind runway project programmed.	$35,000,000

**Airports listed in italics are not owned by the DOT&PF*

Table 6-26 summarizes airport needs in the Copper River Basin. Several of the public use airports are privately owned or backcountry airstrips without specific improvement recommendations. About two-thirds of the airports in the region are listed in Table 6-26. The largest projects in the Copper River Basin are the relocation of the Chistochina Airport and improvements needed at Gulkana Airport.

Table 6-26 Summary of Needs for Copper River Basin Airports

Airport Name	NPIAS Level of Service	Analysis and Needs	Cost
Chistochina	Non-NPIAS	Airport Relocation Planned. No Facility Objectives for Local-Major Airport.	$10,000,000
Chitina	GA	No Facility Objectives for Local-Major Airport. Has SRE Building Upgrade programmed.	$150,000
Copper Center 2	Non-NPIAS	No Facility Objectives for Local-Major Airport	NA
Gulkana	GA	Instrument Approach Improvement to ¾-mile min. requiring approach lights, full parallel taxiway. Has apron & taxiway repaving programmed. Floatplane basin, runway rehabilitation needed.	$15,000,000
Lake Louise	GA	No Facility Objectives for Local-Major Airport; 2nd stage of runway rehab programmed.	$2,300,000
May Creek	GA	No Facility Objectives for Local-Major Airport	NA
McCarthy	GA	Instrument approach (1-mile min.); MIRL; Obstruction Removal. Needs FAA to program weather camera. Will need resurfacing.	$3,500,000
*Paxson**	Non-NPIAS	Important for emergency or precautionary landings, it is recommended DOT&PF work with Lodge & BLM to ensure it remains open/safe.	NA
Pippin/Tonsina (New Airport)	Non-NPIAS	Visual A turf airport	$2,000,000
Tazlina	Non-NPIAS	No Facility Objectives for Local-Minor Airport	NA

**Airports listed in italics are not owned by the DOT&PF*

Table 6-27 shows the single airport recommendation in the portion of the Susitna Valley that extends into the study area. This region has four Interior airports. None is in the NPIAS and only one is owned by DOT&PF (Summit).

Table 6-27 Summary of Needs for Susitna Valley Airports

Airport Name	NPIAS Level of Service	Analysis and Needs	Cost
Summit	Non-NPIAS	No Facility Objectives for Local-Minor Airport. Improvements in maintenance, access, markings, tiedowns needed for airport to function as Local-Major serving Cantwell.	$100,000

Table 6-28 shows the single airport recommendation in the portion of the Kuskokwim Valley that extends into the study area. This region only contains one public use airport.

Table 6-28 Summary of Needs for Kuskokwim Valley Airports

Airport Name	NPIAS Level of Service	Analysis and Needs	Cost
Minchumina	GA	No Facility Objectives for Local-Major Airport. Will need resurfacing, apron reconstruction.	$9,000,000

Table 6-29 shows the recommendations in the portion of the Koyukuk Valley that extends into the study area. The largest project is for Coldfoot to fix an erosion control problem.

Table 6-29 Summary of Needs for Koyukuk Valley Airports

Airport Name	NPIAS Level of Service	Analysis and Needs	Cost
Dalton-5 Mile Airport	Non-NPIAS	Not registered as an airport, this is a placeholder for airport improvements at Mile 61 of the Dalton Highway needed for gas pipeline support since Alyeska intends to close it	$1,000.000
Coldfoot	GA	No Facility Objectives for Local-Major Airport. Has project programmed for erosion control, lighting replacement, obstruction clearance.	$6,500,000
*Porcupine Creek**	GA	No Facility Objectives for Local-Major Airport. The need for this airport to be included in the NPIAS should be reevaluated.	NA
Prospect Creek	GA	No Facility Objectives for Local-Major Airport. Runway safety area and improvements for gas pipeline support.	$5,600,000
Wiseman	GA	No Facility Objectives for Local-Minor Airport. The need for this airport to be included in the NPIAS should be reevaluated.	NA

**Airports listed in italics are not owned by the DOT&PF*

6.4 Major Trail System Analysis

6.4.4 Trail Conditions

Most of the trails shown in **Error! Reference source not found.** are pioneer trails connecting neighboring villages to each other or to the road system. The trails tend to be used more in the winter, when frozen or snow-covered terrain provides a more solid surface for travel. Because of this, winter trail marking is very important in the study area.

6.4.1.1 Existing Winter Trail Marking

The DOT&PF Winter Trail Marking project has been ongoing for the past few years at a funding amount of about $200,000 a year. Most of the previous years' funding was spent in the far western part of the State, although some marking has occurred in the Minto-Manley area. . The TCC, which has been actively marking trails in the Interior, has indicated that their experience is very positive. Most villages have been enthusiastic about the trail marking projects. Local labor forces are generally the accepted method of implementing the trail marking program. The trail marking projects provide short term jobs for local residents.

6.4.1.2 Trail Marking Need

The most used winter trails should be analyzed for marking, especially if they are between villages or provide access to the highway system. Some trails may not need to be marked because they cross through heavily vegetated terrain where the trail has been cleared. Marking on trails that follow the rivers may also not be necessary.

6.4.2 Summary of Trail Recommendations

Many of the most used winter trails in the Interior are not marked. Travelers often rely on terrain features and traditional knowledge of trail location; however, those less familiar with the area could benefit from more clearly defined trails. Additionally, in poor weather when visibility is limited, marked trails provide a measure of safety to travelers who might otherwise stray off course.

It is recommended that DOT&PF continue to support trail marking efforts. The department should implement the following recommendations.

- Continue funding for the trail marking project

- Use local hire processes for installing trail markings to the extent feasible
- Establish maintenance agreements with local communities or tribal organizations

The communities served by trails should be consulted prior to implementation of any trail marking efforts. They may or may not feel the trail should be, or needs to be, marked.

Today, many of the Interior Alaska trails remain well traveled for traditional uses. Trails are also commonly used in the Interior for recreational dog mushing, snow machining and hiking. These trails are primarily pioneer trails and most are used in the winter only. Some trails, such as the trail between Venetie and Arctic Village, are used regularly for access to subsistence resources and to travel between the villages. The trail between the Dalton Highway and Stevens Village is also used regularly for subsistence activities and for travel between the village and the Dalton Highway where residents can travel to Fairbanks for supplies. While trail marking on these trails is limited there are few reports of search and rescue efforts for lost travelers.

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, winter 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 and therefore trail markings are not as critical in the Interior as in other parts of Alaska.

6.4.2.1 Existing Winter Trail Marking Project

The DOT&PF Winter Trail Marking project was ongoing for three years for about $200,000 a year. Most of the funding was spent in the far western part of the State, although some marking occurred in the Minto-Manley area. To limit DOT&PF exposure to increased maintenance costs, trail marking projects require a maintenance agreement with a local entity, usually a Tribe or City, to maintain the trail marking system once constructed. Table 6-30 shows trails and the timetable for marking those trails.

Table 6-30 Trail Marking Project

TO - FROM	Miles	Planned	Complete	Comments
Manley to Minto	50	2008/2009	Yes	
Manley to Nenana	120	No		
Manley to Tanana	65	2005/2006	Yes	Stakes delivered fall 2005.
Northway to Tetlin	30	No		
Northway to Tenmile Hill	10	No		
Birch Creek to Ft. Yukon	20	2008/2009	Yes	Marking trail halfway to Ft. Yukon
Minto to Nenana	40	No		
Dot Lake to Fish Lake	15	No		
Tetlin to Tok	40	No		
Total	**1**			

6.4.2.2 Existing Trails

In 2009, TCC, under a contract with DOT&PF marked 30-40 miles of trails in the Manley, Birch Creek and Circle areas.

6.4.2.3 Proposed Trails

There are several proposed trails within the study area that are desired by local communities and there is local support to continue the trail staking project.

6.5 Railroad System Analysis

ARRC continues to invest in their comprehensive program of capital improvements within the study area, as well as throughout the rail system. $43.1 million were programmed for capital improvements in 2010. According to the railroad's annual reports, in 2008, the company earned a profit of $12.5 million (down 23% from the previous year) on revenues of $158.7 million (up 6.9%), $121.7 million of which was operating revenue (up 5.2%).

6.5.2 Rail Conditions

Much of the rail system in the study area was upgraded around 1985 when the State bought the railroad from the US government for $22.3 million. Improvements were needed and maintenance that had been deferred was undertaken. As with any transportation system, additional investment must continually be made in order to keep the system in good repair and operating up to current design and safety standards.

6.5.1.1 Existing Deficiencies

Curves and grades can be impediments to safe and efficient rail operations. There are curves in the Fort Wainwright area that need to be reduced. Siding improvements are also needed to improve efficiency. Sidings should be spaced every 30 minutes based on travel time and be able to hold a 6,000-foot long freight train. Several siding projects have been completed and other areas with planned siding improvement projects include Cantwell, Canyon, Cascade, Caswell, Colorado, Garner, North Nenana, and Saulich. Power switch installations are needed at Susitna, and Sunshine. Additional traffic control needs are at Ester, and Summit.

6.5.2 Safety (Statewide Programs of the ARRC)

6.5.2.1 Track Rehabilitation

Track rehabilitation includes a Tie Program, Ballast Surfacing and Shoulder Maintenance. These are ongoing programs. The Tie Program installs new wood and concrete ties. Ballast Surfacing regenerates or rehabilitates the surface course of the track bed. Shoulder Maintenance will supply the embankment to support the rail and the heavier and faster moving trains. The program includes culverts where necessary.

6.5.2.2 Collision Avoidance System

The Collision Avoidance System (CAS) integrates on-board equipment, wayside devices and a communication network to electronically deliver instructions, stop trains, monitor switches for proper alignment and detect broken rail.

6.5.2.3 Crossbuck Illumination

At-grade railroad crossings are considered unsafe. There are low-technology and high technology solutions to the problem. Low technology solutions include the standard crossbuck railroad crossing signs with or without crossing arms. The ARRC conducted a test of improved illumination materials at the standard crossbuck style signs. The material was found not suitable for Alaska conditions. The ARRC has requested permission to test deployment of an advanced traffic warning reader board system for at-grade crossings with crossbuck signage.

6.5.2.4 Locomotive and Car Upgrades

Upgraded locomotives and cars serve a variety purposes, one of which is to keep the ARRC current for safety and passenger comfort. The ARRC budgets for new equipment and to rehabilitate equipment each year. This type of fleet maintenance and improvement is critical to maintaining a safe and efficient system.

6.5.2.5 Bridge Program

Bridges need to be replaced or repaired regularly to insure safety. Table 6-31 lists bridge-related projects planned for the study area.

Table 6-31 2010 Alaska Railroad Bridge Projects in the Interior Area

Milepost	Project
MP 352.7	Rehab bridge components
MP 432.1	Replace Little Goldstream Creek Bridge – New bridge on new alignment

Source: http://www.alaskarailroad.com/Portals/6/pdf/projects/2010%20System%20Summary.pdf

In addition to these projects will be the Tanana River Crossing north of Delta Junction, if the Northern Rail Extension proceeds on schedule.

6.5.3 Summary of ARRC Rail Recommendations

6.5.3.1 Highway/Railroad Grade Separations

There are several projects that the ARRC is working on that would eliminate at-grade crossings along the Parks Highway. The Road-Rail Transportation Corridor project proposes to re-align the road and railroad outside of downtown Wasilla, eliminating any at-grade crossings. The South Wasilla Rail Line Relocation would eliminate five at-grade crossings off the Parks Highway between RR MP 154 and 158.

The ARRC Fairbanks Freight Intermodal Improvements project includes several grade separations. The ARRC Nenana Rail Line Relocation also includes eliminating several at-grade intersections – one on the Parks Highway, at Airport Access and at 9th Street. The Fairbanks Area Rail Line Relocation project also includes grade separations. The Fort Wainwright Rail Realignment project has grade separations as well

A grade separation project for Broad Pass (MP 194) on the Parks Highway was included in a STIP prior to May 2008. That STIP Amendment re-established priorities for spending FHWA funding in Alaska. The proposed separation is still on the Needs List. Other locations noted in the STIP Needs List include the Parks Highway at Summit (MP 204) Parks Highway at Rex (MP 276) and Parks Highway at Hurricane (MP 169). The Needs List has a grade separation at

International Airport Road and Jewel Lake Road, a grade separation at University Ave. in Fairbanks, and on the Steese Highway at MP 1.

6.5.3.2 Double Tracks

The ARRC has studied double tracks through Anchorage for some time. There do not appear to be any plans on the part of the ARRC to double track in the planning area.

6.5.3.3 Line Relocations/Realignments

The Healy Canyon line realignments are almost complete. Safety aspects of this proposed project include stabilizing the track bed as well as rock slide problems with the steep slopes and unstable soil. Track realignment will reduce the risk of derailment in this curving section of track. The Nenana Rail Line Relocation proposal realigns the track around downtown Nenana. The Fairbanks Area Rail Line Relocation project is still in an analysis phase. It includes three phases: Richardson Highway MP 9 to southeast side of North Pole near Moose Creek; Richardson Highway MP 9 north to 3-Mile Gate; and 3-Mile Gate to the west. The Fort Wainwright Rail Realignment will enhance safety by relocating tracks away from Ladd Field and reduce travel times through Fort Wainwright.

6.5.3.4 New Rail Line

New rail lines are included in the Access to Joint Tanana Military Training Complex and the Denali Park Passenger Train Turnaround Track. The Northern Rail Extension project would construct a new line between North Pole and Big Delta.

Not included in ARRC planning at this time, but acknowledged by them is the Alaska Canada Rail Line Phase I Feasibility Study. Also, not on the ARRC planning list is a concept to bypass Nenana by construction of a line east –west between the Parks Highway and the Richardson Highway, north of the Alaska Range.

6.6 River Transportation System Analysis

6.6.3 Barge Landings

6.6.1.1 Nenana Harbor

The Nenana Harbor hosts a 1,000,000 gallon petroleum product tank farm owned and operated by Crowley. The Harbor receives bulk petroleum products, packaged petroleum products and general cargo via truck, barge and rail for distribution downriver. It has an improved barge landing.

The City of Nenana is currently in preliminary design for a sheet pile shore protection project on the Nenana River side of the harbor. There is a section of bank north of the proposed sheet pile area that needs to be stabilized. There is also a need for a new marine dock area to get boats out of the water.

Aerial view of Nenana River harbor

6.6.1.2 Community Landings

Fort Yukon was the only community with an improved landing in the study area; however, erosion has rendered it inoperable. Fort Yukon receives a substantial amount of goods via barge. As explained in section **Error! Reference source not found.**, the barge landing can occur in two places, depending on water depth. A dedicated barge landing with public access to town is needed.

The other villages in the study area are visited more rarely than Fort Yukon but would benefit from an improved landing area.

6.6.1.3 Special Interest Areas

Interviews with barge freight providers indicated that some improved landing capability would be beneficial. One provider in particular suggested that "deadman" style anchors for tying up the barge would significantly improve on and off loading. A deadman is a log or logs, heavy timber or timbers, a large block of concrete, a large boulder, or combination of the above that is partially or completely buried. Eyebolts placed in deadmen are used to anchor cables.[13]

There are two landing areas in Tanana: at the airport and in town. Both are problematic. The airport landing is too small and requires freight to be trucked. The downtown landing is congested with other traffic and sometimes log jams.

[13] FHWA online glossary, accessed at fhwa.dot.gov.

6.6.2 Operations

6.6.2.1 Planning Level Assessment (Barge and Ferry)

Barge service to the villages in the Upper Yukon is still important. Most villages can be served at least once or twice a year, if not three times. Service, however, can be influenced by cash flow problems. Goods to be delivered by barge need to be ordered well in advance and paid for in advance. Financial assistance to local governments (Revenue Sharing) was halted for several years and only recently re-instated. Villages have not had the cash in hand to pre-order and pay for bulk fuel in some time. Some villages are purchasing fuel as they can afford to have it delivered by air. Air delivery of fuel appears to be cost effective within a certain radius of Fairbanks which most of the study area villages meet.

When the 1981 Louis Berger and Associates *Yukon River Ferry Economic Analysis Report* looked at ferry service, they determined ferry service would displace some regular barge and air service to the detriment of both industry bottom lines. They further concluded that ferry service would not be economically viable unless heavily subsidized.

6.6.3 Summary of Landing Recommendations

6.6.3.1 Expanded Barge Landings

No barge landings need expansion; however, there are some erosion control projects needed in Nenana.

6.6.3.2 New Barge Landings

A new private landing is desired in Tanana.

6.6.3.3 Rehabilitated/Reconstructed Barge Landings

As discussed above, Fort Yukon would benefit from a new landing that provides public street access into the community. Barge operators discussed the “deadman” bolts at Tanana. These should be looked at for maintenance. The other study area village landings should be analyzed to see if the landing areas should be rehabilitated.

7 Transportation Financing

7.1 Introduction

Alaska has historically relied heavily on Federal funds to meet the capital transportation needs of the State. The State's general funds have been used primarily to fund required matches for Federal funding and for maintenance on highways and rural airports. Some Federal funding has also been used for preventative maintenance projects.

In the study area, the overall trend of the annual allocation of transportation funding has seen great fluctuations with an overall slight increase. However, there has been a rapid and dramatic increase of construction costs as well as an escalating cost of maintaining and preserving aging infrastructure. Given these factors, it is unlikely that the current funding will meet the growing transportation needs in the study area. This chapter explores ways to alleviate this concern.

The following sections provide additional details about the historical funding, the expected funding, and other funding potentials to meet the shortfall for each of the transportation modes in the study area.

1.1 Highway System Financing

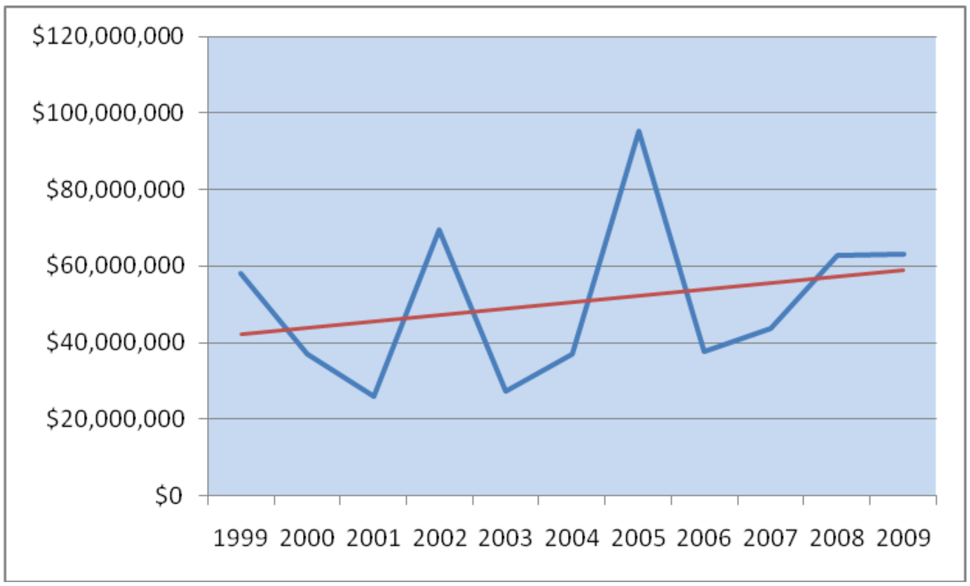
7.2.1 Historical Funding

Funding available to the state for capital improvement projects on the National and Alaska State Highway System come primarily from the Federal Highway Administration. The state receives several categories of FHWA funding with distinctive rules for project eligibility, match ratios, and other programming factors. The match ratio varies depending on the category of funding, or apportionment, but is generally about 90.97 percent. The proportion not paid by Federal funds comes from state, local or third party match.

The STIP is a federally mandated (required by Federal law, 23 USC 135), financially constrained program of surface transportation projects. The STIP provides a four-year schedule of capital projects including preliminary engineering, design, environmental, and construction. The 2010-2013 STIP also contains several additional projects that could proceed if sufficient funding becomes available. The additional projects constitute the "illustrative" list of projects allowed under Federal regulation 23 CFR 450.216(l).

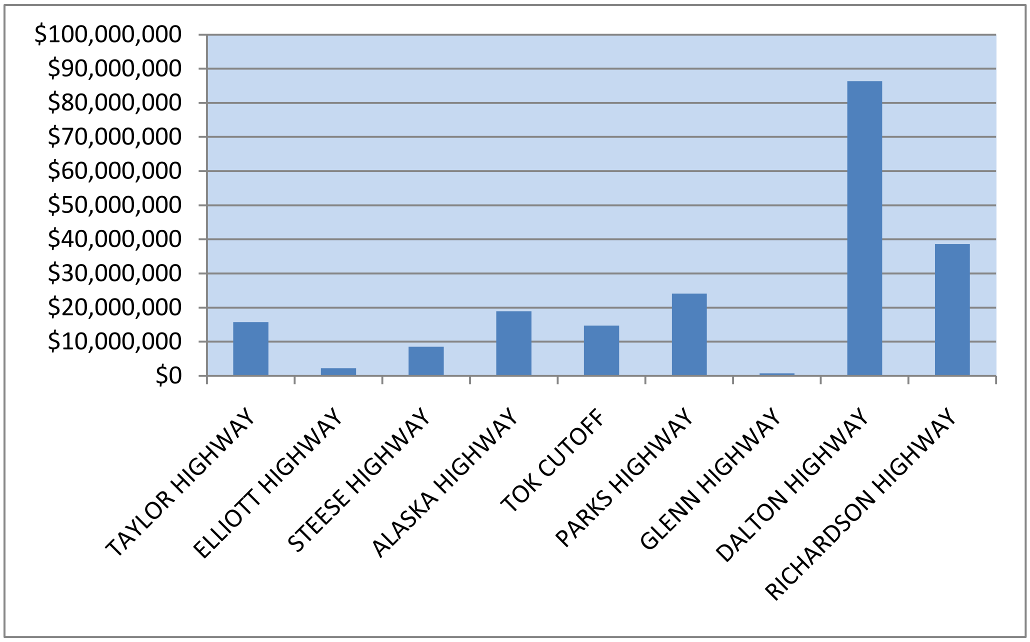
A review of obligated funds (not including emergency earthquake related repair funds) for highways in the Northern Region for the past ten years indicates that funding has fluctuated from a low of $26 million in 2001 to a high of $95 million in 2005. The average funding per year for the Interior Region routes is about $50 million annually.

Exhibit 7.1 Obligated Highway Funds - FFY 1999-2009



The amount per year for each highway is shown in Exhibit 7.2.

Exhibit 7.2 Obligated Highway Funds by Highway- FFY 1999-2009



In 2008, the Highway Trust Fund became insolvent and, although Congress provided one year of stop gap funding, major changes will have to occur to make the program solvent again. Changes may include reductions in the amount of funding that Alaska receives. In addition, the Federal Highway legislation, SAFETEA-LU, passed in 2005 expired at the end of the Federal fiscal year 2009. It is likely that there will be continuing resolutions to fund the transportation program until the new Federal highway bill is passed.

7.2.2 Expected Capital Funding

The current 2010-2013 STIP indicates that within the study area, funding for the National Highway System routes continues to fluctuate year by year but averages about $45 million per year. The Alaska Highway System average is $6 million a year.

A temporary boost in capital funding for highways has come from the 2009 American Recovery and Reinvestment Act (ARRA). This included an increase in statewide highway funds of about $170,000,000. In the study area, the ARRA funding included one project– the Alaska Hwy: MP 1308 Tok Weigh Station Inspection Facilities. This project includes constructing new inspection facilities at the Tok Weigh Station to accommodate increased truck traffic associated with the construction of a natural gas pipeline. The estimated cost of this project is $3.75 million.

7.2.3 Highway Maintenance and Operation Funding

Routine highway maintenance is funded through state general funds. In 1992, the Northern Region maintained about 8,900 lane miles and in 2009 this had grown to over 10,000 lane miles, including both runways and aprons. In this same period, maintenance positions to accommodate this growth, increased from 293 to 343 positions (includes both full time and part time positions). While the amount of annual funding has increased to try and keep up with maintenance of the additional lane miles, the funding levels fall short of meeting the highway system's maintenance needs. In fact, not only does this funding gap continue to grow as additional lane miles are added to the system, it is also more expensive to maintain and preserve aging infrastructure compared to rehabilitated or reconstructed roads.

In the past ten years, Northern Region has programmed about $9 million dollars a year in Preventative Maintenance projects with funds from the STIP to help supplement the general funded maintenance program. This is significantly more than the Central or Southeast regions use for preventative maintenance work. In fact, preventative maintenance projects now make up almost one-seventh of the current total highway maintenance expenditures in Northern Region and the department has come to rely heavily on these funds to supplement the general funded maintenance program. Should new highway legislation eliminate this program, or department priorities result in a shift away from using the STIP to fund preventative maintenance projects, the condition of the highways would likely decline significantly.

7.2.4 Other Funding Potential

Alaska does not have a state funded, dedicated source for transportation funding. Motor fuel taxes and vehicle fees go into the General Fund. There have been, particularly in recent years, attempts to use alternative funding mechanisms for surface transportation projects. Most of these have met with limited success.

State General Obligation Bonds. A State General Obligation (GO) Bond is a bond secured by the taxing and borrowing power of the State government issuing it. Both the principal and interest are secured by the full faith and credit of the issuer. In addition, GO Bonds must be approved by the voters. Alaska GO Bonds have not traditionally been a part of the transportation infrastructure funding strategy; however, a bill was passed in the 2008 legislative session to fund some transportation projects with GO Bonds. Within the study area, GO bonds have also historically been used as a funding method specifically on the Dalton and the Glenn Highway. Currently there are no projects proposed using GO Bonds in the Interior.

Endowment. A proposal was made, but not adopted, during the 2008 legislative session to create the Alaska Transportation Fund (ATF). This would be capitalized with $1 billion from oil taxes. It is estimated that the ATF could yield over $50 million in the first year with increasing amounts in successive years. The proposal was not formally brought back to the table during the 2009 legislative session. The proposal is dependent on oil revenue. The price of oil peaked in July 2008 at $144 per barrel. The proposed 2011 budget is based on $76.35 per barrel. Oil prices must rise substantially before the endowment concept will again be considered in a positive light.

Private Public Partnerships. Private public partnerships work best if a single developer with a specific goal in mind proposes to share the costs of infrastructure with the public entity. Sharing costs of projects has a downside for the private developer in process and timeline. Any amount of FHWA or FAA funding in a project requires the entire project be developed within their respective Federal guidelines. A typical reconstruction project or new section of road often takes 5-7 years to get to construction. That schedule may not be acceptable to private industry. Public-private partnerships have generally not been used in Alaska.

One example of where private industry and the public have worked together is the 50 Mile Pogo Mine Road near Delta Junction. This road was completely privately financed and is a private road permitted across public land, (though there is a process for the public to gain limited access to this road). The first portion of the road will not be reclaimed after the life of the mine and after the mine ceases operation, this portion of the road will be managed by the DOT&PF, and open to public use.

GARVEE Bond. The Grant Anticipation Revenue Vehicle (GARVEE) is an innovative financing tool that allows states to issue bonds to pay for Federal-aid transportation projects. These bonds are repaid through commitments of future Federal funds and State match. They can be used to get to construction on needed projects a little earlier if the total program funding is tight. Alaska participated in that innovative financing tool and no longer chooses to use it. Overall, it can reduce the amount of program funding in future years, leaving some projects short of cash when they would normally be ready to bid.

Advance Construction Funding. Advance Construction funding commits future funds to "pay back" projects that are bid with insufficient overall construction funds in the current year program. It's similar to a revolving line of credit and is generally used to allow the DOT&PF to obligate a construction project with general funds when there is insufficient Federal authority. The general funds are paid back with Federal funds the next Federal fiscal year. It allows projects to be bid sooner, with the expectation that there will be little, if any, actual general funds actually spent before the general funds are replaced with Federal funds. As with the GARVEE bonds, the perception was that it constrained the future budgets and overall did not serve well as a financing tool.

State Taxes. The Alaska Municipal League commissioned the Alaska Transportation Finance Study (January 2009). This study looked at the transportation infrastructure from the perspective of "underinvestment, " discussed the risk associated with the current Federal funding shortfalls and recommended options for closing the gap between revenue and needs. The report concluded that some combination of increased fuel tax and vehicle registration fees, a new vehicle sales tax and capitalizing the ATF was needed. However, Alaskans historically object to taxes in general as well as to increases in current taxes. Implementing the options and or pieces of the options, requires buy-in at the local, regional and State levels.

Pipeline Corridor Funding. The possibility exists that pipeline construction costs could include infrastructure improvements. It is common in urban areas for developers to fund road improvements if the improvement benefits the developer and would otherwise not be necessary. Some anticipated roadway needs to support pipeline development fit this scenario.

7.3 Community Transportation System Financing

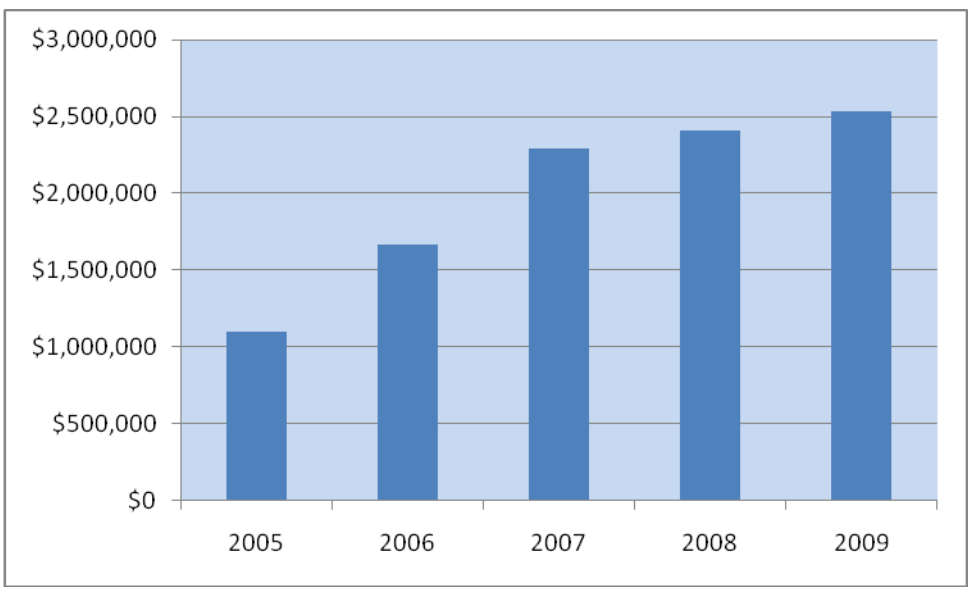
7.3.1 Historic Funding

Community transportation projects in the study area have historically received funding primarily from the Bureau of Indian Affairs Reservation Roads program, Denali Commission Roads Program and the FHWA. In 2005, SAFETEA-LU contained provisions that enabled Tribal entities to apply for transit funding through the Federal Transit Authority. There is limited use of these funds in the study area, but the interest is growing.

Bureau of Indian Affairs Indian Reservation Roads Program. In 2005, the BIA Indian Reservation Roads (IRR) Tribal Share program began providing funds directly to Tribes for transportation projects. The amount of the allocation received per Tribe is dependent on the number of miles the Tribe has within the IRR inventory. Only those transportation facilities on the official BIA IRR inventory are allowed to receive funding. BIA IRR Tribal Shares can be used for planning, transit, design and construction activities and as a match to other agency funds, such as the DOT&PF. In addition to the BIA IRR Tribal Share funds, Tribes can apply for High Priority Projects which is set up in a special funding pool for projects up to a million dollars. The High Priority Projects funds are intended to be allocated to Tribes for their approved IRR projects and activities under 23 U.S.C. 202(d)(2). Stevens Village is receiving $1,000,000 in this program for local community roads.

Within the study area, the amount the Tribes have received per year has fluctuated as the IRR inventories have grown. In 2005, the total amount of funding for the 27 Tribes in the study area was about $1 million. In 2009, that amount had grown to over $2.5 million as shown in Exhibit 7.3.

Exhibit 7.3 BIA Total IRR Tribal Share Funds in Study Area 2005-2009



In 2009, the amount received per Tribe varied drastically from a low of $15,700 for the Native Village of Takotna to the high received by Venetie of $538,420. In addition, Tribes were eligible to receive ARRA funding. In the study area, there was approximately $1.6 million of ARRA funds available to Tribes.

Denali Commission. The Denali Commission's Transportation Program began in late 2005 as part of the SAFETEA-LU legislation and accompanying amendments to the Denali Commission Act of 1998 (amended). The program focuses on rural roads and waterfront development.

The road program targets basic road improvement needs. It also looks at opportunities to connect rural communities to one another and the State highway system, and opportunities to enhance rural economic development. The waterfront development program addresses port, harbor and other waterfront needs for rural communities. The emerging focus areas are improvements to regional ports, and construction of barge landings and docking facilities.

The Transportation Program has developed successful design and construction partnerships with the FHWA Western Federal Lands Highway Division, Alaska DOT&PF and the Corps of Engineers. The program also develops projects with regional, local and tribal governments, and regional tribal non-profits.

Types of projects Denali Commission has funded in the past include the following:

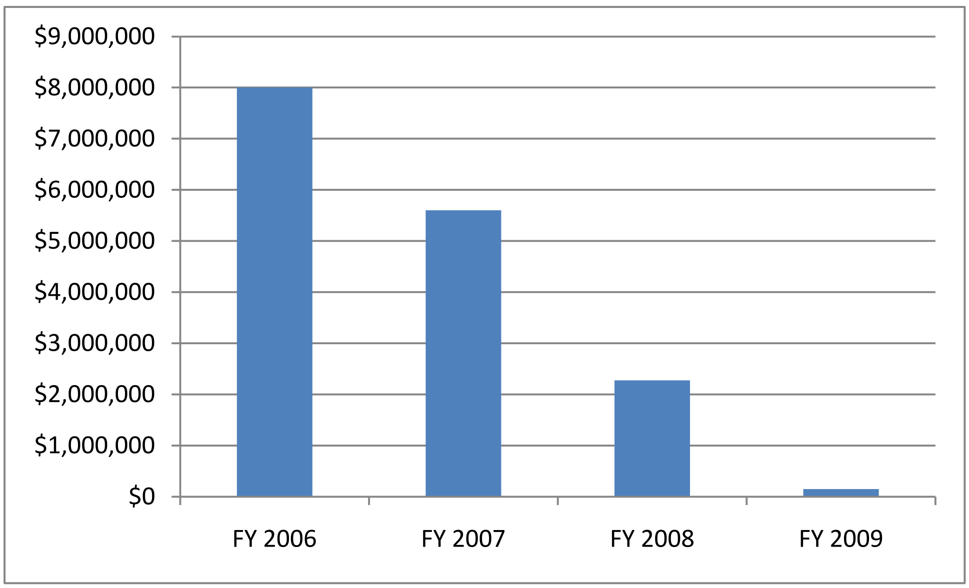
- **Local Roads and Boardwalks**
- **ATV Roads**
- **Community Connection and Economic Development Roads**
- **Regional Ports and Local Small Boat Harbors**
- **Barge Landings**

The Denali Commission program has brought in almost $12.5 million in the study area for community transportation projects; however, in recent years, funding has been declining dramatically. Between 2006 and 2008, seven community transportation projects were funded in the study area for a total of $5.9 million. In 2009, there was one project in the study area for $150,000 as shown in Table 7-1 and Exhibit 7.4.

Table 7-1 Denali Commission Project List 2006-2009

Community/Project	FY 2006	FY 2007	FY 2008	FY 2009	*Status
Cantwell Community Roads	$500,000				Complete
Circle/Circle City Community Roads	$900,000				Construction
Eagle/Eagle Village Community Roads	$1,300,000				Construction
Fort Yukon Community Roads	$2,000,000				Design
Gakona Access Road Rehabilitation		$900,000			Design
Galena Dock	$1,400,000				Design
Gulkana Access Road Reconstruction	$1,800,000				Design
Manley Hot Springs Community Streets				$150,000	Design
Nenana 9th & K Street Repairs, K Street Ext.			$800,000		Construction
Nenana Tug and Barge Port		$850,000			Construction
Stevens Village Access Road		$500,000			Complete
Stevens Village Community Roads		$1,000,000			Design
Takotna Gold Creek Bridge Replacement			$200,000		Award Documents
Tanana Community Roads Dust Control	$50,000				Complete
Tanana Cross 4th Avenue			$137,000		Close Out In Progress

Exhibit 7.4 Denali Commission Historical Transportation Funding in Study Area



STIP Funding. FHWA and State funds, through the STIP process, have also funded community transportation projects in the study area. Generally, the State focuses on community projects such as sanitation roads (access to landfills or sewage lagoons), dust control projects, and intermodal roads (such as airport access roads).

Between 1999 and 2008, approximately $2.5 million was spent in the study area on rural road projects using STIP funding. Examples of STIP projects in the study area include trail staking, Beaver Landfill Road, Eagle Dust Control and the Stevens Village Landfill Road.

Transit funds **-** As authorized by SAFETEA-LU, the Federal Transit Authority Administration (FTAA) supports locally planned and operated public mass transit systems throughout the United States. On October 16, 2008, Governor Sarah Palin established, by Administrative Order 243, the Coordinated Transportation Task Force. It was charged with helping to coordinate and integrate community-based public transportation services to benefit persons with special needs. The Task Force delivered its report to the Governor on February 11, 2010, concluding its tasking under Administrative Orders 243 and 252. Information on the Task Force and its recommendations, as well as a pdf of the report are available on the DOT website, http://www.dot.state.ak.us/stwdplng/cttf/.

Photo: Jessica DeBartolo, DOT&PF

March 18-19, 2009 Coordinated Transportation Task Force Meeting

SAFETEA-LU also created a Tribal Transit Program. Federally-recognized Indian and Alaska Native Tribes are eligible, direct recipients of Tribal Transit grants. These grants are awarded by FTA based on an annual national competitive selection process. There are no matching requirements. Recipients of Tribal Transit Program may use these funds for any purpose that is eligible under Section 5311.[1] Eligible purposes under Section 5311 include planning, capital and operating assistance for rural public transit services, and support for rural intercity bus service.

The goals of the Tribal Transit Program are:

1. to enhance the access of public transportation on and around Indian reservations in non-urbanized areas to health care, shopping, education, employment, public services, and recreation;

2. to assist in the maintenance, development, improvement, and use of public transportation systems in rural and small urban areas;

[1] Code of Federal Regulations, 49USC5311(c).

3. to encourage and facilitate the most efficient use of all Federal funds used to provide passenger transportation in non-urbanized areas through the coordination of programs and services; and

4. to provide for the participation of private transportation providers in non-urbanized transportation to the maximum extent feasible.

In the study area, Gulkana and Copper River Native Association have been recipients of FTA grants.

7.3.2 Expected Capital Funding

The BIA IRR program may change its Tribal Transportation Allocation Methodology in the future. Also, the overall allocation for the IRR program may change with the passage of the next highway bill. However, if the IRR funding amount and Tribal Transportation Allocation Methodology does remain similar, it is expected that the BIA IRR program will continue to grow as tribes increase their IRR inventory. Over time, unless the overall program increases, the annual allocation per tribe will level off and then begin to decline. Also, the High Priority Project program will likely help to support transportation projects in the future.

Denali Commission funding remains uncertain. Given the history of the declining dollars available through this program, it is likely that it will be a diminishing resource for rural community transportation projects. Likewise, the competing and growing needs of the highway system will likely make the STIP a limited source of funding for community transportation.

7.3.3 Community Transportation Maintenance and Operations Funding

There is limited funding available for maintaining community roads and trails. One exception is that in 2005, SAFETEA-LU allowed tribes to spend up to 25 percent of their IRR allocation on maintenance activities. For 2009, the maximum amount of maintenance funds available through the IRR program in the study area was about $600,000. It is likely that tribes will take advantage of this program and use these funds to purchase equipment, apply dust palliatives, repair drainage and resurface local roads.

Tribe’s IRR maintenance program funds can be used to rehabilitate, remanufacture, and overhaul a transit vehicle and preventive maintenance. Bus stops maintenance also are an eligible item under the IRR program. Operating costs must come from service fees or general funds.

7.3.4 Other Funding

Beyond the funding sources mentioned previously, there are limited sources for community transportation projects. In the past, there was a program funded with State general funds, the Local Streets, Roads and Trails (LSR&T) program. This program funneled money into capital community transportation projects. While the LSR&T program is recommended in the state's 2030 Long Range Transportation Plan as one means of ensuring funds for rural transportation needs, it requires a legislative appropriation, and that does not seem to have any possibility at this time[2]. In the past, revenue sharing was also used to fund rural community transportation projects. These funds were also General Fund money and could be used for transportation projects by local governments and Homeowner's Associations. There also does not appear to be support for funding this program at this time.

7.4 Aviation System Financing

This section describes funding for airport capital improvements, maintenance, and operation, which has consistently been less than the amount needed. The section ends describing optional ways to meet the challenges of funding Interior airport needs.

The Federal Airport Improvement Program (AIP) is the main source of funding airport improvements in the US, except at large commercial service airports that finance capital projects primarily through bond issuance. The AIP is the primary funding source for Interior Alaska airports. Airports that are included in the NPIAS are eligible for AIP funding. The Interior has 37 airports in the NPIAS.

The AIP was established in 1982 and has been amended several times. The legislation authorizing the AIP expired September 30, 2007, but it is assumed a similar program will be in place in the future. 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.

Primary airports, those with more than 10,000 annual passenger enplanements, receive AIP entitlement funding based upon the number of passengers. Fairbanks International is currently the only primary airport in the Interior. Non-primary and general aviation airports receive AIP

[2] Personal communication, DOT&PF, September 25, 2009.

entitlement funding of up to $150,000 per year. As the single sponsor of many airports, the DOT&PF can pool its airports' entitlements. The AIP also allocates funds by State and sets aside funding for some specific purposes. AIP discretionary grants are made when discretionary 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 cost. The State pays the remaining 5 percent for its airports and pays half of the remaining 5 percent (2.5 percent) for municipal and tribal sponsors. Projects eligible for grant funding are those that relate to enhancing airport safety, capacity, security, and environmental concerns.

Airport projects are programmed in the AIP in a similar way to surface transportation projects in the STIP. DOT&PF solicits project nominations. The regional offices score the projects and an Aviation Project Evaluation Board (APEB) finishes the ranking. The AIP project list is then developed by DOT&PF, incorporating the financial constraints of the program.

7.4.1 Historic Funding

Over the past five years, Alaska's AIP funding has averaged 6.2 percent of the national total. As shown in Table 7-2, the average annual amount of grant funding in Alaska was $212 million in that five-year period, ranging from a low of $194 million in FFY 2005 to a high of $226 million in FFY 2008. From this five-year sample, the trend in US AIP funding shows about 0.4 percent annual growth, and for AIP funding in Alaska, the trend shows about 0.8 percent annual growth.

Table 7-2 Historic AIP Funding (in $ millions)

Federal Fiscal Year	2004	2005	2006	2007	2008
United States	$3,375	$3,409	$3,411	$3,341	$3,471
Alaska	$219	$194	$221	$199	$226
State % of Nation	*6.5%*	*5.7%*	*6.5%*	*6.0%*	*6.5%*
Northern Region	$87	$59	$54	$59	$88
Region % of State	*40%*	*30%*	*24%*	*30%*	*39%*
Study Area*	$13	$8	$1	$15	$1
Study Area % of Region	*14%*	*13%*	*2%*	*25%*	*1%*

**Study area funding excludes Fairbanks International Airport.*
Source for US and Alaska: http://www.faa.gov/airports/aip/grant_histories/
Source for Northern Region and Study Area: AIP Spending Plan spreadsheets

The Northern Region has received an average of $69 million per year in AIP funding over the last five years, ranging from a high of $88 million in FFY 2008 to a low of $54 million in FFY 2006. Trend analysis shows that the Northern Region AIP funding is growing at about the same rate as national funding. This means the Northern Region's share of Alaska's AIP funds may be declining, since Alaskan funding appears to be growing at a higher rate than the Northern Region funding. While Northern Region has 39 percent of the airports in the State eligible to receive AIP funding, it has received 33 percent of the state's total AIP funding over the last five years.

Table 7.2 shows that AIP funding for airports within the study area appears to be declining, although the amounts have varied widely from year to year. The dramatic fluctuation in funding for study area airports is because relatively few airports receive AIP funding in any one year. For rural airports, construction mobilization is so expensive that a single airport's grant covers many improvements and totals several million dollars; it could be 20 years before the airport receives another grant.

One reason for a decline in the Northern Region's share of State AIP funds and for the decline in study area funding is likely that the APEB has given projects in the Central Region higher funding priority. APEB criteria generally give lower scores to airports that are on the road system than to airports serving communities without road access. In addition, more of the Northern Region airports' severe safety deficiencies have been fixed, and the Central Region projects are getting high scores because APEB scoring favors funding projects needed for safety. The APEB scoring criteria will undergo scrutiny soon as part of the ongoing Alaska Aviation System Plan. One complaint about the APEB from several sources is that projects for busy, road-accessible airports are scored too low. Raising APEB scores for road-accessible airports could increase AIP funding for Interior airports. However, safety will surely continue to be a high priority in ranking projects for funding, consistent with the FAA's priorities for funding.

7.4.2 Expected Capital Improvement Funding

The FAA has been operating on six-month extensions since September 30, 2007. Congress is considering a new bill, the FAA Reauthorization Act of 2009, which may not greatly affect the amount or method of funding capital projects. In fact, recent versions have included raising the annual authorization from about $3.4 billion to $4 billion. However, the bill may change before it becomes law.

While AIP funding has not declined in recent years, the future may not be as bright, particularly for rural airports. The revenue that funds the AIP, which comes from the Airport and Airway Trust Fund, has been declining. The GAO's March 2009 report, *Challenges Facing the Department of Transportation and Congress*, noted that the excise taxes that go into the Trust Fund have declined because of a decline in airline passenger travel, fares, and fuel consumption. Moreover, the uncommitted balance in the Trust Fund has decreased from over $7 billion in FY 2001 to under $2 billion in FY 2008. Shrinking funds are particularly challenging at this time, since the FAA needs extra funding to launch NextGen. NextGen is a major transformation and modernization of the National Airspace System (NAS) based on the Capstone Program that was pioneered in Alaska.

One reason for the FAA reauthorization delay is the debate about how to increase funding. In 2007, the FAA decided that the airlines are paying more than their share of the NAS and general aviation is paying less than its share. The FAA recommended the reauthorization law impose user fees on general aviation. General aviation organizations contended fuel taxes are the best way for general aviation to pay its way and supported an increase in fuel taxes, but strongly opposed user fees. At the time this plan was written, user fees had been dropped from the bill. The FAA also unsuccessfully proposed to change annual AIP entitlement funding for airports with fewer than 10,000 annual passenger boardings. The change would be from $150,000 to a variable amount from $0 to $150,000 depending on the number of aircraft based at the airport. The FAA's 2007 based aircraft survey, mentioned in Chapter 3, was performed to support this proposal. Many busy rural airports in Alaska have no based aircraft, so their entitlement funds would disappear. Linking based aircraft to entitlements is not in the pending legislation, but it reflects the direction the FAA would like to take in the future. That does not bode well for Alaska.

7.4.3 Maintenance and Operation Funding

Airport maintenance and operation costs are not eligible for AIP funding, with few exceptions.[3] The FAA encourages airports to charge reasonable fees to airport users to cover maintenance and

[3] FAA Order 5100.38C, *Airport Improvement Program Handbook*, states that the reconstruction, rehabilitation, pavement overlays, or major repairs of facilities and equipment are defined as eligible capital costs generally considered permanent with a 20-year life expectancy. Maintenance activities needed on a continuing basis are

operating expenses, but such financial self-sufficiency is an unmet goal for many non-primary and general aviation airports in the US.

Chapter 3 showed that the annual cost of maintaining 33 DOT&PF airports in the study area (excluding Fairbanks International) is about $725,000, and it has been rising approximately 3.2 percent annually. This number includes personnel, equipment, commodities, and maintenance contracts, but it does not include indirect costs for district and regional overhead.

Operating income at DOT&PF's rural airports falls far short of expenses. The income comes primarily from land leases, supplemented by tie-down fees at some airports. In recent years the DOT&PF has tried to increase their charges at rural airports to market rates. A proposed land lease increase was recently scaled back due to opposition from tenants who are already struggling financially from the economic recession. DOT&PF's aviation-use land leases will not increase until 2013, when they will go up 4 percent. Future increases will be limited to 4 percent.

The maintenance and operation of DOT&PF's rural airports is heavily subsidized by the State's General Fund, and the amount of subsidy has not kept pace with the need. Chapter 3's inventory of M&O costs at Interior airports documents the rise in M&O costs for DOT&PF; the Northern Region DOT&PF's average cost of maintaining one "lane mile" of airport, including overhead, recently increased 18 percent in one year.

When revenue does not keep pace with expenses, maintenance is deferred and the level of service declines.

The M&O Work Group of the ongoing *Alaska Aviation System Plan* recently examined the problem of growing deferred maintenance at rural airports. In 2008, statewide rural airport deferred maintenance needs totaled $98.9 million. Airfield surfaces account for 71 percent of the total, which also includes buildings, lighting, navigational aids, electrical, fencing and gates, drainage, brush/tree cutting, wind cones, segmented circles, signage, and marking.

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ineligible, except for routine, cost-effective pavement maintenance at non- hub and non-primary airports if the sponsors cannot fund maintenance from their own resources, including transfers from other sponsor accounts. Routine maintenance includes cleaning, filling, crack sealing, grading pavement edges, maintaining drainage systems, pavement patching, seal coats, and remarking paved areas.

The M&O Work Group studied the rapidly rising costs of commodities used in maintaining airports. Typically, these commodities cost more in the Northern Region than in other parts of the state. For example, in the Northern Region, the average cost per ton of urea, used for deicing airfield pavement, went up 43 percent between 2007 and 2008 and up 13 percent between 2008 and 2009. In 2009, a ton of urea cost 50 percent more in the Northern Region than in Southeast Region.

While State and Federal deferred maintenance funding for rural airports across the State has been growing, from $4.23 million in FY 2005 to $15.46 million in FY 2009, funding still falls far short of the need—resulting in the current $98.9 million backlog of deferred maintenance. In addition, the rate of deterioration increases as infrastructure ages. Thus, the longer maintenance is delayed, the more it will cost to complete in the future.

The Alaska Aviation System Plan M&O Work Group also examined the rising cost of unfunded Federal mandates imposed by the TSA, FAA, and EPA. They estimated that the monthly cost of complying with these mandates is $179,205 statewide. Many of these mandates do not apply to most Interior airports because, except for Fairbanks International and Prospect Creek, Interior airports do not have Part 139 operating certificates. Certification in accordance with Title 14 of the Code of Federal Regulations Part 139 is required if the airport has scheduled service in aircraft with 30 or more passenger seats. In other states, Part 139 certification is required if the scheduled service is in any size of turbojet aircraft or other aircraft types with at least 10 seats. In the past, Alaska has been successful at obtaining waivers or exceptions from some Federal regulations and national aviation laws. However, safety and security are always concerns when requirements are waived for financial reasons.

7.4.4 Other Potential Funding

Like highways, there has been a temporary boost in airport capital funding with the 2009 American Recovery and Reinvestment Act (ARRA), which included $1.3 billion for capital assistance to airports for improvements and for FAA facilities and equipment. Within Alaska, $72.7 million of ARRA grants have been released. Within the study area, Fort Yukon Airport has an ARRA grant for $15 million to rehabilitate the runway and make other improvements. ARRA funding is 100 percent federal, requiring no local match. ARRA funded projects must be “ready-to-go” or “shovel ready,” which means environmental determinations, FAA approvals, and project designs are completed. The Northern Region DOT&PF typically has some projects that are "shovel ready" and shown on the statewide AIP project list as "Contingency" for an earlier year than when project funding is expected. This practice paid off for Fort Yukon. However, the ARRA is a one-time program and the passing of a similar stimulus bill in the future is unlikely.

At Alaska's largest commercial service airports, some improvements such as terminal buildings are financed by revenue bonds. This is not an option for study area airports, except Fairbanks, since the revenue from the improvement would be insufficient to repay the bond. General obligation bonds are another way to fund airport improvements, but are less popular than revenue bonds due to the reduction in bonding capacity for the seller.

Unlike many other states, Alaska does not have its own airport improvement grant program. Many states use general funds and/or income from fuel taxes, aircraft registration, and similar sources for this purpose. The State grants usually can be awarded to any public-use airport owned by a public entity. An Alaskan grant program has been considered in the past in order to supplement the AIP. One advantage of such a program is that grant evaluation criteria could include factors that the FAA is prohibited from considering, such as the economic benefit of the project to the community. Also, State grants need not require the grant recipient to assure that the airport remains open to public use, year round, for 20 years, as most AIP grants do. Implementing a State grant or other dedicated State airport funding program would face many challenges, including the Alaska Constitution.

The following are ideas for dealing with the financial challenges at Alaska's airports:

- Continue the practice of having "shovel ready" projects, in case more funding becomes available than anticipated.
- Piggyback on AIP grants. Since the interval between AIP grants at an individual rural airport is 10 years or more, the practice is to tackle all the eligible needs at the airport with a single grant project, which often is not funded until some of the needs have approached the critical stage. However, the runway and other airfield surfaces deteriorate over time. Snow removal equipment that can move earth is stationed at the airport, but no gravel is available to fill ruts or repair erosion. An AIP grant cannot fund the excavation or purchase of more gravel than is needed for the project. Material could be

stockpiled at the airport to use for periodic airfield maintenance if the DOT&PF paid for extra gravel when it is obtained for the grant project. This would reduce the life cycle cost of the airfield and enhance safety.

- Continue researching and implementing operating efficiencies.
  - Ideas for operational efficiency include using light-emitting diode (LED) airfield lighting instead of electrical powered fixtures.
  - DOT&PF could make more use of contract maintenance. To increase the pool of qualified contractors, the State might help train people in rural communities.
- Transferring DOT&PF airports to local governments is another possibility. However, if the local government cannot operate the airport more efficiently or cannot afford to subsidize the airport, this solution will not help. If the State could lower the local government's costs by providing insurance, personnel training, capital planning, etc., transfer might be feasible in some cases. Typically, employing local people is cheaper. Local ownership usually means better care of the airport and more motivation to generate revenue from the airport.
- Take a harder look at what is AIP grant-funded.
  - Since it will be several years before a rural airport will receive another AIP grant, some airports' grant projects may be "overbuild." Some air carriers have said they would prefer a short runway in good condition to using one in poor condition for years waiting the funding of a runway extension. It's understandable to include everything that may be needed in the future in the project, since it will be 10 to 20 years before the airport receives another grant. However, small communities with declining populations may not justify some of the facilities planned.
  - AIP grants should be analyzed with M&O in mind. Some AIP-eligible projects can reduce maintenance costs, and any grant project that results in higher maintenance costs should be scrutinized carefully.
  - Because of the requirement for airports to be open year round and for 20 years after receipt of an AIP grant, it may be prudent to use a different funding source for some improvements, as the DOT&PF plans for some airport improvements that will support the gas line.

7.5 Railroad System Financing

7.5.1 Historic Funding

The historical sources of funding for ARRC capital projects include Federal agency funding, ARRC funds and Revenue Bonds. Since 1996 these sources include:

- **Federal Agencies**: Approximately $795 million in Federal grants have been received by the ARRC to date, including approximately $105 million for 2009. Federal funding sources have historically varied substantially. In 1996, the Federal Railroad Administration provided $10 million for the ARRC. This jumped to $57.6 million in 1993 and was down to $16 million in 2007.
- **Required Match**: Some federally-funded projects require a funding match of between nine percent and 25 percent from the Alaska Railroad. Since 1996, ARRC has provided $42 million in matching contributions, including $4.6 million in 2009.
- **ARRC Internal Fund Investments:** Besides matches to Federal funds, ARRC invests millions of internally-generated dollars each year on capital projects that are not federally funded. Since 1996, ARRC has spent an additional $215 million of its own income on capital improvements, including $21.6 million in 2009.
- **Revenue Bonds**: The Alaska Railroad sold $76 million in revenue bonds in 2006 and $89 million in 2007, primarily to accelerate track rehabilitation efforts. $31 million of these funds will be spent in 2009. Bonds are repaid with Federal Transit Administration (FTA) formula funds.

7.5.2 Expected Funding

The ARRC intends to spend Federal agency funding, ARRC funds, Revenue Bonds and ARRA funds over the next four years to install Collision Avoidance Systems, repair bridges and tracks and purchase additional rail cars. They also have plans to upgrade terminals, extend railroad facilities and install remote control power switches outside the study area.

7.5.3 Maintenance and Operation Funding

Like most transportation modes, acquiring adequate maintenance funds continues to be a challenge. While there is no dedicated Federal program for maintaining or operating railroad facilities, many of the capital projects scheduled for the ARRC are for major maintenance, overhaul and replacement of bridges and tracks needed to maintain Alaska Railroad integrity, safety and efficiency.

7.5.4 Other Funding

In addition to the usual Federal agency funding, ARRC funds and Revenue Bonds, the ARRC will receive in ARRA funds in 2009/2010. Additionally, they anticipate funds from the Department of Defense for assistance in developing new railroad facilities between Fairbanks and Fort Greely. Current estimates from this funding source are over $50 million. Some of these funds are scheduled beyond 2012.

8 Recommendations and Implementation

A major objective of the IATP was to identify, evaluate and recommend future improvements to the transportation system to meet the transportation needs in Interior Alaska over the next 20 years. Transportation recommendations for Interior Alaska were analyzed for needs given safety issues, width, grade alignment, input from DOT&PF staff, user groups and the public and how well they meet established goals and objectives. Historical funding and financing options were also considered. These recommendations consider short term, (2010-2014), medium term, (2014-2019) and long term (2019-2029) projects.

8.1 Highway System Recommendations

Highway System recommendations include capital improvements as well as system-wide recommendations and specific actions on highways within the study area. They also include projects needed to support gas pipeline development.

8.1.1 Recommended Highway Capital Projects

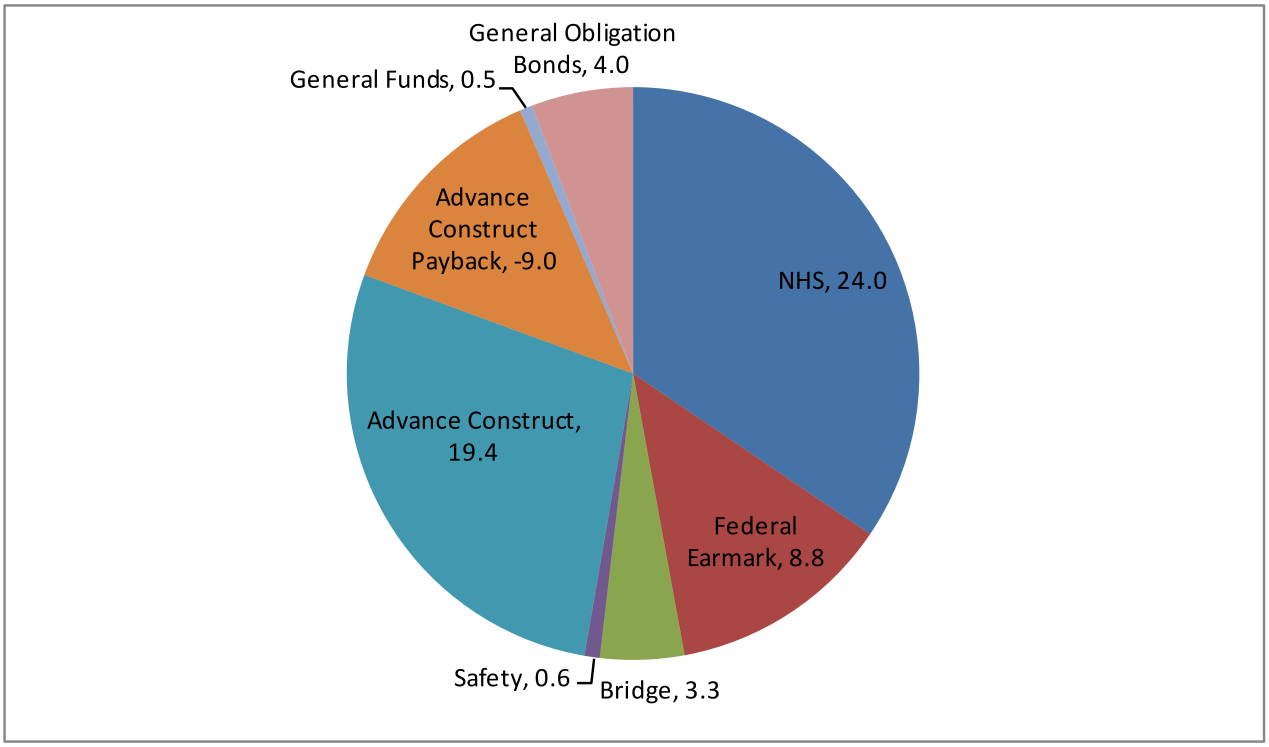
For planning purposes, certain assumptions must be made based on the best available data. An annual budget for projects within the study area is assumed to be approximately $45 million for highways and additional funding for bridges.[1] It is assumed that if the gas pipeline is developed, the program is likely to be accelerated and changed significantly. Lastly, it is assumed that the current financing options remain valid for the planning period.

The short term (2010-2014) highway projects include projects shown in the 2010-2013 STIP and one additional year's worth of projects. The short term program includes traditional funding mechanisms: NHS, STIP, general fund, bridge and safety funds as well as federal earmarks, advance construct funds, advance construct fund payback, and general obligation bond financing.

[1] Determining the likely amount of funding available for highways in each of the funding cycles (short, medium and long term) is made difficult due to the historical instability in the annual funding amounts, uncertainty of future earmarks and the unknown Federal-Aid highway funding that will be authorized by Congress in the next highway legislation.

Within the current STIP there is a significant amount of funding dedicated toward preventative maintenance projects (about $23 million annually). The average breakdown of annual funding sources for NHS routes in the study area in the 2010-2013 STIP is shown in Exhibit 8.1.

Exhibit 8.1 2010-2013 STIP Average Annual NHS Breakdown by Millions in Study Area



Many of the projects shown in the STIP have no funding for construction. Construction of these projects would require almost $250 million and include over $101 million in two bridge replacements (Slana and Tok River bridges on the Tok Cutoff) and one Railroad Overcrossing (Parks Highway MP 194 Broad Pass). The Dalton Highway also continues to require improvements to maintain the safe transportation needs of the primarily truck traffic associated with the Alaska oil and gas industry. There are also several large safety and preventative maintenance projects needed to maintain pavement life identified in the transportation analysis chapter that should be programmed as well as upgrades to the Northway, Manley, Nenana, Ernestine, Birch Lake and South Fork Maintenance Stations. A new maintenance station is needed at Antimony Creek on the Parks Highway MP181.

In summary, the transportation needs in the study area far exceed the likely amount of funding available and it is recommended that alternative funding mechanisms be sought. Additional projects not contained within the current short, medium and long term recommendations are shown in the illustrative list.

The program presented below seeks to balance preventative maintenance needs, which will continue to grow, the need to continue to make safety improvements and to rehabilitate roadways in Interior Alaska. Table 8-1 provides a listing of recommended capital improvement projects, their estimated costs, and priority levels.

Table 8-1 Recommended Highway Capital Improvements

Highway	Section	Project Type	Estimated Cost	Priority
Alaska Highway	MP 1309	Tok River Bridge Replacement #0506	$11,000,000	Short Term
Alaska Highway	MP 1354 - 1364	Rehabilitation (Jan Lake to Dot Lake)	$6,500,000	Medium Term
Dalton Highway	MP 0 - 9	Reconstruction (Livengood to 9 Mile Hill)	$40,000,000	Short Term
Dalton Highway	MP 09 - 11	Reconstruction - 9 Mile Hill North	$26,000,000	Short Term
Dalton Highway	MP 197 - 209	(Gold Creek to Dietrich)	$16,400,000	Short Term
Dalton Highway	MP 209 - 235	Reconstruction (Dietrich to Chandalar Shelf)	$2,000,000	Short Term
Dalton Highway	Various	Rehabilitation	$150,000,000	Long Term
Deferred Maintenance	Various	Deferred Maintenance	$60,000,000	Medium Term
Deferred Maintenance	Various	Deferred Maintenance	$120,000,000	Long Term
Elliott Highway	MP 0 - 12	Rehabilitation (Fox to Haystack)	$1,000,000	Short Term
Elliott Highway	MP 0 - 12	Rehabilitation (Fox to Haystack)	$26,500,000	Medium Term
Elliott Highway	MP 108 -120	Rehabilitation (Minto Jct. Area)	$9,300,000	Medium Term
Glenn Highway	MP 172 - 189	Rehabilitation - Tolsona River to Richardson Hwy. Jct.	$7,400,000	Short Term
Parks Highway	MP 113 - 163	Parks Highway Passing Lanes	$15,200,000	Short Term
Parks Highway	MP 163 - 185	Rehabilitation (NR Boundary to East Fork Chulitna)	$33,000,000	Medium Term
Richardson Highway	MP 148 - 159	Reconstruction - Sourdough to Haggard Creek	$26,000,000	Short Term
Richardson Highway	MP 201	Phelan Creek Bridge (#0579) Replacement	$2,500,000	Short Term
Richardson Highway	MP 228	One Mile Creek Bridge #0591	6,000,000	Short Term

Highway	Section	Project Type	Estimated Cost	Priority
Richardson Highway	MP 234	Ruby Creek Bridge #0594	$2,000,000	Short Term
Richardson Highway	MP 257 - 265	Reconstruction	$12,400,000	Short Term
Richardson Highway	MP 275.4	Tanana River Bridge Replacement #0524	$3,000,000	Medium Term
Richardson Highway	MP 65-74	Rehabilitation	$16,000,000	Medium Term
Safety Projects	Various	Safety Projects	$70,000,000	Long Term
Steese Highway	MP 062 - 81	Rehabilitation and Resurfacing	$7,000,000	Short Term
Taylor Highway	MP 70	Lost Chicken Slide	$5,000,000	Short Term
Taylor Highway	MP 95	Border	$10,700,000	Short Term
Tok Cutoff	MP 075.6	Slana River Bridge #0654 Replacement	$5,000,000	Short Term
Tok Cutoff	MP 104	Tok River Bridge (#0663)	$8,900,000	Short Term

Illustrative Projects. Federal regulation 23 CFR 450.216(l) states that:

> "for illustrative purposes, the financial plan may (but is not required to) include additional projects that would be included in the adopted long range statewide transportation plan if additional resources beyond those identified in the financial plan were to become available."

Illustrative projects are presented in the 2010-2013 STIP and should continue to be identified in subsequent STIPs. Illustrative projects are those that, while vital to the overall transportation system, cannot be funded within the expected annual funding amounts. It is recommended that they be advanced if sufficient funding becomes available or projects on the committed list are delayed. The additional projects below constitute the "illustrative" list of projects allowed in 23 CFR 450.216 paragraph (l).

The illustrative projects listed on Table 8-2 include safety, rehabilitation and bridge replacement projects. Not listed are all of the needed preventative maintenance projects which are generally identified annually or as pavement fails.

Table 8-2 Illustrative Projects

Highway	Location	Description	Cost
Dalton Highway	MP 144 - 175	Reconstruction and Enhancements. Heavy deferred maintenance, some crushing and material haul to be contracted out.	$7,000,000
Dalton Highway	MP 254 - 415	Install delineators between MP 254 to 415	$2,000,000
Dalton Highway		Permitting, development of material sites for upcoming Dalton projects.	$9,000,000
Richardson Highway	MP 065 - 75	Grind level and pave. Replace 3 culverts, widen 1000' of road from MP 72.5 to 72.7.	$20,000,000
Richardson Highway	MP 159 - 167	Widen and reconstruct to current standards (Hagard Creek to Gillespie Creek)	$24,600,000
Richardson Highway	MP 167 - 173	Widen and reconstruct to current standards. (Gillespie Creek to Dick Lake)	$1,000,000
Richardson Highway	MP 257 - 265	Widen and reconstruct between MP 257 and MP 265 (junction with Alaska Hwy). Replace Jarvis Creek Bridge.	$12,400,000
Richardson Highway	MP 276 - 286	Resurface the Richardson Hwy between MP 276 and 286 to support the construction of a natural gas pipeline.	$5,100,000
Taylor Highway	MP 82 - 95	Rehabilitate the Taylor Hwy between MP 64 and the Canadian Border	$11,500,000

Priority Gas Line Projects. Construction of the Alaska gas pipeline will require major repairs, reconstruction and bridge replacements on several highways in the study area. The total costs for all of these projects are anticipated to exceed $1 billion.[2] These projects are anticipated to take a minimum of six years to construct. Projects necessary to the gas line are listed in Table 8-3.

Table 8-3 Priority Gas Line Projects

Dalton/Elliott Highways
Elliott Highway MP 0-28 Rehabilitation (Fox-Wickersham)
Dalton Highway MP 0-37 Reconstruction (Livengood North)
Dalton Highway MP 49-56 Rehabilitation (Yukon River South)
Dalton Highway MP 56-90 Reconstruction (Yukon River – Finger Mountain)
Dalton Highway MP 90-144 Rehabilitation (Finger Mountain – Jim River 3)
Dalton Highway MP 209-235 Reconstruction (Dietrich – Chandalar Shelf)

[2] 070708 Special Session Gas Line Brief June 13, 2008, PowerPoint presentation.

Alaska/Richardson Highway
Richardson Highway MP 275 Tanana River Bridge #0524
Richardson Highway MP 276 – 306 Rehabilitation
Richardson Highway MP 306 – 335 Rehabilitation
Alaska Highway Tok River Bridge Replacement
Alaska Highway MP 1393 Gerstle River Bridge #0520
Alaska Highway MP 1381 Johnson River Bridge #0518
Alaska Highway MP 1235 – 1267 Rehabilitation (Seaton Roadhouse – Northway Jct.)
Alaska Highway MP 1314 – 1354 Rehabilitation
Alaska Richardson Highway Passing Lanes
Alaska/Richardson Highway Truck Rest Area Upgrades
Material Site Development
Gasline corridor design, permitting and material site development

8.1.2 Other Highway System Recommendations

Table 8-4 shows major recommendations for the Interior highway system. These recommendations do not include specific costs or priorities, but relate to administration actions by the DOT&PF.

Table 8-4 Other Highway System Recommendations

Recommended Action	Description
Implement pavement management system analytical capabilities	Provide ADOT&PF region staff with the analytical tools to support effective life cycle management.
Establish a level of service based approach to maintenance and operations planning and budgeting	Use the new maintenance quality assurance program to establish a measured relationship between the maintenance budget for specific maintenance activities and the level of service.
Continue to establish weight restrictions until base is capable of sustaining weights during critical thaw periods	Monitor progress of Parks Highway rehabilitation projects and lift weight restrictions when base is adequate

8.1.3 Recommended Highway Phasing Plan

The tables in this section divide the highway projects recommended in Table 8.1 into short, medium and long term phases. The tables also present the proposed allocation of the total cost among STIP and State funding. The assumed funding constraint is that the STIP will fund an average of $45 million per year in the study area, consistent with recent history. However, inflation will also affect costs, and all project costs are estimated in current year dollars. This phasing plan assumes the escalation of funding and costs will be the same.

Table 8-5, Table 8-6 and Table 8-7 show the total estimated cost of projects through 2029 is over $745 million. The State's share of project costs required to match federal program varies from 0 to 20 percent depending on the federal program requirements. Roughly, the state match is $25 million over the course of next twenty years.

Table 8-5 Short Term Highway Capital Improvements

Highway	Section	Total Cost	FHWA	State Costs
Alaska Highway				
Alaska Highway	MP 1222 - 1235	$20,174,400	$18,293,137	$1,881,263
Alaska Highway	MP 1309	$11,000,000	$9,974,250	$1,025,750
Dalton Highway				
Dalton Highway	MP 0 - 9	$40,000,000	$36,270,000	$3,730,000
Dalton Highway	MP 09 - 11	$26,000,000	$23,575,500	$2,424,500
Dalton Highway	MP 197 - 209	$16,400,000	$14,870,700	$1,529,300
Dalton Highway	MP 209 - 235	$2,000,000	$1,813,500	$186,500
Elliott Highway				
Elliott Highway	MP 108 - 120	$104,200	$94,483	$9,717
Glenn Highway				
Glenn Highway	MP 172 - 189	$7,400,000	$6,709,950	$690,050
Parks Highway				
Parks Highway	MP 113 - 163	$15,200,000	$13,782,600	$1,417,400
Parks Highway	MP 163 - 185	$1,000,000	$906,750	$93,250
Parks Highway	MP 194 Broad Pass	$400	$363	$37
Parks Highway	MP 251 to 262	$10,000,000	$9,067,500	$932,500
Richardson Highway				
Richardson Highway	MP 65 - 74	$1,000,000	$906,750	$93,250
Richardson Highway	MP 148 - 159	$26,000,000	$23,575,500	$2,424,500
Richardson Highway	MP 201	$2,500,000	$2,266,875	$233,125
Richardson Highway	MP 228	6,000,000	$5,440,500	$559,500

Highway	Section	Total Cost	FHWA	State Costs
Richardson Highway	MP 234	$2,000,000	$1,813,500	$186,500
Richardson Highway	MP 257 - 265	$12,400,000	$11,243,700	$1,156,300
Steese Highway				
Steese Highway	MP 062 - 81	$7,000,000	$6,347,250	$652,750
Taylor Highway				
Taylor Highway	MP 70	$5,000,000	$4,533,750	$466,250
Taylor Highway	MP 95	$10,700,000	$9,702,225	$997,775
Tok Cutoff				
Tok Cutoff	MP 075.6	$5,000,000	$4,533,750	$466,250
Tok Cutoff	MP 104	$8,900,000	$8,070,075	$829,925
	TOTAL	$238,229,000	$216,014,146	$22,214,854

Table 8-6 Medium Term Highway Capital Improvements

Highway	Section	Total Cost	FHWA	State Costs
Alaska Highway				
Alaska Highway	MP 1354 - 1364	$6,500,000	$5,893,875	$606,125
Dalton Highway				
Dalton Highway	MP 209-235	$58,000,000	$52,591,500	$5,408,500
Elliott Highway				
Elliott Highway	MP 0-12	$26,500,000	$24,028,875	$2,471,125
Elliott Highway	MP 108-120	$9,300,000	$8,432,775	$867,225
Parks Highway				
Parks Highway	MP 163-185	$33,000,000	$29,922,750	$3,077,250
Parks Highway	MP 194 Broad Pass	$25,200,000	$22,850,100	$2,349,900
Richardson Highway				
Richardson Highway	MP 275.4	$3,000,000	$2,720,250	$279,750
Richardson Highway	MP 65-74	$16,000,000	$14,508,000	$1,492,000
Deferred Maintenance				
Deferred Maintenance	Various	$60,000,000	$54,405,000	$5,595,000
	TOTAL	$237,500,000	$215,353,125	$22,146,875

Table 8-7 shows the projects anticipated to be needed in the ten-year period ending in 2029. The specific projects are not identified but are likely to include projects from the Illustrative list and various deferred maintenance projects, yet to be identified.

Table 8-7 Long Term Highway Capital Improvements

Highway	Section	Total Cost	FHWA	State Costs
Dalton Highway				
Dalton Highway	Various	$150,000,000	$136,012,500	$13,987,500
Deferred Maintenance				
Deferred Maintenance	Various	$120,000,000	$108,810,000	$11,190,000
Safety				
Safety Projects	Various	$70,000,000	$63,472,500	$6,527,500
	TOTAL	$270,000,000	$244,822,500	$25,177,500

8.2 Community Transportation Recommendations

8.2.1 Recommended Community Transportation Capital Projects

As stated previously, this study does not focus on community road issues; however there are several projects with regional significance. These include the continued development and expansion of the Copper Valley Transit program, the Nenana Totchakat Road, a road from the Dalton Highway to Stevens Village and potentially a bridge across the Copper River in the Tazlina area to access resources, as listed in Table 8-8. In addition, community roads will need to be constructed for new subdivision, landfill, and sanitation facility access. Local roads will continue to require dust control and trail staking projects will continue to be important.

Table 8-8 Community Transportation Project Recommendations (Short, Medium and Long Range Projects with costs)

Project	Description	Estimated Cost	Priority
Copper Basin/Upper Tanana Transit Program	Develop and expand transit services in the Interior	$500,000	Short
Stevens Village Access Road, Phase I - Trail	Construct Trail to Stevens Village as phase I of Road Access project	$500,000	Short
Stevens Village Access Road, Phase II - Road	Construct Road to Stevens Village as phase II of Road Access project	$35,000,000	Long
Nenana Totchakat Road	Design Road	$1,500,000	Medium
Nenana Totchakat Road	Road Construction	Unknown	Long
Glennallen/Tazlina Bridge to Timber	Conduct Bridge Feasibility Study	$400,000	Short

A phasing plan for the projects listed in Table 8-8 would be difficult to develop beyond the general priority indications included in the table. Impediments to funding these projects include, but are not limited to, changes in the Highway Trust Fund, political considerations, and the general state of the economy.

Table 8-9 includes recent federal grants administered to tribal governments in the study area. The study area communities successfully completed a Transit Feasibility Study in June 2009 that has become a road map for how to plan for and implement additional transit opportunities in the study area.

Table 8-9 FFY 2010 Transit Grants

	2010 Transit Grants		
Tribe	**ARRA Funds**	**FTA Funds**	**TOTAL**
Manley Village Council	$140,000	$127,730	$267,730
Tetlin Tribe	$120,000	$216,470	$336,470
Gwichyaa Zhee Gwich'in Tribal Government (Fort Yukon)	N/A	$25,000	$25,000
Gulkana Village	N/A	$288,500	$288,500
TOTAL	**$260,000**	**$657,700**	**$917,700**

8.3 Aviation System Recommendations

Aviation system recommendations include capital improvements as well as system-wide and airport-specific actions. These recommendations result from the aviation system analysis in Chapter 6. Fairbanks International Airport is excluded from the recommendations.

8.3.1 Recommended Airport Capital Improvements

Table 8-10 presents the capital improvements recommended, along with estimated costs in current year dollars and priority. Table 8-10 does not include the procurement of snow removal and other equipment, small passenger shelters and minor upgrades to snow removal equipment buildings, maintenance and deferred maintenance projects, and the construction of hangars and other privately funded facilities on leased airport property.

The total cost of projects in Table 8-10 is approximately $185 million. Most of the projects are for DOT&PF-owned airports ($157 million) and most are eligible for Federal AIP grants up to 95 percent.

Nenana Municipal and Venetie Airports are NPIAS sponsors, and are qualified to receive AIP funds. The FAA provides 95 percent of project costs and local sponsors and the DOT&PF each put up 2.5 percent as match.

Delta Junction Airport is not in the NPIAS and cannot participate in the AIP; however, the City could probably qualify as a NPIAS sponsor. Table 8-10 recommends investments for which AIP funding would be critical.

There is a need for a new Pippin Lake/Tonsina airport on the Richardson Highway. Such an airport would not be a good candidate for inclusion in NPIAS since that would require maintaining the airport through the winter, when use of the facility would be very low. DOT&PF might consider acquiring land and protecting the airspace for an airport to meet this need in the future. Then, if necessary, a local sponsor may be found for construction and ownership in the long term. There are existing private airstrips in the area that may be good candidates for future use as public facilities.

The highest cost capital improvement in Table 8-10 is for a Regional airport in the Tok/Tanacross area ($35 million estimated, including $7 million shorter term improvements planned for the Tok Junction Airport). The first step in this project would be a study to determine if existing airports at Tok Junction or Tanacross, or a new site would serve best. While the study could be accomplished in the short-term future, implementation will not likely occur until the long-term future, due to the high funding level and the time required for environmental processing and land acquisition.

The next highest cost ($16 million) is for a Regional airport at Fort Yukon. Most of the Fort Yukon project is funded by economic stimulus money in FFY 2009.

Third in cost ($15 million) is for a Regional airport at Gulkana. Most of the cost is for improvements that will not be needed in the short-term.

Table 8-10 Recommended Airport Capital Improvements

Airport	Description	Estimated Cost	Priority
Beaver	Resurfacing, grading, drainage.	$5,000,000	Medium
Birch Creek	Instrument approach (1 mile min.), SRE Building, resurfacing.	$3,000,000	Medium
Central	700' runway extension, instrument approach (1 mile min.), AWOS, obstruction removal, resurfacing.	$2,500,000	Medium, Long
Chalkyitsik	Reconstruction, apron, road relocation, lighting rehab, drainage, SRE Building.	$10,500,000	Short, Medium
Chistochina	Airport relocation.	$10,000,000	Long
Chitina	SRE Building upgrade.	$150,000	Medium
Circle City	400' runway extension, instrument approach (1 mile min.), taxiway and apron rehab, resurfacing.	$5,000,000	Long
Coldfoot	Erosion control, lighting replacement, obstruction clearance, resurfacing.	$6,500,000	Medium, Long
Dalton-5 Mile	Airport Reconnaissance for gas pipeline support	$1,000,000	Long
Delta Junction*/Allen Army Airfield*	Joint civilian/military use or better, NPIAS airport recommended. Cost could be $2 - $20 million.	$11,000,000	Short, Medium
Eagle	Instrument approach (1 mile min.), resurfacing.	$3,500,000	Long
Fort Yukon	Instrument approach Improvement to 3/4 mile min., resurfacing, safety area improvements, drainage, and SRE building.	$15,550,250	Short (FFY 2009)
Gold King Creek	Modest Safety Improvements	$50,000	Short, Medium
Gulkana	Instrument approach improvement to 3/4 mile min. requiring approach lights, parallel taxiway, airfield repaving, floatplane basin.	$15,000,000	Medium, Long
Lake Louise	2nd stage of runway rehab.	$2,300,000	Short (FFY 2009/FFY 2010)
Livengood Camp	Improvements for gas pipeline support TBD.	$3,000,000	Medium
Manley Hot Springs	Airport relocation.	$13,800,000	Short (FFY 2010)
McCarthy	Instrument approach (1 mile min.), MIRL, AWOS, resurfacing.	$3,500,000	Long
Minchumina	Resurfacing, apron reconstruction	$8,000,000	Long

Airport	Description	Estimated Cost	Priority
Nenana Municipal*	Airfield pavement rehab, fencing, other improvements	$12,000,000	Medium, Long
Pippin Lake/Tonsina New Airport*	New Local-Major airport, turf runway, visual approaches, serving small A-I aircraft	$2,000,000	Long
Prospect Creek	Runway Safety Area Improvement, resurfacing, improvements for gas pipeline support.	$5,600,000	Medium, Long
Rampart	SRE Building upgrade, resurfacing.	$3,500,000	Medium, Long
Stevens Village	Instrument approach (1 mile min.), resurfacing.	$3,500,000	Long
Summit	Tiedown, access road improvements.	$100,000	Medium
Tetlin	Instrument approach (1 mile min.)	$450,000	Medium, Long
Tok Junction/ *Tanacross**	More runway length and better instrument approach. Recommend upgrades for Tok Junction, Tanacross, or another site for Regional Airport to serve Tok population. Improvements to support gas pipeline TBD. Tok Junction has $7 mil runway & crosswind runway project programmed after FFY2012.	$35,000,000	Medium, Long
Venetie*	Instrument approach (1 mile min.), AWOS, resurfacing.	$3,000,000	Medium

**Airports listed in italics are not owned by the DOT&PF*

Note: The FAA funds instrument approaches from a different source than the AIP. Costs for instrument approaches listed in this table are for aeronautical surveys and obstruction removal.

8.3.2 Other Aviation System Recommendations

Table 8-11 shows major recommendations for the Interior aviation system. These recommendations do not include specific costs or priorities, but relate to administration actions by the DOT&PF and other aviation system stakeholders.

Table 8-11 Other Aviation System Recommendations

Recommended Action	Airport(s)/Description
Add to Regional Airport Classification:	Tok/Tanacross area airport.
Remove from Regional Airport Classification:	Nenana Municipal.
Remove from Community Airport Classification:	Boundary, Chandalar Lake, Chicken, Chisana, and Rampart.
Recommend the FAA consider adding to the NPIAS:	Airports serving North Pole, Delta Junction, and the Tok/Tanacross region; relocated Chistochina Airport.

Recommended Action	Airport(s)/Description
Recommend the FAA consider removing from the NPIAS:	Porcupine Creek and Wiseman.
Protect vulnerable airports from closure and plan for emergency access:	Especially important for precautionary landings are McKinley National Park, Paxton, and Hoodoos. The DOT&PF and other public agencies should work to protect backcountry airstrips and plan for emergency access to Interior communities in case of disaster.
Register airport and perform FAA 5010 inspection:	Healy Lake
Support major economic development by improving airports:	Monitor needs to support gas pipeline construction, tourism, and mining. If needs are not long-term, consider a different funding source than AIP, since AIP requires a long-term maintenance commitment. Consider project cost vs. benefit in making case-by-case decisions.
Recommend additional weather camera locations to the FAA:	Birch Creek, Circle City, McCarthy, Minto, Stevens Village, Tetlin, and Venetie in addition to 15 locations already programmed by the FAA.
Work with USPS and air carriers in the designation of postal hubs:	Cooperation is needed to avoid overbuilding infrastructure. Fort Yukon is designated a postal hub although no carrier provides mainline service there now. Support the use of Fort Yukon as an Interior postal hub instead of a Community airport with inadequate infrastructure.
Improve security appropriate to threat and airport role:	In addition to meeting TSA requirements for passenger and cargo service, Regional airports and busier airports in other classifications that serve large airplanes should have access control for aircraft operating areas.
Work with the military to mitigate training impacts:	The DOT&PF should actively participate in technical subcommittees of the Alaska Civil-Military Aviation Council to ensure changes in military airspace and training will not restrict commercial and general aviation too severely, resulting in negative economic impacts on Interior residents.

8.3.3 Recommended Aviation Project Phasing

The tables in this section divide the aviation projects recommended in Table 8-10 into short, medium and long term phases. The tables also present the proposed allocation of the total cost among three funding sources—Federal AIP, State, and Local (airport owners other than DOT&PF). The assumed funding constraint is that the AIP will fund an average of $9 million per year in the study area, consistent with recent history. In reality, AIP funding will likely increase to account for inflation. However, inflation will also affect costs, and all project costs are estimated in current year dollars. This phasing plan assumes the escalation of funding and costs will be the same.

Table 8-12, Table 8-13, and Table 8-14 show that the total estimated cost of projects through 2030 is $195 million, with 92 percent funded by AIP ($179.6 million), 7.5 percent funded by the State ($14.5 million), and 0.5 percent funded by Local airport owners ($900,000). For airports in the NPIAS or assumed to be added to the NPIAS prior to project implementation, the project costs are allocated 95 percent AIP, 2.5 percent State, and 2.5 percent Local Sponsor. For State-owned airports, the State allocation is 5 percent.

The short-term projects in Table 8-12 include those programmed in the latest AIP spending plan, plus a project for Delta Junction. The City of Delta Junction has not specifically made this project request, nor is the airport at Delta Junction now listed in the NPIAS, so it is not eligible for AIP funds currently. The project would be the first stage of Delta Junction airport improvements, which would consider the options of joint use with Allen Army Airfield, improvement at the current airport site, or a new airport site. The project cost would cover an initial planning study, environmental documentation, and other work such as design, land acquisition, and/or geotechnical investigation.

Table 8-12 Short-Term Airport Capital Improvements

Airport	Total Cost	AIP	State	Local
Chalkyitsik	$10,500,000	$9,975,000	$525,000	$0
Fort Yukon	$15,550,250	$15,000,000	$550,250	$0
Lake Louise	$2,300,000	$2,185,000	$115,000	$0
Manley Hot Springs	$13,800,000	$13,110,000	$690,000	$0
Delta Junction – Stage I	$1,000,000	$950,000	$25,000	$25,000
Total	$43,150,250	$41,220,000	$1,905,250	$25,000

Table 8-13, the medium-term capital improvement projects, includes the second stage of City of Delta Junction improvements at the site selected in the first stage. Improvements for Nenana Municipal are assumed to be phased between the medium- and long-term timeframes, based upon their need. Tok is also assumed to have staged improvements. The medium-term project listed for Tok is the $7 million runway improvements for Tok Junction Airport that are depicted on its Airport Layout Plan. Depending upon the gas line and other factors, the project may be spent on a site selection study and initial improvements for a Regional class airport to serve the Tok/Tanacross area at Tok Junction Airport, at Tanacross Airport, or at a new site. The other projects listed in Table 8-13 are for DOT&PF-owned airports, except for Venetie Airport, which is assumed to need resurfacing by that time. Summit is a DOT&PF airport that is not in the NPIAS. If privately owned Cantwell Airport should close or deteriorate, Summit may need to be included in the NPIAS and have more extensive improvements than programmed in Table 8-13. Gold King Creek is also a DOT&PF airport that is not in the NPIAS.

Table 8-13 Medium-Term Airport Capital Improvements

Airport	Total Cost	AIP	State	Local
Beaver	$5,000,000	$4,750,000	$250,000	$0
Birch Creek	$3,000,000	$2,850,000	$150,000	$0
Chitina	$150,000	$142,500	$7,500	$0
Coldfoot	$3,500,000	$3,325,000	$175,000	$0
Delta Junction - Stage II	$10,000,000	$9,500,000	$250,000	$250,000
Gold King Creek	$50,000	$0	$50,000	$0
Gulkana	$5,000,000	$4,750,000	$250,000	$0
McCarthy	$1,000,000	$950,000	$50,000	$0
Nenana Municipal - Stage I	$4,000,000	$3,800,000	$100,000	$100,000
Prospect Creek	$5,600,000	$5,320,000	$280,000	$0
Rampart	$3,500,000	$3,325,000	$175,000	$0
Summit	$100,000	$0	$100,000	$0
Tetlin	$450,000	$427,500	$22,500	$0
Tok - Stage I	$7,000,000	$6,650,000	$350,000	$0
Venetie	$3,000,000	$2,850,000	$75,000	$75,000
Total	$51,350,000	$48,640,000	$2,285,000	$425,000

Table 8-14 shows the projects anticipated to be needed in the ten-year period ending in 2030. The Pippin Lake/Tonsina New Airport would be a public use, seasonal general aviation facility to serve a growing, but unorganized population along the Richardson Highway. It is assumed that the DOT&PF would be the sponsor—probably through acquisition of an existing privately owned airport. The new airport would not be in the NPIAS.

The Chistochina project would be the relocation of the existing airport from immediately next to the Tok Cutoff Highway. The second stage of the Tok project would be to finish developing a Regional class airport in the Tok/Tanacross region. The 5-Mile and Livengood Camp projects would be needed only for gas pipeline support and would not be AIP-funded.

Table 8-14 Long-Term Airport Capital Improvements

Airport	Total Cost	AIP	State	Local
5-Mile	$1,000,000	$0	$1,000,000	$0
Central	$2,500,000	$2,375,000	$125,000	$0
Chistochina	$10,000,000	$9,500,000	$500,000	$0
Circle City	$5,000,000	$4,750,000	$250,000	$0
Coldfoot	$3,000,000	$2,850,000	$150,000	$0
Eagle	$3,500,000	$3,325,000	$175,000	$0
Gulkana	$10,000,000	$9,500,000	$500,000	$0
Livengood Camp	$3,000,000	$0	$3,000,000	$0
McCarthy	$2,500,000	$2,375,000	$125,000	$0
Minchumina	$8,000,000	$7,600,000	$400,000	$0
Nenana Municipal-Stage II	$8,000,000	$7,600,000	$200,000	$200,000
Pippin Lake/Tonsina New Airport	$2,000,000	$0	$2,000,000	$0
Stevens Village	$3,500,000	$3,325,000	$175,000	$0
Tok - Stage II	$28,000,000	$26,600,000	$1,400,000	$0
Total	$90,000,000	$79,800,000	$10,250,000	$200,000

8.4 Trail Recommendations

One trail recommendation discussed previously was for a pioneer trail to precede road development from Stevens Village to the Dalton Highway. Other recommendations are discussed below.

8.4.1 Recommended Trail System Capital Projects

Trail marking is one of the most pressing needs for capital projects in the study area. The list in **Error! Reference source not found.** includes marking over 300 miles of trail between villages. Examples include the 50 mile trail between Manley and Minto or the 20 miles trail between Birch Creek and Fort Yukon.

8.4.2 Recommended Phasing Plan

The local communities should set their priorities in cooperation with local IRR program, State, and any other funding source agency. These priorities should reflect a logical phasing for trail marking or construction. Recommended criteria for prioritizing trail system projects include:

- Trail mark areas that have a poor safety record;
- Give priority to trails to subsistence resources; and

- Give priority to trails that provide intermodal connections.

8.5 Railroad Recommendations

The Alaska Railroad plans its capital projects to meet regional and system-wide needs. It would likely be beneficial to have a more formal coordination process between ARRC and DOT&PF, such as exists with FMATS, to coordinate projects and priorities within the study area.

The railroad website has a list of projects in varying phases of development. Some of these projects are yearly activities such as track rehabilitation. Many of the larger projects have required extensive environmental documentation and are very expensive. The Alaska Railroad intends to proceed with projects as funding becomes available.

8.5.1 Recommended Railroad Capital Projects

The Alaska Railroad maintains current lists and descriptions of projects on their website at http://www.akrr.com/arrc14.html. Recommended criteria for projects include:

- Addressing health and safety issues (such as grade separation projects);
- Supporting regional economic development; and
- Benefiting the multi-modal transportation system on an area-wide basis.

8.5.2 Recommended Railroad Phasing Plan

The Alaska Railroad should proceed with projects according to their own system of prioritization and as funding permits, coordinating with ADOT&PF.

8.6 River Transportation System Recommendations

Many interior communities are on the road system and not accessible to barge service. Nenana is a unique community that has road, barge and rail access. Fort Yukon is the only other community in the study area that gets regular barge service.

8.6.1 Recommended Major River System Capital Projects

Nenana is implementing a sheet pile project for shore protection and would like to do other shore protection at the harbor. They also desire to build a new marine dock. Proposed costs are not available for these projects.

Fort Yukon would benefit from an improved barge landing placed where there is access to the surface transportation system. One of the two sites available for landing requires loads to cross private land for a fee. Tanana is in need of a new barge landing and other communities that get less frequent barge service would also benefit from improvements to landings. As stated in Section 6.6.1.3, “deadman” style anchor bolts in the rivers would assist in landing and off loading.

8.6.2 Recommended Phasing Plan

It would not be prudent to develop a phasing plan for a list of recommended barge landing projects that are unfunded and where possible funding sources are not identified. As stated previously, funding for river system capital projects is limited. Nenana and Tanana should continue to pursue funds through the state and construct barge landing and harbor dock improvements throughout the planning period as funding becomes available. The state should also pursue funding for design of barge landing improvements in Fort Yukon in the short term and construction of recommended improvements in the medium term. Other minor improvements to river landings should be on-going as funding allows.

Appendix A

Public Involvement Summary

Public Involvement Summary

The Scope of Work for the Interior Alaska Transportation Plan (IATP) contains details on how to conduct public involvement for the plan. Regular contact with the public is integral to planning processes.

Activity prior to a kick off effort consisted of developing a list of contacts, interested parties and potentially affected individuals. The first meeting was held October 18, 2006 in Healy. Five people attended this meeting. A second meeting was held October 19, 2006 in Nenana. Seven individuals attended that meeting. No apparent concerns were raised at these meetings. A project website was also developed and linked to DOT&PF's website.

A newsletter was mailed to the list of contacts in November 2006. This newsletter introduced the plan, the planning area and the planning team. It listed six key issues to be addressed: Gas Pipeline Impacts; Potential Mineral Development; Military Training; Railroad Expansion; Tourism Potential; and the Aviation System.

A third kick-off meeting was held in Fairbanks December 13, 2006. Approximately 18 people attended this meeting. One individual identified safety and emergency response as additional issues. Stakeholder interviews were also conducted December 13, 2006.

Stakeholder interviews were conducted throughout 2007 and 2008 while research on the planning area was being done and draft chapters of the plan were being developed. A second newsletter was sent to the list of contacts in October 2007. This newsletter set out the goals of the plan for economic vitality, safety, funding, preservation of the system and efficiency.

A second round of public meetings was held in March 2009. The March 3, 2009 meeting was held in Delta Junction. City Council members attended this meeting as well as four members of the public. Chapters 1-4 were available for this meeting via the project website. Delta provided a list of improvement projects they wanted implemented. Wayside maintenance was discussed along with the recommendation for more rest facilities with dumpsters.

The March 19, 2009 meeting was held in Glennallen/Copper River. A presentation was made to the Copper Valley Chamber of Commerce. Representatives were also there from AHTNA, Copper River Native Association and Kluti Kaah Native Village. Several recommendations were made by members of these groups. Recommendations included upgrading waysides, providing safety lanes, etc. These groups also shared information about their upcoming plans for wood pellet manufacture, transit opportunities, gas well development and others.

A third newsletter (mislabeled No. 4) was issued for Winter/Spring 2009. This newsletter discussed the highway, airport and other modes transportation analyses.

A third meeting was held in Fairbanks May 11, 2009. Additional stakeholder interviews were held at this time. The meeting was very lightly attended. Two members of the public signed in. One individual lived in Chicken seasonally and was interested in the Taylor Highway. The other attendee was generally interested in local improvements.

A final public meeting was held March 31, 2010 in Fairbanks. The Draft Final Report was made available on the website. Approximately 10 people attended the meeting including DOT&PF personnel. One individual was concerned about pedestrian accommodations. The Alaska Railroad representative stated he would supply more information for the recommendations in a separate document. DOT&PF maintenance staff requested a recommendation to build a maintenance station in Antimony on the Parks Highway. The FMATS Coordinator stated comments would be provided under separate cover. Other comments were made about the study area and to include a discussion of the Western Access Study.

A presentation was subsequently made to the Fairbanks Chamber of Commerce Transportation Committee on April 1, 2010. This was followed by another presentation May 20, 2010 to the same group.

Written comments were received from the Alaska Railroad and from the FMATS Coordinator.

A final newsletter was also sent to the list of contacts. This Winter/Spring 2010 newsletter highlighted the recommendations of the IATP. These included such items as “implement the state’s Highway Safety Improvement Plan” and “maintain funding for trail marking”.

Appendix B

Annotated Bibliography

Ref ID #	Title of Reference	Author/Organization	Year Pub'd	Month Pub'd	Day Pub'd	Type of Reference	Annotation	Area Covered
001 - Transp. Plan	Northwest Alaska Transportation Plan: Community Transportation Analysis (An Element of the Alaska Statewide Transportation Plan)	Alaska Department of Transportation and Public Facilities	2004	February	11	Transportation Plan	This plan is one of several regional, multi-modal transportation plans that are part fo the Statewide Transportation Plan. The plan covers winter trails, aviation, ports/harbors/shipping, roads, and includes a summary of the Nome Tourism Study. Planning efforts explored potential road, rail, aviation, and marine transportation options to lower the costs of moving goods and removing barriers to regional economic development. The plan is broken down into two major elements - the Community Transportation Analysis (CTA), and the Resource Transportation Analysis (RTA)	North Slope Borough, Northwest Arctic Borough, Seward Peninsula/ Norton Sound, and the Middle Yukon River Basin
002 - Maps	Alaska Railroad Northern Rail Extension Project: Applicant's Proposed Alignments Map Set (Finance Docket No. 34658; Document 01-0800-001 Rev.3a)	Alaska Railroad Corporation	2006	March		Map Set	This document includes 18 maps of alignments under consideration by the applicant. The area covered starts southwest of Moose Creek along the Richardson Highway (near Eielson AFB). The area covered ends southeast of Delta Junction between the Alaska Highway and Jarvis Creek. The segments include the "Pile Driver Slough Segment," the "Richardson Highway Segment," the "Flag Hill Segment," the "Flag Hill Variant" (including highway relocation for construction of this segment), the "Salcha Segment," the "Salcha A Segment," the "Salcha B Segment," the "Flag Hill A Segment," the "Flag Hill B Segment," the "East Segment," the "West Segment," the "Blair Lakes Spur," the "South Segment," the "Airport & Jarvis Creek Segments," and the "Big Delta Segment."	Eielson AFB to Delta Junction
003 - Transp. Plan	North Slope Borough Comprehensive Transportation Plan (An Element of the North Slope Borough's Comprehensive Plan)	Prepared by ASCG Incorporated. Prepared for The North Slope Borough.	2005	August	2	Transportation Plan	This plan provides a framework to address transportation concerns in the NSB and is an element of the Borough's overall Comprehensive Plan. The plan outlines NSB transportation issues; identifies broad transportation goals, objectives and policies that address these issues; and an analysis of the community and regional transportation networks and what it takes to maintain them. The plan is divided into seven chapters including: Introduction; Planning Issues, Objectives, Policies and Responsibilities; Monitoring and Implementation; Background; Regional Transportation Analysis; Maintenance Analysis; and Community Transportation Analysis	the North Slope Borough boundary area
004 - Airport Plan	Copper Basin and Upper Tanana Valley Regional Airport Plan	Prepared by ASCG Incorporated. Prepared for the Alaska Department of Transportation and Public Facilities	2003	November		Regional Airport Plan	For the entire Copper Basin and Upper Tanana study area, this report identifies airports, analyzes socioeconomic data and trends, and projects aviation activity. The report identifies the regional aviation system needs and guides DOT&PF in making rational aviation investment plans, policies and management decisions to meet those needs. The plan analyzes airports individually and as a system to determin the best development and operating alternatives for the region	North of Tok TO northeast of Valdez TO southeast of McCarthy TO east of Northway Junction. Includes parts of the Alaska Range, the Chugach Mountains, and the Wrangell Mountains
005 - Transp. Plan	Southeast Alaska Transportation Plan	Alaska Department of Transportation and Public Facilities	2004	August	14	Regional Transportation Plan	The SATP is one of a series of regionwide, multi-modal transportation plans that are components of the Alaska Statewide Transportation Plan. The SATP focuses on regional transportation improvements that increase system efficiency and increase mobility. The study area includes the southeast Alaska region - including air transportation routes that go as far north as Whitehorse, Yukon. The SATP long-term vision includes regional road elements, regional ferry elements, community access elements, regional aviation improvements, intelligent transportation systems, and a basis for cost estimates. The plan identifies updates and anticipated progress by 2010	Southeast Alaska
006 - Hwy Corridor Mgmt Plan	Parks Highway Corridor Management Plan: Vision Statement and Scoping Document (AKSAS Project Number 74833)	Prepared by CH2MHILL. Prepared for the Alaska Department of Transportation and Public Facilities	2002	November		Highway Corridor Management Plan	This document provides a vision for the Parks Highway Corridor, an overview of corridor and planning efforts, analysis of all planning units along the corridor, capital improvement policies, environmental constraints and sensitive areas, right-of-way acquisitions, access management, coordination, and review of other corridor studies	Parks Highway Corridor
007 - Transp. Plan	Southwest Alaska Transportation Plan: Final Edition (An approved component of the Alaska Statewide Transportation Plan)	Prepared by Parsons Brinckerhoff in association with (i.a.w.) HDR, NEI, Glosten Assoc., Chris Beck, Ogden Beeman & Assoc. Prepared for the Alaska Department of Transportation and Public Facilities	2002	November	25	Regional Transportation Plan	The plan's recommendations contain eight key components including: corridor delineation, selected community linkages, intermodal development, improved marine highway service, aviation system improvements, port and harbor improvements, marked winter trail system, and validation of previous approved and ongoing projects. The plan identifies various objectives to achieve six goals including basic access for health, education and safety; assuring the preservation of the needed transp. system; enhancing transp. system efficiency; improvement of transportation levels of service; enhancement of system adaptability and flexibility; development and protection of economic and subsistence resources	The Alaska Peninsula, Kodiak and neighboring islands, Aleutian Islands, Bristol Bay area, and the Pribilof Islands.
008 - Appendices	Northwest Alaska Transportation Plan: Community Transportation Analysis (APPENDICES)	Alaska Department of Transportation and Public Facilities	2004	February	11	Appendix to Plan	Appendices include population projections for the area; demand forecast enplanements and mail; mail delivery and aviation in rural Alaska; simulation for mail and passengers in rural Alaska; and public comments	North Slope Borough, Northwest Arctic Borough, Seward Peninsula/ Norton Sound, and the Middle Yukon River Basin
009 - Mineral Development	The Regional Implications of Mineral Infrastructure Development to the Ambler District, Alaska	Prepared by Sandra K. Cosentino. Prepared for Dr. Lidia L. Selkregg, University of Anchorage Alaska	1983	April	24	University Paper on Mining Development	The document provides a description of the existing environment (including land status); legal issues; transportation options; scenario of change; social-economic impact summary; an economic feasibility assessment; mitigation-planning guidelines; and an implementation section.	The NANA region
010 - NANA Region Report	The NANA Region: Its Resources and Development Potential	Prepared by Mauneluk Assoc., Inc. under a grant from EDA; assisted by the Planning Support Group and Juneau Area Office, BIA, DOI. Prepared for the NANA Region.	1974			Regional Resource & Development paper	Includes a regional overview, description of natural resources, human and social resources, regional economy, community profiles, and development potentials for the region	The NANA region

Ref ID #	Title of Reference	Author/Organization	Year Pub'd	Month Pub'd	Day Pub'd	Type of Reference	Annotation	Area Covered
011 - Transportation Study	DeLong Mountains Transportation System: Additional Use Study - Phase 2 (Final Report	Prepared by CH2MHILL i.a.w. Sandwell, APS, and KWA. Prepared for Alaska Industrial Development and Export Authority (AIDEA).	1994	December		Transportation Use Study	This report includes a description of data used, methods of analysis, findings of evaluations recommended facility improvements, permitting required, operational organization, cost estimates, and financial pro forma projections that encompass two phases of the project. The project was a multi-disciplinary assessment and investigation of potential additional uses for the DMTS, including facilitating the delivery of fuel and supplies to communities in the NANA and NWAB regions. The two phases of the project included 1) Program Definition; and 2) Development of a Regional Commodity Distribution Network Master Plan and Economic and Financial Feasibility Analysis. The report is presented in 18 sections and 5 appendices.	The NANA region and Northwest Arctic Borough boundary areas
012 - Coal Transportation Study	Northwest Alaska Resource Development Transportation Alternatives Study - Phase II: Evaluation of Transportation Options	Prepared by CH2MHILL i.a.w. Sandwell Inc, and Sanwell Swan Wooster Division. Prepared for Alaska Industrial Development and Export Authority (AIDEA)	1992	December		Coal Transportation Study	In Dec. 1991, CH2MHILL conducted a study of alternative coal transportation systems from the proposed Aluaq Mine to markets. This report (Phase II) evaluates the transport alternatives. The initial study proceeded in two phases: 1) Program Definition, and 2) Evaluation of Transportation Options. The Phase I report on Program Definition was submitted in 1992 - summary of Phase I work is provided in the Executive Summary of this report. This report addresses the following: alternative mine-to-tidewater transportation options; transportation options from tidewater to markets; conceptual layouts and preliminary designs; project constraints; preliminary design level capital cost estimates; preliminary design level operating cost estimates; development schedule; market evaluation; financial feasibility study; financial plan; additional tasks to be done; and draft and final preliminary feasibility reports. This report also contains a review of the world coal market for Alaskan coal.	The Northwest Arctic region
013 - Economic Analysis	Yukon River Ferry Economic Analysis	Louis Berger and Associates, Inc	1981	March		Economic Analysis	Updates the 1973 *Yukon River Ferry System* study, investigates the extension of Upper and Lower Yukon routes, and socio-economic impacts of alternatives. Looks at both freight and passenger service	Yukon River corridor
014 - Tourism	Infrastructure Priorities for Developing Adventure Corridor Visitation	McDowell Group	2006	April		Tourism Study	Discusses prospects and limitations for road-based tourism in Interior Alaska. Includes publ comments on Access and Transportation among other topics	FNSB and areas supporting Fairbanks tourism
015 - Tourism	Custom Client Report: Fairbanks Visitor Profile	McDowell Group	2004	June		Tourism Study	Summary of who is visiting the Fairbanks area, how they get there, and length of sta	Fairbanks
016 - Tourism	Alaska Highway Travel 2006 - Supplement	GMA Research Corporation	2006	June		Tourism Study	PowerPoint slides describing the factors influencing travel for that portion of the population most likely to travel by road to Alaska through Canada	AlCan Highway Corridor
017 - Transp. Plan	Prince William Sound Area Transportation Plan, An Element of the Statewide Transportation Plan (Final Edition)	Parsons Brinckerhoff i.a.w. HDR Alaska, Northern Economics, The Glosten Associates, Christopher Beck & Associates, and Ogden Beeman & Associates	2001	July		Regional Transportation Plan		
018 - Transp. Plan	Western and Arctic Transportation Study - Survey Report	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.				Transportation Study	Includes a map of the survey area – Calista, Bering Straits, and North Slope regions; and description of purposes for the survey – to provide planners with an assessment of transportation and public facilities needs, and to provide information about overall communi preferences for future economic development. The Survey Report includes survey area information on demographics; employment; subsistence; trips; problems faced by the communities; preferences for services and willingness to pay for them; preferences for roads; fuel, food and other necessities; and health care	Calista, Bering Straits, and North Slope regions
019 - Transp. Plan	Western and Arctic Transportation Study - Phase I: Data Collection Final Report, Volume I: General	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1981	December		Transpotation Study	The Summary Report identifies the timeframe of the Study (February 1979 – May 1981), summarizes public involvement, and describes the three phases of the study as follows - Phase I: Data Collection; Phase II: Forecasting and Analysis; and Phase III: Project Evaluation. The Summary Report provides a brief summary of the Phase III (project evaluation) work in the major modes of transportation, including the aviation sector, marine sector, highways, and resource development. The document also includes socioeconomic and traffic forecasts, budgetary requirements, and an environmental overview that provides assessments of major port projects and major linear projects. Appendix B of this document includes an index of Phase I, II, and III reports, and of the Nome-Kotzebue Road Preliminary Feasibility Study	
020 - Transp. Plan	Western and Arctic Transportation Study - Phase I: Data Collection Final Report, Volume II Aviation	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1980	February		Transpotation Study	Volume II of Phase I includes a description of the aviation transport system in the study area including its infrastructure organization, operations and flee	
021 - Transp. Plan	Western and Arctic Transportation Study - Phase I: Data Collection Final Report, Volume III: Marine Transportation	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1980	February		Transpotation Study	Volume III of Phase I includes a description of the water transportation system including marine infrastructure, navigational aids, organization, operations, and flee	
022 - Transp. Plan	Western and Arctic Transportation Study - Phase I: Data Collection Final Report, Volume IV: Other Modes of Transportation	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1980	February		Transpotation Study	Volume IV of Phase I includes a description of highway and railway transportation, of pipelines and off-road transportation and storage	

Ref ID #	Title of Reference	Author/Organization	Year Pub'd	Month Pub'd	Day Pub'd	Type of Reference	Annotation	Area Covered
023 - Transp. Plan	Western and Arctic Transportation Study - Phase I: Data Collection Final Report, Volume V: Environmental Impacts of Transportation Development	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1980	February		Transpotation Study	Volume V of Phase I includes environmental descriptions of each of four regions (Arctic-North Slope, NANA, Bering Straits, and Yukon-Kuskokwim), and the potential impact of different transportation modes upon them	
024 - Transp. Plan	Western and Arctic Transportation Study - Phase II: Forecasting and Analysis Final Report, Volume	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1980	August		Transpotation Study	Volume I of Phase II includes a description of the methodology; the socioeconomic and transportation costs; and the analysis of institution and policies which influence transportatio in the study area	
025 - Transp. Plan	Western and Arctic Transportation Study - Phase II: Forecasting and Analysis Final Report, Volume I	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1980	August		Transpotation Study	Volume II of Phase II includes an analysis and identification of project alternatives for aviation, marine transportation, highways, railways and off-road transportation	
026 - Transp. Plan	Western and Arctic Transportation Study - Phase II: Forecasting and Analysis Final Report, Volume II	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1980	August		Transpotation Study	Volume III of Phase II includes appendices to Chapter 2	
027 - Transp. Plan	Western and Arctic Transportation Study - Phase II: Forecasting and Analysis Final Report, Volume IV	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1980	August		Transpotation Study	Volume IV of Phase II includes appendices to Chapters 3, 5, 6, 7, and 9	
028 - Transp. Plan	Western and Arctic Transportation Study - Phase III: Project Evaluation, Volume I	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1981	May		Transpotation Study	Volume I of Phase III includes a brief description of the major modes (aviation, marine, and highways) and resource development analyzed	
029 - Transp. Plan	Western and Arctic Transportation Study - Phase III: Project Evaluation, Volume II	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1981	May		Transpotation Study	Volume II of Phase III includes forecasts of aviation activity and requirements, description of alternatives and summary of airport system needs	
030 - Transp. Plan	Western and Arctic Transportation Study - Phase III: Project Evaluation, Volume III	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1981	May		Transpotation Study	Volume III of Phase III includes a description of the existing marine transportation system	
031 - Transp. Plan	Western and Arctic Transportation Study - Phase III: Project Evaluation, Volume IV	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1981	May		Transpotation Study	Volume IV of Phase III includes identification and analysis of new routes, reconstruction and local roads and trail projects	
032 - Transp. Plan	Western and Arctic Transportation Study - Phase III: Project Evaluation, Volume V	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1981	May		Transpotation Study	Volume V of Phase III includes potential for mineral development in the WAATS area and marketing considerations	
033 - Transp. Plan	Western and Arctic Transportation Study - Phase III: Project Evaluation, Volume VI	Prepared by Louis Berger and Assoc., Inc i.a.w. Philleo Engineering & Architechtural Services, Inc.	1981	May		Transpotation Study	Volume VI of Phase III includes a description of long term, medium term, and short term effects on the environment, of projects analyzed in Phase III of WAATS	
034 - CEDS	Copper Valley Regional Plan CEDS Comprehensive Economic Development Strategy	Copper Valley Development Association	2003			CEDS	Designed to address natural resources and economic development opportunities throughout the Copper Valley. Includes background info on region, section on Transportation with good inventory of roads & airports, and regional economy with information on tourism and visitor travel through the area. Transportation is one of the plan's goals and includes an analysis and six objectives	Copper Valley
035 - Mineral Development	Alaska's Mineral Industry 2005 Special Report 60	Hughes, RA & Szumigala, DJ. Division of Geological and Geophysical Surveys i.a.w. Office of Economic Development, and Division of Mining, Land, & Water	2005			Annual Report	Description of growth in mineral industry in 2005 including revenues from mineral industry to the State, employment, exploration, and development	State
036 - Mineral Development	Alaska's Mineral Industry 2005: A Summary	Hughes, RA & Szumigala, DJ.	2005			Executive Summary	Executive Summary of *Alaska's Mineral Industry 2005*	State
037 - Transp. Plan	Kenai Peninsula Borough Transportation Plan	HDR Alaska, Inc., i.a.w. Kittelson & Assoc., Inc.	2003	Dec.		Transportation Study	A multimodal transportation study update provideing goals for transportation development and management in the KPB, an overview of existing facilities, and a summary of programs that fund construction and maintenance of transportation facilities. Also action items and a traffic analysis model for the KPB	Kenai Peninsula Borough
038 - Traffic Report	Northern Region Annual Traffic Volume Report 2003-2004-2005	ADOT&PF	2006	Sept.	11	Traffic Volume Report	Data on traffic in the Northern Region from 2003 through 2005	ADOT&PF Northern Region
039 - Transp. Plan	Yukon-Kuskokwim Delta Transportation Plan (An Element of the Alaska Statewide Transportation Plan	ADOT&PF	2002	March		Transportation Study	The Y-K Delta Plan describes the region's transportation systems, outlines the date and modesl used to analyze transportation trends, and defines projects needed to meet demand for each transportation mode.	Yukon-Kuskokwim Delta

Ref ID #	Title of Reference	Author/Organization	Year Pub'd	Month Pub'd	Day Pub'd	Type of Reference	Annotation	Area Covered
040 - Resource Mgt. Plan	East Alaska Proposed Resource Management Plan and Final EIS, Volume I	DOI BLM, Glennallen Field Office	2006	June		Resource Mgt. Plan/EIS	Specifies management policies and actions for BLM-managed lands. Issues include: Travel Management, Recreation, Natural & Cultural Resources, Lands & Realty, Vegetation Mgt., Leasable & Locatable Minerals, and Subsistence/Social & Economic Conditions. Volume I contains chapters on Introduction, Alteranatives, and Affected Environmer	BLM lands in Eastern AK
041 - Resource Mgt. Plan	East Alaska Proposed Resource Management Plan and Final EIS, Volume I, continuec	DOI BLM, Glennallen Field Office	2006	June		Resource Mgt. Plan/EIS	Volume I, continued, contains chapters on Environmental Consequences, and Consultation and Coordination	BLM lands in Eastern AK
042 - Resource Mgt. Plan	East Alaska Proposed Resource Management Plan and Final EIS, Volume II	DOI BLM, Glennallen Field Office	2006	June		Resource Mgt. Plan/EIS	Volume II contains appendices	BLM lands in Eastern AK
043 - Public Law	Alaska Land Transfer Acceleration Ac	108th United States Congress	2004	Dec.	10	Public Law	The law by which lands in Alaska are conveyed to the state, communities, etc., including the Alaska Native Claims Settlement Act (ANCSA) and provision for Native Allotments	State of Alaska
044 - EIS	Yukon Flats National Wildlife Refuge Proposed Land Exchange EIS. Final Public Scoping Summary Repor	ENSR/AECOM for USFWS & NWR System	2006	August		Resource Mgt. Plan/EIS	A study of environmental impacts of a proposed land exchange between Doyon and USFW in which Doyon would receive title to some YF Wildlife Refuge lands with oil and gas potential in exchange for an equal value amount of quality fish and wildlife habitat currently owned by Doyon. Relevant to transportation planning because of requested easements and connections to the Trans-Alaska Pipeline corredor	Yukon Flats NWF
045 - Management Plan	Chena River State Recreation Area Management Plan - Final Pla	Northern Area State Parks, Alaska Division of Parks and Outdoor Recreation, DNR	2006	November		Plan	Plan for management of Chena River Recreation Area. Includes goals such as "work with DOT/PF to widen shoulders at certain locations along Chena Hot Springs Road to allow safe biking and walking," and goals specific to road maintenance. Recommendations for development along Chena Hot Springs Road, contingent upon DOT/PF priorities and funding.	Chena River State Recreation Area (26 miles east of Fairbanks)
046 - Area Management Plar	Tanana Basin Area Plan for State Lands	DNR	1985, 1991 Update			Area Plan	Plan for management of Public Lands in the Tanana Basin. Includes Transportation Goals f "all forms of surface, air, and water transportation, and all forms of utility or resource transportation corridors." Implementation strategies hinge on the premise that "design of ar efficient regional transportation system is key to resource development and a major determinant of land use..." Proposed transportation corridors include AK Natural Gas Pipeline, ARR extension and two other RR corridors, Twin Mt. access, Parks Hwy/Kantishna/McGrath Hwy Corridor, Upper Wood River/Bonnifield Mining District corridor, Nenana-Totchaket Area Access, TAPS Oil Spill gontingency Plan Access Routes. Reconstruction, realignment and improvement of existing highways, trails and roads are also suggested.	Tanana Basir
047 - Regulations	Guidelines for Snowmobile Trail Signing and Placemen	Alaska State Parks	2000	Dec.		Guidelines	Provides direction for effective placement of signs on Alaska snowmobile trails	State of Alaska
048 - Maps	Trails Guide	BLM						
049 - Regulations	Commercial Vehicle Enforcement 2006 Annual Report	DOT&PF Division of Measurement and Standards & Commercial Vehicle Enforcemen	2006			Regulations	Provides information on commercial vehicle highway useage	State of Alaska
050 - Transp. Plar	Nenana Agricbultural Transportation Systems	Henningson, Durham &Richardson	1981	Feb.		Plan	Report for proposed roadway network in Nenana agricultural area. 1981 costs were $17,305,255.00 which included 3 bridges, 23 miles of primary access road (secondary standards) and 14 miles of secondary and tertiary roads connecting farm lots	
051 - Website	http://www.wildlife.alaska.gov/gis/maps/rangemaps/bears.gif		Accessed 2009	May		website		
052 - Website	http://www.wildlife.alaska.gov/gis/maps/rangemaps/moose.gif		Accessed 2009	May		website		
053 - Website	http://www.wildlife.alaska.gov/index.cfm?adfg=wolf.wolf_mgt		Accessed 2009	May		website		
054 - Website	http://www.wildlife.alaska.gov/index.cfm?adfg=pubs.fa_si_rpts		Accessed 2009	May		website		
055 - Website	http://www.subsistence.adfg.state.ak.us/CSIS		Accessed 2009	May		website		
056 - Financial Study	Alaska Transportation Finance Stud	Alaska Municipal League	Accessed 2009	April		Analysis	Analysis of infrastructure expenditures and needs and options for fundin	State of Alaska
057 - Website	http://www.tokalaska.com/pages/about_tok.html		Accessed 2007	Sept.		website	provided information about Tok "Gateway to Alaska'	Tok, Alaska
058 - Website	http://wwww.goingnorthrv.com/tok.htm		Accessed 2007	Sept.		website	Tok Cutoff Highway information.	Tok, Alaska
059 - Website	http://bellsalaska.com/myalaska/steesehy.html		Accessed 2007	Sept.		website	Steese Highway informatior	Steese Highway
060 - Website	http://www.steesehighway.org/steeshistory.html		Accessed 2007	Sept.		website	Steese Highway informatior	
061 - Website	http://www.fairbanks-alaska.com/steese-highway.htm		Accessed 2007	Sept.		website	Steese Highway informatior	
062 - Newspaper Article	Salmon renews push for Interior Ferr	Fairbanks Daily News Mine	Accessed 2007	May		news article	Article discusses ferry system for Interior Alaska	Yukon River Villages
063 - Report	ADOT&PF Bridge Inventory	ADOT&PF	Accessed 2007			Bridge List	Bridge statistics	State of Alaska

Ref ID #	Title of Reference	Author/Organization	Year Pub'd	Month Pub'd	Day Pub'd	Type of Reference	Annotation	Area Covered
064 - Management Plan	Yukon Flats Cooperative Moose Management Plar	ADF&G	Accessed 2007	April		Plan	Cooperative plan between locals, state and federal agencies	Yukon Flats
065 - Mineral Development	Alaska's Mineral Industry 2006: A Summary	Hughes, RA & Szumigala, DJ.	Accessed 2007	March		Annual Repor	Summary of explorations and developments in the mineral and oil and gas industi	State of Alaska
066 - Website	http://www.wildlife.alaska.gov/index.cfm?adfg=concern.main		Accessed 2007	February		website	Species of Special Concern	State of Alaska
067 - Report	Alaska Visitor Statistics Program V: Summer 2006	Alaska Division of Tourism	Accessed 2007	August		Annual Repor	Visitor information on trip purpose and transportation	State of Alaska
068 - Website	http://www.answers.com/topic/taylor-highway		Accessed 2007	October		website	Taylor Highway information	Taylor Highway
069 - Website	http://www.explorenorth.com/library/roads/topofworld.html		Accessed 2007	October		website	Top of the World Highway informatior	Top of the World Highway
070 - Website	http://www.nps.gov/archive/wrst/virtualtour/kennylake.htm		Accessed 2007	October		website	Kenny Lake information on the Edgerton Highway	Kenny Lake, Alaska
071 - Website	http://en.wikipedia.org/wiki/Edgerton_Highway		Accessed 2007	October		website	Edgerton Highway informatior	Edgerton Highway
072 - Website	http://www.alaskayukontravel.com/mccarthyroad_1.htm		Accessed 2007	October		website	McCarthy Road information	McCarthy Road
073 - Website	http://www.karo-ent.com/edghwy.htm		Accessed 2007	October		website	Edgerton Highway information and McCarthy	Ditto
074 - Website	http://www.explorenorth.com/library/roads/denali_highway.html		Accessed 2007	October		website	Denali Highway information	Denali Highway
075 - Research Report	Seasonal Load Restrictions in Canada and Around the Worlc	Canadian Strategic Highway Research Program Technical Brief 21	Accessed 2008			Research Report	Analysis of weight restrictions in Canada	Canada
076 - Plar	Rail Realignment and Extension Planning Repor	Fairbanks North Star Borough Rail 2100 Task Force March 2004	Accessed 2008			Plan	Analysis of rail realignment and extension in Fairbanks are	Fairbanks
077 - Newspaper Article	Enstar begins early work to develop bullet gas line to Southcentra	Alaska Journal of Commerce	Accessed 2008	May	11	Article	Enstar is proceeding with a bullet gas line development projec	State of Alaska
078 - Website	http://www.emr.gov.jk.ca/oilandgas/ahpp.html		Accessed 2008	May	21	website	Alaska Highway Pipeline Projec	
079 - EIS	Scoping Report Nabesna ORV Trail Environmental Impact Statemen	National Park Service, Wrangell-St. Elias National Park and Preserve	Accessed 2009	May		Environmental Impact Statement	Offroad trails in WSRT and how to preserve access while being environmentally soun	WSRT
080 - Comprehensive Plan	Revised Comprehensive Consevation Plan Tetlin National Wildlife Refuge	USF&WS	Accessed 2009	May		Conservation Plan	Refuge conservation plan with background biological data	Tetlin NWR
081 - Brochure	The Eagle-Valdez Trail Northern Portion	BLM with Eagle Historical Society and ADOT&PF	Accessed 2010			Brochure	Part of a BLM "Adventures in the Past" Series	northern portion of the trail to Eagle
082 - Research Report	Run Forecasts and Harvest Projections for 2010 Alaska Salmon Fisheries and Review of the 2009 Season Special Publication 10-02	ADF&G	2010	February		Research Report	Statewide forecasts for Commerical Fisheries	Yukon River Villages

Appendix C

Population Projection Memorandum

Memorandum

To: Nicole McCullough, WHPacific, IATP Project Manager

From: Jonathan King, Principal

Date: June 25th, 2008

Re: 2030 Population Projections

This memo describes population estimates that Northern Economics, Inc. prepared for 59 communities and places associated with the Interior Alaska Transportation Plan (IATP) project area. These estimates will be incorporated into the IATP analysis and used to assist the Alaska Department of Transportation and Public Facilities in their planning efforts.

Population Estimation Process

The population estimation process involves multiple steps that start by dividing the communities within the project area into two groups: communities on the road system and communities off the road system (see Figure 1). The estimation process divides the communities into these groups because off-road system communities are less likely to be affected by reasonably foreseeable mega-projects such as the construction of the Knik Arm Crossing or the North Slope Gas Pipeline. The estimation processes for the two groups then follow distinct, but similar paths:

- The analysis identifies census area/borough-specific compound annual growth rates (CAGRs) from Alaska Department of Labor and Workforce Development and the University of Alaska-Anchorage's Institute of Social and Economic Research (ISER). ISER growth estimates include an assumption that the Knik Arm Crossing and the Gas Pipeline will be built. These estimates are used as the basis for the road system communities. The analysis uses ADOLWD's estimates as the base growth rates for non-road system communities.
- The analysis assumes that communities, in aggregate, grow at the census area or borough specific compound annual growth rate from ISER or ADOLWD. For example, ADOLWD estimates that communities in the Yukon-Koyukuk Census Area will grow at -0.6 percent per year through 2030. Thus, we assume that the non-road system Yukon-Koyukuk Census Area communities will grow in aggregate by -0.6 percent per year. However, individual growth rates will vary.
- The analysis assumes that the difference between a community's individual CAGR and the weighted average for that community's census area between 2000 and 2007 will continue into the future. For example, as Ester evolved into a bedroom community for Fairbanks, Ester grew 2.4 percent per year faster than the average CAGR for the Fairbanks North Star Borough between 2000 and 2007. We assume that this pattern continues in the future.

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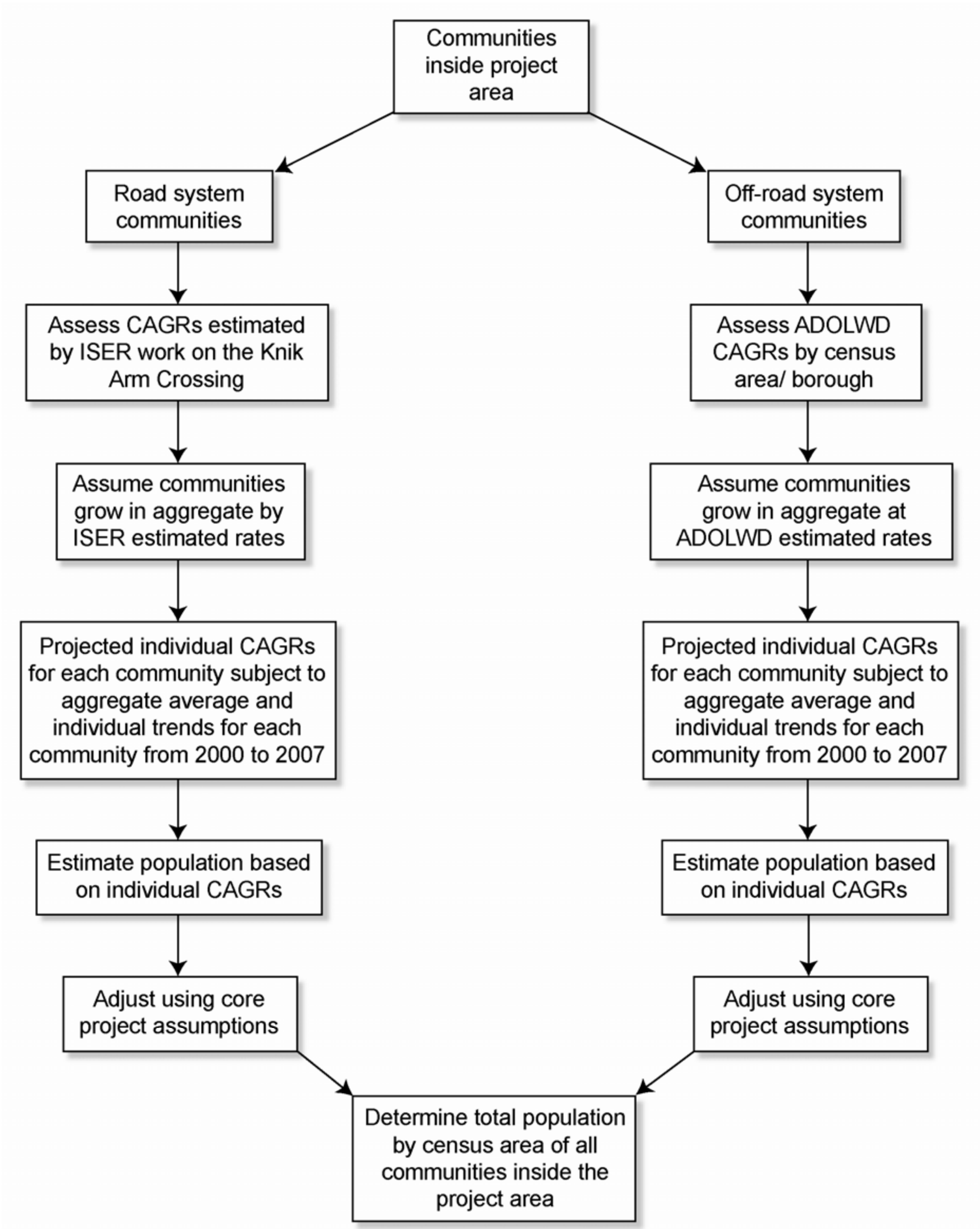
Figure 1. Population Projection Process



- After estimating individual CAGRs for each community, the resulting population estimates are adjusted to make sure that the results for each community fit the internally consistent set of assumptions developed by the study team. For example, initial model runs projected a steep decline in population at Eielson Air Force Base. However, the core assumptions for the project include a stable military population after 2015. The model assumptions are as follows:

Petroleum

- Enhanced oil recovery technologies and OCS activity enable producers to maintain TAPS throughput at about 600,000 barrels per day (lower than current throughput); oil prices remain at current levels or higher
- First gas ships in 2020 on large gas pipeline to North American markets
- Small gas pipeline from North Slope/Brooks Range to Cook Inlet begins operations in 2014; gas is available in Fairbanks area in 2014
- Gas is discovered at Yukon Flats but is not produced until large diameter pipeline is available
- Coal bed methane is developed and used locally within the region but is not developed for export

Mining

- Fort Knox/True North employment remains steady through 2020 as other gold deposits are exploited to maintain production; employment declines after that date
- Healy coal production remains constant
- Other mining activity results in mining employment increasing at about 2 percent annually but most employees reside in Fairbanks or other communities accessible by the road system and work a camp schedule (2 weeks on/2 weeks off)

Tourism

- High gasoline and diesel prices result in declining numbers of highway (RV) travelers but international and winter tourism increases to maintain visitor counts near current levels; tourism activities are concentrated in major tourist centers and attractions with fewer visitors to small communities

Agriculture and Forest Products

- Modest (1 percent) annual growth in agriculture and forest products employment, primarily for local consumption; all of this growth is on the road system

Federal Government

- Long-term trend of 0.25 percent growth in civilian employment continues and stable military strength after 2015
- The value of federal grants decline by two-thirds by 2016 and then track population growth

State Government

- State spending growth moderates to grow in line with inflation after 2008

Population

- ADOLWD population forecasts for census areas that are not on the road system will be used as control for the communities within the census area; boroughs and census areas on the road system will be affected by the gas pipeline project and other basic sector changes as modeled by ISER's "with bridge" scenario prepared for the Knik Arm Crossing Environmental Impact Statement (EIS). Note that the assumption of a bridge does not have any significant affect on the communities in the study area.

- In the final step, the analysis aggregates community results into census area and borough level results.

Study Communities

The model used in this analysis represents the continuation of current population migration trends, particularly population declines. These trends have been indentified in Northern Economics' own research and in the research of others. For example, in 2008, ISER released *Fuel Costs, Migration, and Community Viability*. The report found:

1. Migration from smaller places toward larger places is an ongoing phenomenon that is more noticeable when birth rates drop;
2. There is no systematic empirical evidence that fuel prices, by themselves, have been a definitive cause of migration;
3. The pursuit of economic and educational opportunities appear to be a predominant cause of migration;
4. Currently available survey data are not sufficient to definitively determine other reasons for migration, which could include concerns about public safety and/or alcohol abuse;
5. Most of the survey data pre-date the latest rapid increase (2006-2008) in fuel prices.

The data for this analysis show that declining population is an issue for many communities; between 2000 and 2007, 29 of the 59 communities or places experienced negative growth rates (see Table 1). Amongst study communities, Rampart's population decreased the fastest with a CAGR of -13 percent per year. Tazlina exhibited the fastest growth rate of the 24 communities with positive growth rates between 2000 and 2007. The community grew at a 5.7 percent CAGR from 2000 to 2007 as it rebounded from a 40 percent population decline that occurred between 1990 and 2000.

Table 1. Communities in the Project Area

Community/ Place	Borough/ Census Area	1990 Population	2000 Population	2007 Population	2000-2007 CAGR	1990-2007 CAGR	Road System Access
Anderson	Denali	628	367	234	-6.2%	-5.6%	Yes
Cantwell	Denali	147	222	183	-2.7%	1.3%	Yes
Healy	Denali	487	1,000	1,027	0.4%	4.5%	Yes
College	FNSB	11249	11402	12149	0.9%	0.5%	Yes
Eielson AFB	FNSB	5,251	5,400	4119	-3.8%	-1.4%	Yes
Ester	FNSB	147	1,680	2,041	2.8%	16.7%	Yes
Fairbanks, City of	FNSB	30,843	30,224	31,627	0.7%	0.1%	Yes

Community/ Place	Borough/ Census Area	1990 Population	2000 Population	2007 Population	2000-2007 CAGR	1990-2007 CAGR	Road System Access
FNSB Remainder[1]	FNSB	26654	29547	35546	2.7%	1.4%	Yes
Fox	FNSB	275	300	354	2.4%	1.5%	Yes
Harding-Birch Lakes	FNSB	27	216	245	1.8%	13.8%	Yes
Moose Creek	FNSB	610	542	650	2.6%	-0.2%	Yes
Pleasant Valley	FNSB	401	623	671	1.1%	3.4%	Yes
Salcha	FNSB	354	854	995	1.2%	6.0%	Yes
North Pole	FNSB	1,456	1,570	1,945	3.1%	1.7%	Yes
Two Rivers	FNSB	453	482	621	3.7%	1.9%	Yes
Lake Louise	MSB	No Data	88	91	0.5%	No Data	Yes
Big Delta	SE Fairbanks	400	749	790	0.8%	4.1%	Yes
Chicken	SE Fairbanks	No Data	17	19	1.6%	No Data	Yes
Delta Junction	SE Fairbanks	652	885	974	1.4%	2.4%	Yes
Dot Lake	SE Fairbanks	70	19	15	-3.3%	-8.7%	Yes
Eagle	SE Fairbanks	168	129	109	-2.4%	-2.5%	Yes
Healy Lake	SE Fairbanks	47	37	37	0.0%	-1.4%	No
Northway	SE Fairbanks	201	179	147	-2.8%	-1.8%	Yes
Tanacross	SE Fairbanks	106	140	173	3.1%	2.9%	Yes
Tetlin	SE Fairbanks	87	124	165	4.2%	3.8%	Yes
Tok	SE Fairbanks	935	1,393	1,353	-0.4%	2.2%	Yes
Chisana	Valdez-Cordova	No Data	12	7	-7.4%	No Data	No
Chistochina	Valdez-Cordova	60	93	93	0.0%	2.6%	Yes
Chitina	Valdez-Cordova	49	123	124	0.1%	5.6%	Yes
Copper Center	Valdez-Cordova	449	362	337	-1.0%	-1.7%	Yes
Gakona	Valdez-Cordova	25	215	236	1.3%	14.1%	Yes
Glennallen	Valdez-Cordova	451	554	518	-1.0%	0.8%	Yes
Gulkana	Valdez-Cordova	103	88	113	3.6%	0.5%	Yes
Kenny Lake	Valdez-Cordova	423	410	411	0.0%	-0.2%	Yes
McCarthy	Valdez-Cordova	25	42	54	3.7%	4.6%	Yes
Mendeltna	Valdez-Cordova	37	63	68	1.1%	3.6%	Yes
Mentasta Lake	Valdez-Cordova	96	142	109	-3.7%	0.7%	Yes
Nelchina	Valdez-Cordova	No Data	71	52	-4.4%	No Data	Yes
Paxson	Valdez-Cordova	30	43	32	-4.1%	0.4%	Yes
Slana	Valdez-Cordova	63	124	108	-2.0%	3.2%	Yes
Tazlina	Valdez-Cordova	247	149	219	5.7%	-0.7%	Yes
Tonsina	Valdez-Cordova	38	92	76	-2.7%	4.2%	Yes
Arctic Village	Yukon-Koyukuk	96	152	155	0.3%	2.9%	No
Beaver	Yukon-Koyukuk	103	84	65	-3.6%	-2.7%	No
Birch Creek	Yukon-Koyukuk	42	28	26	-1.1%	-2.8%	No
Central	Yukon-Koyukuk	52	134	95	-4.8%	3.6%	Yes
Chalkyitsik	Yukon-Koyukuk	90	83	72	-2.0%	-1.3%	No
Circle	Yukon-Koyukuk	73	100	102	0.3%	2.0%	Yes
Coldfoot	Yukon-Koyukuk	No Data	13	11	-2.4%	No Data	Yes
Fort Yukon	Yukon-Koyukuk	580	595	591	-0.1%	0.1%	No
Lake Minchumina	Yukon-Koyukuk	32	32	17	-8.6%	-3.7%	No

[1] Includes all areas in the Fairbanks North Star Borough not capture in the City of Fairbanks, College CDP, Eielson Air Force Base CDP, Ester CDP, Fox CDP, Harding-Birch Lakes CDP, Moose Creek CDP, Pleasant Valley CDP, Salcha CDP, and Two River CDP.

Community/ Place	Borough/ Census Area	1990 Population	2000 Population	2007 Population	2000-2007 CAGR	1990-2007 CAGR	Road System Access
Livengood	Yukon-Koyukuk	No Data	29	21	-4.5%	No Data	Yes
Manley Hot Springs	Yukon-Koyukuk	96	72	72	0.0%	-1.7%	Yes
Minto	Yukon-Koyukuk	218	258	180	-5.0%	-1.1%	Yes
Nenana	Yukon-Koyukuk	393	402	357	-1.7%	-0.6%	Yes
Rampart	Yukon-Koyukuk	68	45	17	-13.0%	-7.8%	No
Stevens Village	Yukon-Koyukuk	102	87	71	-2.9%	-2.1%	No
Tanana	Yukon-Koyukuk	345	308	257	-2.6%	-1.7%	No
Venetie	Yukon-Koyukuk	182	202	181	-1.6%	0.0%	No

Source: U.S. Census Bureau Census 1990; U.S. Census Bureau Census 2000; Alaska Department of Labor and Workforce Development 2008; Northern Economics, Inc. estimates 2008.

The data for this analysis also show that there is no single monolithic reason why communities grow or shrink. For example, a common expectation has been that off-highway system communities are losing population are greater rates than communities with road access because fuel prices tend to be higher and employment opportunities are less frequent. While the data for this analysis support this common hypothesis in the aggregate, the hypothesis does not hold true for larger communities in the Yukon-Koyuk Census Area.[2] In this region, larger communities off the highway system lost population more slowly than on-highway communities of similar size. One reason maybe that there is something unique about larger communities in this region (e.g., an especially cohesive population or higher birth rates); another reason may be that for these communities there may have come a point where those citizens that are least able to afford fuel are also those that can least afford to move. It is less expensive for a family that lives on the road system to leave a community than for those who live off the road system to leave. However, in general the data show that smaller communities (e.g., those with populations less than 250) and those off the road-system (with the exception of the YK Census area) are likely to have larger, negative population growth rates than larger communities on or off the highway system.

Population Estimates

The analysis estimates that almost all of the census areas and boroughs included in this analysis will grow between 2007 and 2030, but that growth rates will be modest. Overall, the weighted CAGR for all communities in the study is expected to be 0.9 percent between 2007 and 2030. The aggregate population of the project communities in the Fairbanks North Star Borough is expected to grow most quickly, albeit at a modest 1.1 percent CAGR, driven by the construction of the North Slope natural gas pipeline and the City of Fairbanks' role as a regional hub. The analysis projects that the aggregate population of the project communities in the Yukon-Koyukuk Census Area will fall slightly. This decline continues a pattern identified in recent work by ISER and by Northern Economics. The remaining areas will see very modest population growth.

[2] Between 2000 and 2007, Off-highway communities exhibited a weighted CAGR of -1.5 percent versus an on-highway system average of 0.2 percent. In the YK Census area off-road communities had a CAGR of -1.5 percent while on-road communities averaged -2.6 percent.

Table 2. Study Area Population Projections by Census Area/Borough[3]

Borough/ Census Area	Number of Communities Inside Project Area	2007 Population	2010 Population	2020 Population	2030 Population	2007-2030 CAGR
Matanuska-Susitna Borough	1	91	91	102	114	1.0%
Denali	3	1,444	1,392	1,375	1,348	-0.3%
Yukon-Koyukuk	17	2,290	2,179	1,973	1,843	-0.9%
Valdez-Cordova	17	2,564	2,429	2,275	2,156	-0.8%
SE Fairbanks	10	3,782	3,688	3,734	3,674	-0.1%
Fairbanks North Star	12	90,963	91,193	103,673	116,469	1.1%
Grand Total	60	101,134	100,971	113,133	125,603	0.9%

Source: U.S. Census Bureau Census 1990; U.S. Census Bureau Census 2000; Alaska Department of Labor and Workforce Development 2008; Northern Economics, Inc Estimates 2008.

In aggregate, the populations of non-road system communities within the project's study area are expected to decline at a CAGR of -0.2 percent between 2007 and 2030. This CAGR will result in a change in the current population from nearly 1,500 to approximately 1,430. While the aggregate population of these communities will be relatively stable, the changes in individual community populations will be highly variable. For example the analysis estimates that the populations of Lake Minchumina, Rampart, and Chisana will decline into the single digits by 2030, effectively indicating that the communities may cease to exist in the long-term while the population of Beaver is estimated to be half of the current population. On the other hand, the analysis estimates that some larger communities such as Arctic Village and Fort Yukon will grow slowly during the analytical period either through natural population growth or in-migration.

[3] This table aggregates estimates by census area/borough. The table does not contain comprehensive estimates of actual census area or borough populations because there are communities in some of the census areas and boroughs which are not included in the project area. The analysis does not provide population projections for communities outside the project area.

Table 3. Population Projections for Non-Road System Communities

Community/ Place	Borough/ Census Area	2007 Population	Estimated 2010 Population	Estimated 2020 Population	Estimated 2030 Population	Estimated 2007-2030 CAGR
Arctic Village	Yukon Koyukuk	155	160	179	200	1.1%
Beaver	Yukon Koyukuk	65	60	45	34	-2.8%
Birch Creek	Yukon Koyukuk	26	26	25	25	-0.2%
Chalkyitsik	Yukon Koyukuk	72	69	62	55	-1.2%
Fort Yukon	Yukon Koyukuk	591	604	650	700	0.7%
Lake Minchumina	Yukon Koyukuk	17	13	6	3	-7.8%
Rampart	Yukon Koyukuk	17	12	3	1	-12.1%
Stevens Village	Yukon Koyukuk	71	67	54	44	-2.0%
Tanana	Yukon Koyukuk	257	244	205	172	-1.7%
Venetie	Yukon Koyukuk	181	177	165	153	-0.7%
Healy Lake	Southeast Fairbanks	37	38	40	42	0.6%
Chisana	Valdez-Cordova	7	6	3	1	-7.3%
Total for Non-Road System Communities		**1,496**	**1,476**	**1,437**	**1,430**	**-0.2%**

Source: Alaska Department of Labor and Workforce Development 2008; Northern Economics, Inc Estimates 2008.

Based on estimates prepared by ISER (Goldsmith 2005) for the Knik Arm Crossing Environmental Impact Statement, the analysis estimates that the road system communities will grow at an average CAGR of 1.0 percent between 2007 and 2030. Under these conditions, the aggregate population of the communities will grow from approximately 99,631 persons in 2007 to 124,173 in 2030. Nominally, Fairbanks is expected to grow the most, but will have a relatively modest growth rate close to the average for all communities in the study. Evolving bedroom communities in the Fairbanks area such as Ester and Two Rivers will see faster growth as new residents take advantage of relatively lower land prices. Tourism gateway communities such as McCarthy may also see future growth. Other communities will see population losses. Communities such as Chicken, Livengood, Minto, and Nelchina will likely shrink as their residents' age and more mobile residents seek lower living costs or higher wages in larger communities.

Table 4. Population Projections for Road System Communities

Community/ Place	Borough/ Census Area	2007 Population	Estimated 2010 Population	Estimated 2020 Population	Estimated 2030 Population	Estimated 2007-2030 CAGR
Lake Louise	Matanuska-Susitna	91	91	102	114	1.0%
Anderson	Denali	234	234	263	292	1.0%
Big Delta	SE Fairbanks	790	776	804	817	0.1%
Cantwell	Denali	183	161	118	84	-3.3%
Central	Yukon-Koyukuk	95	78	46	26	-5.4%
Chicken	SE Fairbanks	19	19	22	24	1.0%
Chistochina	Valdez-Cordova	93	89	86	81	-0.6%
Chitina	Valdez-Cordova	124	119	116	110	-0.5%
Circle	Yukon-Koyukuk	102	99	98	94	-0.3%

Community/ Place	Borough/ Census Area	2007 Population	Estimated 2010 Population	Estimated 2020 Population	Estimated 2030 Population	Estimated 2007-2030 CAGR
Coldfoot	Yukon-Koyukuk	11	10	10	10	-0.4%
College CDP	Fairbanks North Star	12149	11979	12606	12991	0.3%
Copper Center	Valdez-Cordova	337	313	272	231	-1.6%
Delta Junction	SE Fairbanks	974	974	1074	1074	0.4%
Dot Lake	SE Fairbanks	15	13	9	6	-3.9%
Eagle	SE Fairbanks	109	97	73	54	-3.0%
Eielson AFB	Fairbanks North Star	4119	3512	3512	3512	-0.7%
Ester	Fairbanks North Star	2041	2130	2458	2836	1.4%
Fairbanks	Fairbanks North Star	31627	30940	31727	31856	0.0%
FNSB Remainder	Fairbanks North Star	35546	36946	46275	56776	2.1%
Fox	Fairbanks North Star	354	365	444	530	1.8%
Gakona	Valdez-Cordova	236	236	259	278	0.7%
Glennallen	Valdez-Cordova	518	483	421	360	-1.6%
Gulkana	Valdez-Cordova	113	121	166	224	3.0%
Harding-Birch Lake CDP	Fairbanks North Star	245	248	286	322	1.2%
Healy	Denali	1027	997	995	972	-0.2%
Kenny Lake	Valdez-Cordova	411	395	381	359	-0.6%
Livengood	Yukon-Koyukuk	21	18	11	6	-5.1%
Manley Hot Springs	Yukon-Koyukuk	72	69	66	62	-0.6%
McCarthy	Valdez-Cordova	54	58	80	107	3.0%
Mendeltna	Valdez-Cordova	68	67	72	76	0.5%
Mentasta Lake	Valdez-Cordova	109	93	61	39	-4.3%
Minto	Yukon-Koyukuk	180	148	85	47	-5.6%
Moose Creek CDP	Fairbanks North Star	650	675	841	1027	2.0%
Nelchina	Valdez-Cordova	52	44	27	16	-5.0%
Nenana	Yukon-Koyukuk	357	325	264	209	-2.3%
North Pole	Fairbanks North Star	1945	2048	2675	3423	2.5%
Northway (Jct.& Village)	SE Fairbanks	147	129	94	66	-3.4%
Paxson	Valdez-Cordova	32	27	27	27	-0.7%
Pleasant Valley CDP	Fairbanks North Star	671	665	710	743	0.4%
Salcha CDP	Fairbanks North Star	995	1020	1220	1430	1.6%
Slana	Valdez-Cordova	108	98	77	59	-2.6%
Tanacross	SE Fairbanks	173	182	237	302	2.5%
Tazlina	Valdez-Cordova	219	230	271	319	1.7%
Tetlin	SE Fairbanks	165	179	201	224	1.3%
Tok	SE Fairbanks	1353	1281	1181	1065	-1.0%
Tonsina	Valdez-Cordova	76	67	49	35	-3.3%
Two Rivers	Fairbanks North Star	621	665	919	1022	2.2%
Total Pop. of Road System Communities		99,631	99,490	111,693	124,173	1.0%

Source: Alaska Department of Labor and Workforce Development 2008; Goldsmith 2005; and Northern Economics, Inc Estimates 2008.

The Effect of Unexpected Events

The estimates in this memo are based on current trends and reasonably foreseeable actions and events (RAFE). However, a list of RAFEs rarely predicts what actually happens in the future. Future events can occur before or after they were initially predicted to appear. They can also fail to happen altogether. Just as importantly, new events that were not predicted to happen can appear and result in a radically different future than what was originally predicted. Events that could significantly change the results of this analysis include:

- Large changes in energy prices. Neither the data used in ISER Knik Arm Crossing work, ISER's 2008 fuel cost analysis, or this analysis reflect the long-term effect of rapidly increasing fuel costs that communities have experienced in the last 18 months. Further increases, or rapid decreases, in fuel prices may affect population growth rates and the stability of individual communities.
- The failure of efforts to build the Arctic North Slope Natural Gas Pipeline. The ANS gas pipeline will bring many workers and their families into Interior Alaska and larger communities such as Fairbanks.
- Major changes in federal policy either through direct changes in federal expenditures or through the Base Realignment and Closure (BRAC) process.
- Force majeure events such as rapid climate change, epidemic, or natural catastrophe.
- Major changes in state and federal transportation policy such as a road from Fairbanks to Nome or the completion of a rail link with Western Canada.
- Large changes in Permanent Fund Dividend checks. Large checks bring significantly more money to smaller communities and can help individuals bear larger changes in living costs.

INTERIOR ALASKA TRANSPORTATION PLAN

In fall 2006, the Alaska Department of Transportation and Public Facilities (DOT&PF) began to develop a Transportation Plan for Interior Alaska. The Interior Alaska Transportation Plan (IATP) will join five other statewide regional multi-modal transportation plans designed to address movement between communities in the region and from the region to points beyond. It will not address individual community projects. The aviation system component of the IATP will include an analysis of the needs of airports open to public use (map on reverse side) and other needs of the aviation system.

Planning issues for the IATP include gas pipeline and resource development, pavement management, military impact, tourism, Capstone implementation, intermodal linkages, financing, and rural community access. Economic, heath and safety, funding, preservation, and efficiency goal for the IATP include the following aviation system objectives:

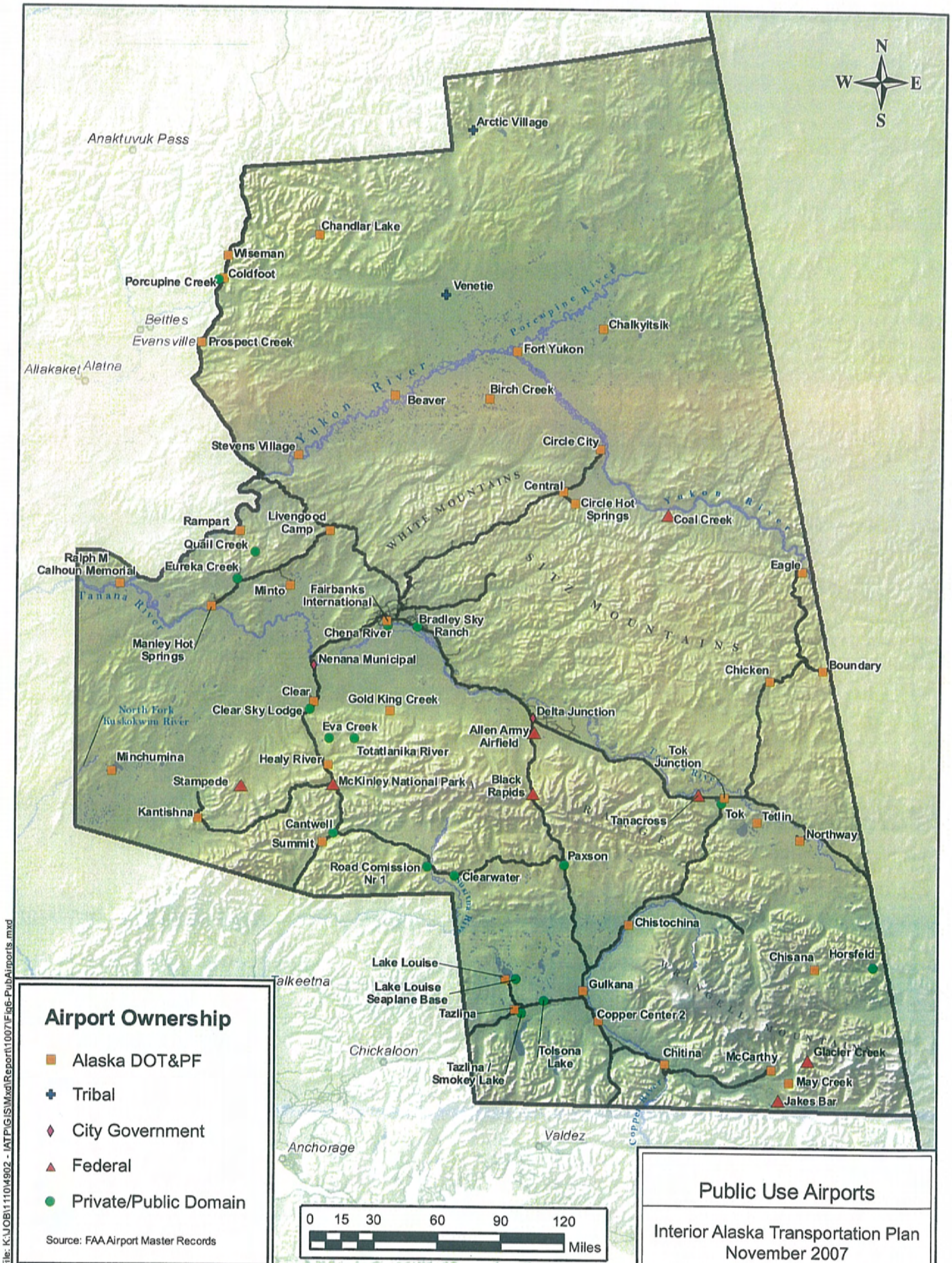
- Upgrade airport facilities for the design aircraft, appropriate level of instrument approach, and forecast demand.
- Support the continued existence of backcountry airstrips, which serve an important role in the area economy as well as provide emergency landing areas.
- Identify solutions to safety problems in aviation such as improved weather information, en route navigational aids, instrument approaches, and a system of public use airports appropriately spaced for emergency landings in visual and instrument weather.
- Address potential conflicts between civilian and military aviation, with regard to military exercises, temporary flight restrictions, air traffic control, radar, navigational aids, weather reporting, and airfields.
- Support airport improvements that bring facilities into compliance with FAA design standards
- Identify airport needs associated with emergency use, such as wildland firefighting, medical evacuation, and disaster assistance in case roads are not available.
- Recommend appropriate inclusions and exclusions of airport in the National Plan of Integrated Airport Systems (NPIAS).
- Promote land use compatibility and airspace control around airports to maintain safe operating conditions and allow for future growth.
- Balance the system of public use airports by examining gaps and overlaps in service area coverage; identifying minimum facility and service improvements needed for airports, based on their roles within the system.

Programmed Interior Airport Improvements:

Project	FFY'09	After FFY'09
Beaver Airport Improvements		$ 5,000,000
Birch Creek SRE Building		$ 500,000
Chalkyitsik Airport Improvements (C)	$ 6,000,000	
Chistochina Airport Relocation Study -- Stg 2	$ 300,000	
Chitina Airport Paving		$ 900,000
Chitina SRE Building Upgrade		$ 150,000
Circle TWY & Apron Rehabilitation		$ 1,500,000
Coldfoot Erosion Control		$ 1,750,000
Eagle Airport Improvements		$ 1,900,000
Fort Yukon Apt Improvements*	$11,000,000	
Gulkana Apron & Taxiway Repaving		$ 1,900,000
Lake Louise Runway Rehabilitation – Stg 2	$ 2,300,000	
Lake Minchumina airport Improvements		$ 5,000,000
Manley Airport Relocation*	$12,000,000	
Prospect Creek Airport Improvements		$ 5,600,000
Tok RWY Expand & CW – RWY Construction		$ 3,500,000

*Contingency if funding available

For more information about the project, see http://projects.ascg.com/iatp/default.asp. The DOT&PF point of contact for the aviation part of the plan is Judy Chapman, (451-2386 or judy.chapman@alaska.gov).


N
W
E
S
Arctic Village
Anaktuvuk Pass
Chandlar Lake
Wiseman
Coldfoot
Porcupine Creek
Venetie
Porcupine River
Chalkyitsik
Bettles
Evansville
Prospect Creek
Fort Yukon
Allakaket
Alatna
Yukon River
Beaver
Birch Creek
Circle City
Stevens Village
WHITE MOUNTAINS
Central
Circle Hot Springs
Coal Creek
Rampart
Livengood Camp
Quail Creek
Ralph M Calhoun Memorial
Eureka Creek
Minto
Eagle
Tanana River
Fairbanks International
Bradley Sky Ranch
Chena River
Manley Hot Springs
Nenana Municipal
SITZ MOUNTAINS
Chicken
Boundary
Clear
Gold King Creek
Clear Sky Lodge
North Fork Kuskokwim River
Delta Junction
Eva Creek
Allen Army Airfield
Totatlanika River
Minchumina
Healy River
Tok Junction
Stampede
McKinley National Park
Black Rapids
Kantishna
Tanacross
Tok
Tetlin
Cantwell
Northway
Summit
Paxson
Road Comission Nr 1
Clearwater
Chistochina
Lake Louise
Chisana
Horsfeld
Lake Louise Seaplane Base
Talkeetna
Gulkana
Tazlina
Copper Center 2
Chickaloon
Tolsona Lake
Tazlina / Smokey Lake
Chitina
McCarthy
Glacier Creek
May Creek
Jakes Bar
Valdez
Copper River
Anchorage
Airport Ownership
Alaska DOT&PF
Tribal
City Government
Federal
Private/Public Domain
Source: FAA Airport Master Records
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Miles
Public Use Airports
Interior Alaska Transportation Plan
November 2007
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INTERIOR ALASKA TRANSPORTATION PLAN
SURVEY

The purpose of this survey is to help assess the aviation transportation needs in Interior Alaska. Refer to the included handout for information about the Interior Plan. Providing personal information is optional, it is not necessary for the purpose of this survey. Upon completion, please fold and seal, and return survey to the address on the back. Surveys may also be faxed to (907) 339-5328.

Name: ____________________

Address: ____________________

____

Telephone: ____________________

E-Mail: ____________________

What are the most important aviation issues in the Interior? Do you have suggestions for resolving these issues? Please explain:

What facility and/or service improvements are needed at Interior public use airports? Please explain:

Are there any private use airports or other landing areas that should be open to the public? Why or why not?

What en route improvements are needed in the Interior (air traffic, navigational aids, weather, etc.)? Please explain:

You may also fax your comments to Nicole McCullough at (907) 339-5328.

PLACE
US POSTAGE
HERE

ASCG Incorporated
Attn: Nicole McCullough
300 W. 31st Avenue
Anchorage, AK 99503

Autumn/Winter 2006
Newsletter No. 1

ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES

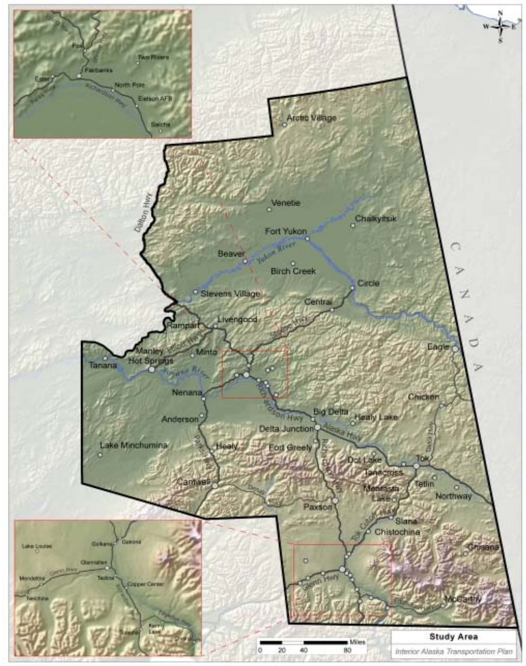
Interior Alaska Transportation Plan

Transportation Plan Kick-off

In October 2006, the Alaska Department of Transportation and Public Facilities (DOT&PF) kicked off the Interior Alaska Transportation Plan (IATP). This plan will join five other statewide regional multi-modal transportation plans designed to address movement between communities in the region and from the region to points beyond. It does not address individual community projects.

DOT&PF contracted with ASCG Incorporated of Alaska (ASCG) to develop the IATP. As part of the plan they will complete an inventory of transportation modes, review potential resource development, prepare forecasts based on existing conditions and future trends, analyze the transportation network and develop recommendations that guide future investments in vital regional transportation projects.

During the development of the plan there will be three rounds of meetings in communities throughout the region. Planners will also set up a web site and conduct interview with user groups and local residents.



Interior Alaska Transportation Plan Study Area

IATP ISSUES

Planners will examine potential impacts to the transportation system in Interior Alaska including the following:

Gas Pipeline Impacts. Funding strategies and project implementation must be scheduled to keep pace with gas pipeline development. Secondary impacts of the gas pipeline on rail and air transportation systems will also be examined in the plan.

Potential Mineral Development. The Pogo Mine is located about 20 miles northwest of Delta. Mineral exploration is underway in the Tangle Lakes and Delta River areas. These and other mineral developments may impact the adjacent highways and must be taken into consideration.

Military Training. Changes in military forces throughout the interior may trigger the need for transportation improvements. The military is constructing training facilities in the interior and plans to increase the number of training in exercise, such as Red Flag (formerly Cope Thunder) and Northern Edge.

Railroad Expansion. The Alaska Railroad Corporation (ARRC) is developing an Environmental Impact State-ment for the construction and operation of a new rail line between Eielson AFB and the Delta Junction/Fort Greely area. The project would involve the construction and operation of approximately 80 miles of new main line track and could include a 15-mile rail spur to the military Blair Lakes Training Area.

Tourism Potential. While highway tourism has remained constant the last five years, the state is now marketing to recreational vehicle and independent highway tourists, which may result in an increase in traffic along the Dalton Highways and other interior routes. Tourism in Wrangell St. Elias may also grow as access is improved in that area.

Aviation System. In addition to impacts that military training exercises have on aviation, pipeline development may cause changes that effect air transportation, also. The plan will study inter-modal connections—linkages of ground and air transportation systems for passengers and cargo.

Interior Alaska Transportation Plan

The State of Alaska Department of Transportation and Public Facilities is evaluating long–range transportation needs in Interior Alaska. This evaluation will guide the department in meeting community, regional and statewide transportation needs well into the future.

Get Involved

Contact:

Dave Sanches, DOT&PF, Project Manager

2301 Peger Road

Fairbanks, AK 99709

Phone: (907) 451-2385

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Or

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Fax. (907) 339-5328

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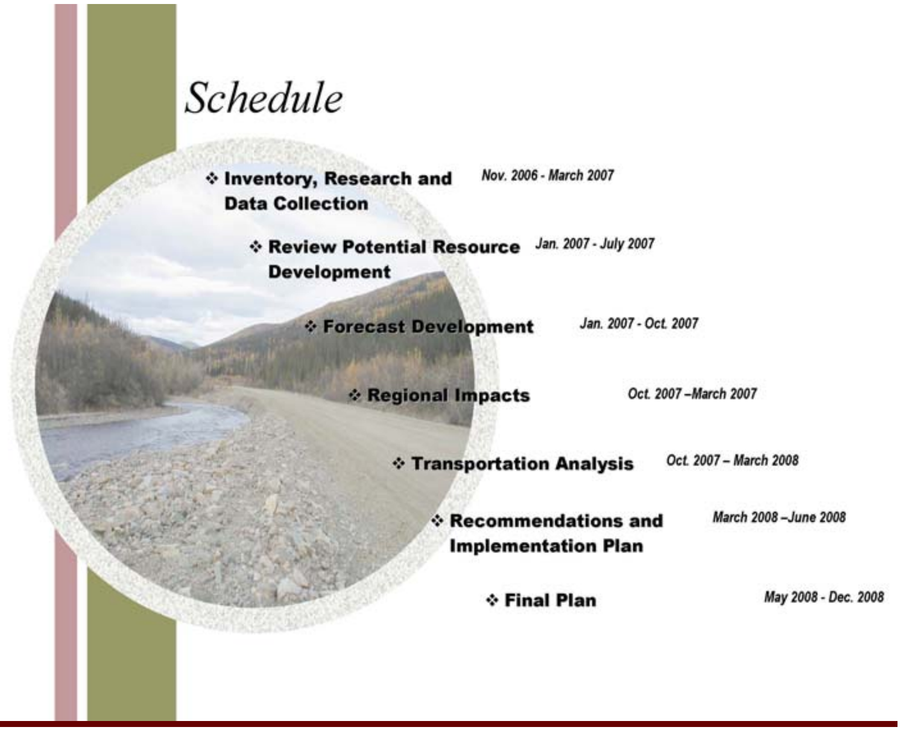


ASCG Incorporated
300 W 31st Avenue
Anchorage, Alaska 99503

ADDRESS CORRECTION REQUESTED

Winter/Spring 2009
Newsletter No. 4

ALASKA
DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES

Interior Alaska Transportation Plan

Transportation Plan Status

The Alaska Department of Transportation and Public Facilities began to develop the Interior Alaska Transportation Plan about two years ago. Since that time, transportation planners have identified important transportation issues in the study area, outlined goals and objectives, prepared a detailed inventory of all transportation modes in the study area, reviewed potential future mineral development, forecast future growth and analyzed the transportation system. This plan is entering the stage where the department will develop recommendations that will guide future investments in vital regional transportation projects.

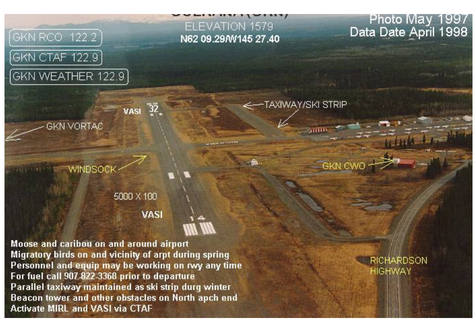
It is the intent that the plan recommendations be finalized by the summer and the final report be made available this fall.

Transportation Plan Analysis

In the Transportation Analysis section of the plan, several recommendations were presented. These recommendations will be discussed at the public meetings in March and include recommendations for all of the transportation modes. Examples include the following:

Highways

- Improve access at McKinley Village and the Denali Park entrance.
- Implement the state's Highway Safety Improvement Plan.
- Improve highways in anticipation of the Alaska Natural Gas Pipeline and Enstar Gas Pipeline.
- Continue to improve the state's pavement management system program.
- Upgrade Northway, Manley, Nenana, Ernestine, Birch Lake and South Fork Maintenance Stations.
- Improve sight distances at wayside entry and exit points.



Airports

- Coordinate among state and federal agencies to balance military and civilian airspace requirements, protect backcountry airstrips, support postal hubs, and implement security requirements.
- Improve several airports along the proposed pipeline route to support pipeline construction.
- Tok and Delta Junction need better airports while Fort Yukon and Gulkana Airports need significant improvements and Chistochina Airport needs relocation.
- FAA should recognize Healy Lake's airport in their system.
- Develop longer runways and/or instrument approaches for Birch Creek, Central, Circle City, Eagle, Manley Hot Springs, Minto, McCarthy, Stevens Village, Tetlin, and Venetie.

Other Transportation Modes

- Maintain funding for trail markings.
- Eliminate several at-grade crossings.
- Improve barge landings such as at Fort Yukon and support a new barge landing at Tanana.

Your Comments Needed

The Interior Alaska Transportation Plan is ready for your review. The following information has been collected:

Chapter 1 - overview of the plan, its purpose, study area, planning process, public involvement activities, issues, and goals;

Chapter 2 - background information about the study area and its residents;

Chapter 3 - inventory of the existing transportation systems within the study area;

Chapter 4 - forecast of anticipated growth within the region;

Chapter 5 - potential impacts of various factors on transportation in the Interior; and

Chapter 6 - an analysis of each of the transportation systems.

We are now at the stage of collecting recommendations for improvements and guidelines for their implementation. To review the chapters, please go to our website at: http://projects.ascg.com/iatp/Documents.asp or attend one of our upcoming meetings:

- **March 3rd, 5pm, at the Delta Junction City Hall, with the City Council;**
- **March 19th, 6pm, at the Copper Center Lodge in Glennallen, with the Chamber of Commerce;**
- **March 20th, 12pm, at the Tok Civic Center, with the Chamber of Commerce.**

Get Involved

Contact:

Dave Sanches, DOT&PF, Project Manager

2301 Peger Road

Fairbanks, AK 99709

Phone: (907) 451-2385

Fax: (907) 451-2313

Email: dave_sanches@dot.state.ak.us

Or

Nicole McCullough, ASCG Project Manager

300 W. 31st Avenue

Anchorage, Alaska 99503

Phone: (907) 339-6546

Fax. (907) 339-5328

Email: nmccullough@whpacific.com

WH Pacific Incorporated

300 W 31st Avenue

Anchorage, Alaska 99503

Trip Report

Copper Valley Area Meetings

Project: Interior Alaska Transportation Plan	**Reporter:** Suzanne Taylor, ASCG
Date/Time: 01/11/07 7:00 PM	**Location:** Glennallen

Present: See attached sign-in sheet

Meeting Highlights:

On Thursday, January 11, Nicole McCullough and Suzanne Taylor met with the Copper Valley Chamber of Commerce at the Tonsina River Lodge near Glennallen to discuss the Interior Alaska Transportation Plan and to solicit input about transportation issues in the study area.

Nicole explained the nature of the plan, the planning process and the issues already identified.

Those present, did not notice any reduction in vehicular traffic due to rising fuel costs; however, they agreed that more rental vehicles seem to be coming through and many are sharing RVs between more than one family or couples.

One member felt that cleaning the toilets in the rest areas was not DOT’s role, that the contractors hired to maintain rest areas are overpaid and not doing the job well. He felt that BLM-managed rest areas are better maintained. He thought that rest areas could be run as a concession, as DNR does with campgrounds.

It was pointed out that the Dalton Highway was opened up to traffic/RVs without any provision for sanitary dump stations.

Members suggested we call Tracy in February at the CVCC to get tourism numbers. 822-5555.

Interior Alaska Transportation Plan

Glennallen, Alaska

Sign In Sheet ***January 11, 2007***

Name	Organization	Address/City/Zip	Phone	e-mail
Karen Ulrich	C.V.C.C	PO BX 211 Gakona AK 99586		
Neil Ulrich	GCVCC	✓ ✓	✓ —	
Kimberlin, BKC				
Maureen Kimberlin	K.W. Taxi	HC 60 Box 221 Valdez ak,		Kimberlins water taxi.net
Marissa DeWit	Copper Moose B+B	HC60 Box 333		
Kathleen A McCurry	Copper Moose B+B	HC60 Box 227H Copper Center, AK 99573		
C.D. M^c^Curry	Copper Moose B&B	" " " "	"	"
Tracy Beaudoin	CV Chamber	PO Box 469 Glennallen, AK 99588	822-5555	chamber@cvinternet.net
Bylle Horton		PO Box 462, Glennallen, Ak, 99588	822-4461	
Jamie Heinz		PO Box 12 Glennallen, AK 99588	822-5051	
KARL HEINZ	FNBA	Box 85 Glennallen AK 99588		Kheinz@FNBAlaska
Todd Roeske	McDrum Lutheran Church	PO Box 175 Copper Center AK 99573		~~todd roeske@juno.com~~
Kim Roeske	"	" ... "		toddroeske@juno.com

Interviews:

On Thursday, January 11, Nicole McCullough and Suzanne Taylor met with **BLM Glennallen Field Office** representatives to discuss the Interior Alaska Transportation Plan and the BLM's concerns about transportation issues in the study area. The following BLM staff members were present:

- Bruce Rogers, BLM Land Use Planner
- Will Runnoe, BLM Bureau Chief/Visitor Services
- Marnie Graham, BLM Outreach Specialist
- Brenda Becker, BLM Realty Specialist

Nicole explained the nature of the plan, the planning process and the issues already identified.

Bruce said that the military needs six additional communication sites on BLM land to support their Red Flag training operations.

Will said that user numbers have greatly increased due to Princess's buses between Wrangell-St. Elias National Park and Denali National Park. Most users, including BLM, would like to see the Denali Highway remain gravel. Restroom facilities may be needed at turnouts to reduce inappropriate disposal of human waste.

Bruce provided a copy of the BLM's East Alaska Plan and referenced information therein on the Denali Highway.

They mentioned the possible designation "Back Country Byway". They thought that the possibility of roadside improvements could be a selling point for Scenic Byway designation, which has been opposed in the past by residents.

Marnie said that the high volume of trucks using the highways, such as fuel and grocery trucks, has precipitated several accidents. The annual bicycle race from Sheep Mountain to Valdez may also produce conflicts as there is a large number of RVs on the road during the summer. Some areas on the Richardson Highway have little or no shoulders and, in one instance near Miers Lake, a truck's tire went off the edge and the truck flipped. Speed may have also been a factor.

Local farmers also use the roads to transport goods to market.

A bike path and turning lanes through Glennallen would be beneficial.

Additional signage would be good.

They believe that tourist numbers have remained on a steady upward trend, although more are traveling on bus tours rather than by RV due to higher fuel costs.

Nevada Star has lease on the mineral development at Tangle Lakes; however, their sub pulled out and no development is currently underway. There is an archeological development at Tangle Lakes as well (see brochure).

Recreational use is a major issue along the highways, especially weekend use. Roads are used year-round to access areas for fishing, snow machining, hunting, RVing, and boating. More turnouts are needed. Issues of waste disposal exist, for example at the Gulkana River Bridge. The Klutina River Bridge needs better access.

Villages are concerned about trespassers. Turnouts at trailheads are not monitored and can be unsanitary.

National Park Service has Gateway Funding which should be looked into. Tourism classes were conducted to educate people on dealing well with the public. “Branding” was explored. Suggested that we talk with Meg Jensen, Park Superintendent.

Others to talk to: John Downes, ARDOR, at the Tazlina Trading Post.

Arlene Rosencrantz, USDA NRCS RCND, at Mile 93.3, past Grizzly Pizza. 822-5111.

On Friday, January 12, Nicole McCullough and Suzanne Taylor met with **ARDOR director John Downes** to discuss the Interior Alaska Transportation Plan and to solicit input about transportation issues in the study area.

John provided a copy of the 1993 CEDS.

He reported that a recent (2005) tourist survey indicated a need for more informational road signs.

John indicated that tourism in the area is still increasing. He said that Princess contributes $450,000-500,000 annually to local businesses through day trips, etc. More tourists seem to be bussing in rather than driving due to gas costs. Copper Valley is getting greater numbers of tourists because Denali NP is becoming overcrowded. The Copper Valley Princess has 87 rooms now but is designed to be expanded to as many as 300. The most immediate expansion is expected to be by about 30 rooms.

About $2.5 million was spent on McCarthy Road improvements. Unfortunately, much was lost in flooding in 2006. There were 10 or 11 thousand visitors to McCarthy last year. About 35,000 signed in at the Copper Center Visitor Center. John believes that residents, the Park Service, and the legislature all want the McCarthy Road improved; so, now would be a good time to act.

John suggested that we also speak with:

- Suzanne at Prince William Sound Community College.
- Arlene Diltz Jackson at the CRNA 822-5241
- Arlene Rosencranz at DNR RCND

He suggested public information be disseminated through Mark at the paper, KNBQ Wasilla, and the Valdez radio station.

Suzanne and Nicole also stopped in at the **Wrangell-St. Elias National Park and Preserve headquarters** in Glennallen. They spoke to Marshall Neeck the Chief Ranger, who promised to pass along information about the plan to Meg Jensen, Park Superintendent, and Vicki Snitzler, Park Planner.

Meeting Report

Project: Interior AK Transportation Plan
Date: 10/19/06

Reporter: Nicole McCullough
Location: Healy

Presenters: Dave Sanches, DOT&PF, Nicole McCullough, ASCG

Attendance:

Bernice Sheldon, Cantwell
James McNight, Cantwell
Armeda A. Bulard, Cantwell
Dave Talerica, Mayor, Denali Borough
Scott Allen, Denali Borough

Meeting Summary:

Communication. This summer, the overpass project in Cantwell required gravel and the residents were caught unaware when the contractor started excavating gravel from a pit, formerly a garbage dump that bordered a subdivision in Cantwell. The gravel operation lasted 24 hours a day and caused dust and noise and was unsightly. Residents felt that other gravel pits away from residential areas could have been used. They also felt strongly that DOT&PF should have talked to them about the project beforehand.

Residents stated that if DOT&PF informed locals about the project, they might have been able to coordinate other local construction projects with the roads contractor.

The state has a government to government policy which says that the state should coordinate with local governments.

The Stampede Road project is another road project that had poor public involvement.

The plan could have a recommendation for policies regarding DOT&PF communication. Cantwell wants to be involved.

New Roads. Before building new roads, existing roads should be improved.

Stampede Road. The bill that contained the Stampede Road project also contained the Shaw Creek Bridge project and the North Pole flood control project. Money between these projects could be adjusted. To get the money assigned to another project, such as Parks Highway improvements, it would have to be reviewed and approved by the legislature which could be a lengthy process.

Resource Development. Usibelli is investigating gas resources but coal methane is more likely. Steve Deaton at Usibelli is the best person to call to discuss.

Resources belong to Alaskans. Taxes from mineral and gas production could go into subsidizing Alaskan's gas or heating oil. The all-Alaskan gas line would have more benefits for Alaskans.

Tourism. Tourism continues to grow every year. Last summer was no exception. Several hotels added rooms including 100 more rooms at the Princess Hotel, 60 rooms at Grizzly Bear and 100 rooms at Holland America Hotel.

Turn lanes. There are five areas along the Parks Highway that need turn lanes:

- Anderson
- Stampede Road
- Denali Park
- McKinley Village
- Cantwell

Gravel to Pavement. The gravel pavement project for Cantwell, funded by Denali Commission, is awaiting completion of the MOA between the state and Denali Commission.

Healy
Oct 19, 2006

Interior Alaska Transportation Plan

Sign In

	Bernice Sheldon	P.O. Box 154 Cantwell, AK 99729
	James [illegible]	P.O. Box 9 Cantwell AK 99729
akarmeda@yahoo.com	[illegible] Bullard	POB 57 Cantwell, AK 99729
	Amanda Nyberg	Denali Borough
	Dave Talerico	Denali Borough
	Scott Allen	Denali Borough

Meeting Report

Project: Interior AK Transportation Plan
Reporter: Nicole McCullough
Date: 10/19/06
Location: Nenana

Presenters: Dave Sanches, DOT&PF, Nicole McCullough, ASCG

Attendance:

Edna Hancock, Tribal Administrator, Native Village of Nenana
Willie Lord, Jason, Council Member, Nenana Native Council
Jason P. Mayrand, Mayor, City of Nenana
George Albert, Nenana
Valerie Olin, Nenana
Nita Marks, Council Member, Native Village of Nenana
Theresa Clark, Toghotthele Corporation, Nenana

Meeting Summary:

Multi-modal Access. "We are the transportation hub for Interior Alaska. We have all five transportation modes" - Edna Hancock. We have roads, railroad, highways, aviation and river transportation.

Toursim. Tourism is up again from last year. For the past three years, the cultural center has been promoted. This year they saw a great increase in sales.

Resource Access. It is important to consider Nenana Basin when discussing resource development in the Interior. The road to Totchakat would access the Nenana Basin for potential gas or minerals as well as agriculture lands. The last estimate for this route was $72 million. Andax went into this area and did seismic studies in 2001-2002.

Nenana Regional Landfill. There was discussion about a regional landfill in Nenana. The Denali Commission is looking at this.

Bridges. There is a need to widen the bridges north and south of Nenana. The right of way in Nenana is only 60 feet, instead of 200 feet which is more common.

Nenana Railroad Bypass. The Parks Highway Study recommended a bypass around Nenana to avoid the circuitous route. If this were done the railroad would save seven minutes.

Dust Control. Dust control is needed on the roads in Nenana.

Backhaul. There is a backhaul program for eliminating metals and other waste in the villages along the river system. The material is transported to Nenana, crushed and transported to Anchorage via the Railroad. The Intertribal Watershed Council is concerned about potential pollution along the river system.

Dock. The city is applying for improvements including dock upgrades. There are 40 villages that are served from Nenana. The best person to talk to about the Crowley operation in Nenana is Endil Moore.

Nenana Totchakat Access Road. The Tribe applied to Denali Commission for Nenana Totchakat Road funding last year. The road accesses off of 10th Avenue. The State and the City of Nenana have about $50,000 (total) to do a feasibility study for the route which includes updating the cost estimate. The City will manage the project.

Parks Highway Weight Limits. There are discussions about removing the weight limits along the Parks Highway. The Truckers' Association is supporting the removal. They are unable to bring full loads which impacts the amount of freight they bring into Nenana for the barge.

Aviation. There is an agreement with the military about flying around Nenana during sensitive subsistence times.

Emergency Evacuation. There is limited access in and out of Nenana which is a concern when there is an emergency.

Interior Alaska Transportation Plan – Public Meeting

Nenana, Alaska

Sign In Sheet ***October 19, 2006, 11:00 – 1:00 p.m.***

Name	Organization	Address/City/Zip	Phone	e-mail
Jason	Doyon	NENANA 99760	907-832-5452	Moonman
Edna Hancock	Nenana Native Council		(907) 832-5461	edna_hancock@hotmail.com
Willie Lord	T.C.C.C.	NENANA 99760	(907) 322-5220	
JASON P. MAYRAND	CITY OF NENANA	PO BOX 70 NENANA 99760	832-5501	nenana1@yukontel.com
George Albert	Nenana Native	POB 458	(907) 460-7734	
Valerie Olin	nenana	Gen Del Nenana	460-7718	valerie_olin59@yahoo.com
Nita Marks	Nenana Native Council	PO Box 369 Nenana, AK	907-832-5461 x225	
Theresa Clark	Toghotthele Corp	PO Box 249 Nenana AK 99760		clark-theresa@hotmail.com

Meeting Report

Project: Interior Alaska Transportation Plan **Reporter:** Nicole McCullough
Date: December 13-14, 2006 **Location**: Fairbanks

Purpose: To conduct an Open House/Public Meeting and interview agency staff from Tanana Chiefs Conference, Fairbanks Convention and Visitors Bureau, U.S. Bureau of Land Management, Alaska Department of Natural Resources, and Alaska Division of Geological and Geophysical Surveys in Fairbanks. Dave Sanches, project manager, and consultant Nicole McCullough, ASCG Incorporated, provided background about the Interior Alaska Transportation Plan process, collected information about other plans, and gathered additional contact information.

Open House/Public Meeting: The Open House was held on December 13, 2006 at the Noel Wien Library from 4:00 – 6:00 p.m. At the Open House, there were displays regarding the study area, issues, and the schedule. Newsletters, study area maps, and comment sheets were provided to attendees. In addition to Dave Sanches, several other staff from DOT&PF attended the meeting including Jerry Rafson, Chief of Planning and Support Services; Howard Thies, Acting Regional Director; Donna Gardino, Regional Transportation Planner; Emily Bratcher, Planner; and also Bill Gryder, ASCG Incorporated. They assisted in answering public questions and describing the project purpose, schedule, and how people can get involved. Thirteen others from the public and agencies attended the meeting (see attached sign-in sheet).

Following are comments made from those that attended the Open House.

Tourism

- Members of the Visitor's Industry are very interested in the Interior Alaska Transportation Plan, particularly those that offer tours along Interior roads, such as Princess Tours, Holland America, and the smaller highway tour operators.
- High gas prices resulted in reduced traffic from those that drive to Alaska from outside, however there was a great increase in those that fly to Anchorage or sometimes Fairbanks and rent cars or RVs. Overall, tourism was up from the previous year.
- Planners should read the Borough's McDowell Group report on Tourism.
- The FNSB holds Economic Development meetings the 4th Tuesday of the month and would like to have someone make a presentation about the IATP at the January meeting.
- Tourism in Wrangell St. Elias Park is about to take off. Princess Tours owns a large parcel and will build a hotel. There is a great deal of interest by tour operators to expand there. Improving the access to the park would help.
- Improvements, but not pavement, are needed on the Denali Highway. It is very important to tour operators such as Princess.

- The majority of the operators like the remoteness of the Denali Highway and don't want paving, but believe that maintenance has been neglected.
- Keep Denali Highway rural. Paving would destroy its character.
- Interview Princess Tours and Holland America about the highways, also consider the smaller tour operators.
- There is a need to develop access to Denali National Park from the north. The southern access is further along but for Fairbanks that northern access is essential. The entrance to the park through "Glitter Gulch" is very unattractive.
- The highways in this study area should be considered for the state or national scenic byway system.
- The Dalton Highway should be open all the way to the Arctic Ocean, especially for tourists.
- Winter access to Denali National Park is important. There is an increase in winter Japanese tourists. Also, northern lights viewing at Coldfoot.
- Suggest that a presentation be made to the FNSB Economic Development committee on January 23rd.

Roads

- Consider ice roads.
- Examine work done on weight restrictions.
- The Steese Highway beyond Birch Creek Bridge lacks maintenance and desperately needs resurfacing.
- Street lights are needed in Circle.
- There should be more shuttle buses between Fairbanks and Valdez and Fairbanks and Anchorage.
- Consider mass transit.
- There are no projects between Sourdough and Paxson.
- Contact the Truckers Association.

Railroad

- The plan should consider reserving corridors along any new railroad alignments.
- Road access should not be cut off when railroads are built. Continued access is vital to emergency access and hazardous waste clean up efforts should they be required.
- In the long range, consider a railroad extending north of Fairbanks.

Interviews: Interviews were conducted with Tanana Chiefs Conference, Fairbanks Convention and Visitors Bureau, U.S. Bureau of Land Management, Alaska Department of Natural Resources, and Alaska Division of Geological and Geophysical Surveys staff.

Tanana Chiefs Conference – On December 13, 2006 Dave Sanches and Nicole McCullough met with Eric Fitzgerald and Margaret Matthews. Eric invited ADOT&PF to attend the TCC conference in March to speak to the Transportation Subcommittee about the IATP. He said that some villages want seasonal routes. TCC was very active in increasing their Indian Reservation Roads program for the Doyon Tribes and sent someone to Juneau to assist BIA to enter the data but the BIA changed the formatting of the maps after they were entered. They expect to be able to work on the inventory once BIA is satisfied that their accounting system accounts adequately for money previously expended. He said that trail staking has been done to many villages within the Interior. TCC does not have a regional transportation plan.

Fairbanks Convention and Visitors Bureau – Nicole McCullough met with Deb Hickok and Karen Lane. Deb said that she believes all the roads out of Fairbanks should be established as State and National Scenic Byways. She would like north access to Denali National Park. She is not sure that she likes the routes considered for the Stampede Road, but likes the idea of a state recreational area there. Winter products and tourism are very important and an area that they hope to grow. Deb provided tourism information and suggested calling several large and small tour companies. She also said not to ignore the aviation tour companies. Talk to Stan Stevens to get a different perspective on the paving of the Alaska Highway. Karen Lane agreed with Deb that someone should attend the FCVB January 17th meeting to discuss the IATP. There could be a presentation at the luncheon and a workshop before or after. Beyond February or March, tourism industry people will be very busy and meetings will be difficult.

U.S. Bureau of Land Management – Dave Sanches and Nicole McCullough met with Roger DeLaney and other BLM staff. They were very supportive of continued collaboration during the development of the IATP. DOT&PF plans are very important to some of the BLM plans for recreational areas.

The BLM is about to start or is about to complete several plans, including the Eastern Interior Plan and Tangle Lakes Plan that are in this study area. The Fairbanks North Star Borough is revising their Trails Plan. Their plans for the Denali Highway were contingent on the highway getting paved.

Analyze the Doyon and U.S. Fish and Wildlife Service land exchange in the Interior. Ted Hughes and USFWS should be contacted. Also contact Ramon McKoy at the Glennallen BLM office, AHTNA staff, Wrangell St. Elias, Yukon Charlie, and Tetlin Wildlife Refuge staff.

Alaska Department of Natural Resources – Dave Sanches and Nicole McCullough visited with Anna Plager. She provided links and information about several plans that DNR has in the study area including the Tanana Area Basin Plan, Upper Yukon Plan, Tanana Valley Plan and Chena Recreation Area Plans. She said that it is important that DOT&PF consider these plans when making road improvements. Very few recreational enhancements have been completed along the Chena Hot Springs Road. Anna said that it is important to connect with other divisions within DNR including the forestry and mining divisions and she provided names.

Alaska Division of Geological and Geophysical Surveys – Nicole McCullough met with DeAnne S.P. Stevens and Rodney A. Combellick. Rodney said that his division examines and maps the geology but is not involved in permitting and does not necessarily know where the next mineral development might occur. He suggested contacting the DNR, Division of Land, Water and Mining. He said his agency has developed maps of significant corridors throughout the state and indicated where to find these maps on their website.

Interior Alaska Transportation Plan – Public Meeting

Fairbanks, Alaska

Sign In Sheet ***December 13, 2006***

Name	Organization	Address/City/Zip	Phone	e-mail
TODD BOYCE	FNSB	PO BOX 71267	4591266	tboyce@co.fairbanks.ak.us
Bill Gryder	ASCG	515 7th, Ste 310	458-2142	bgryder@asceg.com
Luke Hopkins	FNSB	PO Box 81622 Fbk 99708	347-0066	lukethopkins@yahoo.com
Donna GARDINO	DOT&PF	~~P.O. Box~~ 2301 Peger Rd	451-2375	donna.gardino@dot.state.ak.us
DAVE SANCHES	DOT+PF	2301 PEGER Rd	451-2385	dave_sanchez@dot.state.ak.us
DAVID PECK	FNSB	3871 BRANCH AVE	488-6558	davidpeck@acsalaska.net
* ERNIE MISEWICZ	FBKS FIRE N. STAR FIRE	1101 CUSHMAN ST	450-6615	edmisewicz@ci.fairbanks.ak.us
DEB HICKOK	FCVB	500 FIRST AVE	457-3282x224	dhickok@explorefairbanks.com
MATT DIVENS	PRINCESS TOURS	3401 LATHROP, 99701	479-9660	mdivens@princesstours.com
Bob Henszey	USFWS	101, 12th Ave Rm 110, 99701	456-0323	bob_henszey@fws.gov
Joe Sheehan	JGA	PO Box 71732 FAKS 99707	978-1746	joe.sheehan@gci.net
Jerry Hanson	North Star VFD	2358 Bradway Rd., N. Pole	488-3400	jhanson@northstarfire.org
MIKE MUSICK	FNSB ASSEMBLY	PO BOX 170 ESTER AK 99725	388-2000	mikemusick@gci.net
KATHRYN DODGE	FNSB	PO 71267		
Emily Bratcher	ADOT+PF	2301 Peger Rd. 99709	451-2388	emily_bratcher@dot.state.ak.us
JEAnne Olsen	Citizen	1890 Hollowell Rd	N. Pole 488-2906	corvi@mosquitonet.com
Jeanne Boyle		250 Pearl Drive	907-490-2654	Jboyle@northstar.k12.ak.us

Interior Alaska Transportation Plan – Public Meeting

Fairbanks, Alaska

Sign In Sheet ***December 13, 2006***

Name	Organization	Address/City/Zip	Phone	e-mail
Circle Village Council		P.O. Box 12	907-773-2822	(Jessica Boyle)

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Trip Report

Fairbanks and Delta Junction Meetings

Project: Interior Alaska Transportation Plan	**Reporter:** Suzanne Taylor
Date/Time: 01/11/07 7:00 PM	**Location:** Fairbanks & Delta

Present: Sign-in sheet to be provided by FCVB
Suzanne Taylor, ASCG
Dave Sanches, DOT&PF

Fairbanks Convention and Visitors Bureau Meeting Highlights:

On Wednesday, January 17, Dave Sanches and Suzanne Taylor attended the Fairbanks Convention and Visitors Bureau luncheon at the Fairbanks Princess Hotel to introduce the Interior Alaska Transportation Plan and to solicit input about transportation issues in the study area.

Concerns expressed by FCVB members included:

- Communications "dead spots" where cell service is unavailable making emergency calls impossible.
- Safety issues along Taylor Highway including narrow areas
- The 511 road information system needs improvement very much
- Trails need to be a part of the plan. Is there a way for Yukon Quest planners who stake the trails used by the Quest to partner with the DOT in providing trail staking in that area?
- Where will planners on this project get information on tourism issues? Will the plan focus on in-state users to the exclusion of visitors?

  Suzanne and Dave said that tourism is certainly vital to the state's economy and that the plan will assess tourism as well as local needs. Input from all stakeholders is critical to the process.
- Is the railroad involved in the process?

  Suzanne said that the team has already met with Bruce Carr of the ARRC and will continue to coordinate with the railroad during the planning process.

The Princess representative asked about pubic access to the shoreline at Prudhoe Bay. She said that Princess pays for access even when they have to use their own coaches due to handicapped clients or unavailability of BP's bus.

Karen to send copy of sign in sheet.

Delta Chamber of Commerce Meeting Highlights:

On Thursday, January 18, Dave and Suzanne attended the Delta Chamber of Commerce luncheon at the Trophy Lodge in Delta, to introduce the Interior Alaska Transportation Plan and to solicit input about transportation issues in the study area.

Concerns expressed by DCOC members included:

- Waysides along Richardson Highway need better maintenance

- The 511 road information system needs to be kept reasonably up to date
- Status of proposed joint use of Allen Army Airfield by the community
- The Alaska Highway ends in Delta Junction. Road numbers should reflect this.
- Milepost 300 is an accident area to be aware of.

Trip Report

Copper Valley Area Meetings

Project: Interior Alaska Transportation Plan	**Reporter:** Suzanne Taylor, ASCG
Date/Time: 01/11/07 7:00 PM	**Location:** Glennallen

Present: See attached sign-in sheet

Meeting Highlights:

On Thursday, January 11, Nicole McCullough and Suzanne Taylor met with the Copper Valley Chamber of Commerce at the Tonsina River Lodge near Glennallen to discuss the Interior Alaska Transportation Plan and to solicit input about transportation issues in the study area.

Nicole explained the nature of the plan, the planning process and the issues already identified.

Those present, did not notice any reduction in vehicular traffic due to rising fuel costs; however, they agreed that more rental vehicles seem to be coming through and many are sharing RVs between more than one family or couples.

One member felt that cleaning the toilets in the rest areas was not DOT's role, that the contractors hired to maintain rest areas are overpaid and not doing the job well. He felt that BLM-managed rest areas are better maintained. He thought that rest areas could be run as a concession, as DNR does with campgrounds.

It was pointed out that the Dalton Highway was opened up to traffic/RVs without any provision for sanitary dump stations.

Members suggested we call Tracy in February at the CVCC to get tourism numbers. 822-5555.

Interior Alaska Transportation Plan

Glennallen, Alaska

Sign In Sheet ***January 11, 2007***

Name	Organization	Address/City/Zip	Phone	e-mail
Karen Ulrich	C.V.C.C.	PO BX 211 Gakona AK 99586		
Neil Ulrich	GCVCC	✓ ✓	✓	
Kimberlin, Bill				
Maureen Kimberlin	K.W. Taxi	HC 60 Box 221 Valdez, AK		Kimberlinswatertaxi.net
Marissa DeWit	Copper Moose B+B	HC60 Box 333		
Kathleen A McCurry	Copper Moose B+B	HC60 Box 227H Copper Center, AK 99573		
C.D. McCurry	Copper Moose B&B	" " " "	"	"
Tracy Beaudoin	CV Chamber	PO Box 469 Glennallen, AK 99588	822-5555	chamber@cvinternet.net
[illegible]		PO Box 462, Glennallen, AK, 99588	822-4461	
Jamie Heinz		PO Box 12 Glennallen AK 99588	822-5051	
KARL HEINZ	FNBA	Box 85 Glennallen AK 99588		Kheinz@FNBAlaska.
Todd Roeske	McDrum Lutheran Church	PO Box 175 Copper Center AK 99573		~~todd roeske@juno.com~~
Kim Roeske	"	"	... "	toddroeske@juno.com

Interviews:

On Thursday, January 11, Nicole McCullough and Suzanne Taylor met with **BLM Glennallen Field Office** representatives to discuss the Interior Alaska Transportation Plan and the BLM's concerns about transportation issues in the study area. The following BLM staff members were present:

- Bruce Rogers, BLM Land Use Planner
- Will Runnoe, BLM Bureau Chief/Visitor Services
- Marnie Graham, BLM Outreach Specialist
- Brenda Becker, BLM Realty Specialist

Nicole explained the nature of the plan, the planning process and the issues already identified.

Bruce said that the military needs six additional communication sites on BLM land to support their Red Flag training operations.

Will said that user numbers have greatly increased due to Princess's buses between Wrangell-St. Elias National Park and Denali National Park. Most users, including BLM, would like to see the Denali Highway remain gravel. Restroom facilities may be needed at turnouts to reduce inappropriate disposal of human waste.

Bruce provided a copy of the BLM's East Alaska Plan and referenced information therein on the Denali Highway.

They mentioned the possible designation "Back Country Byway". They thought that the possibility of roadside improvements could be a selling point for Scenic Byway designation, which has been opposed in the past by residents.

Marnie said that the high volume of trucks using the highways, such as fuel and grocery trucks, has precipitated several accidents. The annual bicycle race from Sheep Mountain to Valdez may also produce conflicts as there is a large number of RVs on the road during the summer. Some areas on the Richardson Highway have little or no shoulders and, in one instance near Miers Lake, a truck's tire went off the edge and the truck flipped. Speed may have also been a factor.

Local farmers also use the roads to transport goods to market.

A bike path and turning lanes through Glennallen would be beneficial.

Additional signage would be good.

They believe that tourist numbers have remained on a steady upward trend, although more are traveling on bus tours rather than by RV due to higher fuel costs.

Nevada Star has lease on the mineral development at Tangle Lakes; however, their sub pulled out and no development is currently underway. There is an archeological development at Tangle Lakes as well (see brochure).

Recreational use is a major issue along the highways, especially weekend use. Roads are used year-round to access areas for fishing, snow machining, hunting, RVing, and boating. More turnouts are needed. Issues of waste disposal exist, for example at the Gulkana River Bridge. The Klutina River Bridge needs better access.

Villages are concerned about trespassers. Turnouts at trailheads are not monitored and can be unsanitary.

National Park Service has Gateway Funding which should be looked into. Tourism classes were conducted to educate people on dealing well with the public. “Branding” was explored. Suggested that we talk with Meg Jensen, Park Superintendent.

Others to talk to: John Downes, ARDOR, at the Tazlina Trading Post.

Arlene Rosencrantz, USDA NRCS RCND, at Mile 93.3, past Grizzly Pizza. 822-5111.

On Friday, January 12, Nicole McCullough and Suzanne Taylor met with **ARDOR director John Downes** to discuss the Interior Alaska Transportation Plan and to solicit input about transportation issues in the study area.

John provided a copy of the 1993 CEDS.

He reported that a recent (2005) tourist survey indicated a need for more informational road signs.

John indicated that tourism in the area is still increasing. He said that Princess contributes $450,000-500,000 annually to local businesses through day trips, etc. More tourists seem to be bussing in rather than driving due to gas costs. Copper Valley is getting greater numbers of tourists because Denali NP is becoming overcrowded. The Copper Valley Princess has 87 rooms now but is designed to be expanded to as many as 300. The most immediate expansion is expected to be by about 30 rooms.

About $2.5 million was spent on McCarthy Road improvements. Unfortunately, much was lost in flooding in 2006. There were 10 or 11 thousand visitors to McCarthy last year. About 35,000 signed in at the Copper Center Visitor Center. John believes that residents, the Park Service, and the legislature all want the McCarthy Road improved; so, now would be a good time to act.

John suggested that we also speak with:

- Suzanne at Prince William Sound Community College.
- Arlene Diltz Jackson at the CRNA 822-5241
- Arlene Rosencranz at DNR RCND

He suggested public information be disseminated through Mark at the paper, KNBQ Wasilla, and the Valdez radio station.

Suzanne and Nicole also stopped in at the **Wrangell-St. Elias National Park and Preserve headquarters** in Glennallen. They spoke to Marshall Neeck the Chief Ranger, who promised to pass along information about the plan to Meg Jensen, Park Superintendent, and Vicki Snitzler, Park Planner.

Delta Junction Trip Report

Prepared by: Suzanne Taylor | **Location:** Delta Junction

Date: 3/3/09 | **Project:** Interior Alaska Transportation Plan

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Suzanne Taylor, WHPacific traveled to Delta Junction with Dave Sanches, DOT&PF, to present the recommendations to the Delta Junction City Council. Although a quorum was not present, council members and members of the public listened to the presentation and posed questions of the presenters.

Council members present were Mayor Mary Leith-Dowling, Lou Heinbockel, and Dawn Grossmann. Additional City employees present were City Administrator Mike Tvenge, Finance Officer Dave Zimmerman, Facilities Maintenance Employee Jeremy Williams, and Acting City Clerk Debbie Heral

Four members from the community also attended.

Suzanne Taylor explained that the Alaska Department of Transportation and Public Facilities began to develop the Interior Alaska Transportation Plan about two years ago. Since that time, transportation planners have identified important transportation issues in the study area, outlined goals and objectives, prepared a detailed inventory of all transportation modes in the study area, reviewed potential future mineral development, forecast future growth and analyzed the transportation system. The plan is entering the stage where the department will develop recommendations that will guide future investments in vital regional transportation projects. The intent is to have the plan recommendations finalized by the summer and the final report be made available this fall.

Taylor stated that within the five statewide regional transportation plans, our region has the majority of the highway system, which is a large component of the plan. Other parts include airports within the area. An inventory was taken in late 2006 of what is in the region – they looked at development, projected population, economic development and then studied the strengths and weaknesses of those systems and what needed to be changed. Now they are starting to make recommendations, going to communities and letting people know what they're looking at and the status of the project. Safety is one of the primary criteria for any project.

Delta has turned in a list of projects they'd like to see implemented. Pavement management needs were discussed. Delta Junction is listed under the Airports Section as needing a better airport. Discussion on the local airport and Healy Lake airport followed. Wayside maintenance was discussed. Better toilet facilities are needed along with dumpsters or at least garbage cans, if people are going to be encouraged to travel the roads.

Taylor advised that on the IATP website, Chapters 1-4 of the plan are up now and they are proofing Chapters 5 & 6. Chapter 3 still has holes, which are highlighted in yellow.

Dave Sanches, Department of Transportation (DOT)&PF Project Manager, stated the next STIP window would probably be June or July for comment and there is new scoring criteria for it. Community transportation projects deadline is the 13th of March. They will be scoring projects statewide end of April. Each region can bring 20 projects. No one is sure what will be funded at this point because it keeps changing.

The meeting adjourned at 6:00pm.

Glennallen Trip Report

Prepared by: Nicole McCullough | **Location:** Glennallen/Copper River

Date: 3/19/09 | **Project:** Interior Alaska Transportation Plan

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Nicole McCullough and Paula Hansen, WHPacific traveled to Glennallen to discuss the draft recommendations with staff from AHTNA, Copper River Native Association, Kluti Kaah Native Village and to join Dave Sanches, DOT&PF to present the recommendations to the Copper Valley Chamber of Commerce.

AHTNA – Joe Bovee, Land and Resource Specialist. After a general discussion about the IATP and transportation recommendations, Joe provided specific comments on transportation issues in the Copper Basin. He said that it appears that roadside tourism is on the decline. He said several guides and tourism related businesses, hunts, Princess Tours have reported a 30-50% decline in reservations for this summer.

- Waysides need improvements, particularly maintenance. The wayside by Mendeltna was particularly bad.
- Cantwell area needs rest areas.
- At about MP 85 on the Parks highway, safety lanes are needed.
- The road to McCarthy should be improved.
- The Denali Highway may not need to be paved but more maintenance is needed. However, DOT&PF has improved their maintenance on the Denali Highway in the last few years.
- AHTNA is exploring a potential gas well at MP 177 on the Richardson. This site is close and has good access to the highway. They will have the results of the exploratory well in 30-60 days.
- AHTNA, DNR and the NPS have lands across the Copper River. A new one lane bridge is needed to access these lands. Minerals, oil and gas resources, geothermal, and subsistence resource potential is very good in this area and would be greatly improved by better all year access. There are a couple locations between Tazlina and Glennallen where the channel is narrow and a bridge would likely be most economical.
- In 30 days AHTNA should know about funding for a wood pellet plant. Half of the funding is available now. If the plant is built, the wood pellets will be used locally for heat and power and exported to other parts of the interior. 80% of the AHTNA owned timber is across the Copper River.

Copper River Native Association - Kathy McKonkel, Director of Tribal Community Services and Gary Hay were interviewed. Kathy and Gary discussed the need for improved transit.

- Gulkana is running a regularly scheduled bus from Gulkana to Copper Center with published fares. The bus line is called Soaring Eagle.
- CRNA worked with Chickaloon on their transit plan.
- CRNA has $1.5 million from the Federal Transit Authority. They would like to partner with Gulkana and possibly other Tribes in the Copper Valley/Tanana Valley to run a bus service co-op.
- The Native Village of Tetlin also has funds for transit. They want to buy the 14 passenger vans that provide service twice a week between Anchorage and Whitehorse.
- There is a meeting to discuss transportation in Tok at 10 am on Tuesday, March 31. The contact person is Becky Wade.
- CRNA has vans to transport elders and those wanting to go to medical appointments. The vans are getting very old. It is a real concern driving in the winter and buses or vans are a big help.
- Gary likes the rumble strips.
- There is an erosion control problem near the baseball fields.
- There are not enough restrooms in turnouts.
- CRNA is just finishing up an economic development survey. One request is better egress from villages like Gulkana onto the highway. There is a need for shoulders there and in Gakona and Tazlina.

Kluti Kaah Native Village - Michelle Anderson, Kluti Kaah Tribal Administrator is working on her local Indian Reservation Roads inventory. We discussed general transportation needs and the IATP.

At the Glennallen Chamber of Commerce meeting Nicole began with an overview of the IATP and an explanation of the boundaries of the area. She went over the following recommendations:

Highways

- Improve access at McKinley Village and the Denali Park entrance.
- Implement the state's Highway Safety Improvement Plan.
- Improve highways in anticipation of the Alaska Natural Gas Pipeline and Enstar Gas Pipeline.
- Continue to improve the state's pavement management system program.
- Upgrade Northway, Manely, Nenana, Ernestine, Birch Lake and South Fork Maintenance Stations.

- Improve sight distances at wayside entry and exit points.

Airports

- Coordinate among state and federal agencies to balance military and civilian airspace requirements, protect backcountry airstrips, support postal hubs, and implement security requirements.
- Improve several airports along the proposed pipeline route to support pipeline construction.
- Improve Tok and Delta Junction airports, significantly improve Fort Yukon and Gulkana Airports, and relocate the Chistochina Airport
- FAA should recognize Healy Lake's airport in their system.
- Develop longer runways and/or instrument approaches for Birch Creek, Central, Circle City, Eagle, Manley Hot Springs, Minto, McCarthy, Stevens Village, Tetlin, and Venetie.

Other Transportation Modes

- Maintain funding for trail markings.
- Eliminate several at-grade crossings.
- Improve barge landings such as at Fort Yukon and support a new barge landing at Tanana.

Nicole also mentioned some of the recommendations that Joe Bovee and Gary Hay made. Finally, she briefly discussed the schedule for the IATP and opened the meeting up for discussion. One woman asked if the recommendations are covered in the website, and Nicole replied that they are in fact on the website. She also showed where the website can be found on the newsletter that was handed out. A few people requested drafts of the IATP, which were then handed out to them.

Following Nicole's discussion, Dave Sanches, DOT&PF, answered questions about the Northern Region construction and design projects. Many people asked when certain projects were going to begin construction. Dave listed off the projects that are scheduled for construction this summer, and mentioned that the projects associated with the pipeline construction (along Alaska Highway) are the highest priorities. He also talked about the projects that are supposed to go to bid in the near future. C.D. McCurry mentioned that improvement on the McCarthy Road would improve his business. The repairs for this section of road should either go to bid in the summer of 2009 or 2010. The details of these projects can be found in the handout that he distributed.

To close the meeting, Jeremy Weld discussed the benefits that advertising could have on promoting tourism in the Copper River Valley. He handed out two brochures: one highlights the reasons to travel to the Copper River Valley, and the other discusses tourism statistics in Alaska.

WHPacific

MEETING MINUTES

Date:	May 11, 2009	**Subject:**	Public Meeting 6:00 – 8:00 pm
Project:	Interior Alaska Transportation Plan	**Project #:**	209.004902
Attendees:	Diana Rigg	**Absent:**	
	Dave Sanches		

Dave Sanches and I set up the meeting room before 6:00pm. Shortly before 6:00pm several individuals convened in the room who were on a committee for the local high school graduation party. They were not interested in the Interior Alaska Transportation Plan and proceeded to walk through the area inspecting the space for the various venues they envisioned for the party. They finally set up a table and chairs in the lobby for the rest of their meeting.

There were two individuals who signed in at the meeting. One individual resides seasonally in Chicken and was interested in highway improvements on the Taylor Highway. The other attendee was generally interested in the project and discussed local improvements with Dave.

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Meeting Summary

Location: Fairbanks, Princess Hotel **Date:** March 31, 2010

Re: Interior Alaska Transportation Plan Public Meeting **Reporter:** Nicole McCullough, WHPacific

Purpose: A public meeting was held in Fairbanks for the Interior Alaska Transportation Plan (IATP). The purpose of the meeting was to present the final Transportation Plan and collect comments.

Attendance: Attending the meeting were several representatives from Alaska DOT&PF including Alexa Greene and Ethan Birkholtz, Northern Region Planning, Eric Taylor, Statewide Planning and Clark Milne, Northern Region Maintenance. Also attending were representatives from the MPO, the Fairbanks North Star Borough (FNSB), Native Village of Minto and members of the Public. Nicole McCullough and Paula Hansen, WHPacific provided displays and were available to answer questions about the plan and take comments.

Public Meeting Summary: Several displays were set up including a map of the planning area, a summary of the chapters, goals and recommendations. Participants had the following comments:

Karen Kelly, Citizen – Karen wanted to make sure that there was consideration of bicycle facilities in the plan. Nicole explained that the plan did recognize bicycle facilities, although there were no recommendations for bicycle facilities on any routes. She also mentioned that the plan did not include the Fairbanks Metropolitan Area Transportation System (FMATS) area.

Bruce Carr, Alaska Railroad – The Railroad would like additional information in the recommendations section of the plan regarding railroad projects. He will be supplying an insert for the Railroad recommendation section.

Clark Milne, DOT&PF – Clark said that there is a need to add a recommendation to build a maintenance station at Antimony on the Parks Highway.

Donna Gardino, FMATS MPO Coordinator – Donna said that she is currently reviewing the plan and will provide comments. She noticed a need to add information about air quality.

Luke Hopkins , FNSB Mayor, - Mayor Hopkins asked about the study area and commented that although the study area did not include the Fairbanks Metropolitan Planning Organization area, he wanted to make sure the NHS routes within the FMATS area were included in the plan. Alexa said she will ask Eric Taylor about the inclusion of those routes within the FMATs area.

Luke also wanted to make sure that the plan included gas line projects. Alexa and Nicole said the plan discusses the need for road improvements should the gas line be constructed. There is a list of gas line projects and estimated cost; although no years are assigned since the timing is unknown. Nicole said that the plan will change as needed, to accommodate those projects.

Another comment was to include a discussion of the Western Access Study and how a road to Nome could impact the planning area. One of the routes would go through Manley and require improvements on the Elliott highway.

Stan Halverson and Donna Gardino suggested that a brief presentation be made the following morning at the Transportation Committee. Nicole agreed to attend, make a presentation and be available for questions. The meeting adjourned about 6:30 pm.

April 1, 2010 Fairbanks Chamber of Commerce Transportation meeting - Nicole made a brief presentation at the Thursday morning Chamber of Commerce meeting which was followed by a few questions. One member wanted to know the boundaries of the study area which Nicole described. Someone else wanted to know if the plan included a discussion of the minerals in the planning area. Nicole said that it did. Tom George, AOPA, asked about the comment period and if a more lengthy presentation could be made before the Transportation Committee. Nicole said the formal comment period ends April 30th. She said that she could return.

After the Chamber meeting, Donna coordinated a return presentation on May 20th. Tom George asked about including a Delta Regional Airport in the plan and wondered about the spacing of regional airports. Nicole said that Tok is recommended as a regional plan and she said the plan does recommend a public airport be developed in Delta. Tom suggested revisiting a Joint Land Use agreement with Allen Army Airfield that would allow pilots to land there under IFR conditions. He said it became very apparent during the fires in Fairbanks when the alternate airports to Fairbanks, like Tok were too far away. Nicole said that she will pass that along to Sara Funk who is coordinating the aviation section of the plan.