The Steese Winding Up South Side of Eagle Summit, by Don Hamilton.
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CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS PLANNING STUDY

FINAL REPORT
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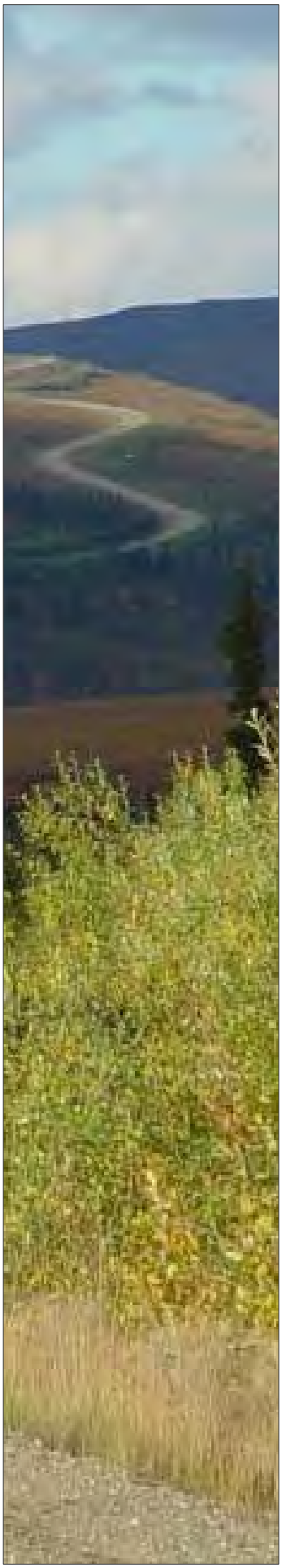

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS PLANNING STUDY

FINAL REPORT

December 2006

Submitted to:

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In association with

URS Corporation
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CH2M HILL

EXECUTIVE SUMMARY

This study concludes that funding and implementing improvements to the Steese Highway all the way to its terminus at Circle would be the most cost effective and feasible way to improve access to the Central-Circle Hot Springs-Circle region of Interior Alaska. Upgrading the Steese Highway would be the first step in revitalizing the region's economy. It would provide convenient access from Fairbanks to the Interior and Yukon River for commercial tour companies, which presently exclude the Steese because it is not rated to support bus traffic, and for private tourists, who are currently prohibited from driving rental cars on the unpaved portion of the highway. Construction of a loop highway connecting Chena Hot Springs and Circle Hot Springs could be considered as an additional step in the future, if conditions warrant.

A major obstacle to constructing a loop highway directly linking the two resorts is the requirement to cross the Birch Creek National Wild River and Steese National Conservation Area. To overcome federal land use restrictions designed to preserve the natural features of these areas, changes to the management plans of both national conservation system units would be required, necessitating a lengthy regulatory and public review process that would include an environmental impact statement. In addition, the connecting highway would require construction across complex and high terrain, making the completed road nearly as vulnerable to winter closures from snow drifting as the existing Steese Highway. The additional maintenance required for the new highway would strain the existing maintenance budget for the Department's Northern Region.

This report recommends that the Steese Highway Improvements Alternative be developed further and include improvements to the 33-mile portion of the Steese Highway between Central and Circle. During this study, improvements to the Central-to-Circle segment were requested by the public—more than any other roadway project.

Upgrading the Steese would improve safety, vehicle-operating costs, and travel times. The improvements would allow commercial tour companies to access Central, Circle Hot Springs, Circle, and the Yukon River, opening doors to new opportunities that would incorporate the historic river and mining district into an expanded regional tourism and recreational system, and stimulating economic growth in this currently isolated part of the Alaskan Interior.

Introduction and Background. In 2003, Governor Murkowski proposed a plan to construct new roads in Alaska to increase access to communities and resources in support of economic development. In response, the Alaska Legislature initiated and adopted Resolution SCR1 that included a new road northeast of Fairbanks that would link Chena Hot Springs Road to Circle Hot Springs Road and the Steese Highway.

The Legislature appropriated $250,000 to the Department to conduct a planning and economic feasibility study of the route. This report documents that study. The purpose of the study was to initiate agency and public discussions and identify alternative routes, costs,

benefits, and environmental issues on a preliminary basis. This report provides information that decision makers can use to decide whether further investment in the project is desirable.

In addition to a No Action Alternative, the study team identified four preliminary build alternatives for further analysis (Figure 3-1, Appendix C):

- A direct connection between Chena Hot Springs Road and Circle Hot Springs Road (New Highway Alternative A-B)
- A route from Chena Hot Springs Road that would follow RS 2477 trails in the study area to connect to the Steese Highway near the historic Miller House site (New Highway Alternative A-C)
- A route from Chena Hot Springs Road to the Steese Highway near Twelvemile Summit (New Highway Alternative A-D)
- Upgrades to the existing Steese Highway (Steese Highway Improvements)

New Highway Alternative A-C, a variant of the A-B route, was analyzed but not carried forward to the final evaluation because it offered no advantage over the A-B route, while incorporating the disadvantages of that alternative.

The following aspects of the study were investigated and evaluated to form the basis for the recommendations in this report.

Public, Tribal and Agency Consultation. An interagency consultation meeting was held in December 2004 to review preliminary concepts and seek advice regarding regulatory and policy issues relevant to the project. The study team conducted public scoping meetings in Central and Fairbanks in January 2005. The majority of public comments supported maintaining and upgrading the Steese Highway and opposed a new highway linking Chena Hot Springs and Circle Hot Springs roads. Of the 122 position statements made by the public, 11 were generally supportive of a new road and 111 opposed. Of the 29 letters or email messages received, 23 recommended upgrading and/or enhanced maintenance of the Steese Highway as the most appropriate action. First Chief Paul Nathaniel, of the Circle Tribal Council, was interviewed on May 31, 2005. He said that there would be little benefit from a new road, given that there is already an existing road (the Steese Highway) to Circle. He emphasized that the 33-mile Central-to-Circle segment of the Steese Highway is in poor condition from numerous washouts and is greatly in need of improvement. On October 3, 2006, planning team members met in Circle with representatives of the Circle Village Council. The Council members concurred with the study conclusions and recommendations. They emphasized the importance to their village of improving the 33-mile section of the Steese Highway between Central and Circle.

Engineering, Construction and Maintenance Considerations. The engineering and construction criteria used to evaluate the alternatives were available right-of-way, soil conditions, expected maintenance, material haul distance, structure expense, and route length. Based on these criteria, the Steese Highway Improvements Alternative was found to rank highest, and New Highway Alternative A-C was found to rank lowest. With respect to

maintenance, the Steese Highway Improvements Alternative outranks the others because it is assumed that the proposed improvements would decrease future maintenance costs. In contrast, the new highway alternatives would add maintenance costs to the region and require that a new maintenance station be constructed in the Chena Hot Springs area to service the new highway.

Land Use, Environmental and Regulatory Constraints. The primary constraint on the selection of a new highway alternative is the requirement to cross federal lands constituting the Steese National Conservation Area and Birch Creek National Wild River. New Highway Alternatives A-B and A-C, and one variant of New Highway Alternative A-D, would cross or encroach on one or both of these federal conservation system units.

The Birch Creek River Management Plan, following the Alaska National Interest Lands Conservation Act, requires demonstration that there are no "economically feasible and prudent alternative routes" to any proposed road crossing of the National Wild River corridor (BLM 1983). If BLM finds the existing Steese Highway to be an "economically feasible and prudent alternative" to a proposed new road (which is likely), both the Birch Creek River Management Plan and the Steese National Conservation Area Resource Management Plan would have to be amended to allow construction of a new roadway. The amendments would be major federal actions requiring an environmental impact statement. This would necessitate a two to four year public involvement, agency consultation, resource inventory and impact assessment process in compliance with the National Environmental Policy Act, along with the granting of permits and approvals by federal agencies with regulatory jurisdiction over the federal lands and resources that would be affected by the new road.

Economic Benefits and Costs. Economic benefits from enhanced tourism and recreational opportunities generated by the build alternatives are estimated to range from $2.2 million to $2.6 million per year. Furthermore, it is estimated that the Steese Highway Improvements Alternative would generate travel-time savings up to $2.5 million per year. These travel-time savings could include a 5-mile-per-hour increase in average vehicle speed due to the additional paved road surface, and savings of approximately $230,000 per year from eliminating or reducing road closures. New Highway Alternatives A-B, A-C, or A-D would not generate travel-time savings for road users, because the trip distance between Fairbanks and Central for any of these alternatives would be longer than the existing Steese Highway route. It is important to note that improvements to the Steese Highway would be required for any of the other alternatives, because the Steese Highway portion should be an integral component of any Chena Hot Springs-to-Circle Hot Springs loop road concept. This consideration was a crucial factor in the feasibility analysis.

In summary, this study finds that upgrading the Steese Highway all the way to Circle would be the most cost effective, timely, and feasible way to create opportunities for economic growth in this presently semi-isolated and under-utilized part of Interior Alaska, a conclusion that reflects substantial support from the region's residents.

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ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ADF&G	Alaska Department of Fish and Game
ADLWD	Alaska Department of Labor and Workforce Development
ADNR	Alaska Department of Natural Resources
ADNR/DMLW	ADNR Division of Mining, Land and Water
ADNR/DPOR	ADNR Division of Parks and Outdoor Recreation
ADNR/OHMP	ADNR Office of Habitat Management and Permitting
ADOT&PF	Alaska Department of Transportation and Public Facilities
ADT	average daily traffic
ANILCA	Alaska National Interest Lands Conservation Act
BLM	Bureau of Land Management
DCCED	Alaska Department of Commerce, Community, and Economic Development
FCPT	Fortymile Caribou Planning Team
FCVB	Fairbanks Convention and Visitors Bureau
FHWA	Federal Highway Administration
FIA	Fairbanks International Airport
LAS	Department of Natural Resources' Land Administration System
NCA	National Conservation Area
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPV	Net present value
NRA	National Recreation Area
NWR	National Wild River
SCORP	State Comprehensive Outdoor Recreation Plan
SHPO	State Historic Preservation Officer
SRA	State Recreation Area
USACE	US Army Corps of Engineers
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
VOC	vehicle operating cost
WSRA	Wild and Scenic Rivers Act

1 INTRODUCTION

This report documents a planning study conducted by the Northern Region, Alaska Department of Transportation and Public Facilities (the Department), to examine the feasibility of building a connecting highway directly between Chena Hot Springs Road and Circle Hot Springs Road in Interior Alaska, thereby forming a loop with the Steese Highway allowing round-trip surface travel to and from Fairbanks. The purpose of this project would be to accelerate and expand economic development opportunities in the Interior, particularly through commercial tourism, by improving access to, and connectivity among, Chena Hot Springs, Circle Hot Springs, and the communities of Central, Circle, and Fairbanks.

At present, Chena Hot Springs, at the end of the paved Chena Hot Springs Road, is accessible by surface travel from Fairbanks, but there is no developed roadway connecting Chena Hot Springs with Circle Hot Springs, Central, and Circle. The latter three destinations are accessible from Fairbanks by the Steese Highway, about 40 percent of which is paved and the remainder a gravel road maintained annually and kept open in winter. During winter storms, road closures lasting several days occur most years in the vicinities of Twelvemile Summit (Milepost 85.5) and Eagle Summit (MP 107.5).

In addition, the report examines the feasibility of building two potential alternative routes that would connect Chena Hot Springs Road with the Steese Highway at points west of Circle Hot Springs, providing loop roads that would indirectly connect Chena Hot Springs Road and Circle Hot Springs Road and allow round-trip surface travel to and from Fairbanks. These alternatives would include improvements to the Steese Highway portion of each route to provide a full-service loop.

Finally, the report considers a fourth alternative, upgrading and paving (with high float surface treatment) the currently unimproved portion of the Steese Highway from MP 62, where paving ends, to MP 155, the Steese Highway terminus at Circle, on the Yukon River.

In preparing this report, the planning team has relied on the Procedural Guidelines for Highway Feasibility Studies issued by the Federal Highway Administration (FHWA) in September 1998 (FHWA 1998).

1.1 Background and Purpose

In 2003, Governor Frank Murkowski proposed a plan to construct new roads in Alaska to increase access to communities and resources in support of economic development. In response, the Alaska Legislature initiated and adopted Resolution SCR1 supporting several new road corridors in Alaska. Included in the resolution was a proposed new road northeast of Fairbanks that would link Chena Hot Springs Road to Circle Hot Springs Road and the Steese Highway. The purpose of the new road would be to create an approximately 250-mile scenic travel loop and provide increased economic and recreational opportunities within Interior Alaska, particularly through the encouragement of commercial tourism. The Steese

Highway is already a component of the Alaska Scenic Byways program administered by the Department, and it is likely that a new connecting highway would also be proposed as a Scenic Byway.

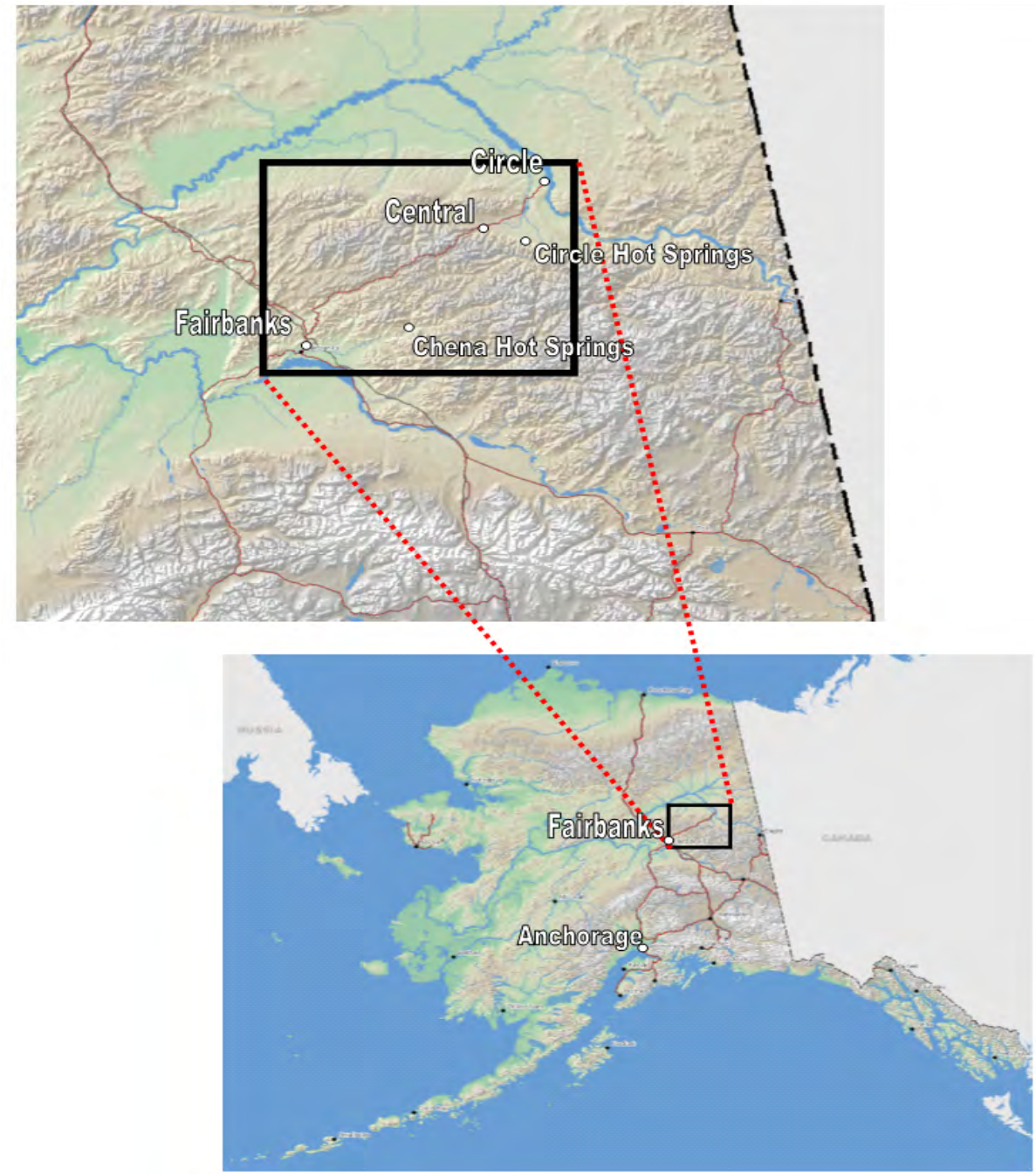
In implementing Resolution SCR1, the Legislature appropriated $250,000 to the Department to conduct a planning and economic feasibility study for a new loop road. This study has initiated agency and public discussions and has developed a preliminary identification of alternative routes based on those discussions, along with an option to improve the existing Steese Highway, a preliminary benefit-cost analysis of all options, and the identification of pertinent environmental and regulatory issues. The information provided by this study will aid policy makers in deciding whether further investment in one of the alternative projects is desirable.

1.2 Project Setting

The study area (Figure 1-1) is between about 60 and 125 miles northeast of Fairbanks in Interior Alaska. The region has a continental subarctic climate, characterized by seasonal temperature extremes (ADCED 2005). The average high temperatures for summer occur during July, ranging between 65 and 72 degrees Fahrenheit, while the average winter lows are well below 0 degrees Fahrenheit. Annual precipitation is generally light (Selkregg 1977), averaging 6-1/2 inches of rain and 43 inches of snow (ADCED 2005). In general, elevations range from less than 1,000 feet above sea level along the bottom of Birch Creek to over 5,000 feet along the southern boundary of the Steese National Conservation Area (Figure 1-2), and most of the study area is above 2,000 feet.

The study area includes two existing highways: the Steese Highway and Chena Hot Springs Road. The 155-mile Steese, paved to MP 62, provides access to two small communities and an historic resort, presently closed. Circle, with a 2000 census population of 100, is on the left bank of the Yukon River at the end of the highway (MP 155), and Central, with a 2000 census population of 134, is at about MP 122. Both are historic mining communities. Circle, established in 1893, served as a regionally important river port and supply center for the Interior gold fields. Today it is a predominantly Athabascan community with a federally recognized tribe. Central, which began as a roadhouse on the supply trail connecting Circle to the gold fields, is home to the locally managed Circle Mining District Museum. While both communities are potential visitor destinations, neither has a developed tourist economy. The historic resort of Circle Hot Springs, established in 1930, is located at the end of a road spur about 8 miles from Central. Although the resort has been closed in recent years, it has long been a popular recreational destination for local residents. The Central-Circle-Circle Hot Springs area has substantial potential as a tourist destination. All three locations are accessed by the Steese Highway, and each has a well-maintained airstrip. A key factor limiting tourism in the area is the absence of a paved highway that would provide reliable access to tour buses, recreational vehicles, and rental cars [Interview, Deb Hickok, President and CEO, Fairbanks Convention and Visitors Bureau (FCVB), February 1, 2006].

Figure 1-1 Chena Hot Springs to Circle Hot Springs Study Area and Vicinity Map



Source: Alaska Department of Natural Resources (ADNR) Land Administration System (LAS)

The second highway in the study area, the paved 56.5-mile Chena Hot Springs Road, provides access to historic Chena Hot Springs Resort and, along the way, to the Chena River State Recreation Area. Chena Hot Springs Road serves many residential properties and is an important daily transportation route for commuters to Fairbanks. Chena Hot Springs was discovered in 1905 and was already an established resort by 1911. The present-day resort is a popular, year-round destination for local residents and tourists, and it is a major program component for commercial tourism in the Alaskan Interior (Interview, Deb Hickok, President and CEO, FCVB, February 1, 2006).

The study area is a region of great natural beauty. Vegetation depends heavily on elevation and aspect. Black spruce dominates north-facing slopes, whereas white spruce, aspen, and paper birch occur along ridge tops, on south-facing slopes, and generally on well-drained soils. In low-lying, poorly drained areas, muskeg and sedge tussocks dominate (Selkregg 1977). Discontinuous permafrost exists throughout the region.

A variety of wildlife species inhabits the study area (BLM 1984:101). Large mammals include caribou, moose, Dall sheep, grizzly bear, black bear, and wolf. Furbearers include wolverine, marten, beaver, fox, lynx, mink, and river otter. Small game such as grouse, ptarmigan, and snowshoe hare are abundant. Resident fish species include arctic grayling, whitefish, northern pike, and burbot (BLM 1984:102). Anadromous and some resident fish species have been absent as a result of past aquatic habitat damage from mining, but they are beginning to return to streams in the study area as conditions improve (Interview, Bill Morris, ADNR/OHMP, April 18, 2005).

As previously noted, the study area encompasses an environmentally and historically important part of Interior Alaska that offers substantial and diverse outdoor recreation opportunities for tourists as well as local residents. In recognition of this significance, Congress in 1980 established four national conservation system units in the immediate study area with passage of the Alaska National Interest Lands Conservation Act (ANILCA):

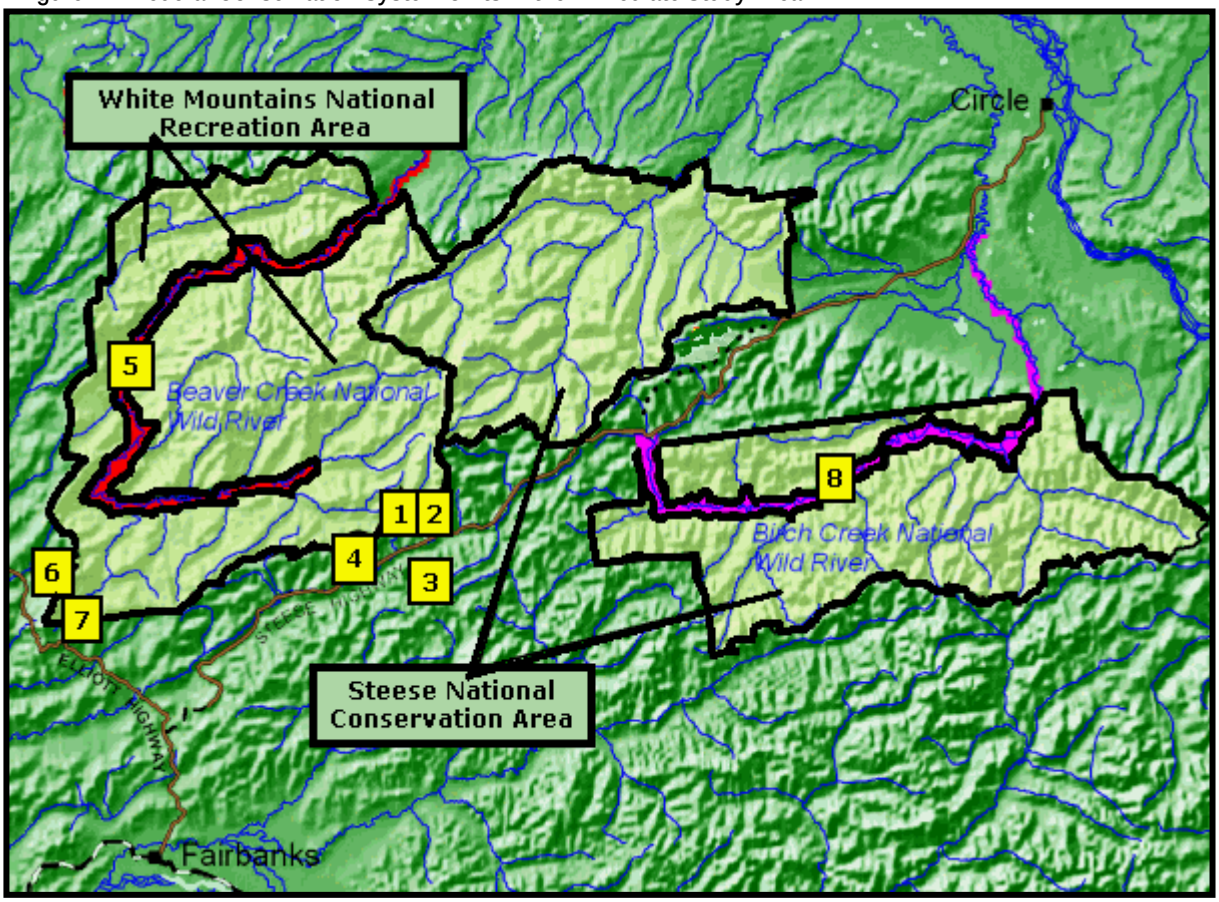
- The 1,875-square mile Steese National Conservation Area (Steese NCA)
- The 1,562-square mile White Mountains National Recreation Area (White Mountains NRA)
- The 114-mile Beaver Creek National Wild River (Beaver Creek NWR)
- The 126-mile Birch Creek National Wild River (Birch Creek NWR), about 77 miles of which run through the Steese NCA (Figure 1-2)

All four units are administered by the US Department of the Interior, Bureau of Land Management (BLM), and are accessed from the Steese Highway.

In addition, Chena Hot Springs Road provides access not only to the privately owned Chena Hot Springs Resort, but also to the 397-square mile Chena River State Recreation Area (Chena River SRA), located on both sides of Chena Hot Springs Road between about MP 26 and MP 51. A variety of smaller outdoor recreation areas is located on the highway system closer to Fairbanks. For example, a meandering 17-mile reach of the Chatanika River, well suited for a day's float trip, links the 73-acre Upper Chatanika River State Recreation Site, accessed at Mile 39 Steese Highway, with the 570-acre Lower Chatanika State Recreation Area, accessed at Mile 11.4 Elliott Highway. This range of federal and state conservation units, from vast and remote wilderness to developed, road-accessible campgrounds, provides a wealth of opportunities for outdoor recreation and tourism lightly utilized at present.

Along with the recreational areas noted above, the region has an important legacy as a cultural resource reserve and historical mining district. It includes many known archaeological sites associated with Alaska Native cultures, which are believed to have occupied the area for as long as 12,000 years. It also has numerous historical sites and trails associated with gold mining, some of which are still used for small-scale commercial mining and for recreational gold-panning and suction dredging (Interview, Frank Maxwell, ADNR/DMLW, May 3, 2005). The first 243 miles of the Yukon Quest Sled Dog Race passes through the study area, following parts of the old Circle to Fairbanks trail. With these attributes, the region offers many opportunities for year-round outdoor recreation and tourism that are distinctive in character from other parts of Alaska and only lightly utilized at present (Interview, Deb Hickok, President and CEO, FCVB, February 1, 2006). A key objective of the highway alternatives evaluated by this planning study would be to provide the foundation for a reliable, long-term transportation infrastructure that would allow these opportunities to be developed and greater economic prosperity brought to residents of the study area.

Figure 1-2 Federal Conservation System Units in the Immediate Study Area



Source: BLM Website, Recreation Sites in Alaska's National Recreation and Conservation Areas, http://www.ak.blm.gov/ak930/recreationconservation2MAP.html

Legend: Numbered Recreation Sites and Highway Access Points

1. Ophir Creek Campground, Steese Highway MP 57, Nome Creek Road
2. Mount Prindle Campground, Steese Highway MP 57, Nome Creek Road
3. Cripple Creek Campground, Steese Highway MP 60
4. McKay Creek Trail, Steese Highway MP 42
5. Beaver Creek NWR, Steese Highway MP 57, Nome Creek Road
6. White Mountains Summit Trail, Elliott Highway MP 28
7. Wickersham Creek Trail, Elliott Highway MP 28
8. Birch Creek NWR, Steese Highway MP 94.5, 140, 147

In addition, the 27-mile Pinnell Mountain National Recreation Trail traverses the high country between trailheads on the Steese Highway at Twelvemile Summit (MP 85.5) and Eagle Summit (MP 107.5).

1.3 Report Organization

Following this introduction, the report includes eight chapters:

- Chapter 2, *Public, Tribal and Agency Consultation,* reviews comments and advice on refining and expanding the alternatives received from residents living along the two main highways in the study area, Chena Hot Springs Road and the Steese Highway. Their comments were provided to the study team at two public meetings, one in Central on January 26 and in Fairbanks on January 27, 2005; and by letter, email, and interviews. Tribal consultation was conducted on May 31, 2005 with First Chief Paul Nathaniel of the Circle Tribal Council. Representatives of pertinent federal, State of Alaska, and local regulatory agencies had previously reviewed and suggested improvements to the preliminary route concepts at an interagency meeting in Fairbanks on December 9, 2004. The study team subsequently interviewed some agency representatives individually in response to recommendations discussed at the interagency meeting. Further public, tribal and agency consultation will be conducted during the review process for this draft report.

- Chapter 3, *Alternatives under Study,* describes five alternatives: three routing options for a new road, an option to improve the existing Steese Highway, and No Action. The build alternatives discussed in Chapter 3 are refinements that incorporate the comments and advice of the public and agency representatives from the meetings and interviews discussed in Chapter 2.

- Chapter 4, *Engineering, Construction and Maintenance Considerations,* discusses the alternatives in terms of engineering and construction feasibility and maintenance issues. In the case of No Action, implications for future transportation and access in the study area are discussed under the stated assumption that routine road maintenance will continue at present levels of funding and effort. The chapter ends with a comparison of the five alternatives with respect to their engineering, construction, and maintenance characteristics.

- Chapter 5, *Land Use, Environmental and Regulatory Constraints,* provides a general description of land use and ownership; regulatory requirements and restrictions associated with public lands in the study area; environmental features including fish and wildlife, archaeological sensitivities, and wildfire occurrence; and social considerations such as remote cabins, patterns of access, and recreational use of the study area. Again, this chapter ends with a systematic comparison of the alternatives in relation to these considerations.

- Chapter 6, *Benefits and Costs of the Project Alternatives,* identifies at a conceptual level the most noteworthy benefits and costs likely to be associated with each of the five alternatives. In addition to economic factors, the benefit-cost analysis incorporates relevant information from the engineering, construction, maintenance,

regulatory, environmental, and social considerations discussed in Chapters 4 and 5. This chapter ends with an economic comparison of the five alternatives.

- Chapter 7, *Feasibility Comparison of the Alternatives,* brings together all of the factors discussed in the preceding three chapters and ranks the alternatives with respect to their overall feasibility. In this context, following FHWA (1998) guidance, the term *feasibility* has three aspects:

  - The degree to which each alternative is economically justified
  - The degree to which the alternative is considered preferable from an environmental or social perspective
  - The degree to which eventual construction and operation can be financed and managed

- Chapter 8, *Recommended Future Actions,* presents a clear recommendation based on the feasibility comparison of the alternatives in Chapter 7 and justified by the information presented in Chapters 2 through 6. The recommendation presented in Chapter 8 is to implement the Steese Highway Improvements Alternative, including the 33-mile portion of the highway from Central to Circle, on the Yukon River.

- Chapter 9, *References,* lists the information sources used for this planning study.

- Finally, the *Appendices* present notes on the December 9, 2004 agency scoping meeting (Appendix A, Agency Consultation); written comments submitted by the public (Appendix B, Public Involvement); and detail on the alignment alternatives (Appendix C, Engineering Drawings and Data).

2 PUBLIC, TRIBAL AND AGENCY CONSULTATION

Early consultation with the public, especially residents, business owners, and recreational and subsistence users of the areas that would be affected by the project alternatives, is a crucial and necessary component of scoping for transportation planning studies. Tribal consultation is also important and required by Department policy (ADOT&PF 2002). Furthermore, early and extensive consultation with regulatory agency representatives must be conducted, because federal, state, and local agencies are responsible for protecting the public interest through regulations and permitting requirements, and through their jurisdictional authority over potentially affected lands, waterways, and resources.

This chapter describes the public scoping and agency consultation process completed for the Chena Hot Springs to Circle Hot Springs Planning Study, and summarizes the findings. The team relied heavily on the information obtained through this process in developing the alternatives described in Chapter 3.

2.1 Preliminary Concepts

Before meeting with the public and agency representatives, the study team developed four preliminary concepts, shown in Appendix C, Figure 3-1, as a starting point for discussion:

1. A direct route connecting Chena Hot Springs and Circle Hot Springs (A-B)

2. A route utilizing existing RS 2477 trails (Section 2.2.2) along the North Fork of Harrison Creek to connect Chena Hot Springs Road with the Steese Highway near the historic Miller House location (A-C)

3. A loop road connecting Chena Hot Springs Road and the Steese Highway near Twelvemile Summit (A-D)

4. An upgrade to the existing Steese Highway to improve safety, drivability, and suitability for winter maintenance

In addition, it was understood that the implications of taking no action—that is, continuing the current levels of funding and maintenance for Chena Hot Springs Road and the Steese Highway—would be examined as the No Action Alternative.

2.2 Agency Consultation

The Department project manager, deputy project manager, and consultant study team met on December 9, 2004 with representatives of Federal and State of Alaska regulatory agencies and the Fairbanks North Star Borough. Meeting minutes, including the list of attendees, are presented in Appendix A.

A brief initial presentation covered the background and intent of the planning effort, and described the four preliminary concepts that would serve as its starting point:

- A direct connection between Chena Hot Springs Road and Circle Hot Springs Road (A-B)
- A route that relies partially on existing RS 2477 trails in the area (A-C)
- A route connecting Chena Hot Springs Road with the Steese Highway near Twelvemile Summit (A-D)
- Upgrading and enhanced maintenance of the existing Steese Highway

The extended discussion among the meeting participants identified constraints and considerations that would guide the planning effort and be communicated to the public in Central and Fairbanks in the forthcoming public scoping meetings. (Section 2.3). The main topics were as follows:

- Jurisdictional restrictions associated with the Steese NCA and Birch Creek NWR, both administered by BLM under ANILCA and the Wild and Scenic Rivers Act (WSRA)
- Possible use of RS 2477 trails within the Steese NCA as a basis for portions of a new road
- Potential beneficial and adverse impacts of a new road on local businesses
- Potential disturbance of archaeological and other cultural resource sites by road construction in the study area, and documentation requirements under Department of Transportation Act Section 4(f) and Section 106 of the National Historic Preservation Act (NHPA) as administered by the Alaska Department of Natural Resources, State Historic Preservation Officer (SHPO)
- Avoidance of wetlands and mitigation of wetland impacts under requirements of Section 404 of the Clean Water Act as administered by the Alaska District, US Army Corps of Engineers (USACE)
- Protection of waterway integrity and anadromous and resident fish and their habitats during work in or near streams, under Alaska Statutes 41.14.840 and 41.14.870, as administered by the Alaska Department of Natural Resources, Office of Habitat Management and Permitting (ADNR/OHMP)
- Impacts of a new road on the Fortymile caribou herd
- Potential disturbances to owners of recreational cabins on remote parcels deeded by ADNR along the West and North forks of the Chena River

2.2.1 Jurisdictional Restrictions within Federal Conservation System Units

Existing restrictions under ANILCA would prohibit the construction of a road inside the Steese NCA. To allow such a road, the Steese NCA Management Plan, due for an update in 2010, would have to be revised in draft form prior to initiation of an environmental impact statement (EIS) under the National Environmental Policy Act (NEPA). The Steese NCA is divided into six management unit categories (BLM 1986). Three of the categories (Primitive, Research Natural Area, and Wild River Corridor) are closed to summer all-terrain vehicle (ATV) use, and one category (Research Natural Area) is closed to winter snowmachine use. BLM is moving toward developing planned trails in the area. The Yukon Quest sled dog race follows an RS 2477 trail up the North Fork of the Chena River, but departs the RS 2477 around Boulder Creek before entering the Steese NCA on Rosebud Summit.

With regard to Birch Creek NWR, the intent of the current management policy is to provide a remote, 126-mile river trip with extremely limited access. The BLM representative stated that a bridge crossing the creek would not be a compatible use of the corridor as regulated under the WSRA, and that BLM would oppose breaking up the continuity of the corridor with additional vehicle access points. In addition, the Birch Creek unit has visual resource management Class I objectives. The purpose of this class is to preserve the existing character of the landscape. The designation provides for natural ecological changes and does not preclude limited management activities. The level of visible change to the landscape, however, must be minimal and not attract attention.

BLM had already been in communication with the Department regarding a proposed loop road linking Chena Hot Springs Road with Circle Hot Springs Road and/or the Steese Highway. A BLM position paper on this topic dated January 8, 2003, with which the study team was already familiar, was distributed and discussed. The BLM representative confirmed that the January 8, 2003 document represented BLM's current position. This position paper and a brief clarification by BLM to the December 9, 2004 meeting minutes are presented in Appendix A.

The Fairbanks North Star Borough representative noted there might be community support in Fairbanks for improved access to Birch Creek provided by a loop road through the Steese NCA. Some Borough residents, he said, might appreciate the opportunity of a shorter float trip down Birch Creek provided by new road access.

2.2.2 Potential Use of RS 2477 Trails

Revised Statute 2477 (RS 2477) of the Mining Act of 1866, repealed in 1976, granted rights-of-way "for the construction of highways over public lands, not reserved for public uses." Although their legal status is complex, some RS 2477 trails that existed prior to the statute's repeal, including a number of trails within the Steese NCA, have been identified by ADNR. The State of Alaska claims a 100-foot width on RS 2477 trails. In 1999, however, the state and BLM settled out of court on a 1997 RS 2477 Quiet Title action concerning an RS 2477 route along Harrison Creek to Portage Creek within the Steese NCA. The resulting right-of-way is 60 feet in width.

Preliminary route concept A-C would design a Chena Hot Springs to Circle Hot Springs highway to make optimal use of RS 2477 trails within the Steese NCA. ADNR Division of Mining, Land and Water (ADNR/DMLW) representatives (Interview on May 3, 2005) indicated that these RS 2477 trails are presently intended for recreational use, hunting, trapping, and subsistence, and that their conversion to a through-traffic highway would conflict with these management objectives. Because some existing uses of RS 2477 trails in the study area could be defined as Federal Subsistence under Section 810 of ANILCA, conversion of RS 2477 trails might require further legal adjudication from that standpoint.

2.2.3 Effects on Local Businesses

The USACE representative commented on potential impacts to small businesses along the Steese Highway and at Circle Hot Springs if an alternative route to Circle Hot Springs were constructed. She pointed out that unintended consequences could occur, depending on the exact location of a business in relation to the new highway configuration. A loop could have positive or negative economic effects on local businesses, depending on changes to existing traffic flow. A loop route with vehicles traveling from Chena Hot Springs to Circle Hot Springs, and returning on the Steese Highway, would probably increase vehicle traffic on both Chena Hot Springs Road and the Steese Highway. Businesses in Circle, on the Yukon River 33 miles east of Central, could also be affected by a loop road. The USACE representative emphasized the need to review the intent of legislation and potential impacts on small businesses in the study area.

2.2.4 Potential Disturbance of Cultural Resource Sites

It was anticipated that the study area would contain a substantial number of archaeological sites and other cultural resource sites such as historic mines and cabins. As part of its scope of work, the project team had scheduled a cultural resources assessment of the study area (conducted in 2005 and described in Section 5.2.1), including historic assessments under NHPA Section 106, to identify sites eligible for federal protection. Old mines and higher-elevation slopes and ridges in the Interior have the potential to be cultural sites, and most are avoidable by alignment refinements. If one of the build alternatives moved forward to the NEPA EIS stage, comprehensive evaluations of potential effects on cultural resources and public lands would be required under US Department of Transportation Act Section 4(f) and NHPA Section 106.

2.2.5 Avoidance and Minimization of Impacts on Wetlands

Wetlands occur throughout the study area and in most instances regulated by USACE under Section 404 of the Clean Water Act. Fill placement in wetlands requires a Section 404 permit if the wetlands connect to waters of the United States, a designation that includes the creeks and rivers of the study area. These jurisdictional wetlands must be mapped and characterized so that they can be evaluated and, if appropriate, fill placement can be permitted by the USACE in advance of any construction. To facilitate permitting, highway design should incorporate site-specific provisions to avoid fill placement in wetlands wherever technically and economically feasible, and to minimize unavoidable impacts from fill placement.

The USACE representative stated that wetlands are likely to occur in any stream or river corridor, in broad valleys, and on north-facing slopes throughout the study area. Detailed wetland delineation and mapping from air photos, followed by ground-truthing, would be necessary for any proposed new road alignment, because National Wetland Inventory mapping has not been conducted in the study area. With respect to mitigation, the USACE representative encouraged the use of upland material sites to avoid erosion and sedimentation impacts on wetlands and stream or river corridors, but it was also noted that upland sites could produce visual impacts.

2.2.6 Protection of Waterway Integrity and Fish Habitats

Preconstruction, construction, and maintenance activities within or across fish streams in the study area would require permitting by ADNR/OHMP under Alaska Statutes 41.14.840 and 41.14.870. Alaska Statute 41.14.840 (the Fishway Act) requires the permitting of activities within or across a stream used by fish if OHMP determines that such uses or activities could represent an impediment to efficient fish passage. For example, culvert installation, water withdrawals, stream realignment or diversion, dams, low-water crossings, and construction, placement, deposition, or removal of any material or structure below ordinary high water all require approval from OHMP.

Alaska Statute 41.14.870 (the Anadromous Fish Act) requires that an individual, organization, or government agency provide prior notification and obtain permit approval from OHMP "to construct a hydraulic project or use, divert, obstruct, pollute, or change the natural flow or bed" of a specified waterbody [AS 41.14.870 (b)]. All activities within or across a waterbody that supports any life stage of an anadromous fish species require prior permitting by OHMP. Such activities include construction, road crossings, gravel removal, mining, water withdrawals, the use of vehicles or equipment in the waterway, stream realignment or diversion, bank stabilization, blasting, and the placement, excavation, deposition, or removal of any material.

Not all fish streams in the study area have been identified and characterized. Cataloging of streams for fish populations is ongoing, and individual tributaries may have to be sampled. Aufeis formation is a problem with side-hill road cuts in the study area and can impose long-term impacts on fish and fish habitats.

2.2.7 Potential Impacts on the Fortymile Caribou Herd and Wildfire Implications

The ADNR/OHMP representative noted that the study area includes the western part of the wintering ground of the Fortymile caribou herd, the largest and most intensively managed herd in the Interior. The 2004 wildfires may have complicated the pattern of caribou habitat use, because the fires burned down to mineral soils in parts of their overwintering area. The ADNR Division of Mining, Land and Water (ADNR/DMLW) representative expressed the concern that new access could lead to increased and more dispersed hunting in the study area, with management consequences for the Fortymile herd. He also noted concerns regarding a new highway as a source of human ignition for future wildfires, with further implications for

caribou. The US Fish and Wildlife Service (USFWS) representative added that additional road access might speed the introduction of invasive exotic plant species into the area, a particular concern following the 2004 wildfires.

The ADNR/DMLW representative emphasized the need for detailed and far-reaching cost estimates for new road construction. The impacts and costs associated with fires in the area would potentially increase, as a new road would encourage land disposals, human settlement, and a resulting requirement for fire protection in defense of property. Current policy is to let some fires burn, but the addition of private lands in the area would be likely to increase fire response requirements and costs.

These topics were pursued further through subsequent individual meetings with the appropriate agency representatives and are discussed further in Chapter 5, *Land Use, Environmental and Regulatory Constraints.*

2.3 Public Scoping Meetings

The Department project manager and consultant planning team held two public scoping meetings to present and discuss the preliminary concepts noted above: at the Far North School in the community of Central on January 26, 2004, and at the Noel Wien Public Library in Fairbanks on January 27, 2004. The meetings were advertised in the Fairbanks Daily News-Miner, and a flyer was distributed by general delivery to post office box holders in Central and Circle. Attendees had the opportunity to comment by speaking at the meetings, by preparing written statements on forms provided at the meetings, and by letter and email. The public announcement, sign-in sheets from the two meetings, and written comments received by the project team are in Appendix A.

Both meetings were in open-house format, with informal discussions and question-and-answer sessions. Attendees were encouraged to sign in and were given a project information package that included the project background and purpose, a study area map showing the preliminary route concepts, a comment form, and the Department project manager's contact information. Attendees examined the various displays, asked questions, and discussed their concerns with project staff, who documented their comments on flip charts.

2.3.1 The Central Public Meeting

Twelve people signed in at the public meeting in Central on January 26, 2005. The sign-in sheets are in Appendix A, and oral comments made during the meeting are summarized in Table 2-1. Although most attendees were open to the potential benefits of a new road linking Chena Hot Springs Road with Circle Hot Springs or the Steese Highway, their spoken comments expressed a consensus in support of upgrading the existing Steese Highway as the first priority. The attendees viewed the Steese Highway as their primary, year-round transportation route to and from Fairbanks and their connection to the outside world. Their repeatedly stated concern was that whereas federal funding might be available to build a new road, the State of Alaska would be responsible for maintaining that road, and maintenance of the new road would draw scarce funds away from needed annual maintenance of, and improvements to, the Steese Highway. Consequently, they said, the Steese Highway might be

maintained less adequately than at present, or even closed at some point in the future. Concern about the long-term maintenance of the Steese Highway has led local residents to establish an informative website (http://steesehighway.org/index.html).

Several attendees emphasized that a new highway would traverse complex terrain, much of it at high elevations, and would most likely be closed during the winter months. Consequently, the Steese Highway would remain, as at present, the sole year-round overland route connecting the Interior communities of Circle, Central, and Circle Hot Springs with Fairbanks. It was a higher priority, the attendees said, to assure that funding would be available to maintain the Steese Highway year-round than to build a seasonal road linking the Steese Highway with Chena Hot Springs Road. A loop road would be beneficial, some said, but only if the state would assure that the continued maintenance of the Steese Highway would not be jeopardized.

A second concern expressed at the Central meeting was the need to upgrade the approximately 33-mile section of the Steese Highway connecting the communities of Central and Circle, on the Yukon River. The attendees urged the team to have the Central-Circle portion of the Steese Highway included as the first priority in the Steese Highway improvement alternative. Wildfires during recent summers have increased the volume and velocity of runoff from rainstorms, leading to many washouts along the Central-to-Circle segment. At present, the road is nearly impassable, making it very difficult for Circle residents to reach Central and to drive from there to Fairbanks for food, supplies, and medical care (Interview, Karen Hamilton, Central resident, August 4, 2006).

Table 2-1 Summary of Comments at the Public Meeting in Central, January 26, 2005

1. *Many Comments:* We are concerned that building a new road would make it less likely that the Steese Highway will be upgraded and maintained year-round.
2. *Apparent Consensus*: Upgrade and maintain the existing Steese Highway year-round as the first priority.
3. Route Concept A-B would increase property values in Central.
4. Route Concept A-D would not help much, because the summits would still have to be kept open in winter.
5. I support upgrading the Steese Highway, and keeping it open year-round, as the first priority.
6. Route Concept A-D would make a good loop for driving, but it would not help Central.
7. North Fork Birch Creek Canyon has low water, making it difficult to start a float trip from the Steese Highway near 12-mile. This discourages recreational use of the entire Wild River corridor. A road crossing downstream from the canyon would provide access and enhance summer recreational use of the creek.

8. Instead of building a new road to Central across predominately Federal land, extend the existing highway from Circle to Eagle. A Circle to Eagle route was surveyed some years ago. It would cross private lands and allow economic development and tourist amenities.
9. Approximately 1,600 caribou hunters used the Central area in fall 2004. Hunting is a major activity for Central.
10. I support upgrading the Steese Highway—fix the existing road first.
11. We need more roads—the State has not built any since the Parks Highway.
12. Build a new road *and* upgrade the one we already have.
13. We want to be sure we *keep* the Steese Highway. Would building a new road to Central endanger the existing road?
14. Why bother trying to build a road across federal land? There are no economic opportunities to use the land. Build on state and private land that can be opened up to development.
15. A Circle to Eagle road would provide a different experience for tourists and open private land.
16. People can already drive to Chena Hot Springs and Circle Hot Springs. Build a road to a *new* place.
17. Place highest priority on improving the 35-mile stretch of the Steese Highway between Central and Circle. This portion of the Steese might be used for transporting schoolchildren in the near future.
18. A few years ago the State considered closing the Steese Highway altogether. We want to be sure a new road would not be closed and would not result in the Steese Highway being closed.
19. We want the state to guarantee that it will take care of what we already have before building something else.

2.3.2 The Fairbanks Public Meeting

Forty-eight people signed in at the public meeting in Fairbanks on January 27, 2005. The sign-in sheets are in Appendix A, and spoken comments made during the meeting are summarized in Table 2-2. The range of spoken comments at the Fairbanks meeting was more diverse than at the Central meeting, and opinions were divided among those who supported a new road and those opposed. Some comments indicated cautious support for a loop road, provided maintenance of the Steese Highway would not be impaired. A comment frequently heard was that although Alaska needs more roads, a Chena Hot Springs to Circle Hot Springs loop road should not receive high priority. Owners of cabins on remote parcels along the

West Fork of the Chena River expressed opposition to any new road that would intrude on the isolated setting of their cabins. Members of the mining community were well represented and expressed a preference for building a few relatively inexpensive pioneer roads that would provide access to extensive lands with relatively unexplored mineral potential south of the Steese National Conservation Area in the Middle Fork Chena River country. Throughout the meeting, concerns were expressed that the Steese Highway was receiving marginal or inadequate maintenance funding, and that upgrading and maintaining the Steese should be the state's highest transportation priority within the study area.

Table 2-2 Summary of Comments at the Public Meeting in Fairbanks, January 27, 2005

1. I am concerned about the impact of a new road on cabins along the North Fork of the Chena River near Chena Hot Springs.
2. We should maintain what we have before spending money on new roads.
3. The loop road is an excellent idea.
4. A new road would create new construction jobs.
5. An additional road would create more State of Alaska jobs for maintenance.
6. The new road would be costly to maintain, but new revenues from development would help defray the maintenance cost.
7. Abandon the North Fork route concept and go up the East Fork of the Chena River. This would benefit further exploration in the Pogo mining area.
8. A loop road is not a good idea. It is not needed. Upgrade the Steese Highway.
9. At minimal expense, the State could build several pioneer roads into the historic Chena Mining District to open up new country to miners. Local miners have many specific recommendations.
10. Build a new road *and* upgrade the one we already have.
11. When the State of Alaska cannot afford to keep the four lanes on Airport Way and Geist Road clear of snow, how can we afford to maintain new roads?
12. The state's transportation money would be better spent building a road to Eagle, Barrow, or Cordova.
13. Before building a new road, there must be a demonstrable need in the public interest. There should be well thought out objectives and criteria.
14. The preliminary route concepts include many areas of unstable soils and permafrost, especially along the North Fork of Birch Creek.
15. One reason Central is in economic decline is because the existing Steese Highway is not properly maintained.

16. Rental car companies in Alaska prohibit driving on gravel roads.

17. Even as a business owner who might benefit, I still do not believe a new road would be in the State's best interest. We need more roads—but not this one.

2.4 Written Comments

Written comments from members of the public were sent by letter or email to the Department project manager and analyzed systematically by the planning staff. Twenty-nine written communications were received, and 122 separate comments contained in these letters and emails were identified and coded. Table 2-3 shows the coding system used to identify and count the individual position statements contained in each letter or email. When a single respondent restated similar position statements, the topic was counted only once. Comments that provided information without taking a position, or that were irrelevant to the project, were noted but not included in the numerical analysis. Communications that contained detailed information about the study area were very useful to the project team in refining the alternatives.

The primary areas of concern for respondents were maintenance of the Steese Highway, general opposition to the project, funding uncertainties, and maintenance costs. A substantial majority of the written comments were in general opposition to a new road, and the major portion of those respondents stated that their first preference would be to see more effective maintenance of the existing Steese Highway before a new road was built.

Twenty-three comments linked opposition to a new road with support for upgrading and maintaining the Steese Highway. A majority of the written comments reflected respondents' concerns that building a new road would make it less likely that the Steese Highway would be upgraded and/or maintained year-round. Many respondents indicated that upgrading and improved maintenance of the Steese Highway should be first-priority recommendation of this study. A large number of respondents perceived that the Steese Highway is regularly closed in the winter because of a chronic lack of funds to maintain the road and keep it open.

Table 2-3 Coding System Applied to Written Comments on the Alternatives

Issue Category	Code	Position Statement
Birch Creek	BIR	Support of preservation of pristine Birch Creek float trip
Alternatives	ALT01	General support of option A-D
Alternatives	ALT02	General Opposition to Option A-D
Alternatives	ALT03	General Support of Option A-C
Alternatives	ALT04	General Opposition to Option A-C
Alternatives	ALT05	General support of Option A-B
Alternatives	ALT06	General Opposition to Option A-B
Alternatives	ALT07	Consider another Alternative
Alternatives	CEN	Road to Central needs improvement
Alternatives	STE	Maintain/upgrade existing Steese Highway
General support of road project	SUP	Supports new roads

Issue Category	Code	Position Statement
General opposition to road project	OPP	Opposes new roads
Tourism	TOU	P&N is just for tourism, will not help tourism
Environmental	ENV	General effects on environment
Recreation	REC01	Positive effects on recreation opportunities
Recreation	REC02	Negative effects on recreation opportunities
Socioeconomic	SOC01	Positive effects on socioeconomic issues
Socioeconomic	SOC02	Negative effects on socioeconomic issues
Purpose and need	PND	P&N not clear for project
Wild and Scenic River	WSR	Project compromises/is compromised by WSR status
Wildlife	WLD	Will disturb wildlife populations
Funding for project	FND	Where will funding come from; waste of funds/waste of money/better ways to use money
Maintenance costs	MNT	Maintenance costs will be too high/where will maintenance funds come from?/cannot maintain roads we have now
Mining	MIN01	Already has mining access, will not benefit mining
Mining	MIN02	Will benefit mining access
Trails	TRL	RS2477 trails
Cost of project	CST	Cost will be too high/cost/benefit ratio not worth it
Steese Conservation Area	CON	Project compromises/is compromised by SCA status
Isolation	ISO	Desired isolation-opposed to road; wish to maintain current isolation
Access	ACC	Access already exists
Wilderness	WLD	Effects on wilderness

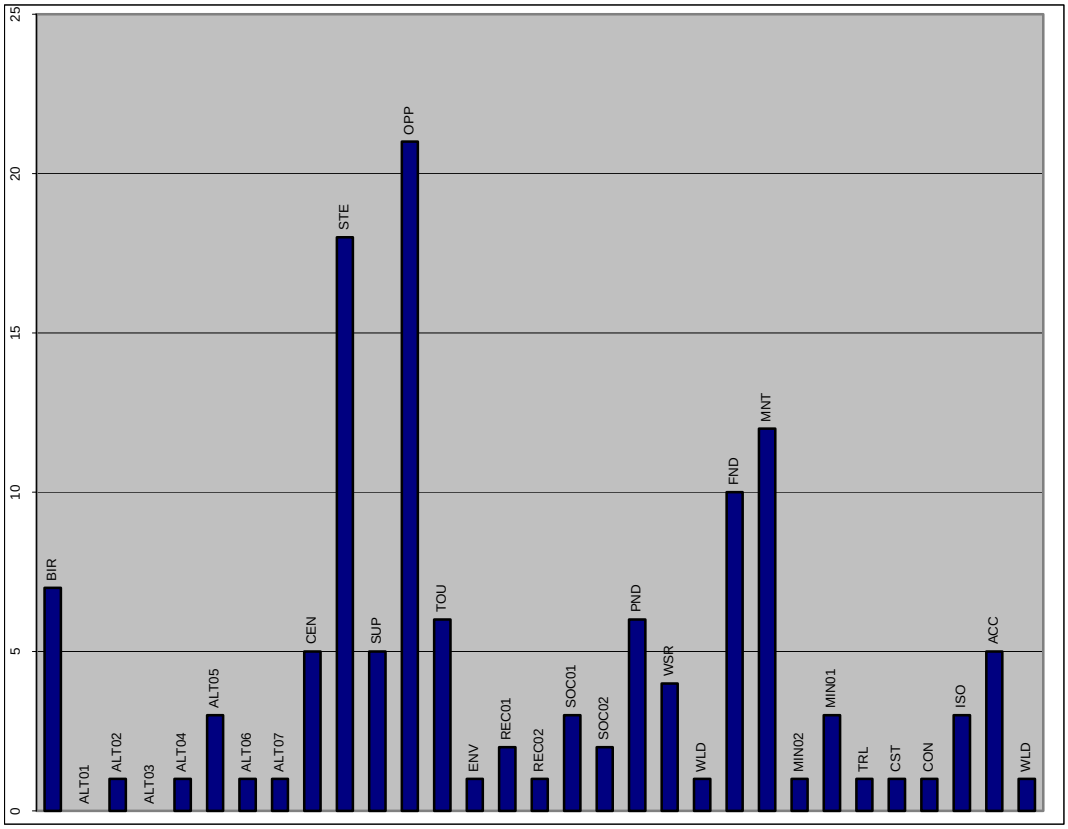
Funding for construction and maintenance of a new loop road was identified as an important issue by about half of the respondents. Most of these comments questioned where the funding for the project would come from, and/or stated that there were better uses for the funding, including potential new roads to other locations such as Circle to Eagle. Respondents repeatedly emphasized that they believed it made little sense to build a new road when funding was not available to maintain the Steese Highway year-round. Respondents who were opposed to a new road also noted concerns that the project would adversely affect the Birch Creek float experience and/or impair the desired isolation of private cabins on remote parcels along the West Fork of the Chena River, near Chena Hot Springs.

Table 2-4 presents a numerical summary of the statements of concern. In Figure 2-1, the same information is shown as a histogram. Figure 2-2 consolidates the statements of concern into two broad categories: (A) positive, expressing support for a new loop road, and (B) negative, expressing skepticism or opposition toward a new loop road but, in some cases, support for upgrading and maintaining the Steese Highway. Of the 122 position statements identified, 11 were generally supportive of a new road and 111 opposed. Of the 29 letters or email messages received, 23 recommended upgrading and/or enhanced maintenance of the Steese Highway as the most appropriate action.

Table 2-4 Numerical Analysis of Position Statements in Descending Order of Frequency

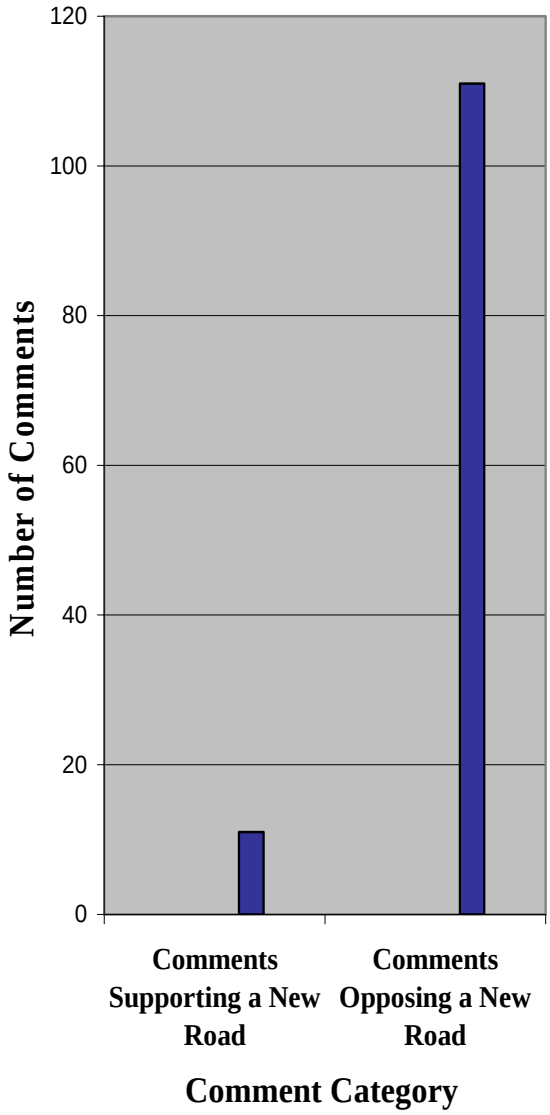
Category	Code	Position Statement	Number of Occurrences
General opposition to road project	OPP		21
Alternatives	STE	Maintain/upgrade existing Steese Highway	18
Maintenance costs	MNT	Maintenance costs will be too high/where will maintenance funds come from?/cannot maintain roads we have now	12
Funding for project	FND	Where will construction funding come from; waste of funds/waste of money/better ways to use money	10
Birch Creek	BIR	Support of preservation of pristine Birch Creek because of float trip opportunity	7
Tourism	TOU	P&N is just for tourism, will not help tourism	6
Purpose and Need	PND	P&N not clear for project	6
Alternatives	CEN	Road to Central needs improvement	5
General Support of road project	SUP	mph	5
Access	ACC	Access already exists	5
Wild and Scenic River	WSR	Project compromises/is compromised by WSR status	4
Alternatives	ALT05	General support of Option A-B	3
Socioeconomic	SOC01	Positive effects on socioeconomic issues	3
Mining	MIN01	Already has mining access, will not benefit mining	3
Isolation	ISO	Desired isolation-opposed to road; wish to maintain current isolation	3
Recreation	REC01	Positive effects on recreation opportunities	2
Socioeconomic	SOC02	Negative effects on socioeconomic issues	2
Trails	TRL	Support for use of RS2477 trails	2
Alternatives	ALT02	General Opposition to Option A-D	1
Alternatives	ALT04	General Opposition to Option A-C	1
Alternatives	ALT06	General Opposition to Option A-B	1
Environmental	ENV	General effects on environment	1
Recreation	REC02	Negative effects on recreation opportunities	1
Wildlife	WLD	Will disturb wildlife populations	1
Mining	MIN02	Will benefit mining access	1
Cost of project	CST	Cost will be too high/cost/benefit ratio not worth it	1
Steese Conservation Area	CON	Project compromises/is compromised by SCA status	1
Wilderness	WLD	Effects on wilderness	1
Alternatives	ALT07	Consider another route alternative	1
Alternatives	ALT01	General support of option A-D	
Alternatives	ALT03	General Support of Option A-C	

Figure 2-1 Number of Instances of Each Statement of Concern



This is a graphic display of Table 2-4

Figure 2-2 Written Position Statements Supporting or Opposing a New Loop Road



2.5 Tribal Consultation

First Chief Paul Nathaniel of the Circle Tribal Council was interviewed on May 31, 2005. He said that there would be very little benefit from a new road, given that there is already an existing road (the Steese Highway) to Circle. He emphasized that the 33-mile Central-to-Circle segment of the Steese Highway is in poor condition from numerous washouts and is greatly in need of improvement.

On October 3, 2006, members of the planning team met in Circle to conduct further tribal consultation with representatives of the Circle Village Council. The Council members concurred wit the conclusions of the planning study and emphasized the importance to their village of improving the 33-mile section of the Steese Highway between Central and Circle. They noted that although this section was graded recently, long-term maintenance has been sporadic, and the road remains marginal for driving. It continues to be affected by erosion related to the wildfire of summer 2004, including an increase in washouts and downed trees across the road. In the opinion of the council members, high-float provides better traction than hot mix and should be considered when paving any portion of the Steese, including the final 33-mile section. The Council representatives supported more frequent maintenance of the Central-to-Circle section of the Steese Highway and inclusion of this section in the Department's long-term improvement plan for the Steese.

2.6 Final Public Meetings

Final public meetings were held in Central and Fairbanks on October 3 and 17, 2006, respectively. Fliers were circulated to residents of Central and Circle two weeks before the meeting at the Far North School in Central. Members of the project team briefed the eight attendees on the planning study and its conclusions. Generally, the attendees were satisfied with the study's recommendations. Opinions of the attendees were divided with respect to the relative merits of high float and hot mix as the preferred paving material. Some voiced the opinion that the improved traction and rustic look of the high float may be more appropriate for the character of the area. Others preferred the comparative smoothness of hot mix. Prior to the Fairbanks public meeting at the Noel Wien Library, a public notice was published in the Fairbanks Daily News-Miner on Sunday, October 15 and Monday, October 16, 2006. In addition to announcing the meeting time and location, the public notice clearly stated the study's conclusions and recommendations. The meeting was lightly attended, and there were no written comments. The project team briefed the two members of the public who attended and answered their questions.

3 ALTERNATIVES UNDER STUDY

This chapter describes the alternatives that were developed and examined during this study. They are refinements of the original preliminary route concepts, incorporating ideas based on the comments and advice of the public and agency representatives from the meetings, interviews, and communications discussed in Chapter 2.

Four primary alternatives were selected for study: 1) New Highway Alternative A-B, a direct route between Chena Hot Springs Road and Circle Hot Springs Road; 2) New Highway Alternative A-D, a shorter loop road connecting Chena Hot Springs Road to the Steese Highway north of Twelvemile Summit; 3) Steese Highway Improvements; and 4) No Action. Figure 3-1 in Appendix C provides an overview of the build alternatives.

New Highway Alternative A-B is the alternative that most closely satisfies the legislative intent for a direct connection between Chena Hot Springs and Circle Hot Springs. Because they would not cross federal conservation system units (the Steese NCA and Birch Creek NWR), New Highway Alternatives A-D and the Steese Highway Improvements would avoid most of the land use issues associated with New Highway Alternative A-B.

A fifth alternative, Preliminary Concept A-C noted in Chapter 2, is considered in this chapter as a variation of New Highway Alternative A-B. Because New Highway Alternative A-B shares the same land use issues as Preliminary Concept A-C, the two options have been included together in the description of the primary alternatives.

3.1 New Highway Alternative A-B

The A-B alternative, shown in Appendix C, Figure 3-2, provides the most direct route between the Chena Hot Springs area and Circle Hot Springs. From Chena Hot Springs Road, it begins on the west side of the North Fork of the Chena River at approximately Milepost 56. From there, it follows an existing RS 2477 trail that heads northeast up the North Fork drainage. After approximately 11 miles, the route leaves the RS 2477 trail and heads up a ridgeline to the north side of the valley. It generally follows the ridge to the headwaters of Malburn Creek.

At this point, three variations are developed, as shown in Figure 3-2. The first variation, A-B (1), continues to the northeast along the slopes above Malburn Creek to just upstream of the confluence with Birch Creek. Crossing Birch Creek at that location, A-B (1) runs eastward along the south-facing slopes of the hills, crosses Great Unknown Creek, and continues eastward following an unnamed drainage.

The second variation, A-B (2), continues along the opposite slope above Malburn Creek, then drops down to Birch Creek on the south side of a hill that lies east of the creek. It crosses Birch Creek and joins A-B (1) just west of Great Unknown Creek.

The third variation, A-B (3), follows A-B (2) to the east of Malburn Creek, then diverges about 2 miles farther east, descends to the Acme Creek drainage, and crosses to the north-facing slope of the drainage. The route crosses Birch Creek downstream from the confluence with Acme Creek, then continues eastward around a ridge and joins the previous two variations on the north side of the unnamed drainage.

At about 30 miles into the alignment, the route crosses a ridge of hills to the slopes above Thomas Creek and continues into the Harrison Creek drainage. From there, it follows the 60-foot right-of-way along Harrison Creek that was established in 1999 as an outcome of the state's Quiet Title lawsuit for the Harrison Creek-Portage Creek RS 2477 case. All three of the preceding variations on Route A-B terminate at Circle Hot Springs Road.

A fourth variation on this route, preliminary concept A-C, crosses Harrison Creek and follows its North Fork to join the RS 2477 trail along Independence and Mammoth creeks, ultimately intersecting the Steese Highway at about Milepost 116, near the historic Miller House site. This route, although almost 4 miles shorter than Alternative A-B, increases the total travel distance to Circle Hot Springs by about 20 miles relative to A-B. Because it does not offer any advantage over the more direct A-B route, preliminary concept A-C has not been carried forward for further consideration in this planning study.

3.2 New Highway Alternative A-D

New Highway Alternative A-D, shown in Appendix C, Figure 3-3, departs from Chena Hot Springs Road at approximately Milepost 56 and uses the same RS 2477 trail along the North Fork of the Chena River as New Highway Alternative A-B. Two variations of the A-D route were developed, both of which depart from the RS 2477 trail approximately 7.5 miles from Chena Hot Springs Road.

The first variation, A-D (1), winds along the slopes above Boulder Creek and heads indirectly north along the slopes and ridges at the headwater of Crooked Creek. This alignment skirts the eastern boundary of the Steese NCA and descends to cross Harrington Creek, then heads up the east side of Harrington Creek, crosses over into the Twelvemile Creek drainage, and continues to the Steese Highway.

The second variation, A-D (2), departs the RS 2477 trail at same location as AD (1). (A third variation, not considered further, would follow the RS 2477 trail approximately 13 miles before heading into the hills.) A-D (2) would avoid impacts to the south-facing slope above the North Fork of the Chena River, where ADNR proposes to conduct a land disposal program in the future. A-D (2) follows the south slopes above the North Fork onto the ridge top, heads west along the boundary of the SNCA, and then turns north to cross the extreme western end of the Steese NCA.

Both variations of the A-D alignment join the Steese Highway at Harrington Creek at approximately Milepost 89, just east of Twelvemile Summit.

3.3 Steese Highway Improvements

The Steese Highway Improvements Alternative would rehabilitate the existing Steese Highway and realign portions of it. Currently, the road is unpaved from MP 62, although a project is planned to correct drainage and extend the paving to MP 81. Therefore, this alternative examines paving 74 miles of road and drainage improvements from MP 81 to MP 155, and improvements to the areas subject to snow drifting at Twelvemile Summit (MP 85.5) and Eagle Summit (MP 107.5).

Improving and paving the Steese between MP 122 and MP 155, the 33-mile Central-to-Circle portion, is beyond the original scope of this planning study. Because of the public's request for improvement to this section of roadway, however, it is included as a separately itemized component in the cost estimates for Steese Highway Improvements.

To mitigate snow drifting at Twelvemile Summit, a 4-mile realignment is recommended. This would relocate the highway alignment eastward and down-slope from the existing summit crossing.

At Eagle Summit, 3.8 miles of realignment is recommended to elevate and relocate the roadway away from the steep rock faces that cause the drifting to occur. This would require substantial rock excavation and embankment work and construction of a significant structure.

3.4 No Action Alternative

Under the No Action Alternative, no comprehensive design and construction upgrades to the Steese Highway would be initiated, although identified improvements included in the state's highway funding program would go forward as funding becomes available. Steese Highway maintenance would continue at its current level.

4 ENGINEERING, CONSTRUCTION AND MAINTENANCE CONSIDERATIONS

This chapter discusses the alternatives in terms of engineering and construction feasibility and maintenance considerations. In the case of No Action, implications for future transportation and access in the study area are discussed under the stated assumption that routine road maintenance will continue at present levels of funding and effort. The chapter ends with a comparison of the alternatives with respect to their engineering, construction, and maintenance characteristics.

The alternatives described in the previous section are conceptual and would require refinement to continue development of this project into the environmental assessment and design stages. Additional field surveys, geotechnical investigations, and identification of specific environmental concerns would be required to pursue any of the build alternatives.

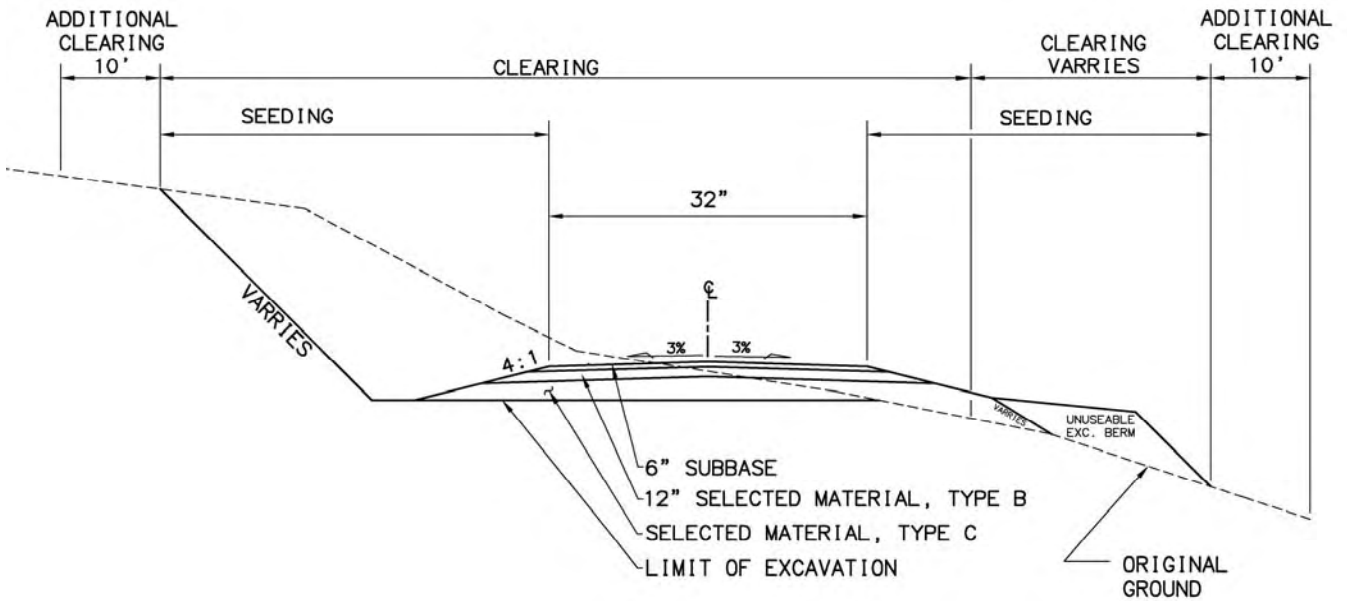
In general, the alignment alternatives were determined by following existing RS 2477 routes where the direction of travel was compatible and by following the contours of USGS mapping. Preference was given to routes on gentle south-facing slopes and ridge tops that would provide the most desirable line and grade, have better soils, and minimize wetland crossings. In most cases, it was not possible to rely completely on these preferred characteristics for the entire alignment.

4.1 Typical Section and Design Criteria

The typical section of the proposed new roadway and realignments is a minimum of 4 feet of gravel material, including 6 inches of screened or crushed subbase material, to provide a 32-foot wide driving surface (Figure 4-1).

The 32-foot-wide subbase provides the opportunity to add a 6-inch layer of crushed aggregate base course (treated or untreated with oil) and a surface treatment (high float pavement) on a 28-foot-wide roadway. These additional typical section options are referenced as “Paved Road (w/treated surface)” and “Paved Road (w/out treated surface)” in the economic analysis (Chapter 6). It is recommended that a paved road typical section not be applied to the new highway alternatives, because the new roads would take many years to stabilize after construction. If a paved surface were provided on the new roadways, it would deteriorate rapidly as the new road settled and heaved, and this condition would develop into a future maintenance cost.

Figure 4-1 Proposed New Roadway Typical Gravel Section



The design criteria for the project would be defined by the Alaska Highway Preconstruction Manual. The manual requires that the AASHTO Policy on Geometric Design of Highways and Streets be followed for new construction projects such as New Highway Alternatives A-B and A-D. If the curvature and grade of the proposed new routes follow the AASHTO criteria for 60 miles per hour (mph) secondary roadway in mountainous terrain, design exceptions would likely be required in some areas. The posted speed would probably be 50 mph, with slower advisory speeds posted on some curves.

4.2 New Highway Alternative A-B

New Highway Alternative A-B (Appendix C, Figure 3-2) offers the most direct route between the two hot springs and most completely fulfills the intention of utilizing existing RS 2477 and other historic trails.

Beginning at Chena Hot Springs Road to approximately mile 11, Alternative A-B coincides with an identified RS 2477 route. While this is a right-of-way consideration, other factors come into play as well. Many RS 2477s are primarily winter trails and are not in appropriate locations for road building. If an RS 2477 route is located on state land, there is an opportunity to survey and vacate the route in favor of another, more suitable location.

In the case of the identified RS 2477 near Chena Hot Springs Road, the existing trail receives heavy recreational use and is part of the Yukon Quest International Sled Dog Race route. If the route were constructed into a roadway, provisions would have to be made to preserve its current recreational uses. The trail crosses the North Fork of the Chena River twice, likely requiring the construction of bridges. A reroute to avoid bridge crossings might be desirable, and since much of this area is state land, there would be an opportunity to acquire a public easement from the ADNR/DMLW to build the road in a better location. An ADNR permit

would be required in any case to construct a road within the RS 2477 right-of-way. The existing trail does not offer significant engineering or construction advantages; because the segment is relatively flat and broad, the side-hill cut sections would be shallow and would provide minimal embankment construction material.

At approximately mile 11, the route heads northeast up a finger ridge into the highlands. The alignment follows the contours such that grade and curvature are, to a practical extent, minimized. At about mile 16, one sub-route, A-B (1), veers left, and at mile 20, the route splits again, forming A-B (2) and A-B (3). Each of these sub-routes has advantages and disadvantages, all are about equal in length, and each would require a bridge of the same magnitude to cross Birch Creek NWR.

Route A-B (1) follows a comfortable grade and is mostly on south-facing slopes as it proceeds down to Birch Creek, but it crosses the steep side slope above Malburn Creek and also crosses Great Unknown Creek, which may require a bridge. It might also have the greatest visibility to users on Birch Creek, because it approximately parallels the creek for nearly 4 miles.

Route A-B (2) follows a gentle ridge top and descends along the south-facing slope above Acme Creek, but the final descent to Birch Creek is steep, traversing the north-facing slope to the south of the creek. This route would also require a crossing at Great Unknown Creek.

Route A-B (3) descends gently to Birch Creek and does not cross Great Unknown Creek. It quickly becomes hidden from view from Birch Creek as it curves sharply east behind a small ridge soon after crossing the creek. It does cross Acme Creek, although this crossing would probably not require a bridge. About 4 miles of the route follows the Acme Creek drainage on the north-facing slope, which might present geotechnical issues not generally found on south-facing slopes. It is likely, however, that poor soil (high ice content) exists on both the north facing and the south-facing slopes along the Malburn and Acme drainages. Because of the better curvature and grade, lesser exposure to river users, and lower probability of requiring another significant river-crossing structure, sub-route A-B (3) is considered the most desirable of the A-B variations and is used in this planning study for calculating the overall length of A-B.

The sub-routes rejoin at about mile 30 and proceed as a single route east northeastward into the hills, staying mostly on south-facing slopes until turning north into the Harrison Creek drainage. There, at about mile 41.5, they intersect with an existing RS 2477 trail. Here the route alternatives spit again, with sub-route (a) heading north to intersect the Steese Highway near the historic Miller House site, and sub-route (b) heading toward Circle Hot Springs.

Route A-B, sub-route (a) (referred to as New Highway Alternative A-C in other sections of this report) would require a lesser magnitude of new construction on the old trail, because about 8 of the 15 miles to the Steese Highway have been improved to the point that they are currently drivable by four-wheel drive vehicles. Although sub-route (a) is 4 miles shorter (15 miles) than sub-route (b) (19 miles), a traveler to Circle Hot Springs would have to drive another 13 miles on the Steese Highway to Central and another 8 miles on Circle Hot Springs Road to reach the intended destination. Because the advantages of a shorter length of new

construction and partial use of a drivable trail would not outweigh the additional 21 miles of driving that would be required, Route A-B, sub-route (a), or New Highway Alternative A-C, was not considered further in the engineering analysis.

Route A-B, sub-route (b) follows the RS 2477 trail along Harrison Creek, Bottom Dollar Creek, and Portage Creek into Circle Hot Springs. The last 4 miles of this sub-route uses an existing four-wheel drive road. The length of Route A-B (1), sub-route (b) from Chena Hot Springs Road to Circle Hot Springs is about 61 miles. The bridge that would be required at Birch Creek is assumed to be 110 to 120 feet long (single span), and other bridges (if required) to be about 80 feet long. Excluding Birch Creek, at least ten significant drainage crossings would be encountered, as well as numerous minor ones, regardless of which sub-route was chosen. Since there are no known material sites available or developable within the limits of the project, with the possible exception of mine tailings in the Circle Mining District, it is assumed that embankment material would come from unclassified excavations at roadway cuts. Since the area is known to contain low grade, high fine content, high ice content soils, a large volume of unusable material would have to be hauled and placed. Cuts in usable material would have to be widened sufficiently to provide the bulk of embankment material and hauled substantial distances to areas with minimal or nonexistent cuts. The higher quality material required for the driving surface would probably be hauled in from either end or both ends of the project if quality rock were not found in the cuts.

4.3 New Highway Alternative A-D

New Highway Alternative A-D (Appendix C, Figure 3-3) would not provide a direct route to Circle Hot Springs from Chena Hot Springs, but it offers an alternative to passage through the heart of the Steese NCA and to the need to cross Birch Creek NWR. It would not create a true loop for travelers wishing to combine visits to both hot springs resorts, but it would offer a short cut that would minimize backtracking on the Steese Highway. The same rerouting, trail use, and embankment material issues and concerns associated with New Highway Alternative A-B would also apply to Alternative A-D.

Two sub-routes have been examined for this alternative. Sub-routes A-D (1) and A-D (2) both depart from Chena Hot Springs Road at MP 55 and follow the existing RS 2477 trail to the northeast. At about 7.5 miles along the RS 2477 trail, immediately after crossing Boulder Creek, the sub-routes separate, both veering left off the trail and heading upslope. From there the routes bend around the slopes above Boulder Creek, but they stay below the ridge tops. The roadway sections would be mostly in full or half cut with occasional deep fills to cross gorges as the routes skirt the west end of the Steese NCA.

As Sub-route A-D (1) proceeds north, around the headwaters of Crooked Creek, the route traverses gentle higher slopes that would not require deep cuts or high fills to maintain a feasible grade. The alignment is circuitous, however, and would be exposed to the high winds and snow drifting that are common in the study area during winter. As the sub-route heads back eastward, it cuts through a gap and across a high ridge (also subject to drifting) before finding an acceptable descent to and across Harrington Creek, where sub-route (1)

rejoins sub-route (2). The crossing of Harrington Creek would most likely not require a bridge, but a large multi-plate culvert would certainly be required.

From the Harrington Creek crossing, the routes diverge slightly and follow the gentle, west-facing slopes above the creek and over the low ridge to the Twelvemile Creek drainage and on to the Steese Highway at about MP 90. A possible short cut up and over into South Fork of Twelvemile Creek, joining the Steese Highway about a mile farther north, could be investigated, but it would require climbing to higher elevations and would have significant snow drift potential. Crossing Twelvemile Creek might require a short bridge because of severe aufeis known to occur along this part of the Steese Highway. Aufeis is ice formed when water from a spring or stream emerges and freezes on top of previously formed ice. It can be a difficult maintenance problem when it forms on a roadway surface and the layers of ice become thick.

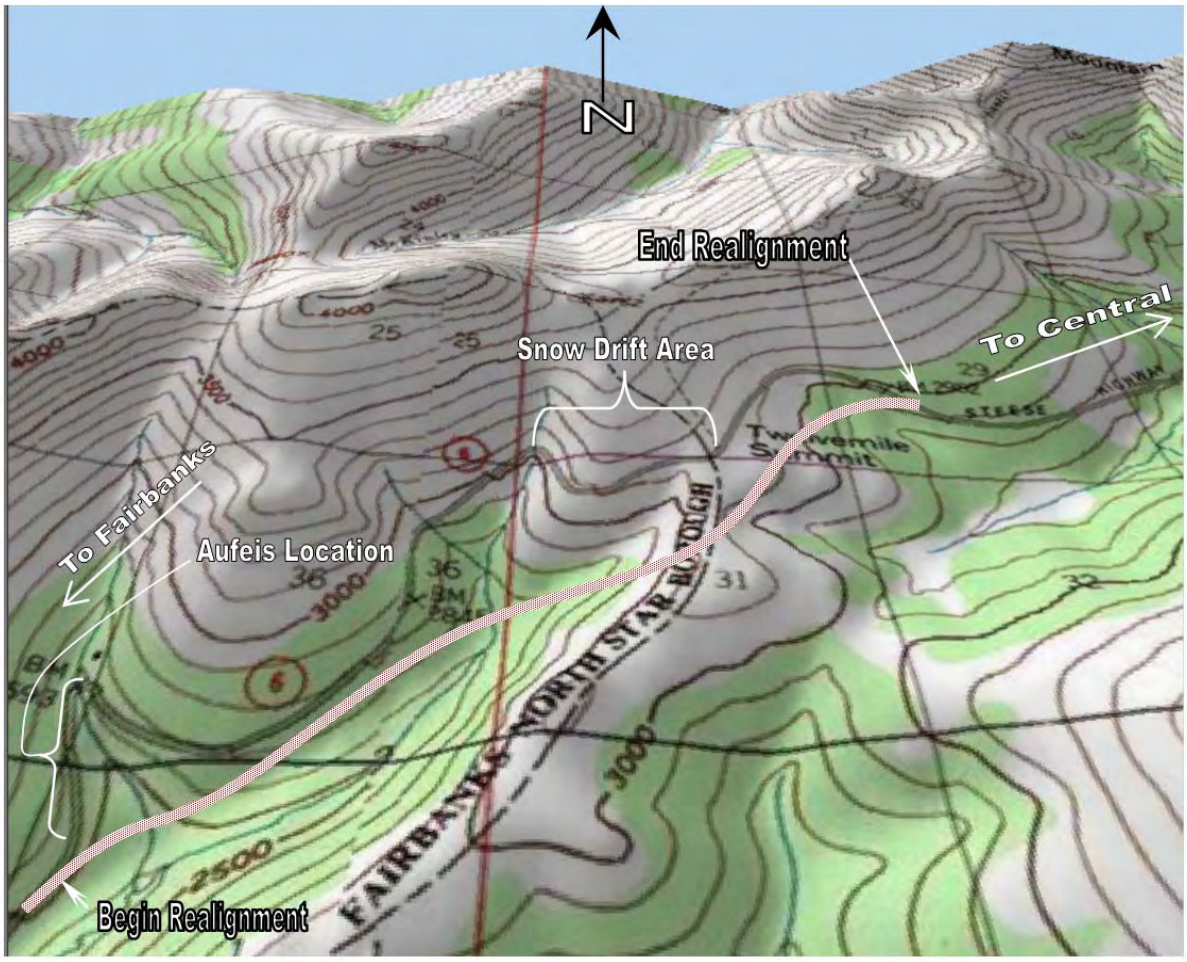
Sub-route A-D (2) is shorter than A-D (1), traverses less challenging terrain, and has superior line and grade. The soils are likely to be similar, and the potential for cuts to provide embankment and surfacing material is not significantly different. Neither sub-route has any known material site available, except for an existing pit (mine) located just below the Twelvemile Summit parking lot. Snowdrift potential would likely be lower on A-D (2). This sub-route, however, crosses part of the western extremity of the Steese NCA, although it avoids Birch Creek NWR. Consequently, although New Highway Alternative A-D, sub-route (2) would have a much smaller impact on the Steese NCA than New Highway Alternative A-B, construction along A-D sub-route (2) would still require an extensive administrative process, including an EIS and revision of the Steese NCA Management Plan.

4.4 Steese Highway Improvements

This alternative would build no new roadway, but instead would focus on upgrades to the existing Steese Highway. At present the road is unpaved beyond MP 62, and in the winter it is subject to severe aufeis conditions at several locations and to occasional road closures at Twelvemile and Eagle summits because of snow drifting. The Department implemented projects in 2003 and 2004 that, in addition to paving the roadway, corrected drainage conditions that exacerbated the aufeis problems, including replacing old French drains, restoring ditches, and installing new culverts. Similar drainage improvements would be required to solve the same types of problems from MP 81 to MP 155. Design solutions to control aufeis would necessarily be site-specific. Under the Steese Highway Improvements Alternative, each problem location would be investigated, and site-specific solutions determined, during the design process for the MP 81 to MP 155 paving projects.

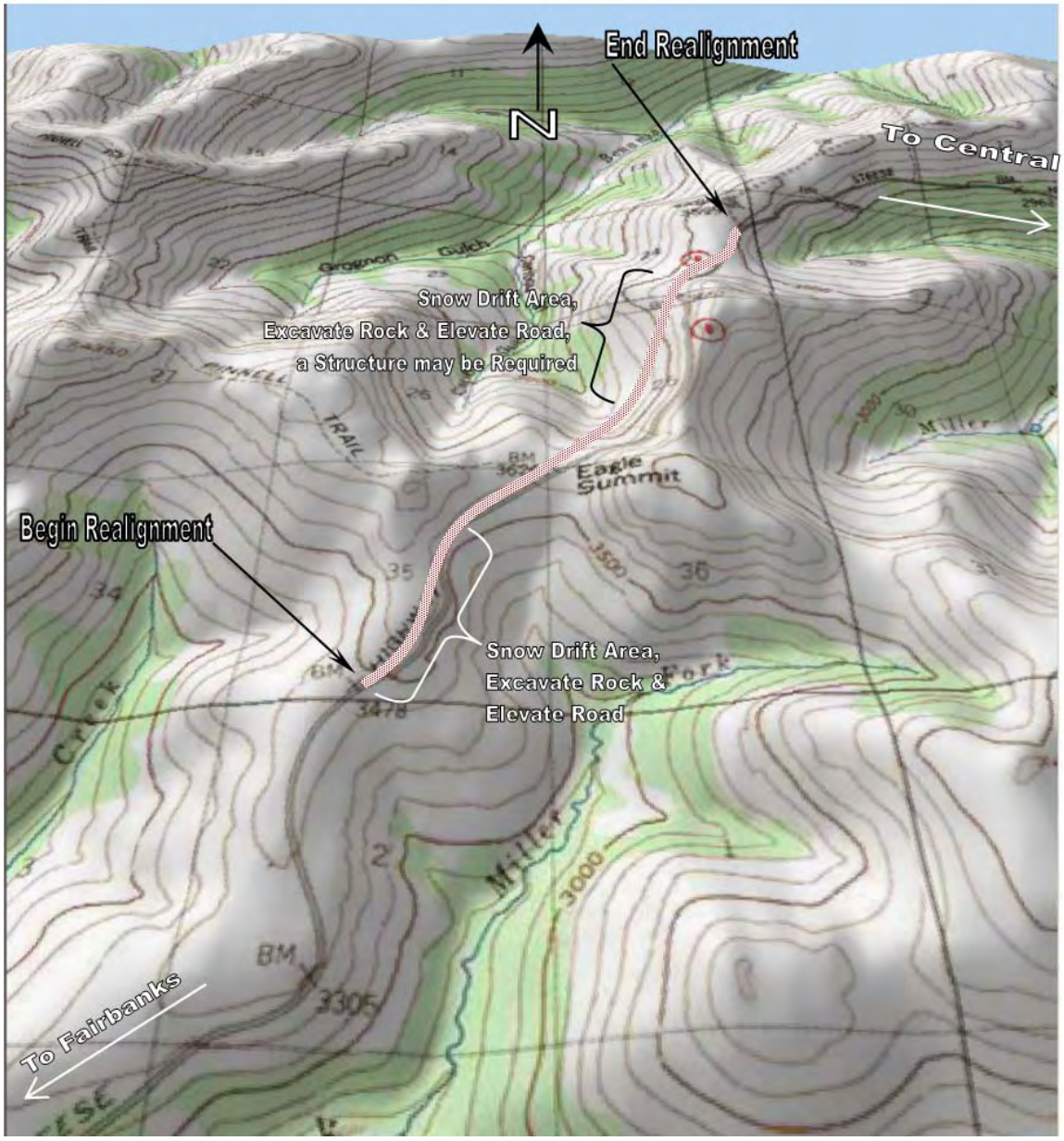
Mitigating the snowdrift problems at Twelvemile and Eagle summits would require a more substantial effort. The areas subject to snow drifting would require additional study to develop the realignment concepts outlined below. In order to refine the designs, the exact topography, typical wind speeds, wind directions, and snow depths would have to be analyzed and taken into account, requiring site-specific data collection. Conceptual approaches to Steese Highway reconstruction at Twelvemile and Eagle summits are illustrated in Figures 4-2 and 4-3, respectively.

Figure 4-2 Conceptual Approach to Steese Highway Reconstruction at Twelvemile Summit



At Twelvemile Summit, because the wind is usually from the north, the area most subject to drifting is on the south side of the hill where the road tucks into the slope as it proceeds uphill to the summit (Figure 4-2). Relief from drifting at this location would most likely require construction of a significant fill across the upper end of the gorge on the south side to move the roadway away from the lee of the slope. It might also be feasible to realign the roadway slightly down the nose of the hill (at the summit) to reduce the height of fill required without adversely affecting the grade of the road. The estimated costs to realign the road at this location are included in the economic analysis of this alternative (Section 6.2.1).

Figure 4-3 Conceptual Approach to Steese Highway Reconstruction at Eagle Summit



At Eagle Summit, drifting occurs at several locations (Figure 4-3). It might be feasible to reduce drifting on the southern half of the Eagle Summit realignment by raising the road elevation and moving the road to the west. Avoiding the snowdrift problem on the northern half of the realignment would require a great amount of fill and excavation to move the roadway to the west. This segment of roadway is on a steep grade; to move the roadway away from the slope, it is likely that a retaining wall would be required. On the north side of the summit, the roadway embankment could be elevated to decrease the depth of snow that would deposit on its surface. Snow fences might reduce the degree and extent of drifting at that location. It is unlikely that they would eliminate drifting, however, because strong north

winds blow snow onto the roadway from below the embankment as well as dropping it onto the road in the shadow of the hill.

Realignment of the Steese Highway around the east side of Eagle Summit might be feasible, although there is not enough site-specific information on the snow drift pattern to evaluate whether, or to what extent, drifting would be mitigated. The realignment concept shown in Figure 4-3 focuses on resolving the known snowdrift problems and would not require as much study and right-of-way acquisition as an eastern realignment.

4.5 No Action

Under the No Action Alternative, no new highway would be built, and routine maintenance of the Steese Highway would continue as currently planned. Aufeis and snowdrift problems, including winter closures, would continue on the Steese Highway at Twelvemile and Eagle summits. Drainage culverts and French drains would continue to degrade and contribute to increasing aufeis problems in the future. Additional maintenance staffing during the winter is not considered in this study, but it is an option that could be explored.

4.6 Engineering and Construction Comparison of the Alternatives

Each of the engineering and construction criteria defined below provides a means to compare the alternatives. Each alternative is evaluated and scored at a ranking of from one to six points, with one representing the highest score for meeting each criterion and 6 representing the lowest score. The points are totaled within Table 4-7. Descriptions of the criteria and the method for applying scores are discussed below.

4.6.1 Existing Rights-of-Way

The "Existing Rights-of-Way" criterion pertains to the percentage of the route that is within existing rights-of-way, including easements and RS 2477 reservations (Table 4-1). A score of one means the route is 100 percent within existing rights-of-way, and a score of six means there are no rights-of-way available. Of the alternatives presented, the No-Action Alternative has the maximum right-of-way available; therefore, it receives the highest score in this category. The Steese Highway Improvements Alternative would entail acquiring additional rights-of-way for the Twelvemile and Eagle Summit realignments. The remainder of the alternatives use varying percentages of RS 2477 trails, and in these cases, they are considered to be within rights-of-way and are scored proportionately. Although the state has administratively adjudicated many RS 2477 trails, however, further legal validation may be required on a case-by-case basis.

Table 4-1 Existing Rights-of-Way Criteria

	Mileage Inside Easement, RS 2477, or Right-of-Way	Length of Improved or New Roadway in Miles	Length of Right-of-Way Acquisition Required	Point Ranking (1=High, 6=Low)	Remarks
	(a)	(b)	(c) = (b) - (a)		
No Action	74	74	0	1	Entire route in existing rights-of-way
Steese Highway Improvements	63	72	9	2	New right-of-way required for the realignments
Route A-C	11	55	44	6	Land use issues not considered
Route A-B	23	59	36	4	Land use issues not considered
Route A-D(1)	8	46	38	5	
Route A-D(2)	8	39	31	3	Land use issues not considered

4.6.2 Soils and Geologic Conditions

For the Soils and Geologic Conditions criterion, the alternatives are evaluated by measuring the total length of each alignment crossing land areas, such as south-facing slopes, that would typically provide desirable soils (Table 4-2). Alternative routes that would likely encounter a higher percentage of soils with high moisture content (valley bottoms) or permafrost (north-facing slopes) are given lower scores.

Table 4-2 Soils and Geologic Conditions

	Mileage of New Roadway on South Slope or Above Valley Bottom	Length of New Roadway in Miles	% of New Route Length	Point Ranking (6=High, 1=Low)	Remarks
	(a)	(b)	(c) = (a)/(b)		
No Action	n/a	0	n/a	2	
Steese Highway Improvements	7	11	64%	1	Assumes improvements to the existing structural section.
Route A-C	20	55	36%	5	
Route A-B	22	59	38%	4	
Route A-D(1)	16	46	35%	6	
Route A-D(2)	16	39	42%	3	

4.6.3 Snow Drift Potential

Snow drifting during the winter months is the primary cause of road closures in Alaska. Snow drifting typically occurs in areas similar to Twelvemile and Eagle summits that are at elevations above tree line, approximately 2,900 feet. Accordingly, the percentage of each alternative above the 2,900-foot contour is used to define the extent to which it would minimize snowdrift potential (Table 4-3). A score of one was given to New Highway Alternative A-B, which maintains elevations below 2,900 feet. This does not mean that snow drifting would not be an issue with this alignment, although it is likely that that the problems would not be of the same magnitude as those causing highway closures at Eagle Summit.

Table 4-3 Snow Drift Potential

	Mileage above 2,900-foot elevation	Chena Hot Springs to Circle Hot Springs Route Length	% of New Route Length	Point Ranking (1=High, 6=Low)	Remarks
	(a)	(a)	(c) = (a)/(b)		
No Action	11	182	6%	3	
Steese Highway Improvements	8	180	4%	2	Twelvemile Summit Realignment Improves the Existing Alignment
Route A-C	40	74	54%	6	Eagle Summit Included
Route A-B	0	59	0%	1	This alignment is the lowest in elevation of all the Alternatives.
Route A-D(1)	15	87	17%	5	Eagle Summit Included
Route A-D(2)	9	80	11%	4	Eagle Summit Included

4.6.4 Bridge and Structure Expense

Bridge and structure expense scores are applied in accordance with a scale that was developed by assigning the No Action Alternative a score of 1 and the alternative with the most river crossings, Alternative Route A-B(3), with 11 crossings, a score of 6 (Table 4-4). The other alternatives are scored relative to these upper and lower limits, according to the number of bridges expected on the route.

Table 4-4 Number of New Structures Required

	Number of River Crossings or Retaining Structures Expected (a)	Point Ranking (1=High, 6=Low)	Remarks
No Action	0	1	
Steese Highway Improvements	1	2	Assumes that a retaining structure will be required at Eagle Summit.
Route A-C	8	5	
Route A-B	11	6	This route has the greatest amount of new river crossings.
Route A-D(1)	7	4	
Route A-D(2)	7	4	

4.6.5 New Roadway Length and General Maintenance

The total length of new roadway is taken into consideration for general maintenance. If a new roadway were to be added to the region, it would add to the required maintenance budget. Therefore, each alternative is scored in proportion to the total length of new roadway it would require (Table 4-5). The Steese Highway Improvements Alternative is an exception, because the realigned sections of this alternative would decrease the length of the existing Steese Highway, thereby shortening the total mileage of roadway maintenance.

Table 4-5 New Roadway Length and General Maintenance

	New Roadway Length in Miles (a)	Point Ranking (1=High, 6=Low)	Remarks
No Action	0	2	
Steese Highway Improvements	11, See Note	1	This alternative will decrease the overall length of the Existing Steese Highway
Route A-C	55	5	
Route A-B	59	6	Lowest score due to increased maintenance, which will accompany the greatest new roadway length.
Route A-D(1)	46	4	
Route A-D(2)	39	3	

4.6.6 Chena Hot Springs to Circle Hot Springs Route Length

The route length criterion pertains to the overall route length between Chena Hot Springs and Circle Hot Springs, not just the new highway construction length. For instance, New Highway Alternative A-D (1)'s new highway length is 46 miles, which leaves another 41 miles to Circle Hot Springs for a total Route Length of 87 miles. The most direct route, and therefore the shortest, is New Highway Alternative A-B. (It should be noted that the shortest route among the alternatives from Fairbanks to Central or Circle is the existing Steese Highway.)

Table 4-6 Total Route Length, Chena Hot Springs to Circle Hot Springs

	Chena Hot Springs to Circle Hot Springs Route Length (a)	Point Ranking (1=High, 6=Low)	Remarks
No Action	182	6	Chena Hot Springs to the outskirts of Fairbanks, to Circle Hot Springs.
Steese Highway Improvements	180	5	Chena Hot Springs to the outskirts of Fairbanks, to Circle Hot Springs assuming reduced length for Steese.
Route A-C	74	2	
Route A-B	59	1	Shortest Route
Route A-D(1)	87	4	
Route A-D(2)	80	3	

4.6.7 Criteria Comparison

Table 4-7 compares the alternatives solely based on the engineering and construction criteria discussed above. Upon comparing all of the alternatives, it can be seen that the Steese Highway Improvements Alternative received the highest total score. The No Action Alternative also received a high score, because it would entail only planned maintenance and would not confront the construction-related considerations associated with the other alternatives. The Steese Highway Improvements Alternative is assumed to include mitigation of the snowdrift problems at Twelvemile and Eagle summits. The scoring is necessarily subjective in this regard, because the degree of improvement can be estimated only after a focused study is completed on the snow drifting. From an engineering standpoint, the matrix shows that the significant obstacles to overcome for the New Highway alternatives would be acquisition of right-of-way, material haul distances, and new structure expenses.

Table 4-7 Engineering and Construction Evaluation Matrix

Alternative Description	Engineering and Construction Criteria Rank (1=High, 6=Low)							Total Score =Sum of Criteria Ranks	Remarks
	ID	A	B	C	D	E	F		
	Engineering and Construction Criteria Description	Existing Rights-of-Way	Soils and Geologic Conditions	Snow Drift Potential	Bridge / Structure Expense	New Roadway Length and General Maintenance	Chena Hot Springs to Circle Hot Springs Route Length		
No Action		1	2	3	1	2	6	15	
Steese Highway Improvements		2	1	2	2	1	5	13	
Route A-C		6	5	6	5	5	2	29	
Route A-B		4	4	1	6	6	1	22	
Route A-D(1)		5	6	5	3	4	4	27	
Route A-D(2)		3	3	4	4	3	3	20	

5 LAND USE, ENVIRONMENTAL AND REGULATORY CONSTRAINTS

Highway engineering design and construction planning must take into account environmental, land use, and regulatory factors that impose constraints on route selection, roadway design and alignment, and construction practices. For the Chena Hot Springs to Circle Hot Springs Planning Study, the predominance of large tracts of federally managed public lands in the study area, along with complex and mountainous terrain, would impose substantial restrictions on the design and construction of any new highway. In addition, the study area is rich in legally protected prehistoric and historic sites, and it contains a multitude of widely distributed wetlands protected by Section 404 of the Clean Water Act under US Army Corps of Engineers (USACE) jurisdiction. Moreover, waterbodies and fish populations throughout the study area are gradually recovering from long-term degradation resulting from historical mining, and protecting streams from construction-related bank degradation and siltation is a regulatory priority. Finally, the study area includes a portion of the winter range of the depleted Fortymile caribou herd, which is expanding in population size and geographic distribution in response to an intensive cooperative management program. The following sections describe these environmental, land use and regulatory considerations, as they would apply to the build alternatives, including upgrading the Steese Highway.

5.1 Land Use Constraints

The study area consists almost entirely of public lands under the jurisdiction of the State of Alaska or the US Department of the Interior, Bureau of Land Management (BLM). In addition, individually owned private lands, including Alaska Native allotments and remote recreational cabin sites, are distributed on the periphery of the study area near Chena Hot Springs, Central, and Circle Hot Springs, and along the Steese Highway. With regard to constraints on the selection of a build alternative, the primary considerations are the federal lands constituting the Steese National Conservation Area (Steese NCA) and the Birch Creek National Wild River (Birch Creek NWR). Less severe constraints would be imposed by Recreational Cabin Site Areas administered by the Alaska Department of Natural Resources, Division of Mining, Land and Water (ADNR/DMLW). Mining is allowed within the Steese NCA, and there are active mining claims. However, the Steese NCA is now closed to mineral entry, and no new claims can be staked.

5.1.1 Federal Lands

The Steese NCA and Birch Creek NWR would greatly restrict options for building a road through the study area. A direct road connection between Chena Hot Springs and Circle Hot Springs would have to cross both of these national conservation units. Federal regulatory and administrative restrictions would either eliminate any proposed road across the units from further consideration, or require a lengthy process to amend the existing management plans for both units so that a roadway would be allowed.

Both the Steese NCA and Birch Creek NWR were established by Congress in 1980 by passage of the Alaska National Interest Lands Conservation Act, or ANILCA (Public Law 96-487). ANILCA requires management for multiple use, sustained yield, and maintenance of environmental quality. To establish a right-of-way within either of these national conservation system units, the State of Alaska would have to initiate a right-of-way application under Title XI of ANILCA. An EIS with comprehensive public involvement, agency coordination, and field studies would be required, and BLM, under ANILCA, would be required to consider the application. No Congressional action would be necessary. The Steese NCA and Birch Creek NWR management plans would have to be amended to accommodate the right-of-way, however, and the amendment procedure for both units would most likely be part of the NEPA process for the EIS. The NEPA process would require three to five years, and it would ensure that all federal requirements are met.

The Steese NCA consists of two subunits, one north of the Steese Highway (the North Steese) and the other, containing the Birch Creek NWR corridor, south of the highway (the South Steese). Birch Creek NWR is a component of the National Wild and Scenic Rivers System and was designated by ANILCA pursuant to the Wild and Scenic Rivers Act, or WSRA (Public Law 90-542). Birch Creek NWR forms an uninterrupted 125-mile loop beginning and ending at upstream and downstream crossings, respectively, by the Steese Highway. The first approximately 77 miles of the Birch Creek NWR corridor is inside the Steese NCA. Under ANILCA Section 401, Birch Creek NWR is thus a special value to be considered in the long-term planning and management of the Steese NCA (BLM 1982). In this manner, the management of Birch Creek NWR is nested within the overall management policy for the Steese NCA. Both national conservation units are administered by BLM pursuant to the Federal Land Policy and Management Act (known as the BLM Organic Act, Public Law 94-579).

The River Management Plan for Birch Creek NWR was adopted by BLM in 1983 (BLM 1983). The plan establishes management policies in compliance with both the WSRA and ANILCA, emphasizing that "By classifying Birch Creek as 'wild,' Congress mandated that Birch Creek National Wild River shall 'be managed to be free of impoundments and generally inaccessible expect by trail, with watersheds or shorelines primitive, and waters unpolluted…representing vestiges of primitive America'" (BLM 1983). The plan "establishes the detailed boundaries and develops the management policies" for Birch Creek NWR consistent with this mandate. It also recognizes the need for flexibility, stating that BLM "intends that these management policies be flexible in order to remain responsive to future management needs while at the same time serving as a standard to assure the protection of the rivers' resources from possible future changes in resource quality and use" (BLM 1983). In general, however, the river management plan is restrictive with regard to potentially intrusive future development. For example, it adopts Visual Resource Management Class I Objectives, which are intended "to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activities. The level of change to the characteristic landscape should be very low and must not attract attention" (addendum to December 9, 2004 Interagency Meeting Notes, Appendix A). Consequently, the construction of a road, which

penetrates the Birch Creek NWR corridor, and particularly a bridge crossing of Birch Creek NWR, would be incompatible with this and other provisions of the river management plan.

The Resource Management Plan for the Steese NCA was adopted by a Record of Decision in 1986 (BLM 1986) and is due to be updated in 2010. The management plan establishes three goals and one or more objectives for each of the goals (Table 5-1), emphasizing that "Special values to be considered in planning and management of the area are Birch Creek and caribou range." Accordingly, the goals and objectives for the Steese NCA give prominence to protection and improvement of the Birch Creek NWR and of caribou habitat, two of the environmentally sensitive features discussed below in Section 5.3.

As noted by BLM (see addendum to December 9, 2004 Interagency Meeting Notes, Appendix A), the Steese NCA is divided into six management units on the basis of multiple use management prescriptions: Primitive, Semi-primitive Motorized restricted, Semi-primitive Motorized Special, Semi-primitive Motorized, Research Natural Areas, and the Birch Creek National Wild River Corridor. Detailed descriptions of these units and their management directions are presented in the management plan (BLM 1986). Alternative A-B would cross two management units: Birch Creek NWR and Semi-primitive Motorized.

The Steese NCA Management Plan addresses rights-of-way and other realty actions pursuant to Section 503 of the Federal Land Policy and Management Act. The plan establishes two transportation corridor concepts in the South Steese to provide improved access from Steese Highway trailheads to the south side of Birch Creek, one at Great Unknown Creek and the other at Portage Creek/Buckley Bar. Both corridors would follow existing trails southward into the Birch Creek NWR, and both corridors would cross the Wild River. The locations of these corridors, which have not been developed, would not facilitate a new road linking Chena Hot Springs and Circle Hot Springs, and the corridors are intended to enhance recreational access to Birch Creek NWR in accordance with Goal 3, Objective 3 of the management plan (Table 5-1).

Table 5-1 Goals and Objectives for the Steese NCA Resource Management Plan

Goals	Objectives
Goal 1. Improve the water quality of Birch Creek NWR.	1. Develop guidelines for mitigation of water quality degradation. 2. Maintain state water quality standards for the currently clear-flowing tributaries, such as Harrington Fork, Clums Fork, Sheep Creek, South Fork Birch Creek.
Goal 2. Manage present and historical caribou habitat as a primary land use.	Manage historical caribou range to meet Alaska Department of Fish and Game goals and objectives.*

Goals	Objectives
Goal 3. Manage lands consistent with multiple use principles and maintenance of environmental quality.	1. Manage Birch Creek and associated values in a manner consistent with the Birch Creek NWR Plan. 2. Protect existing viewsheds along Birch Creek NWR. 3. Improve access to recreational opportunities. 4. Maintain or improve habitat to support viable self-sustaining populations of fish and wildlife. 5. Provide for quality hunting, trapping, fishing, and wildlife viewing. 6. Protect primitive recreation values in 1) the Mount Prindle/Lime Peak area, and 2) along the Pinnell Mountain Trail.

Source: BLM 1986

* The Alaska Department of Natural Resources, Office of Habitat Management and Permitting (ADNR/OHMP) currently sets goals and objectives for caribou habitat management in coordination with research conducted by the Alaska Department of Fish and Game (ADF&G).

Section 107 of ANILCA states that any authorized transportation system within the NWR corridor must be compatible with the wild river values established for the NWR unit, and must be constructed in a manner that does not interfere with or impede stream flow or transportation on the river. The location and construction techniques must minimize adverse effects on scenic, recreational, fish and wildlife, and other values of the NWR unit. The Steese NCA Resource Management Plan states that "In order to prevent proliferation of rights-of-way, all future rights-of-way will, as far as possible, be located in one of these…corridors." The plan also states that if it becomes necessary for a right-of-way to extend beyond a corridor, existing trails must be followed wherever possible (BLM 1986).

The management plan sets forth a review and approval process under the BLM realty program for "applications for rights-of-way for roads, trails, or pipelines which may be developed for access to mineral claims or leases, access for public recreation, or other purposes" (BLM 1986). It further states, "Applications from the State of Alaska for public roads would generally be processed at the expense of the federal government" (BLM 1986). In addition, the plan contains two general provisions through which BLM would cooperate with the State of Alaska with regard to transportation planning within the Steese NCA:

The Bureau will work cooperatively with the State of Alaska to identify all right-of-way claims made pursuant to Revised Statute 2477 within the SNCA boundaries for administrative purposes only. The validity of such claims can only be determined in a court of competent jurisdiction.

The BLM proposes to cooperate with the State of Alaska and with other federal agencies in the preparation of an analysis of transportation needs involving the respective state and federal transportation and land managing agencies. The analysis would address the existing and future access needs and propose how best these needs could be met. It would also identify where access routes presently exist and which ones, if any, are duplicative.

These management plan provisions could be helpful in facilitating cooperative planning by the Department and BLM if a proposal for a new road linking Chena Hot Springs and Circle Hot Springs moves forward, and for defining points of agreement and incompatibility for further study and evaluation.

In January 2003, BLM provided an issue paper to the Department regarding the proposal for a road through the Steese NCA and crossing Birch Creek NWR (Appendix A). BLM notes that Section 1105 of ANILCA would allow BLM to grant a right-of-way for a transportation system within the Steese NCA if that system were compatible with the purposes for which the unit was established. The issue paper further notes that under Section 1105, the Birch Creek NWR River Management Plan would allow "Overland transportation systems within or across the river corridor…if it is determined that there are no economically feasible and prudent alternative routes."

BLM explains that the BLM planning process provides a process for amending both resource management plans and river management plans. In either case, such an amendment would entail a two-to-four year public involvement process with an accompanying environmental impact statement (EIS) prepared in compliance with the National Environmental Policy Act (NEPA, Public Law 91-190 as amended). BLM policy for the management of WSRA units, however, states, "No construction of new roads, trails, or other provisions for overland motorized travel would be permitted within the river corridor. A few inconspicuous roads or unobtrusive trail bridges leading to the boundary of the river area [i.e., the edge of the corridor] may be permitted" (BLM issue paper of January 2003, Appendix A).

In summary, the management plans for the Steese NCA and Birch Creek NWR contain limited provisions for allowing road construction, as well as restrictions that would prohibit a road. The Birch Creek River Management Plan requires demonstration that there are no "economically feasible and prudent alternative routes" to any proposed road crossing of the National Wild River corridor (BLM 1983). Consequently, if an administrative decision by BLM found the existing Steese Highway to be an "economically feasible and prudent alternative" to a proposed new road, the river management plan would have to be amended in order to allow construction of a new roadway.

Similarly, the Record of Decision for the Steese NCA Resource Management Plan requires that any new right-of-way stay within the transportation corridors delineated in the management plan (BLM 1986). If a proposed new road alignment were outside one of the two transportation corridors established for the South Steese, the management plan would have to be amended to allow the new road.

In the case of a Chena Hot Springs to Circle Hot Springs road, amendments might be required to the management plans of both national conservation units. The proposed amendments would be major federal actions requiring an EIS, necessitating a two-to-four year public involvement, agency consultation, resource inventory, and impact assessment process in compliance with NEPA. It would be procedurally feasible to include both amendment proposals within a single EIS document.

5.1.2 State of Alaska Lands

In addition to federally administered public lands, State of Alaska lands administered by ADNR/DMLW would also be crossed by Alternatives A-B and A-D. Alternative A-B would cross state land south of the Steese NCA, whereas Alternative A-D would be located entirely on state lands. Land near Chena Hot Springs, at the southern end of the route, are currently platted for 100-foot wide roadways in accordance with a 1963 statute, and existing gravel roads in the area follow RS 2477 trails. Construction of a Chena Hot Springs to Circle Hot Springs Highway would entail review of the existing statute and platting to determine if a revision to roadway width stipulations would be required.

ADNR/DMLW administers a land disposal program for remote recreational cabin sites along the West and North Forks of the Chena River, and cabins have been built in the valleys of the watershed north of Chena Hot Springs. ADNR/DMLW can issue public easements, including roadway easements, under State of Alaska regulations (11 AAC 51). A new road through the land disposal area would provide an opportunity for enhanced access to cabin sites, but this is not a simple issue. While some remote cabin holders would desire enhanced access, others would not (Interview, ADNR/DMLW, May 3, 2005). As noted in Section 2.3.3, owners of remote cabins who participated in the scoping process stated that they would oppose increased access, because they want their remote cabins to remain isolated and thus continue to provide a wilderness experience. The State of Alaska, however, has not made a commitment to prohibit a road through the area in the future, and cabin owners have been informed that a future road is possible (Interview, ADNR/DMLW, May 3, 2005).

The remote recreational land disposal program will continue in the future, with the area upstream of the confluence of Boulder Creek and the North Fork Chena River scheduled for disposals in 2006. Future land disposals must be a consideration in any future road proposal and should be a topic of close coordination between the Department and ADNR/DMLW. In general, however, there is no reason to suggest that a new road across state lands in the study area would not be compatible with ADNR/DMLW policies and plans (Interview, ADNR/DMLW, May 3, 2005).

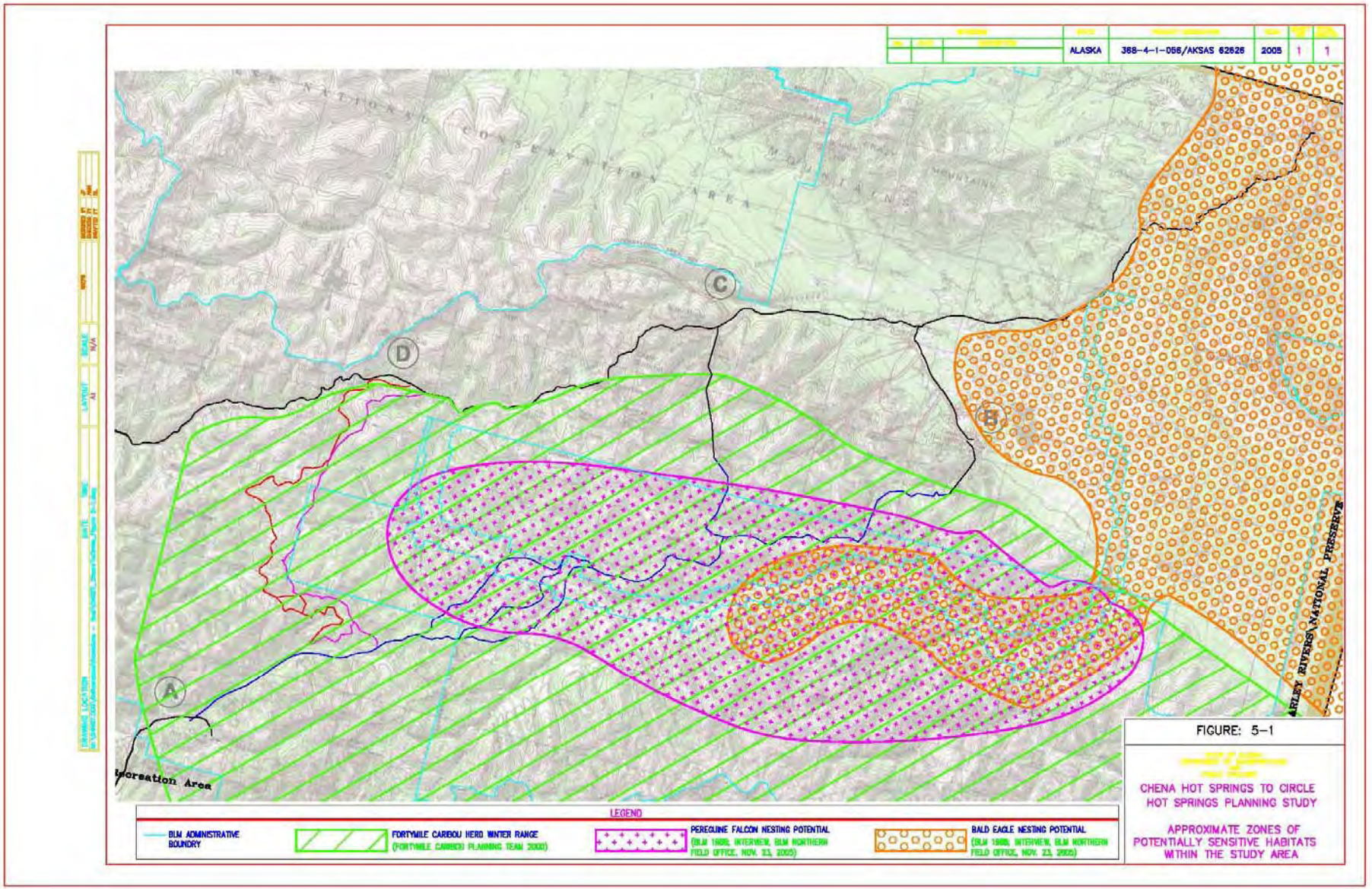
5.2 Environmentally Sensitive Features and Regulatory Requirements

Environmentally sensitive features would impose constraints on the design, construction practices, and construction schedule for any new road through the study area, with the degree of constraint depending generally on the route selected and more specifically on the alignment surveyed for that route. Some or all of these features would also impose constraints on a project to improve the existing Steese Highway, although to a reduced extent. All of the alternatives except No Action would require prior consultation with, and permitting by, regulatory agencies. The permit conditions would require the Department to avoid or minimize disturbances to environmentally sensitive features during construction. Their degree of restriction would reflect the extent to which such mitigation had already been incorporated into engineering design and construction planning, as demonstrated in the permit applications.

As discussed in Section 2.2, Agency Consultation, regulatory agency representatives identified, on a preliminary basis, four environmentally sensitive features that could limit engineering designs and construction plans for a new road in the study area or for upgrading of the Steese Highway: cultural resource sites, wetlands, fish streams, and the Fortymile caribou herd. In addition, peregrine falcons nest in the bluffs along Birch Creek, and bald eagles nest in the flats at the northeast end of the Birch Creek NWR corridor. The raptor nest sites have not been systematically documented in recent years (Interview, BLM Northern Field Office, April 14, 2005). Approximate areas of caribou winter habitat and of peregrine falcon and bald eagle nesting habitats are indicated schematically in Figure 5-1.

The study team conducted individual interviews with the appropriate agency representatives to learn more about these environmentally sensitive features and their implications for the build alternatives and Steese Highway improvement. In particular, the interviews addressed the types of adverse impacts that could result from new road construction or improvements to the existing highway, how such impacts could be avoided or minimized, and implications for regulatory permitting. Interviews with regulatory agency representatives are cited in Appendix A, Agency Consultation.

Figure 5-1 Approximate Zones of Potentially Sensitive Habitats Within the Study Area



5.2.1 Disturbance of Cultural Resource Sites

Cultural resource professionals conducted a heritage resource analysis of the study area to determine the potential for the build alternatives to encounter known cultural resource sites (Northern Land Use Research 2005). The analysis was conducted using existing information and in coordination with the State Historic Preservation Office (SHPO). Under provisions of the Archaeological Resources Protection Act and the National Historic Preservation Act, information regarding the locations of cultural resource sites must remain confidential. The heritage resource analysis report was provided to SHPO and the Department, and it will be available to appropriate regulatory agencies to facilitate permitting required for the future implementation of any of the build alternatives.

The heritage resource analysis determined that there are many known cultural resource sites within the study area. These include prehistoric sites as well as historic cabins and mining-related structures dating from the gold rush in Interior Alaska. Archaeological research conducted in the Alaskan Interior for over 70 years indicates that the study area was intensively occupied by the Upper Tanana Athabascans during prehistoric periods. Extensive recent surveys within the study area have emphasized sites with obvious surface features, such as historic cabins, but only a few surveys have included the systematic subsurface testing that is typically necessary to discover prehistoric sites, which are often buried and invisible from the surface. The fact that a substantial number of prehistoric sites are already known in the study area suggests that many more would be discovered by systematic surveys using subsurface testing. Wildfires during the summer of 2004 may have damaged a number of sites, but may also have exposed previously unknown sites.

Ethnohistorical, historical, and archaeological evidence reviewed for this planning study indicates that the study area has a high potential for the occurrence of both historic and prehistoric cultural resources. If the Chena Hot Springs to Circle Hot Springs road project continues past the present planning study, potential impacts to cultural resources will have to be determined and addressed under Section 106 of the National Historic Preservation Act. The standard Section 106 procedure in a case such as this would be to conduct a field survey to inventory cultural resources, evaluate the sites for eligibility for the National Register of Historic Places, and determine whether the selected road alternative would affect significant cultural resources. Alignment adjustments would be made to avoid direct impacts on cultural resource sites. Sites inside the Area of Potential Effect that meet the requirements for National Register eligibility would most likely be addressed through a formal Memorandum of Agreement signed by the SHPO, the BLM, and appropriate other jurisdictional authorities and landholders.

5.2.2 Avoidance and Minimization of Impacts on Wetlands

Wetlands are an important factor in highway design and construction, because they impose constraints on route selection and alignment, roadway design, construction methods and schedules, drainage systems, and erosion control measures. Accommodating these constraints usually adds to the overall cost of the highway.

In addition, wetlands impose a regulatory cost. Because they provide important natural functions and values, they are designated by the US Environmental Protection Agency (USEPA) as special aquatic sites in regulatory guidelines implementing Section 404 of the Clean Water Act. Under Section 404, fill placement in wetlands that have a physical connection to waters of the United States (jurisdictional wetlands) is regulated through a permitting program administered by the US Army Corps of Engineers (USACE). The Section 404 permit application must present site-specific information on the location, areal extent, and vegetation, soils, and hydrology of wetlands that would be affected by construction, and field studies are usually required to obtain this information. Additionally, a functional assessment of wetland areas must be performed as part of the permitting process. A substantial lead-time, therefore, must be factored into the project for preparation and regulatory review of the Section 404 permit application.

Wetlands occur extensively throughout the study area and would include all waterways. Most creeks have low gradients along their lower elevations and near their mouths, where there is a high probability of wetland occurrence. At higher elevations, wetlands are usually present on north- and northwest-facing slopes, sometimes on west-facing slopes, and commonly on lower tree-covered slopes and on foot slopes. USACE generally asserts jurisdiction over such wetland areas and over work conducted below the ordinary high water mark of creeks and streams tributary to navigable waterways (Interview, USACE Alaska District, April 15, 2005).

Any ground-disturbing pre-construction, construction, or maintenance activity with the potential to deposit silts, soil, gravel, rocks, brush, or other material in wetlands will require detailed review by USACE before a Section 404 permit can be issued for the activity. Examples of activities that would require permitting include, but are not limited to, fill placement; stockpiling of overburden, gravel, or other material; mechanized land clearing; construction camps; storage yards; turnaround areas; backfilling of utility trenches; and culvert installation if it requires fill placement (Interview, USACE Alaska District, April 15, 2005).

The application for Section 404 permits associated with any of the build alternatives, including improvements to the Steese Highway, must include site-specific information on all wetlands potentially affected by ground-disturbing activity. To collect the required information, a comprehensive wetland delineation program, including airphoto interpretation and ground-truthing, would be conducted along the proposed alignment for a new road or along portions of the Steese Highway that would be subject to new construction. The survey report would map and describe the locations, areal extent, and vegetation, soil, and hydrology of the potentially affected wetlands in accordance with the USACE Wetlands Delineation Manual (USACE 1987) and other pertinent regulatory guidance.

The preliminary alignments developed for Alternatives A-B, A-C, and A-D have been designed to avoid or minimize wetland involvement. To the fullest extent feasible, they stay on higher slopes and ridgelines. Where toe slopes must be crossed, the alignments emphasize south-southeast-facing sides of waterways. Where an alignment crosses a slope or follows a

ridgeline, the Department's Best Practices would be employed to avoid or minimize erosion and siltation.

Stream crossings would be an important consideration for the design and construction of a new road through the study area (see Section 5.3.3). Permitting for stream crossings would be coordinated through cooperative joint planning by the Department, USACE, and the Alaska Department of Natural Resources, Office of Habitat Management and Permitting (ADNR/OHMP). The permitting programs of USACE and ADNR/OHMP would be coordinated to deal with closely related issues relating to wetlands, waterways, and fish habitats. With culvert installations, for example, the Department would employ accepted culvert placement and sizing criteria administered by ADNR/OHMP and avoid or minimize fill placement as regulated by USACE. Any bridge supports, if needed, would be placed outside of the wetland jurisdictional area adjacent to the waterway to minimize the regulatory concerns of both agencies. To facilitate such coordination, USACE recommends that the Department undertake a negotiated planning process with USACE and ADNR/OHMP to develop mutually agreed-upon mitigation plans that would expedite the permitting processes of both regulatory agencies and thus benefit the construction schedule (Interview, USACE Alaska District, April 15, 2005).

5.2.3 Protection of Waterway Integrity and Fish Habitats

Protecting streams and fish habitats and maintaining water quality would be a major regulatory concern for any future road construction in the study area, including upgrading the Steese Highway. During the past two decades, streams in the study area have been recovering from a long history of high turbidity and sedimentation from placer mining activities within the watershed (BLM 1983, 1986; Interview, ADNR/OHMP, April 18, 2005). In the 1980s, the generally poor water quality in the study area was attributed to a resurgence of placer mining in the headwaters and tributaries of Birch Creek, particularly Harrison and Crooked creeks, and high turbidity and suspended sediment loads were evident throughout the entire length of Birch Creek (BLM 1983). Today, general and recreational suctions dredge permits are issued for most of the creeks along the Steese Highway as it traverses the Central Mining District, but this type of regulated mining does not produce major adverse impacts on fish habitats. The BLM is engaged in stream restoration work at many locations along Birch Creek, which remains the primary focus for fish recovery efforts (Interview, ADNR/OHMP, April 18, 2005).

Although Birch Creek and its tributaries are designated as anadromous fish streams and have historically supported salmon fisheries and resident arctic grayling, fish habitats are still recovering from long-term damage caused by placer mining. The fisheries of the study area remain depleted, but fish are gradually returning as water quality and streambed conditions improve (Interview, ADNR/OHMP, April 18, 2005). Juvenile salmon are thought to occur predominantly in Birch Creek at present, but juveniles are likely to move increasingly into the tributaries and penetrate farther upstream in the future. For this reason, any construction activity that might affect creeks in the study area, particularly stream crossings and culvert installations, must provide for potential future populations of salmon and grayling in locations that may not presently support fish. Consequently, maintaining natural drainage and

fish passage will be a major concern for any of the build alternatives, including upgrading the Steese Highway.

As noted in Section 2.2.6, preconstruction, construction, and some maintenance activities within or across fish streams in the study area would require permitting by ADNR/OHMP under Alaska Statutes 41.14.840 and .870. Alaska Statute 41.14.840 (the Fishway Act) requires the permitting of activities within or across a stream used by fish if OHMP determines that such uses or activities could represent an impediment to efficient fish passage. For example, culvert installation; water withdrawals; stream realignment or diversion; dams; low-water crossings; and construction, placement, deposition, or removal of any material or structure below ordinary high water would all require a permit from OHMP.

Alaska Statute 41.14.870 (the Anadromous Fish Act) requires prior approval from OHMP "to construct a hydraulic project or use, divert, obstruct, pollute, or change the natural flow or bed" of a specified water body (AS 41.14.870 (b)). Any intrusive activity within or across a water body that supports any life stage of an anadromous fish species requires an OHMP permit. Such activities include construction, road crossings, gravel removal, mining, water withdrawals, the use of vehicles or equipment in the waterway, stream realignment or diversion, bank stabilization, blasting, and the placement, excavation, deposition, or removal of any material.

Any of the build alternatives, including upgrading the Steese Highway, would require extensive hydrologic studies to determine site-specific stream crossing locations and modes to comply with OHMP permit stipulations. Culvert location, sizing, and orientation would be carefully planned in coordination with OHMP to ensure that accepted criteria are followed to provide long-term suitability for fish passage. Upgrading the Steese Highway would entail a major culvert replacement program. As previously noted, fishery studies would be required to characterize the current status of streams and tributaries that would be affected by construction. Measures to mitigate erosion and aufeis formation, both during construction and over the long term, would be necessary, particularly where side-hill road cuts are planned (Interview, ADNR/OHMP, April 18, 2005).

5.2.4 Potential Impacts on the Fortymile Caribou Herd

The study area includes the western extremity of the Fortymile caribou herd's current range. Starting in the mid-1960s, the Fortymile herd experienced a major decline in population and distribution, and it has been recovering in response to concerted management measures instituted during the past decade (Fortymile Caribou Planning Team/FCPT 2000). Consultation with ADNR/OHMP regarding prudent measures to minimize potential impacts to the Fortymile herd would be a necessary part of early planning for any of the build alternatives, including upgrading the Steese Highway (Interview, ADNR/OHMP, April 18, 2005).

From the early 1900s through the mid-1960s, the Fortymile caribou herd varied from more than 50,000 to several hundred thousand animals. The herd ranged throughout much of eastern Interior Alaska and parts of the Yukon Territory, and in many years, calving occurred in the White Mountains, west of what is now the Steese Highway. After about 1968,

however, the herd declined to roughly 5,000 caribou, and its distribution contracted to an area bounded approximately by the Steese Highway to the west, the Alaska-Yukon border to the east, the Yukon River to the north, and the Tanana River to the south. By the mid-1990s, the herd occupied about 25 percent of its previous range.

In 1994, the Fortymile Caribou Planning Team (FCPT) was formed to develop management recommendations to restore the herd to its former size and range. Remedial measures already implemented have included reduced harvest limits and non-lethal wolf control, which were largely completed by 2001. Habitat protection remains a long-term goal and is based on a strategy of cooperation among landowners, land management agencies, industry, the military, and the ongoing caribou recovery effort to protect the herd's habitat without obstructing land use (FCPT 2000). Consultation between the Department and ADNR/OHMP regarding implementation of any of the build alternatives, including upgrading the Steese Highway, would be a component of this cooperative recovery program.

The Fortymile herd has responded to intensive management and was estimated to number about 35,000 in the year 2000. Most of the herd's present range is located southeast of the study area (Figure 5-2). Surveys conducted from 1992 through 1999 indicate that in mid- to late May, calving occurred in the mountainous headwater country of the Charley, Seventymile, Fortymile, Upper Salcha, and Goodpaster River watersheds, well east and south of the study area. The herd stayed in that region during the post-calving season, from late May until the end of June, and then dispersed westward toward Chena Hot Springs and eastward toward Eagle during summer, from early July through mid-August. In autumn, from mid-August through the end of September, the herd's distribution extended farther eastward, beyond the Taylor Highway. From the onset of the rut, in early October, through the entire winter season until late March, the Fortymile herd's distribution extended throughout all or part of the study area in some years, occupying the Birch Creek watershed and extending northwestward as far as the Chatanika River and Steese Highway (FCPT 2000).

Consequently, the FCPT survey data from 1992 through 1999 show that the Fortymile herd's overwintering season, from early October through late March, would be the relevant period for caribou-related considerations pertaining to a new highway through the study area. This period would impose greater constraints on Alternative A-B, which would traverse the Birch Creek Drainage and Steese NCA, than on Alternative A-D, which would skirt west of the herd's winter distribution in most years (Figure 5-2). Nevertheless, caribou distribution can be fluid from year to year, and the presence of caribou during the summer construction period remains a possibility. If the new highway were kept open and maintained through the winter, there would be a minor potential for vehicle-caribou collisions and disturbance of overwintering animals, and the road would provide access to snowmachines, creating a greater potential for disturbance of wintering caribou (Interview, ADNR/OHMP, April 18, 2005). From the standpoint of the five criteria used by the FCPT to assess seasonal habitats—energy balance, reproduction, tolerance to disturbance, escape requirements, and intensity of use—the period during which the Fortymile herd would most likely extend into the study area, from early October through the end of March, is considered the least sensitive (FCPT 2000).

The management goal for the Fortymile caribou herd is to restore the herd to its former size and range, which would extend throughout the study area, across the Steese Highway, and into the White Mountains National Recreation Area (FCPT 2000). This long-term goal is relevant to all of the build alternatives, including upgrading the Steese Highway, because the future range of the successfully restored herd would encompass all three. Similarly, a primary objective of Steese NCA management is maintenance of caribou habitat quality. Future engineering design, construction planning, and permitting for any of the build alternatives would require close coordination with ADNR/OHMP, and with BLM for Alternatives A-B and A-C, to ensure prudent consideration to mitigate potential adverse impacts on the Fortymile herd, particularly those relating to increased hunting and vehicle collision mortality and to impedance of free passage and habitat use.

5.3 Land Use, Environmental and Regulatory Comparison of the Build Alternatives

Table 5-2 compares the three build alternatives with respect to the land use, environmental, and regulatory constraints discussed above. It shows that Alternative A-B would be subject to the most constraints, Alternative A-D moderately limited, and upgrading the Steese Highway the least constrained. Consequently, upgrading the Steese Highway would be the most feasible of the three build alternatives from the standpoint of the land use, environmental, and regulatory considerations discussed in this section.

Table 5-2 Land Use, Environmental and Regulatory Comparison of Build Alternatives

Alternative	Degree of Constraint		
	Land Use Constraints	Environmentally Sensitive Features	Regulatory Permitting Requirements
A-B	HIGH Major restrictions imposed by national conservation unit management plans. EIS required prior to amendments.	HIGH Proposed route would cross potential cultural resource sites, wetlands, fish streams, and caribou winter habitat.	HIGH Permit applications for environmentally sensitive features would require extensive field studies and documentation.
A-C/A-D	LOW The route would be on State of Alaska land unencumbered by conservation unit restrictions.	MODERATE Proposed route would cross potential cultural resource sites, wetlands, fish streams, and caribou range, but Alternative A-C or A-D would be shorter than Alternative A-B.	HIGH Permit applications for environmentally sensitive features would require extensive field studies and documentation.
Steese Highway Improvements	LOW Land use constraints for the existing highway have already been resolved, and alignment changes would be minor.	LOW Upgrading the existing alignment would not impose new impacts on environmentally sensitive features over the long term. Short-term construction impacts would occur.	MODERATE Stream crossings would require extensive culvert resizing and replacement in compliance with ADNR/OHMP criteria to assure long-term free passage of fish.

6 BENEFITS AND COSTS OF THE PROJECT ALTERNATIVES

This section provides an overview of the potential benefits and costs of the proposed highway project alternatives. The analysis concludes that, from an economic standpoint, the Steese Highway Improvements Alternative would provide the most cost-effective option to improve access in the study area and stimulate tourism and recreational opportunities at Central, Circle Hot Springs, and Circle. Because this is a planning-level analysis, the potential costs and benefits presented in this section are conceptual or rough order-of-magnitude (ROM) estimates that will change as the project becomes better defined. Some general assumptions are used in the analysis to demonstrate potential cost savings and benefits that can be attributed to a generic highway. The amount of benefits and cost savings that the project would have to generate to cover the cost of building and maintaining a new highway is determined.

6.1 Description of the Study Area

The study area is a popular recreational locale in Interior Alaska, an active small-scale mining district, and home to residents of Circle, Central, Circle Hot Springs, and communities and properties along Chena Hot Springs Road. A large portion of the study area is designated as state and national conservation system units. These are particularly important to the study, because these recreational units both constrain the feasibility of the alternatives and, at the same time, provide a significant impetus for attracting tourists into the study area. The presence of extraordinary and year-round scenic, recreational, and historical attractions is a key rationale for improving the transportation infrastructure to support regional economic development, particularly through commercial tourism.

6.1.1 Scenic Attributes/Recreational Areas

The wild lands, scenic beauty, and historical and cultural significance of the study area are the key to its future economic growth. As noted below in Section 6.2.2, it is unlikely that a major new mining prospect will be developed in the study area in the near future, and there are few other sources of revenue available to local residents. State and federal public lands in the study area (Section 1.2) provide a broad spectrum of recreational and scenic experiences, from roadless wilderness, wild rivers, and remote mountain terrain to developed, road-accessible picnic sites and campgrounds. This “something for everyone” quality of the study area makes it ideal for commercial tourism and a plausible alternative to the Interior’s primary tourist attraction, Denali National Park and Preserve. In addition, the fact that the area is close to Fairbanks, with its international airport, and includes three well-maintained airstrips increases its attraction, and Birch Creek NWR is one of very few such rivers in Alaska conveniently accessible by road and within a day’s drive from an urban center. All of the public lands in the study area are currently open to dispersed recreation wherever there is

access. Additional information on land ownership in the study area is provided by the ADNR *Land Administration System (LAS) Mapper* (available at http://mapper.landrecords.info).

6.1.2 Communities

The build alternatives would primarily affect the communities of Central and Circle. Residents of these two communities rely on the Steese Highway for access to Fairbanks to obtain groceries and supplies, health care, and other goods and services. The following sections provide basic economic and demographic information about the two communities.

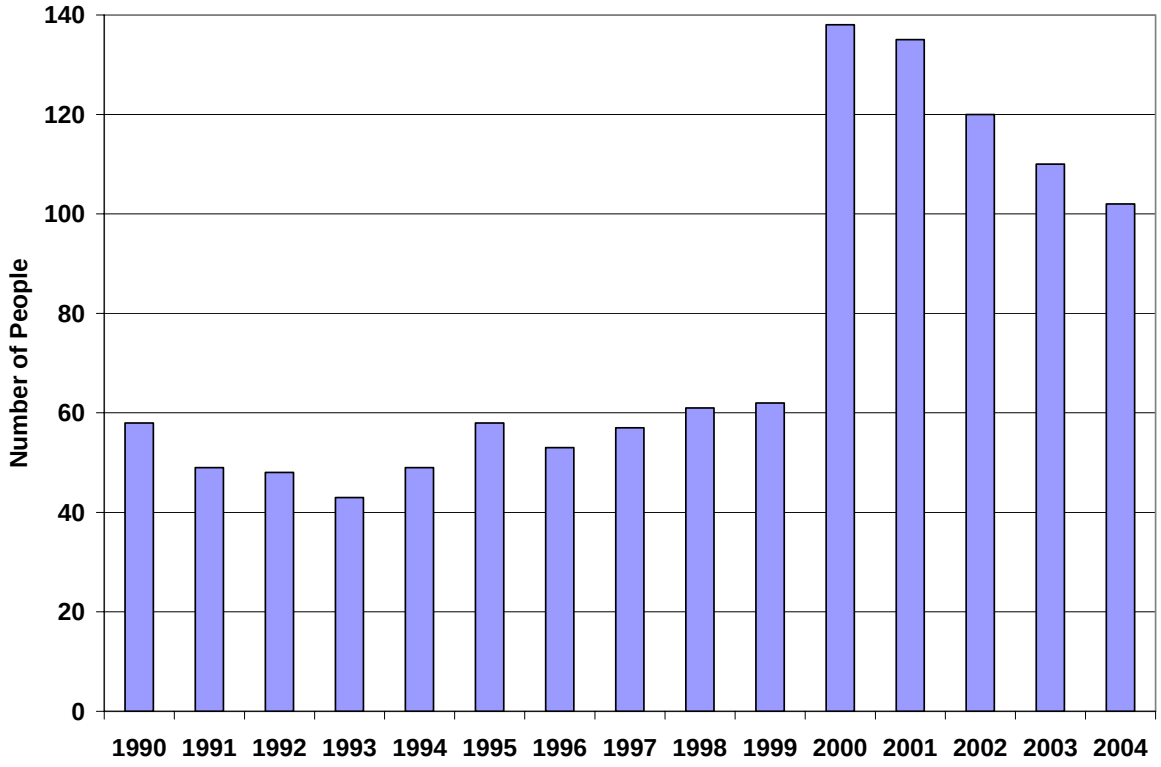
6.1.2.1 Central

Central is located on the Steese Highway about 128 miles northeast of Fairbanks and about 33 miles before the end of the highway at Circle. Central's economy is primarily based on providing seasonal support for mining operations in the area. Currently, Central is home to about a hundred residents. Figure 1 shows Central's population trend from 1990 to 2004. The population in the 1990s was mostly under 60 and was relatively stable. The significant jump in population from 1999 to 2000 is due to a change in the 2000 US Census geographic definition of the area, encompassing a wider population base compared to the 1990 US Census. Since the high point in 2000, Central's population has declined to 102 in 2004, an annual rate of decline of about 7 percent.

Small businesses serve the local community and attract highway visitors. Table 6-1 lists businesses in Central by sector (Business License Database, Alaska Department of Commerce, Community, and Economic Development, DCCED, 2004). The Circle District Museum attracts seasonal visitors. Circle Hot Springs closed its operations in October 2002. A number of individuals live in the area only seasonally. According to DCCED information, approximately 25 percent of homes in Central are occupied year-round. A high percentage of year-round residents rely on subsistence, in addition to grocery purchases, for food sources.

According to the 2000 US Census, Central has a total civilian employment of 50. Thirty-one (31) are private wage and salary workers, 9 are self-employed, and 10 are government employees. The recorded median household income is $36,875 and the per capita income is $22,593. Central is located in the Yukon-Koyukuk Census Area.

Figure 6-1 Central's Population, 1990 to 2004



Source: Alaska Department of Labor and Workforce Development

Table 6-1 List of Businesses in Central, Alaska

Business Name	Standard Industry Classification Sectors
AlaskaKreations	Other Miscellaneous Manufacturing
Arctic Circle Hot Springs	Traveler Accommodations
Central Alaska Transfer	Commercial Equipment
Central Electric, Inc.	Electric Power Generation, Transmission and Distribution
Central Fuel	Petroleum and Petroleum Products Direct Selling Establishments
Central Motor Inn	Traveler Accommodations
Circle Air	Non-scheduled Air Transportation
Circle District Museum	Museums, Historical Sites, etc
Dana Lawrence Brown	Land Surveyors
Frank's Hauling/Boom Truck	Road Transportation Support Services (towing)
GRH Enterprises	Metal Ore Mining
Hiller Enterprises, Inc	Lessors of Real Estate
Hiller Enterprises, Inc	Automotive Repair and Maintenance
Hiller Enterprises, Inc	Other professional, scientific, technical services
J A S Photography	Independent Artists, Writers and Performers (Photographers)
Last Chance Enterprises	General Freight Trucking
MAC-LIN & Co.	Greenhouse, Nursery, and Floriculture Production
Rampart Co.	Other wood product mfg; Sawmills and Wood preservation
Ryan's Company	Private household services
Steese Highway Fuel	Specialized Freight Trucking
Steese Roadhouse	Grocery Stores
Willis Mine Service	Mgt, Science, Technical Consulting, Environ SVC Other professional, scientific, technical services

Source: Business License Database, Alaska Department of Commerce, Community, and Economic Development, December, 2004.

Along the Steese Highway (between Fox and Central), there are other businesses such as the Chatanika Lodge, the Fairbanks Exploration Company gold camp, and a ski area near Cleary Summit. Industrial activities in the area include the Fort Knox and True North mining operations.

6.1.2.2 Circle

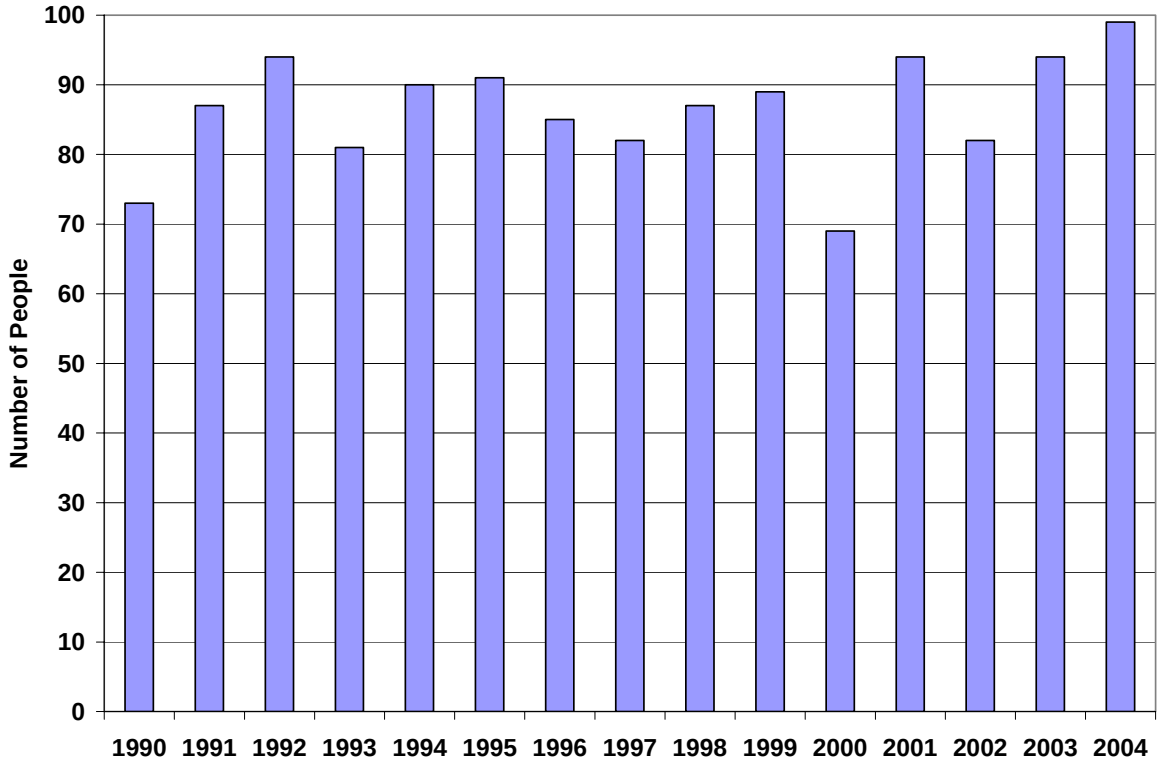
Circle, also known as Circle City, is located on the south (left) bank of the Yukon River at the edge of the Yukon Flats, 160 miles northeast of Fairbanks. It is at the eastern end of the Steese Highway. Circle supports a population of about 100 and has small retail stores, a motel and trading post, post office, cafe, campground, boat launch and general store.

Figure 6-2 shows the historical population of Circle. Population changes since 1990 have been relatively modest. Some people live in the community only during summer months. The population of the community consists of 85 percent Alaska Native or part Native (DCCED). The population of Circle is predominantly Athabascan. A federally-recognized tribe, the Circle Native Community, is located in the area.

Recreation activities attract visitors to Circle, which is a starting point for float trips on the Yukon River. Circle Charters offers river transportation and tours in a covered and heated aluminum inboard jet boat. Visitors can travel upriver from Circle to the Yukon-Charley Rivers National Preserve.

The major employers in the community include the school, clinic, Village Corporation, trading post, and post office. Table 6-2 shows the list of active business licenses by sector in the community (DCCED). Trapping and handicrafts contribute to family incomes. According to the 2000 US Census, there are 19 people employed in the community, the median household income is $11,667, and the per capita income is $6,426 (DCCED).

Figure 6-2 Circle's Population, 1990 to 2004



Source: Alaska Department of Labor and Workforce Development

Table 6-2 Businesses in Circle, Alaska

Business Name	Standard Industry Classification Sectors
Circle Telephone	Telecommunications
Circle Utilities, Inc.	Electric Power Generation, Transmission, and Distribution
Hutchison Commercial Company	Grocery and Related Products Petroleum and Petroleum Products
Yukon River Trading Post	Other General Merchandise Store: Beer, Wine, and Liquor Stores

Source: Business License Database, Alaska Department of Commerce, Community, and Economic Development, December, 2004.

6.1.3 Road Transportation System

The Steese Highway and Chena Hot Springs Road are the two main access roads to the study area. The Steese Highway is the major road access, connecting the communities of Circle and Central with Fairbanks. The Steese Highway is also used by visitors to access several points of interest in the area. The first 62 miles of the Steese Highway are improved pavement (high float surface treatment). From pavement end, the Steese is a wide gravel road extending to Central at Milepost 127.5, where there is a short stretch of paved road. From Central to Circle, the highway is a narrow, winding unimproved road, currently in poor condition. The highway is open year-round except during snowstorms, when Twelvemile and Eagle summits can become impassable at any time of the year (*The Milepost* 2005). The 56.6-mile Chena Hot Springs Road is paved and maintained year-round. It starts at its junction with the Steese Highway at the northeastern edge of Fairbanks, continues eastward through the Chena River State Recreation Area, and ends at Chena Hot Springs Resort.

6.2 Potential Benefits and Costs of the Alternatives

Public projects such as roads are typically justified when the benefits of the project can cover the costs. The FHWA procedural guidelines for feasibility studies require the economic justification to be supported by a benefit-cost analysis that includes non-monetary but quantifiable considerations as well as non-quantifiable considerations (FHWA 2003). This section provides a discussion of the estimated costs and potential benefits of a hypothetical road corridor that would connect Chena Hot Springs with Circle Hot Springs, or some variation of this alignment that would provide increased road access into or through the region. The information below presents conceptual-level estimates that would change as the project becomes better defined. Some general assumptions are provided in the analysis to demonstrate potential cost savings and benefits that can be attributed to a road. Rough order-of-magnitude cost estimates are also provided. The amounts of benefits and cost savings that the road project would have to generate to cover the construction and maintenance costs are determined.

The planning team has identified three alternatives (see Figure 3-1 for a map of the study area with the road alignments, and Chapter 3 of this report for descriptions of the alternatives):

- New Highway Alternative A-B: A direct connection between Chena Hot Springs and Circle Hot Springs;

- New Highway Alternative A-D: A loop connecting Chena Hot Springs with the Steese Highway at approximately Milepost 89, just east of Twelvemile Summit; and

- Steese Highway Improvements: Proposed upgrades including 42 miles of road surfacing, 33 miles of road reconstruction and surfacing, and approximately 8 miles of realignment, reconstruction, and paving of segments at Eagle and Twelvemile Summits.

These alternatives represent the build alternatives of the project. The No Action Alternative would entail no new road construction and no significant upgrades to the Steese Highway other than routine maintenance. It should be noted that the New Highway alternatives (A-B and A-D) would also require improvements to the Steese Highway to provide a consistent level of service throughout the fully connected route.

The following sections provide conceptual-level estimates of project costs and benefits.

6.2.1 Estimated Costs

This section presents the estimated construction and road improvement costs for the alternatives, the estimated annual maintenance costs, and present-value estimates of the stream of project costs over a 25-year planning period.

6.2.1.1 Construction and Road Improvement Costs

The estimated construction costs for the proposed road alternatives are presented in Table 6-3. Total project costs include construction costs, road improvement costs, and design and engineering costs. The assumptions used to derive these cost estimates are provided in Appendix C.

As shown in Table 6-3, there are three road surface construction options for Alternatives *A-B*, *A-C*, and *A–D*: a gravel road, a paved road with asphalt-treated base, or a paved road without the asphalt-treated base. The construction costs per mile for these road surface options range from roughly $1.8 million (for a gravel road surface) to $2.2 million (for a paved road with asphalt-treated base).

Project costs for the road alignment alternatives range from approximately $63 million for the 35.7-mile New Highway A-D (2) Alternative (gravel road) to $131 million for the 60.7-mile New Highway A-B Alternative (paved road with asphalt-treated base) that would directly connect Chena Hot Springs to Circle Hot Springs.

Table 6-3 Estimated Project Costs of the Proposed Highway Alternatives

Alternatives	Project Cost	Cost Per Mile
New Highway Alternative A-B (60.7 miles)		
Gravel Road	$107,122,500	$1,764,786
Paved Road (high float w/ asphalt-treated base)	$130,640,715	$2,152,236
Paved Road (high float w/o asphalt-treated base)	$121,217,040	$1,996,986
New Highway Alternative A-C (56.2 miles)		
Gravel Road	$99,376,875	$1,768,272
Paved Road (high float w/ asphalt-treated base)	$121,151,565	$2,155,722
Paved Road (high float w/o asphalt-treated base)	$112,426,515	$2,000,472
Improvements to Steese Highway (MP 116 to end of Circle Hot Springs Rd)	$12,350,000	$650,000
New Highway Alternative A-D (1) (46 miles)		
Gravel Road	$80,787,375	$1,756,247
Paved Road (high float w/ asphalt-treated base)	$98,610,075	$2,143,697
Paved Road (high float w/o asphalt-treated base)	$91,468,575	$1,988,447
Improvements to Steese Highway (MP 81 to end of Circle Hot Springs Rd)	$75,884,575	$1,222,959
New Highway Alternative A-D (2) (35.7 miles)		
Gravel Road	$63,058,500	$1,766,345
Paved Road (high float w/ asphalt-treated base)	$76,890,465	$2,153,795
Paved Road (high float w/o asphalt-treated base)	$71,348,040	$1,998,545
Steese Highway Improvements (MP 81 to end of Circle Hot Springs Rd.)	$75,884,575	$1,222,959
Steese Highway Improvements (includes 33-mile Central-to-Circle portion)	$118,784,575	$1,249,706

Source: Tryck, Nyman, Hayes, Inc. estimates, November 2005.

Notes:

1. Project cost includes engineering design, construction, and construction management.
2. A-B option: Direct connection between Chena Hot Springs and Circle Hot Springs.
3. A-C option: A route considered in the preliminary road alignments; a sub-route of A to B and dropped from further analysis.
4. A-D (1) option: Chena Hot Springs to Milepost 89, 46 miles outside of the Steese NCA
5. A-D (2) option: Chena Hot Springs to Milepost 89, 39 miles within the Steese NCA
6. Any new highway would be a 2-way, 2-lane road with a 32-feet embankment width, shoulder to shoulder.
7. Steese Highway Improvements include 42 miles of high float road surfacing, 33 miles of road reconstruction, and approximately 8 miles of realignment, reconstruction, and paving of segments at Twelvemile and Eagle summits.
8. A more detailed cost breakdown of the proposed improvements to the Steese Highway is provided in Appendix C.

Estimated costs for the Steese Highway Improvements amount to about $118.8 million. The costs would cover the following highway improvements:

- Paving with high float surface treatment the road segments from Milepost 81 to Milepost 115 (covering 33 road miles), Milepost 115 to Milepost 127 (covering 12 miles), and from Central to Circle Hot Springs (spanning 8 miles)
- Rebuilding the existing highway from Central to Circle (a 33-mile road segment)
- Costs of paving and realignment at Twelvemile Summit, and paving and reconstruction at Eagle Summit

Because of the poor condition of the Central-to-Circle segment, this study recommends that highest priority be given to that segment. A more detailed description of the proposed Steese Highway Improvements is provided in Chapter 3 of this report.

New Highway Alternatives A-C and A-D include cost estimates for road improvements on the existing Steese Highway that would connect the new road segment to Circle Hot Springs:

- For A-C, that would be 19 miles of road surfacing on the Steese Highway from the end of the A-C segment to the end of Circle Hot Springs Road.
- For A-D, that would be 53 miles of road surfacing from the end of the A-D segment to the end of Circle Hot Springs Road, plus improvements to portions of the Steese Highway at Twelvemile and Eagle summits.

6.2.1.2 Annual Maintenance Costs

Annual maintenance costs are also considered as project costs in a benefit-cost analysis. For the purpose of this analysis, maintenance costs for the road alternatives are estimated based on the current average per lane-mile maintenance cost of road segments in the study area. Table 6-4 shows current annual maintenance cost information of selected road segments in the study area.

Table 6-4 Maintenance Cost Information of Road Segments in the Study Area

Station	Road	Milepost	to	Milepost	Lane-Mile	Annual Cost	$/lane mile
Montana Creek	Steese	44		86.2	86.7	$225,000	$2,600
Central	Steese	86.2		127.5	63	$151,200	$2,400
Central	Circle Hot Springs Rd	0		8.2	15.7	$36,000	$2,300

Source: Alaska Department of Transportation and Public Facilities, 2005. Data are for year 2004.

Estimated annual maintenance costs of the project's build alternatives are shown in Table 6-5. These estimates assume that all of the build alternatives would receive the same level and type of annual road maintenance.

Table 6-5 Estimated Annual Maintenance Costs of the Proposed Highway Alternatives

Alternatives	Amount
A-B	$333,850
A-C	$309,100
A-D (1)	$253,000
A-D (2)	$196,350

Source: Northern Economics estimates based on ADOT&PF data on current annual maintenance costs of road segments along the Steese Highway and Central to Circle Hot Springs Road.

Because the Steese Highway is an existing road, its annual maintenance cost is already covered by the Department's annual budget and would not be an additional cost to the project. It is assumed that the annual maintenance cost of the Steese Highway would be at the same level as at present, about $750,000 per year. Most of the maintenance would be in the winter when the paved surface would not be a factor.

6.2.1.3 Present Values of Project Costs

It is assumed that the project would have to be completed in phases. Construction costs and maintenance costs would accrue over a period of several years. To allow these costs to be aggregated and compared with estimated benefits, present values of the construction costs and maintenance costs were calculated and presented in Table 6-6. The cost streams are expressed in net present value (NPV) using a real discount rate of 3.1 percent, as recommended by the Office of Management and Budget (OMB) for project analysis (OMB Circular No. A-94, January 2005). For the project to be justified economically, the present value of the stream of potential benefits to all parties (i.e., businesses, industry, residents, state and local governments) should at least be in the range of $61 million to $123 million in current dollars, depending on the road alternative and road surface chosen. The NPV estimates are within that range.

Table 6-6 Estimated Present Values of Project and Maintenance Costs of the Proposed Highway Alternatives

Alternatives	Present Value of Total Project Cost	Present Value of Maintenance Cost	Total Present Value
A-B (60.7 miles)			
Gravel Road	$96,397,440	$4,807,760	$101,205,200
Paved Road (w/ asphalt-treated base)	$117,561,021	$4,807,760	$122,368,781
Paved Road (w/o asphalt-treated base)	$109,080,841	$4,807,760	$113,888,601
A-C (56.2 miles)			
Gravel Road	$89,427,304	$4,451,336	$93,878,640
Paved Road (w/ asphalt-treated base)	$109,021,921	$4,451,336	$113,473,257
Paved Road (w/o asphalt-treated base)	$101,170,419	$4,451,336	$105,621,756
Improvements to Steese Highway (MP 116 to end of Circle Hot Springs Rd.)	$12,350,000		
A-D (1) (46 miles)			
Gravel Road	$72,698,977	$3,643,443	$76,342,419
Paved Road (w/ asphalt-treated base)	$88,737,275	$3,643,443	$92,380,718
Paved Road (w/o asphalt-treated base)	$82,310,779	$3,643,443	$85,954,222
Improvements to Steese Highway (MP 81 to end of Circle Hot Springs Rd.)	$75,884,575		
A-D (2) (35.7 miles)			
Gravel Road	$58,458,804	$3,007,804	$61,466,608
Paved Road (w/ asphalt-treated base)	$71,281,819	$3,007,804	$74,289,623
Paved Road (w/o asphalt-treated base)	$66,143,677	$3,007,804	$69,151,481
Improvements to Steese Highway (MP 81 to end of Circle Hot Springs Rd.)	$75,884,575		
Steese Highway Improvements (includes 33-mile Central-to-Circle portion)	$118,784,575		

Source: Northern Economics estimates, using estimated construction costs provided by Tryck Nyman Hayes, Inc. and maintenance cost estimates provided by ADOT&PF.

Notes:

1. Paving in all cases is high float surface treatment. Maintenance cost is based on prevailing average maintenance cost per mile in the region, estimated at $5,500 per mile.
2. Total project cost includes design and engineering, construction, and construction management.
3. Options A to B, A to C, and A to D (1) are assumed to be constructed in three phases over a period of 6 years. Option A to D (2) is assumed to be constructed in two phases over a period of 4 years. No phased approach was assumed for the Steese Highway improvements.
4. The estimates represent present values of the total project costs (design, construction, and construction management) and maintenance costs (accrued over 25 years). These are present values of the stream of annual project expenditures (during construction and maintenance) that are estimated to occur over several years based on the phased approach noted above. Present value calculations assume a real interest rate of 3.1 percent (per OMB Circular No. A-94). Because of the time value of money reflected in the real discount rate, the present value of the stream of expenditures is less than the total cost reflected in Table 6-3.

6.2.2 Potential Benefits

The economic evaluation of road benefits during a planning phase (or pre-build stage) is often challenging in that it requires a look into the future that is determined by making logical assumptions about changes in travel patterns, travel demand, business growth, and other economic parameters. This section provides an overview of potential economic benefits of the proposed road alternatives based on such assumptions. While an effort was made to contact potential beneficiaries of the proposed road benefits (see Appendix B for the list of key informants), most of the analysis provided here is based on secondary information, historical patterns, and typical changes exhibited in other regions. Given that this study is being done at the conceptual planning level and with limited budget, it was not possible to conduct an exhaustive survey of potentially affected parties. Nonetheless, the methodology and the assumptions are based on FHWA guidelines and standard economic principles and theory.

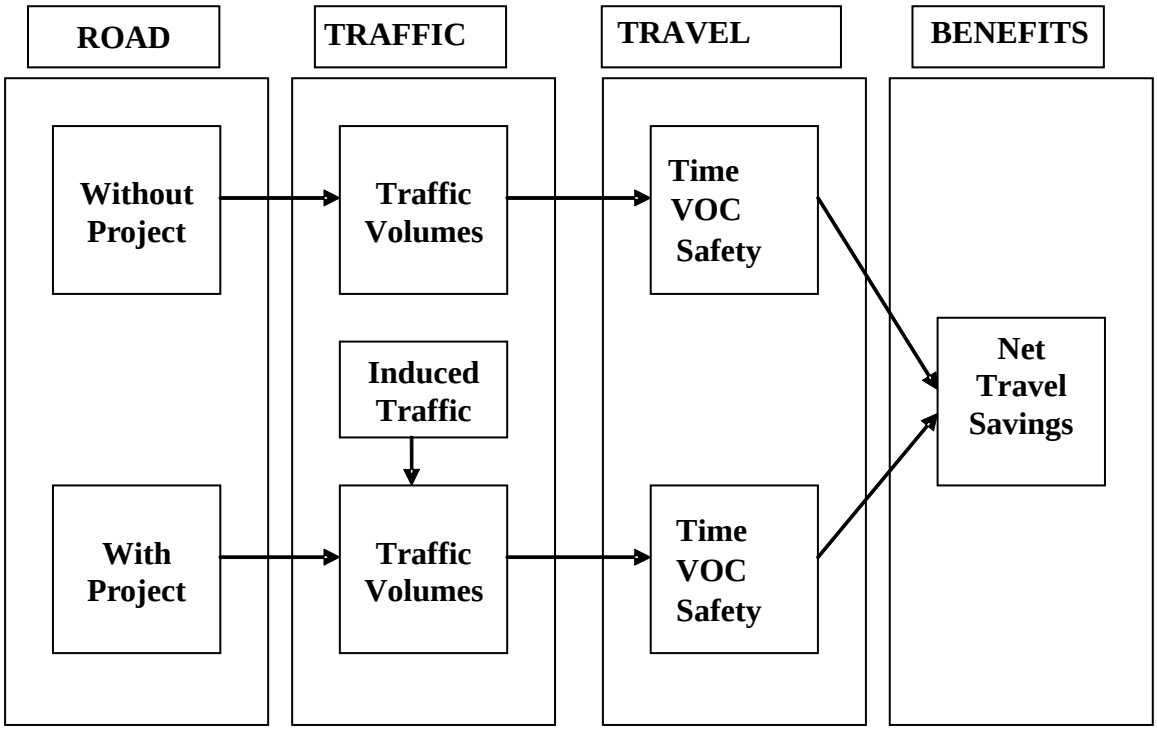
The potential economic benefits of the proposed road alternatives are evaluated according to:

- Road user benefits (residents of Central and Circle would use the new highway for access to Fairbanks for groceries, services, and other needs; other area residents, including those of Fairbanks, would use the road for access to recreation areas in the region)
- Induced demand created by new access
- Cost savings to the mining industry
- Local economic development, including growth related to commercial tourism

6.2.2.1 User Benefits

The primary benefits of the proposed transportation project would be the benefits that infrastructure users realize through travel time savings, vehicle operating cost savings, and safety. The economic framework for measuring these benefits is illustrated in Figure 6-3.

Figure 6-3 Framework for Analyzing User Benefits of a Transportation Project



Source: Appalachian Development Highway Economic Impact Studies, Appalachian Regional Commission, 1998

Note: VOC is vehicle operating cost

6.2.2.2 Travel Time Savings

Time costs are typically included in economic evaluations of transportation infrastructure projects. The potential time savings from even a minor improvement can translate into significant user cost savings over the life of the investment, depending on the facility type and traffic characteristics. Travel time cost savings are derived by first calculating a value of time for motorists/road users. In urban settings, these values are adjusted for congestion, but in this rural setting, it is not necessary to do so. Values of time, in dollars per hour, are then multiplied by the total trip time. These calculations are performed for all trips using the existing modes and included estimates of time to reach certain destinations.

Given the alternatives being considered in this study, travel time savings would accrue if the Steese Highway Improvements Alternative would reduce travel delays from winter road closures. Information on the number of road closures at Eagle Summit was used to calculate the value of time delays and the value of potential travel time savings if the Steese Highway Improvements Alternative could eliminate winter road closures (see Table 6-7).

Table 6-7 Recorded Road Closures at Eagle Summit, Steese Highway, 1994-2005

Year	Number of Closures
1994-1995	12
1995-1996	8
1996-1997	1
1997-1998	1
1998-1999	2
1999-2000	15
2000-2001	1
2001-2002	6
2002-2003	2
2003-2004	6
2004-2005 (as of 12/29/04)	6

Source: Rick Tyrell, Central Foreman (personal communication with Tryck Nyman Hayes, Inc., September 26, 2005.

The Steese Highway is the sole road connection of the communities of Central and Circle to Fairbanks. In winter, travel delays are experienced by motorists because of road closures along the Steese Highway, particularly at Eagle Summit. The average number of road closures recorded during the last ten years (not including partial data for the 2004-2005 winter season) was used to calculate the travel time delays. It was assumed that the delays took an average of 8 hours. According to Rick Tyrell (Central Foreman), plowing usually stops at 3 o'clock in the afternoon, and snow drifting re-blocks the highway about 80 percent of the time after plowing. The average daily traffic (ADT) recorded at the Faith Creek/Steese Highway junction in 2003 was 77 vehicles. This junction was used because it is assumed more representative of the volume of Steese Highway commuters from Central and Circle; the other junctions would have higher ADT counts due to local area traffic. Because summer traffic is typically higher, the average daily traffic was adjusted to reflect lower winter traffic volumes (59 vehicles per day) using monthly traffic data (Annual Traffic Volume Report, Northern Region Traffic Data). In addition, because an occupancy rate specific to the Steese Highway is not available, a national average of 1.7 for all trips not in a metropolitan statistical area was used (Nationwide Personal Transportation Survey, 1990).

It is estimated that the Steese Highway Improvements Alternative would generate travel time savings of up to about $19,000 per year if road closures were eliminated altogether, given current road usage, average closures for the past ten years, and current average wage rates.[1] Assuming a modest 1 percent annual growth rate in winter daily traffic through Year 25 (end of project analysis), and the same real discount rate used in the cost calculations, the estimated present value of this stream of potential cost savings would be about $230,000 in reduced travel time savings. A 2 percent annual growth rate in winter ADT would generate up to $260,000 in reduced travel time savings. This analysis provides an upper bound

[1] The average hourly wage rate in the region is $19.5 per hour. The value of time per hour used in the calculation was $11.67; this represents 60 percent of the wage rate (typical coefficient used for personal trips).

estimate of the potential benefit of Steese Highway improvements. It is unlikely that road closures could be eliminated, because weather factors cannot be controlled or entirely mitigated. When more detailed information on proposed upgrades to the Steese Highway becomes available, these estimates can be adjusted to approximate a lower bound estimate of travel time savings.

Additional travel time savings would be generated by the Steese Highway Improvements Alternative from paved road surfaces. Currently, the Steese Highway is unpaved from milepost 62 to milepost 127.5 (into Central), and from Central to Circle. A 5-mile per hour increase in average speed, say from 45 miles per hour on the existing gravel road to a speed of 50 miles per hour on a paved surface, could generate $150,000 in travel time savings, given the same annual ADT and the same assumptions about value of time discussed previously. In present value terms, assuming a modest 1 percent increase in ADT per year, the stream of travel time savings generated over a 25-year period from a 5-mile per hour increase in speed (due to paving) would translate into $2.5 million.

New Highway Alternative A-B (a new highway directly connecting Chena Hot Springs to Circle Hot Springs) would affect travel patterns for trips originating in Fairbanks with the Circle Hot Springs/Central/Circle region as destinations. This concept would provide an alternative to the Steese Highway in the event of road closures. The A-B route is not expected to generate travel time savings for road users, because the distance from Central to Fairbanks using the new route would be longer than the existing Steese Highway route.

6.2.2.3 Vehicle Operating Cost (VOC) Savings

Although this planning study is based on the need to improve access to stimulate economic growth, the potential for vehicle damage from driving a long gravel highway is an important consideration for commercial tourism, freight, and rental car companies, as well as for private drivers. One user benefit associated with highway improvements is a reduction in the cost to owners of operating their vehicles. Vehicle operating cost (VOC), calculated in cents per mile, includes factors such as fuel and oil costs, maintenance, tire wear-and-tear, repairs, and depreciation (Barnes and Langworthy 2003). VOC savings can accrue from improved roadway conditions that impose less stress on vehicles. While VOC savings typically are not a major contributor to user benefits, they should be considered as part of the total benefit profile of any proposed highway project (Forkenbrock and Weisbrod 2001).

Barnes and Langworthy (2003) developed a model for calculating variable VOCs for use in benefit-cost analyses for highway projects. They noted that VOCs can be significant and will vary with factors such as fuel cost. Their study concluded that a realistic baseline cost for operating a personal vehicle (car, light truck, sport utility vehicle, or van) on smooth pavement was about 17 cents per mile, based on a 2003 retail gasoline price of $1.50 per gallon. The comparable cost of operating a large truck or bus was about 43 cents per mile. A rough surface would increase the baseline cost by about 3 cents for personal vehicles and 6 cents for trucks and buses. It follows that improving a surface would reduce these baseline costs by corresponding increments. Since this 2003 report, VOCs will have increased because of the subsequent rise in fuel costs.

The economic benefit-cost decision whether or not to pave a gravel road is not simple. Berthelot et al. (1996) empirically tested a VOC model by using a typical low-volume road in Saskatchewan that could be considered similar to the Steese Highway. Two road surfaces in good condition were considered in the analysis: gravel and a thin membrane surface (TMS) such as the high float surface treatment considered for the alternatives in this planning study. The modeled results indicated that annual VOCs for cars and light trucks were nearly 3 percent higher for good-condition gravel surfaces than for good-condition TMS, and nearly 5 percent higher for large trucks and buses.

The Gravel Roads Maintenance and Design Manual of the FHWA Local Technical Assistance Program (FHWA 2002) emphasizes that "There is nothing wrong with a good gravel road. Properly maintained, a gravel road can serve general traffic adequately for many years." The manual notes that the decision to pave is a matter of trade-offs, and that larger vehicles, such as tour buses, do not operate as effectively on gravel roads as on paved roads. This is an important consideration for this planning study, because the primary goal of all the alternatives is to expand opportunities for economic growth through improved access. The introduction of a reliable paved surface from Fairbanks to the Yukon River, whether by building a new highway or upgrading the Steese, would be a major incentive to commercial tour operators, rental car companies, private tourists, and local recreational users. This is particularly relevant to the 33-mile stretch of the Steese Highway from Central to Circle, where an improved roadbed and surface would clearly reduce VOCs.

On balance, it is likely that either a new loop highway or an improved surface on the Steese Highway would realize annual VOC savings of about 3 percent for cars and light trucks, and about 5 percent for large trucks and buses. The real point, however, is not the precise value of the savings, but the likelihood that an improved highway surface would remove the existing obstacle to use by commercial tourism and rental car companies. This would be a key to opening the Central-Circle Hot Springs-Circle region, including the Yukon River, to new opportunities for economic growth.

6.2.2.4 Accident Cost Savings

Any type of highway improvement is likely to provide a safety component that reduces accident rate or severity. Increased safety will reduce the overall cost of accidents borne by highway users. The accident costs considered here are those that are related directly or indirectly to motorists or road users. Accident cost savings can be determined using accident rate and value information. Accident frequency reflects the likelihood of an accident occurring on a given road segment. The accident frequency information is combined with accident cost information to calculate the expected cost of accidents for a particular vehicle class. Table 6-8 presents estimated accident costs (in cents per vehicle mile traveled) by vehicle type for the United States, and Table 6-9 shows the recorded traffic accidents for Alaska in 2002 by road surface condition and degree of severity.

A highway project can generate accident cost savings if it introduces significant changes in road surface conditions that reduce accident rates and damages to passengers, vehicles, and property. There is not enough information on the Steese Highway Improvements Alternative at this planning stage to estimate the extent to which it would reduce accident rates, although

it is likely that accident cost savings would accrue from the types of improvements proposed. Actual savings would depend on the following accident modification factors: surface type, drainage, lane width, shoulder width, shoulder type, horizontal curves, grades, two-way, left-turns, passing lanes, roadside design.

Table 6-8 Accident Costs by Vehicle Type in Cents per Vehicle Mile Traveled

Vehicle Type	Fatal Accidents	Injury (Non-Fatal) Accidents	Property Damage Only Accidents	All Accidents
Passenger Cars	4.2	11.16	0.61	15.97
Light Trucks	5.37	9.76	0.62	15.75
Large Trucks	5.86	3.66	0.38	9.9
Motorcycles	68.62	37.73	0.29	106.64
Buses	10.36	12.76	1.24	24.36
All Vehicles	4.98	10.23	0.6	16.01

Source: US Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2000,* and US Department of Transportation, Federal Highway Administration, *Highway Statistics 2000*.

Table 6-9 Percent of Alaska Traffic Accidents by Roadway Surface Condition and by Accident Severity, 2002

Road Surface Condition	Property Damage Only	Minor Injury	Major Injury	Fatal	Total
Dry Pavement	63.22	30.99	5.06	0.73	100
Wet Pavement	67.89	27.95	3.61	0.55	100
Mud, Gravel, or Loose Dirt	58.02	31.13	9.43	1.42	100
Standing Water	68.11	26.57	4.93	0.39	100
Slush	66.31	29.95	3.74	0.00	100
Snow	74.91	21.01	3.84	0.24	100
Ice	71.46	25.14	2.87	0.53	100
Unknown	74.37	23.83	1.80	0.00	100
ALL	67.53	27.80	4.09	0.58	100

Source: 2002 Alaska Traffic Collisions, Alaska Department of Transportation and Public Facilities, September 2004

6.2.2.5 Induced Demand Created by New Access

Typically, new access routes create an induced demand in the sense that "if you build it, they will come." In fact, information obtained from the scoping process, from telephone interviews with residents of Central and Circle, and from contacts with businesses that provide tours or other visitor services in the study area indicated that any improvement in existing access would be welcome and that a new access route would be utilized if available (see Appendix B).

It is expected that a high percentage of the induced demand created by a new loop highway would come from recreational users. As previously noted, the study area is well known for

summer recreation, particularly among residents of Fairbanks, Anchorage, and other Railbelt areas. The State Comprehensive Outdoor Recreation Plan (SCORP), published by the Division of Parks and Outdoor Recreation in 1999, determined that the availability of quality outdoor recreation opportunities is highly valued by Alaskans. The SCORP provides information based on a survey about the preferences of Railbelt residents and of Alaskan residents sampled statewide. The survey found that fishing, walking for fitness, sport hunting, snowmachining, and bicycling rank highest for favorite outdoor recreation activities for Railbelt residents. One of the study region's recreation areas, the Chena River SRA, provides opportunities for all these activities, with potential for increasing and improving facilities, access, and trails. Fairbanks area residents use this amenity for a range of summer and winter recreational activities. The White Mountains NRA is also extensively used for camping, rock climbing, hiking, kayaking/canoeing, skiing, dog mushing, snowmobiling and other winter sports. The 27-mile Pinnell Mountain Trail, from Twelvemile Summit to Eagle Summit, is a popular summer hiking trail; there is also a downhill ski area at Milepost 21.5 of the Steese Highway at Cleary Summit.

The SCORP further noted that driving for pleasure, sport fishing, picnicking, bird watching, and walking for fitness are the top five activities participated in by Railbelt residents. Again, both the Chena River SRA and White Mountain NRA offer opportunities for these activities, with the potential for increasing and improving facilities, access, and trails. The SCORP noted that downhill skiing, snow machining, kayaking, trail skiing, and jet skiing are the top five outdoor activities that Railbelt residents do not engage in, but would like most to do. The Chena River SRA is well suited to fulfilling demand for snow machining, kayaking, and trail skiing. Other parts of the study area, including the White Mountain NRA, are similarly attractive for these activities, with Mt. Aurora/Skiland providing the only existing opportunity for downhill skiing within the study area.

Any of the build alternatives, including Steese Highway Improvements, would expand access to the region's recreational areas. In particular, New Highway Alternative A-B would provide a scenic two-day driving loop that would be enjoyed by tourists and local residents, allowing, visits to Chena Hot Springs, Circle Hot Springs, and Central, with the option of a visit to Circle and the Yukon River, as part of a single trip.

The Steese Highway's Scenic Byway status could be extended to the entire loop route. In the Lower 48, an increasing number of studies demonstrate the economic benefits of identifying, protecting, and promoting Scenic Byways. Approximately 40 percent of American adults drive for pleasure (Roper Starch Worldwide Survey, Outdoor Recreation in America, 1994). In New Hampshire, 96 percent of travelers surveyed on two Scenic Byways "always" or "sometimes" consider scenic routes in their travel plans. Other studies note economic benefits to the tourism industry and local businesses from a Scenic Byway designation.

The Steese Highway Improvements Alternative could increase winter visitor traffic if the improvements would reduce winter driving hazards along the route. Fairbanks is well-known for northern lights viewing, the Yukon Quest is a winter attraction, and skiing areas along the highway attract many winter recreational users. A reduction in travel time from Fairbanks to the Yukon River, a popular tourist destination, would attract more tourists and provide an

incentive to tour operators to include the Yukon River in their itineraries. Improved road conditions would also increase the use of rental cars, which most Alaskan rental outlets prohibit from operating on unpaved highways.

New Highway Alternative A-D would expand access but would not generate as large an increase in tourism as the New Highway A-B or Steese Highway Improvements alternatives. New Highway A-D would provide a loop route for tourists and local residents to visit Chena Hot Springs, continue to Twelvemile Summit, and then drive either farther north to Central or Circle or return to Fairbanks via the Steese Highway.

The benefits of expanded access to scenic and recreational areas are not feasible to quantify in a benefit-cost analysis framework without surveys to determine likely visit rates and travel expenses. At a minimum, the benefits to potential tourists or recreational users of a new scenic route or expanded recreational opportunities can be estimated based on users' willingness to pay for the trip (travel cost method). The travel cost method is typically used to estimate economic use values associated with ecosystems or sites that are used for recreation. The premise of the travel cost method is that the time and travel cost expenses that people incur to visit a site represent the price of access to the site. Thus, peoples' willingness to pay to visit the site can be estimated by the number of trips they would make at different travel costs. This is analogous to estimating peoples' willingness to pay for a marketed good based on quantities that would be demanded at different prices. This valuation method, however, would require a more detailed study. Another method to estimate the value of a scenic route is to conduct a contingent valuation survey designed to elicit willingness to pay a range of costs. This method requires a carefully constructed survey questionnaire and a labor-intensive survey effort.

To approximate the potential benefit of New Highway Alternative A-B in terms of tourism and recreational value, the study team used estimates from previous research conducted in other parts of the United States. A report produced by the National Scenic Byways Resource Center (2001) noted that the increase in annual traffic due to Scenic Byway designation could range from 3.4 percent to 20 percent. Using this information, estimated annual average in-state visitor expenditures for transportation and recreation (DCCED 2005), and the estimated annual number of visitors to Chena Hot Springs (ADNR 2004), the study team estimated that the potential annual benefit from New Highway Alternative A-B would range from $2.2 million to $2.6 million.

6.2.2.6 Cost Savings to the Mining Industry

To determine whether the build alternatives might benefit the mining industry, the study team asked two primary questions: How is the existing transportation network being used by the industry? What cost savings to the industry would the alternatives bring? Whereas a new highway would be beneficial in general, making it easier to prospect, explore, and document findings, there are no known mineral prospects in the study area that would become feasible because of improved access. Historically, the Circle Mining District has been one of the most heavily explored and utilized regions of Alaska, and the surficial deposits have been repeatedly mined. Although smaller operations can prove to be profitable, new larger-scale commercial mining in the region is unlikely (Interviews, Executive Director, Alaska Miner's

Association, May 26, 2005 and March 17, 2006). Existing roads and trails in the study area are used to support small-scale commercial mining, and significant cost savings to the mining industry would not result from any of the build alternatives. If a large subsurface mineral deposit were to be developed in the study area, industry would follow approved regulatory procedures to provide its own access (Interview, Executive Director, Alaska Miner's Association, March 17, 2006).

6.2.2.7 Local Economic Development

Transportation projects can affect local economic development by shifting travel and activity patterns among alternative origins, destinations, and travel corridors, leading to net benefits to road users and distributional changes (losses as well as gains) for the businesses serving them. A substantial number of small businesses along the Steese Highway and Chena Hot Springs Road could be affected by the build alternatives. For example, private recreational facilities along Chena Hot Springs Road include:

- Two Rivers Lodge (restaurant and bar)
- Chandalar River Outfitters and Ranch (horseback riding)
- Poppa Wes Little Store (general store)
- The Quickie Pizza (restaurant/carry-out)
- Susie's Homestead Café (restaurant)
- Valley Center (general store, gas, liquor store)
- Soapy Suds (laundromat)
- Pleasant Valley Equipment and Hardware (camping supplies)
- Twin Bears Camp (cabins, central building, parking, picnic area and pond, swimming and fishing)
- Angel Creek Lodge (restaurant and bar, lodging)
- Chena Hot Springs Resort (restaurant and bar, lodging, hot springs, and airstrip)

Businesses along the Steese Highway, and local businesses in Central and Circle (Tables 6-1 and 6-2), could also be affected by the project. These businesses would increase sales with a consistent growth in tourism and recreational activity in the study area. By providing expanded road access to recreational areas and the option to drive the scenic loop, the build alternatives would generate additional economic activity in the region. A survey of tourism-related businesses along two National Scenic Byways in Colorado showed that a majority of business owners estimated a 10 percent increase in sales due to Scenic Byway designation (National Scenic Byways Resource Center 2001).

Table 6-10 shows estimated business sales of selected industries in the study area for 2002; the communities of Central and Circle are in the Yukon-Koyukuk Census Area. These types of businesses would benefit from an increase in tourism. In 2002, these sectors generated about $13.52 million in business sales. Even a 10 percent increase in business sales due to increased tourism would increase the total output or gross business sales in the region by about $1 million. In similar studies conducted in other regions of the United States with a new Scenic Byway or a new Scenic Byway designation, the total new business sales generated ranged between $.074 million and $1.45 million (National Scenic Byways Resource Center 2001).

Commercial tourism in the Interior is still in its early phase and building slowly, and current levels of tourist activity are not considered sufficient to justify a major public investment in infrastructure, particularly the construction of a new highway (Interview, Deb Hickok, President and CEO, FCVB, February 1, 2006). At the same time, the provision of a safe, reliable, year-round highway through the study area is a prerequisite for future economic growth, and the absence of a modern highway is seen as a limiting factor on commercial tourism (Interview, Fairbanks Tour Manager, Japan Airlines, February 1, 2006). These two factors must be balanced in considering the advisability of the highway alternatives, including No Action.

An important and unusual quality of the recreational experience provided by the Alaskan Interior is that it is year-round (Interview, Deb Hickok, President and CEO, FCVB, February 1, 2006). Tourists visit the area in the summer for hiking, fishing, canoeing, kayaking, recreational gold panning, and other warm-weather pursuits. Unlike most other parts of Alaska, however, an increasing volume of tourists visits the study area in winter for viewing the northern lights, enjoying the hot springs, dog sledding, snowmachining, ice-fishing, and experiencing the coldness, emptiness, and silence of the frozen Interior.

Table 6-10 Estimated Total Gross Sales of Selected Industries in the Yukon-Koyukuk Census Area, 2002

Industry	Amount (Million $)
General merchandise stores	$2.94
Non-store retailers	$2.82
Food and beverage stores	$1.80
Scenic and sightseeing transportation and sup	$1.39
Food services and drinking places	$0.92
Other amusement, gambling, and recreation industries	$0.89
Hotels and motels, including casino hotels	$0.84
Other accommodations	$0.81
Gasoline stations	$0.42
Spectator sports	$0.36
Museums, historical sites, zoos, and parks	$0.17
Environmental and other technical consulting	$0.14
Miscellaneous store retailers	$0.04
Total	$13.52

Source: IMPLAN data for the Yukon-Koyukuk Census Area, 2002

Condor, a German commercial airline, provides direct round-trip air service from Frankfurt to Fairbanks each summer from late May through early September, arriving and departing every Thursday and bringing approximately 250 tourists to Fairbanks each week. Because the capacity of the study area to accommodate tourists is still limited, visitors stay at a variety of small establishments such as Chena Hot Springs Resort, Mount Aurora, Coldfoot Camp, and Yukon River Camp, with groups rotating through one location to another as their itineraries progress. This improvised system will continue to support current levels of commercial tourist traffic, but the trend in recent years has shown a steady increase, and at some point in the near future, demand will require capacity expansions (Interview, Deb Hickok, President and CEO, FCVB, February 1, 2006).

It is a growing winter tourism trend; however, that distinguishes the study area from almost all other tourist destinations in Alaska. Since December 2004, Japan Airlines (JAL) has provided round-trip charter flights direct from Tokyo (Narita Airport) to Fairbanks, with a typical flight lasting only about 7 hours. During the 2004-2005 winter season, JAL operated three flights and brought about 895 chartered tourists to Fairbanks and the Interior. During the current (2005-2006) season, JAL has scheduled seven rotations using Boeing 747 aircraft expected to bring over 2,300 Japanese visitors to the study area (see Table 6-11). Rotations for the 2006-2007 winter season have not yet been scheduled, but a further increase is expected (Interview, Angie Spear, Business Development Manager, FIA, January 31, 2006). Visitors spend four nights in the hope of seeing the northern lights, with optional daytime tours ranging from dog sledding and snow machining to Arctic Circle excursions and Denali flightseeing. JAL International operates the popular charter flights with the support of the sales division, JAL Sales, which works directly with Japanese wholesalers and tour operators to fill the 350 seats of each Boeing 747-400 aircraft. Under Japanese regulatory requirements, passenger charter flights are allowed to operate only by offering package tours that include airfare, ground transport, and accommodations. This structured arrangement facilitates planning, budgeting, and logistics during the four-night visits (Press Release, FCVB, January 6, 2006).

Fairbanks is distinguished as the smallest US market with any form of non-stop scheduled or charter passenger service to both Europe and Asia, but the Fairbanks market is growing. Terminal improvements currently in progress at Fairbanks International Airport (FIA) are designed in part to accommodate growing numbers of summer and winter visitors and to decrease the customs processing time. There are tentative plans for JAL to inaugurate as many as eight summer charter flights in 2006, building on the success of the winter flights (Interview, Angie Spear, Business Development Manager, FIA, January 31, 2006).

Table 6-11 Japan Airlines Charter Flights, Narita-Fairbanks, during the 2005-2006 Winter Season1

Date	Segment	FIA Arrival/Departure Times[2]
25 December 2005	Narita to Fairbanks Fairbanks to Narita	Arrive 0740 (charter)[3] Depart 0945 (ferry)[4]
29 December	Narita to Fairbanks Fairbanks to Narita	Arrive 0745 (charter) Depart 1045 (charter)
2 January 2006	Narita to Fairbanks Fairbanks to Narita	Arrive 0515 (charter) Depart 0850 (charter)
6 January	Narita to Fairbanks Fairbanks to Narita	Arrive 0745 (ferry) Depart 1000 (charter)
24 January	Narita to Fairbanks Fairbanks to Narita	Arrive 0745 (charter) Depart 1015 (ferry)
28 January	Narita to Fairbanks Fairbanks to Narita	Arrive 0730 (charter) Depart 1020 (charter)
1 February	Narita to Fairbanks Fairbanks to Narita	Arrive 0740 (ferry) Depart 0945 (charter)
21 February	Narita to Fairbanks Fairbanks to Narita	Arrive 0745 (charter) Depart 1015 (ferry)
25 February	Narita to Fairbanks Fairbanks to Narita	Arrive 0715 (charter) Depart 1015 (charter)
1 March	Narita to Fairbanks Fairbanks to Narita	Arrive 0745 (ferry) Depart 1000 (charter)

Source: Angie Spear, Business Development Manager, Fairbanks International Airport, January 31, 2006.

Notes:

1. The information in this table is provided for illustrative purposes only.
2. Actual arrival and departure times and other flight details may have varied from those shown in this table.
3. *Charter* indicates a full or near-full passenger flight.
4. *Ferry* indicates an empty aircraft required by the round-trip logistics.

Type of Aircraft: Boeing 747-400, seating capacity 350

Flight Duration: Narita (Tokyo) to Fairbanks, 6 hrs. 50 min.
Fairbanks to Narita, 7 hrs. 25 min.

Even without the improvements to the transportation infrastructure discussed in this planning study, the Alaskan Interior is already attracting a steadily growing volume of non-Alaskan tourists. A new loop road or significant improvements to the Steese Highway would accelerate and intensify this economic growth. An important advantage of the study area is that it supports year-round recreation and tourism. Chena Hot Springs Resort, Mt. Aurora Lodge at Skiland, and Chatanika Gold Camp at MP 23.5 Steese Highway cater almost exclusively to Japanese tourists in the winter. Other possibilities have not yet been developed but are likely in the near future. For example, riverboat tours between Circle and Eagle, both historic locations on the Yukon River, might be economically feasible if the Steese Highway

were paved to its terminus at Circle. There is potential for the provision of lodging facilities at both Circle and Eagle. Such an arrangement would provide a stable base for commercial tourism to expand from its present focus on Denali National Park and Preserve to encompass the historic Gold Rush country and its lifeline, the Yukon River. The imaginative development and reopening of Circle Hot Springs Resort would provide another magnet for tourism and generate further economic growth in the study area.

6.3 Summary

The analysis presented in this section considers the estimated costs and benefits of the build alternatives. Benefits include travel time savings, vehicle operating cost savings, and induced demand created by improved road conditions or new road access. Induced demand would translate to regional economic development.

The build alternatives considered were:

- New Highway Alternative A-B: a direct connection between Chena Hot Springs and Circle Hot Springs;
- New Highway Alternative A-D: a loop route connecting Chena Hot Springs with the Steese Highway at approximately Milepost 89, just east of Twelvemile Summit; and
- Steese Highway Improvements: upgrades would include 42 miles of road surfacing, 33 miles of road reconstruction, and approximately 8 miles of realignment, reconstruction, and paving at Twelvemile and Eagles summits.
- The New Highway alternatives would require improvements to relevant portions of the Steese Highway to provide consistent highway standards and fulfill their functionality as scenic loops.

With respect to short-term costs versus long-term benefits, the Steese Highway Improvements Alternative ranks highest among the alternatives. Upgrading the Steese Highway would provide the most cost-effective option to improve access to the study area and stimulate regional tourism and economic growth.

7 FEASIBILITY COMPARISON OF THE ALTERNATIVES

This section brings together all of the factors discussed in the preceding three chapters and ranks the alternatives with respect to their overall feasibility. In this context, following FHWA guidance, the term *feasibility* has three aspects:

- The degree to which each alternative is economically justified
- The degree to which the alternative is considered preferable from an engineering, environmental, or social perspective
- The degree to which eventual construction and operation can be financed and managed

The following sections provide a summary of the criteria used to evaluate the feasibility of the alternatives. Because it was determined previously that Alternative A-C avoided none of the significant disadvantages of A-B and did not go directly to the preferred destination, it is not included in this analysis. Variants A-D (1) and A-D (2), being essentially equivalent, are considered together and represented by A-D (1). Each of the build alternatives is scored based on how it performs for the given criterion. A score of one means that the alternative is ranked highest; three is ranked lowest.

7.1 Engineering and Construction Feasibility

Of the alternatives considered the Steese Highway Improvements alternative ranks highest for engineering and construction feasibility. The existing rights-of-way, known geology, known maintenance issues, and known material sources make this alternative more feasible, from the engineering and construction standpoint, than either of the New Highway alternatives.

7.1.1 Constructability

Constructability combines factors such as soil conditions, material availability, major drainage structures, difficulty of terrain, etc. The Eagle Summit realignment option of the Steese Highway Improvements Alternative includes the assumption that a major structure will be designed and built to avoid snow drift.

Table 7-1 Constructability Rankings

Alternative	Soils	Material	Structures	Terrain	Overall Rank
Alternative A-B	3	3	3	2	3
Alternative A-D	2	2	1	3	2
Steese Highway Improvements	1	1	2	1	1

7.1.2 Project Cost

The project cost includes the estimated costs of engineering design, construction, and construction management. The project costs for the alternatives in 2005 dollars are estimated below. These estimates would likely increase with time as the costs of materials, fuel, professional services, equipment, and labor increase.

Alternative	Project Cost	Rank
Alternative A-B	$121,217,040	3
Alternative A-D	$112,426,515	2
Steese Highway Improvements	$75,884,575	1

Of the three build alternatives shown above, Steese Highway Improvements would be the least expensive because it would not require the design and construction of a new highway. To allow the costs of new design and construction to be compared, the project cost estimates shown for New Highway Alternatives A-B and A-D (1) do not include improvements to the Steese Highway. They include only costs associated with building a new connecting highway from Chena Hot Springs Road. To show the cost of a loop system that would provide the full level of service, the estimated cost of Steese Highway Improvements shown above must be added to the cost estimates for New Highway Alternatives A-B and A-D (1). The estimated project cost presented for the Steese Highway Improvements Alternative includes paving the Steese Highway to Central and the recommended Twelvemile and Eagle Summit realignments. The estimated project cost of extending Steese Highway Improvements to Circle, which would require roadbed enhancement, is an additional $42,900,000. The full range of estimated project cost components is summarized in Chapter 6, Tables 6-3 and 6-6.

7.1.3 Maintenance Cost

The additional present value maintenance cost that would be produced by implementing each alternative is estimated in 2005 dollars as follows:

Table 7-2 Maintenance Costs

Alternative	Additional Present Value Maintenance Cost	Score
New Highway Alternative A-B	$12,190,216	3
New Highway Alternative A-D(1)	$9,238,055	2
Steese Highway Improvements		1

The Steese Highway Improvements Alternative outranks the others because it is assumed that the proposed improvements would decrease future maintenance costs. In contrast, the new highway alternatives would add maintenance costs to the region and require that a new maintenance station be constructed in the Chena Hot Springs area to service the new highway.

7.2 Land Use, Environmental, and Regulatory Constraints

New Highway Alternative A-B scores lowest in terms of land use, environmental, and regulatory constraints. This alignment would cross Birch Creek NWR and the Steese NCA, requiring a protracted regulatory and public review process and revision of existing missions and management plans for both national conservation system units. New Highway Alternative A-D, while avoiding federal lands, would face other regulatory constraints such as wetland permitting and archaeological clearance, and scores the next lower. The Steese Highway Improvements Alternative scores highest with respect to Land Use, Environmental, and Regulatory Constraints, because it would follow the corridor already used by the existing right-of-way, and it would replace, and in some cases resize, existing perched or damaged culverts at stream crossings along the Steese Highway.

Table 7-3 Land Use, Environmental, and Regulatory Constraints Comparison

Alternative	Land Use	Environmental	Regulatory	Rank
Alternative A-B	3	3	3	3
Alternative A-D (1)	2	2	2	2
Steese Highway Improvements	1	1	1	1

7.3 Project Schedule

The project schedule would be influenced by a combination of factors. Land use and regulatory issues associated with building a road within or near Birch Creek NWR and the Steese NCA would likely require three to five years to meet federal requirements for the NEPA environmental evaluation process and revisions by the Department of the Interior to the missions and management plans for both national conservation system units. Once the project was approved and funded, the construction schedule would most likely be implemented in phases and could require four or more years. The Steese Highway Improvements Alternative would require a much shorter environmental review period and would involve no alterations to federal management plans, but it would have a construction schedule similar to those for the loop highway alternatives. The key schedule difference would be in the length of the environmental review.

Table 7-4 Schedule Comparison

Alternative	Estimated Years to Completion	Score
Alternative A-B	16	3
Alternative A-D(1)	10	2
Steese Highway Improvements	6	1

7.4 Meets Legislative Intent

The Legislative intent for this project is to build a loop road linking Chena Hot Springs with Circle Hot Springs. The degree to which each alternative meets that intent is tabulated as follows:

Table 7-5 Legislative Intent

Alternative	Score
Alternative A-B	1
Alternative A-D (1)	2
Steese Highway Improvements	3

Clearly, New Highway Alternative A-B is the only alternative that would meet fully and directly the Legislative intent for this project.

7.5 Economic Benefits and Costs

New Highway Alternative A-B, if it included Steese Highway improvements, would provide the greatest economic benefits, because it would link the two hot springs resorts, create a scenic loop, provide an alternative access route to the Steese Highway, and in these ways provide the greatest number of options and flexibility for private and commercial recreation and tourism. For these reasons, New Highway Alternative A-B offers the greatest potential to stimulate economic growth in the study area, which includes the communities of Central and Circle. On the other hand, the costs and constraints associated with New Highway A-B seriously detract from its feasibility. In light of these trade-offs, the Steese Highway Improvements Alternative scores highest, because upgrading the Steese Highway would create the opportunity for regional economic stimulus expressed in the Legislative intent for this study nearly as effectively as New Highway Alternative A-B, while avoiding most of the latter's costs and constraints. New Highway Alternative A-D would provide a scenic loop, but it would do little to stimulate commercial tourism and economic growth at Central, Circle Hot Springs, and Circle. Once the Steese Highway improvements were made, however, improving economic conditions might make it worthwhile to examine the additional step of building a new loop highway in future years.

Alternative	Score
Alternative A-B	2
Alternative A-D (1)	3
Steese Highway Improvements	1

7.6 Feasibility Matrix

Table 7-6 shows the results of totaling the preceding scores of the feasibility criteria. The Steese Highway Improvements Alternative scores best by a wide margin, mainly because it would provide most of the economic development opportunities intended by the Legislature while avoiding the financial costs and land use, environmental, and regulatory constraints that a new highway connecting Chena Hot Springs and Circle Hot Springs would face.

Table 7-6 Feasibility Evaluations of the Alternatives

Alternative	Criteria								
	Constructability	Project Cost	Duration to Completion	Maintenance Cost	Land Use, Environmental, and Regulatory Constraints	Consistency with Legislative Intent	Economic Benefits	Total Score	Rank
Steese Highway Improvements[b]	1	1	1	1	1	3	1	9	1
Route A-D[c]	2	2	2	2	2	2	3	15	2
Route A-B[d]	3	3	3	3	3	1	2	18	3

Notes:

a. A score of 1 = most feasible; a score of 3 = least feasible.

b. The Steese Highway Improvements Alternative would include surfacing with high float surface treatment and optional realignments at Twelvemile and Eagle summits to minimize closures from snow drifting. It is recommended that the 33-mile portion of the Steese Highway between Central and Circle be included in the improvement program.

c. Route A-D would avoid the snow drift problems at Twelvemile Summit, but not at Eagle Summit. Variant A-D (1) would stay outside the Steese NCA and would not cross Birch Creek NWR. Variant A-D (2) would require a portion of right-of-way within the Steese NCA but would not cross Birch Creek NWR.

d. A-B is the most direct route, but the right-of-way would cross the Steese NCA and Birch Creek NWR, requiring an environmental impact statement, extensive public and agency review, and revisions to the missions and management plans of both federal conservation system units. In addition, Route A-B would require construction across complex and high terrain and would be almost as vulnerable to winter closures from snow drifting as the Steese Highway.

8 RECOMMENDED FUTURE ACTIONS

This study concludes that a program of phased improvements to the Steese Highway is the most cost-effective and feasible alternative evaluated. Upgrading the Steese Highway would be required to achieve a new loop road system, in any case, so it must be considered a built-in component of every alternative. A new loop highway connecting Chena Hot Springs Road and the Steese Highway, whether at Circle Hot Springs Road or at a point farther west along the Steese, would require crossing complex terrain and exposed high country similar to that already encountered along the Steese. Alternatives A-B and A-C would encroach on Birch Creek NWR and the Steese NCA, requiring a protracted regulatory and public review process and changes to federal land management policies. Alternative A-D, avoiding federal conservation system units, would connect to the Steese Highway too far west fully to support the Legislative intent set forth in Resolution SCR1. Furthermore, it is possible that the additional maintenance expected after constructing a new highway would strain the existing maintenance budget for the region, a concern repeatedly expressed by Alaskans participating in the public involvement process conducted for this study. Still, a new loop road is not technically infeasible, and the idea could be considered at a future time in cooperation with the jurisdictional agencies involved.

The study team recommends that the Steese Highway Improvements Alternative be developed further with studies of the snowdrift problems at Twelvemile and Eagle Summits and of site-specific drainage issues along the existing route to determine whether the engineering concepts presented in this study are the most cost-effective solutions. One important cost consideration will be the quantity, sizing, and placement of new culverts to assure compliance with ADNR/OHMP fish passage criteria. Also recommended are improvements to the 33-mile portion of the Steese Highway between Central and Circle, which is presently in poor condition. At the public meetings and during consultation with the Circle Tribal Council, improvements to the Central-to-Circle segment of the Steese were emphasized because of safety, access, vehicle damage, and driving-time considerations. Beyond those factors, a fully paved highway from Fairbanks to Circle is a prerequisite for the regional economic development envisioned in Resolution SCR1. This study recommends that the Central-to-Circle segment of the Steese Highway be given top priority in a phased highway improvement program.

As part of the Steese Highway Improvements Alternative, the study team asked members of the public at the Central and Fairbanks scoping meetings to recommend locations along the highway with the potential to attract tourists and recreational users. On a preliminary basis, the team selected a few typical examples, listed in Table 8-1, where site-specific improvements could increase recreational accessibility and use. Additional examples not listed in the table were also identified. Incorporating improvements and amenities such as those listed in Table 8-1, along with rest stops and roadside viewing pull-offs, into a Steese Highway improvement program would provide a cost-effective way to increase tourist and recreational activity in this presently under-utilized part of the Alaskan Interior, and help to

disperse recreational use along the route. Roadside enhancements could be completed cost-effectively by integrating their construction into the highway improvement schedule to utilize heavy equipment already deployed onsite. It is recommended that the Department include a recreational opportunities study of the Steese Highway, with substantial participation by the public, residents of the highway communities, tribal organizations, commercial enterprises, and jurisdictional authorities, as an early component of a planned Steese Highway improvement program.

Table 8-1 Examples of Suggestions from the Public for Steese Highway Tourism and Recreation Nodes

Tourism/Recreation Node	Steese Highway MP (Approximate)	Description	Recommended Improvements
Pinnell Mountain Trail, Twelvemile Summit Trailhead	85.8	Gravel track to parking area for 7-8 vehicles	Improve gravel access spur and expand parking area.
Birch Creek Put-In	94.5	Gravel track approx. 0.25 mi. to put-in at confluence of Twelvemile and Birch creeks	Improve gravel access road and design a small capacity, low-impact parking area.
Pinnell Mountain Trail, Eagle Summit Trailhead	107.5	Gravel track approx. 0.25 mi. to turnout for 7-8 vehicles at trailhead	Improve gravel access spur and expand parking area.
Circle-Fairbanks Trail and Miller House Site	114	Site of historic roadhouse and highway crossing of historic trail at Mammoth Creek	Establish small parking area and interpretive signage.
Central and the Circle Mining District Museum	122	Community of about 134 residents with a unique museum devoted to the historic Circle Mining District.	Consult with residents of Central.
Circle Hot Springs	122	Historic resort at end of Circle Hot Springs Road, currently closed. The 8-mile road is prone to flooding and needs improvement.	Consult with resort owner and local residents regarding potential improvements to Circle Hot Springs Road.
Circle and the Yukon River	155	Community of about 100 residents on the Yukon River, formerly an important transportation and supply center supporting gold mining in the Interior.	Consult with Circle Tribal Council, local residents, business owners, and Doyon Limited regarding potential improvements to the 33-mile stretch of the Steese Highway between Central and Circle.

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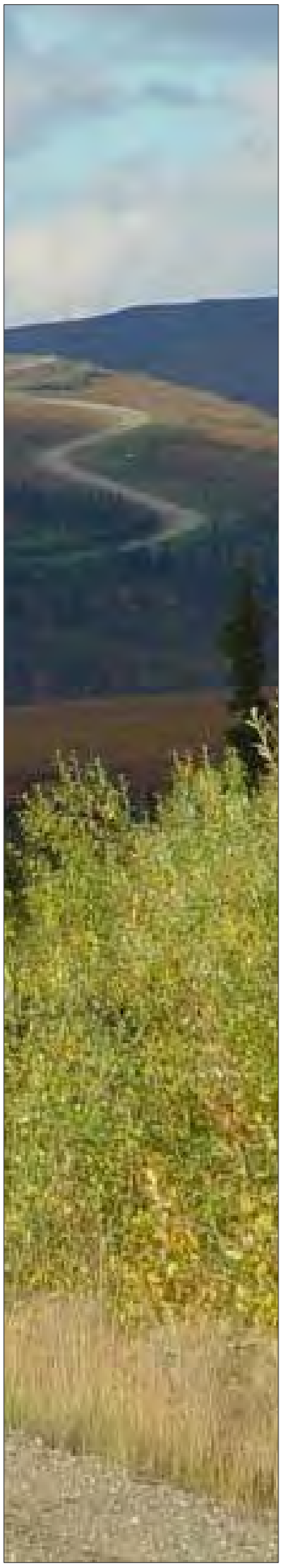
10 APPENDIX A: PUBLIC INVOLVEMENT



CENTRAL SCOPING MEETING RECORDS

Table 1. Summary of Comments at the Public Meeting in Central, January 26, 2005

1. *Many Comments:* We are concerned that building a new road would make it less likely that the Steese Highway will be upgraded and maintained year-round.
2. *Apparent Consensus*: Upgrade and maintain the existing Steese Highway year-round as the first priority.
3. Route Concept A-B would increase property values in Central.
4. Route Concept A-D would not help much, because the summits would still have to be kept open in winter.
5. I support upgrading the Steese Highway, and keeping it open year-round, as the first priority.
6. Route Concept A-D would make a good loop for driving, but it would not help Central.
7. North Fork Birch Creek Canyon has low water, making it difficult to start a float trip from the Steese Highway near Twelvemile. This discourages recreational use of the entire Wild River corridor. A road crossing downstream from the canyon would provide access and enhance summer recreational use of the creek.
8. Instead of building a new road to Central across predominately Federal land, extend the existing highway from Circle City to Eagle. A Circle City to Eagle route was surveyed some years ago. It would cross private lands and allow economic development and tourist amenities.
9. Approximately 1600 caribou hunters used the Central area in Fall 2004. Hunting is a major activity for Central.
10. I support upgrading the Steese Highway – fix the existing road first.
11. We need more roads – the State has not built any since the Parks Highway.
12. Build a new road *and* upgrade the one we already have.
13. We want to be sure we *keep* the Steese Highway. Would building a new road to Central endanger the existing road?
14. Why bother trying to build a road across Federal land? There are no economic opportunities to use the land. Build on State and private land that can be opened up to development.

15. A Circle City to Eagle road would provide a different experience for tourists and open private land.

16. People can already drive to Chena Hot Springs and Circle Hot Springs. Build a road to a *new* place.

17. Place highest priority on improving the 35-mile stretch of the Steese Highway between Central and Circle City. This portion of the Steese might be used for transporting school children in the near future.

18. A few years ago the State considered closing the Steese Highway altogether. We want to be sure a new road would not be closed and would not result in the Steese Highway being closed.

19. We want the State to guarantee that it will take care of what we already have before building something else.

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD

PLANNING MEETING

Far North School Cafeteria
Central, Alaska
January 26, 2005

SIGN-IN SHEET

NAME	ADDRESS	PHONE NUMBER	EMAIL ADDRESS	ADD TO MAILING LIST? (CIRCLE)
1. Alfred Cook	P.O. Box 30064 Central	520-5582	bottomdollar @ hotmail.com	(YES) NO
2: Deidra + Warren Hodge	P.O. Box 30075 Central	520-5410	~~N/A~~	YES NO
3. PAUL CHIZMAR	PO BOX 30126 CENTRAL	520-5032	CENTRALPAUL @ STARBAND.NET	(YES) NO
4. Laurel Tyrrell	PO Box 38168 Central, AK	520-5253	rtyrrell@idea families.org	(YES) NO
5. Bill McIntyre	Box 83054 Fairbanks, 99708	456-4037		YES (NO)
6. Jacob Hendrickson	P.O. Box 30202 Central, AK	520-5460		(YES) NO

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD

PLANNING MEETING

Far North School Cafeteria
Central, Alaska
January 26, 2005

SIGN-IN SHEET

NAME	ADDRESS	PHONE NUMBER	EMAIL ADDRESS	ADD TO MAILING LIST? (CIRCLE)
7. STAN GELUIN	P.O. BOX 30149 CENTRAL AK.	520-5500	STANLEYGELUIN @YAHOO.COM	YES NO
8. Jim Wilde	PO 30068 Central	520 5312		YES NO
9. Cathy Davis	P.O. Box 30149 Central, AK	520-5500	Cathy8561@yahoo.com	YES NO
10. Jack Hendrickson	PoBox 30153 Central Alaska	5205419	———	YES NO
11. Larry Pardue	Box 30073 Central AK	520-5495		YES NO
12. Don Hamilton	P.O Box 30055 Central	520-5324	eagleone@starband.net	YES NO

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

Your input is an important element in the planning phase of this project. To help us incorporate your views and suggestions, please provide your comments below and return the form to us. Thank you for your interest!

Name (PLEASE PRINT) PAUL CHIZMAR

Address: PO Box 30126

City, State, Zip Code CENTRAL, AK 99730

Phone Number 907-520-5032

E-mail CENTRALPAUL@STARBAND.NET

COMMENTS:

IN FAVOR OF A NEW ROAD FROM CIRCLE HOT SPRINGS TO CHENA HOT SPRINGS

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

Your input is an important element in the planning phase of this project. To help us incorporate your views and suggestions, please provide your comments below and return the form to us. Thank you for your interest!

Name (PLEASE PRINT) Laurel Tyrrell

Address: PO Box 30168

City, State, Zip Code Central, Ak 99730-0168

Phone Number 907-520-5253

E-mail rtyrrell@ideafamilies.org

COMMENTS: My #1 Priority, is to maintain the Steese Highway but I would support the construction of a new road that would benefit the community & tourists & users of the Wild & Scenic River by going from Chena Hot Springs to Circle Hot Springs via the Longest proposed route, especially if it is a year round road.

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

Your input is an important element in the planning phase of this project. To help us incorporate your views and suggestions, please provide your comments below and return the form to us. Thank you for your interest!

Name (PLEASE PRINT) Rick Tyrrell

Address: P.O. Box 30168

City, State, Zip Code Central Ak. 99730-0168

Phone Number 520-5253

E-mail

COMMENTS:

My first choise would be to put money into the Steese highway for improvements and maintenance. My second would be a road from Circle Hot Springs to Chena Hot Springs. That Road would cut off Eagle & 12 mile summits making it easy for resident to get to fairbanks.

FAIRBANKS SCOPING MEETING RECORDS

Table 2. Summary of Comments at the Public Meeting in Fairbanks, January 27, 2005

1. I am concerned about the impact of a new road on cabins along the North Fork of the Chena River near Chena Hot Springs.
2. We should maintain what we have before spending money on new roads.
3. The loop road is an excellent idea.
4. A new road would create new construction jobs.
5. An additional road would create more State of Alaska jobs for maintenance.
6. The new road would be costly to maintain, but new revenues from development would help defray the maintenance cost.
7. Abandon the North Fork route concept and go up the East Fork of the Chena River. This would benefit further exploration in the Pogo mining area.
8. A loop road is not a good idea. It is not needed. Upgrade the Steese Highway.
9. At minimal expense, the State could build several pioneer roads into the historic Chena Mining District to open up new country to miners. Local miners have many specific recommendations.
10. Build a new road *and* upgrade the one we already have.
11. When the State of Alaska cannot afford to keep the four lanes on Airport Way and Geist Road clear of snow, how can we afford to maintain new roads?
12. The State's transportation money would be better spent building a road to Eagle, Barrow, or Cordova.
13. Before building a new road, there must be a demonstrable need in the public interest. There should be well thought out objectives and criteria.
14. The preliminary route concepts include many areas of unstable soils and permafrost, especially along the North Fork of Birch Creek.
15. One reason Central is in economic decline is because the existing Steese Highway is not properly maintained.
16. Rental car companies in Alaska prohibit driving on gravel roads.
17. Even as a business owner who might benefit, I still do not believe a new road would be in the State's best interest. We need more roads – but not this one.

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD

PLANNING MEETING

Noel Wien Library
Fairbanks, Alaska
January 27, 2005

SIGN-IN SHEET

NAME	ADDRESS	PHONE NUMBER	EMAIL ADDRESS	ADD TO MAILING LIST? (CIRCLE)
1. JOE CUNNINGHAM	P.O. Box 61470 FAIRBANKS, AK 99706			YES NO
2: KEN & LOKI ELLIOTT	P.O. Box 10346 FAIRBANKS, AK 99710			YES NO
3. W.T. REEVES	1213 9TH AVE. FAIRBANKS, AK 99701			YES NO
4. PETE & RENE BORMAN	1716 COTTONWOOD FAIRBANKS AK 99707			YES NO
5. Suzanne Williams	1931 Gilmore Tr Fbks 99712			YES NO
6. Holli McCland	1150 University Ave FAIRBANKS, AK			YES NO

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD

PLANNING MEETING

Noel Wien Library
Fairbanks, Alaska
January 27, 2005

SIGN-IN SHEET

NAME	ADDRESS	PHONE NUMBER	EMAIL ADDRESS	ADD TO MAILING LIST? (CIRCLE)
7. Michael O'Brien	P.O. Box 81725 Fbx, 99708	(907) 347-2411	meoem2002@hotmail.com	(YES) NO
8. ERIKA MILLER	425 Rhonda Fbs 99712	907.488.23[illegible]	millerer@mosquitonet.com	(YES) NO
9. WENDELL SHIFFLER	929 REINDEER DR. FAIRBANKS, AK	907.479.6104	wjsawgic@ptialaska.net	(YES) NO
10. Peter R Borman	Fairbanks 1716 Cottonwood st	907-452-1042	—	(YES) NO
11. Tom Hansen	1067 Daisy Dr, Fairbanks, AK 99712	907-457-2563		(YES) NO
12. WALTER LINCOLN	1753 UNIVERSITY AVE F32 FBKS AK 99709	(907) 457-5008		(YES) NO

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD

PLANNING MEETING

Noel Wien Library
Fairbanks, Alaska
January 27, 2005

SIGN-IN SHEET

NAME	ADDRESS	PHONE NUMBER	EMAIL ADDRESS	ADD TO MAILING LIST? (CIRCLE)
13. Andrew Niemiec	1437 Ithaca Rd Fbks 99709	451-2210		YES NO
14. Jerry Colp	651 11th Ave Fbks 99701	459-6745		(YES) NO
15. Bernie Karl	P.O. Box 58055 Fairbanks Alaska	488-1409		(YES) NO
16. Matthew Sturm	693 Gold Vein Rd Fbks 99712	457-1898	bsturm@mosquitonet.com	(YES) NO
17. Milissa Cickels	POBox 80283 99708	458-0066		(YES) NO
18. LINDA BROWN JON MILLER	2630 HOME TOWN 99709	479-5629		(YES) NO

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD

PLANNING MEETING

Noel Wien Library
Fairbanks, Alaska
January 27, 2005

SIGN-IN SHEET

NAME	ADDRESS	PHONE NUMBER	EMAIL ADDRESS	ADD TO MAILING LIST? (CIRCLE)
19. LARRY LANDRY	2240 RAILROAD DR FBKS 99709	479-4586	MTAVENS@HOTMAIL.COM	YES NO
20. Nancy Hoyt	1119 Northwood FBKS, 99712	459-1037		YES NO
21. RHEES BURKET	"			YES NO
22. JERRY MUSTARD	2564 Wecota Dr. 99709	479-6101		YES NO
23. Douglas Yates	Box 221 Ester 99725			YES NO
24. Alan Batten	946 Smallwood Trail Fairbanks 99712	488-3205	alanbatten@acsalaska.net	YES NO

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD
PLANNING MEETING

Noel Wien Library
Fairbanks, Alaska
January 27, 2005
SIGN-IN SHEET

NAME	ADDRESS	PHONE NUMBER	EMAIL ADDRESS	ADD TO MAILING LIST? (CIRCLE)
25. Brad Snow	PO Box 81916 Fbx 08			YES (NO)
26. GENE KUHN	2060 Army Pyard Rd FAIRBANKS, AK 99712		genekuhn@eagle.ptialaska.net	(YES) NO
27. Tom Paragi	1271 Lowbush Lane Fairbanks 99709			(YES) NO
28. Allan Coty	3285 G.H.S.R. Fbks. AK. 99712	590-2644	allanwcoty@yahoo.com	(YES) NO
29. SHIRLEY LISS	2749 Goldstream FBK AK 99709			(YES) NO
30. JOE FIELDS	POB 71097 FBKS AK 99707	N	U	YES NO

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD

PLANNING MEETING

Noel Wien Library
Fairbanks, Alaska
January 27, 2005

SIGN-IN SHEET

NAME	ADDRESS	PHONE NUMBER	EMAIL ADDRESS	ADD TO MAILING LIST? (CIRCLE)
31. Doug Crevenston	1302 Gilmore Trail Fairbanks, AK	457-4184	gogrants@acsalaska.net	(YES) NO
32. Mike Streeny	3121 River Bend Rd. N. Pole, AK 99705	–	–	(YES) NO
33. Dan Hawkins	PO Box 80167 FBKS, AK 99708			(YES) NO
34. Les Graves	4318 Isberg Rd FBKS AK 99709	479-6172		(YES) NO
35. Fran Mauer	791 Redpoll Ln FBKS 99712	455-6829		(YES) NO
36. Phil Wildfang	299 Hawk Rd Fairbanks AK 99712	455-4703		(YES) NO

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD

PLANNING MEETING

Noel Wien Library
Fairbanks, Alaska
January 27, 2005

SIGN-IN SHEET

NAME	ADDRESS	PHONE NUMBER	EMAIL ADDRESS	ADD TO MAILING LIST? (CIRCLE)
37. Dave Eberhardt	551 Eberhardt	488-7855	—	(YES) NO
38. Wendell Zesigt	1797 Persing Dr	488 9289		(YES) NO
39. Doug Stockdale	PO Box 80805 Fairbanks AK 99708	455-9184		(YES) NO
40. Barry Donnellan	PO Box 73795 99707	456-2305		YES (NO)
41. Linda Rawlins	PO Box 73795 99707	456-2289		YES (NO)
42. Steven Hannah				YES NO

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD
PLANNING MEETING
Noel Wien Library
Fairbanks, Alaska
January 27, 2005
SIGN-IN SHEET

NAME	ADDRESS	PHONE NUMBER	EMAIL ADDRESS	ADD TO MAILING LIST? (CIRCLE)
43. Cort Zadel	898 Ballaine Rd FBX AK 99709	479-3641		YES NO
44. Crystal Nygard	1611 E 1ST Ave, Anch, AK 99501	272-8010	Crystal@epsicav.com	YES NO
45. Fred Richter	501 Summer Ave	457-3924		YES NO
46. STan Justice	1750 Reed Cir Fairbanks, Ak	479-5017	ffsrj@uaf.edu	YES NO
47. Anna Berg	583 Long Spur Loop Fbks Ak 99709	457-1986	ffams@uaf.edu	YES NO
48. MONTE PLUMLEE	252 RASMUSSEN RD FBKS 99712	488-9736		YES NO

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

Your input is an important element in the planning phase of this project. To help us incorporate your views and suggestions, please provide your comments below and return the form to us. Thank you for your interest!

Name (PLEASE PRINT) Anna Berge

Address: 583 Long Spur Loop

City, State, Zip Code Fairbanks, AK 99709

Phone Number 457-1986

E-mail ffamb@uaf.edu

COMMENTS:

I'm against more roads without first showing some common sense urban planning. Fairbanks is very spread out + you have to drive a long way now to get to undeveloped areas.

So in this context - upgrade + maintain the Steese 1st! A better road would encourage more regular use of the road + maybe development. Leave the other places alone for now.

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

Your input is an important element in the planning phase of this project. To help us incorporate your views and suggestions, please provide your comments below and return the form to us. Thank you for your interest!

Name (PLEASE PRINT) LOU BROWN

Address: 2630 HOME TWN

City, State, Zip Code Fairbanks AK

Phone Number (907) 479-5629

E-mail

COMMENTS:

In my view a road of any kind from Chena Hs to Circle is paper flours. Considering the cost of road construction and maintenance, I see little rationale for this project in any of its iterations.

I am also very concerned about incursion into Birch Creek which is one of the very few multi-day float trips available in close proximity to Fairbanks. Moreover, it is valuable as a non-motorized access to good moose habitat - also an increasingly rare commodity near town.

Thank you for the opportunity to comment!

COMMENT SHEET

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS

PLANNING STUDY

CENTRAL, ALASKA

JANUARY 26, 2005

5:00 – 7:00 PM

Name: Nancy Hoch & Rhees Burket
Street Address: 1119 Northwood Lane
City/State/Zip Code: Fairbanks AK 99712
Phone: 459-1037
Email:

Thank you for attending tonight's meeting. Your comments and involvement are very important to the planning process. Please right your comments or questions in the space provided below.

Upgrade & maintain the existing Steese Hwy. Include sheds or walls to stop the drifting on the summits.

A Bike trail along the Steese would be nice.

Holli McClain 474-2378 Fax 474-2282
Margaret Carpenter Fax 457-2313
Chris Birch Fax 343-0202

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

Your input is an important element in the planning phase of this project. To help us incorporate your views and suggestions, please provide your comments below and return the form to us. Thank you for your interest!

Name (PLEASE PRINT) Allan Coty

Address: 3285 CHSR

City, State, Zip Code FBKs, AK. 99712

Phone Number 590-2644

E-mail allanw coty @ yahoo.com

COMMENTS:

In support of route going up Middle (East) Fork of the Chena River. Would have economic benefit To FBKs., & AK. by promoting more recreational area, allowing easier prospecting access to a large portion of State Land. Would provide alternate access To Pogo type exploration for Ridges between Salcha and Chena drainages. Has existing RS2477 Trail status and would benefit existing MineS & Claim blocks in the Area as well as New Exploration.

Chris Birch

From: Doug Crevensten [gogrants@acsalaska.net]
Sent: Thursday, January 27, 2005 9:48 PM
To: margaret_carpenter@dot.state.ak.us; chrisb@tnh-inc.com
Subject: CHS/Circle Road Comments

gogrants.vcf

Couple of quick thoughts for DOT before I get to the Road comments: DOT does a very good job most the time on road building, upkeep and snow removal. But the right hand turn lanes at the Steese Expressway/10th and Steese expressway by the old Market Basket -that needs some serious immediate attention. That lane is super narrow and people are getting sideswiped there.. Just run a grader by and widen it by 3 feet and you'll have it -that's really dangerous!

OK, Hello. I attended the Chena Hot Springs to Circle Hot Springs Planning Study Meeting this evening in Fairbanks. Below are my comments.

The meeting had excellent maps and representatives from all the relevant agencies who had knowledge and a stake in this proposal were there: DOT, BLM, USFW, DNR. The planning consultants were also present.

The format is what we've come to expect from planning meetings where most the people expected to attend will be opposed to the project: loosely organized, charts on the wall, white paper for people to write comments, one-on-one talking. This is a ploy to get diffuse opinions with the intent of making the project appear more accepted than it is or ever will be. But we know there will be a round two, three, four, courts, appeals, etc so I'm ok with this. The Fairbanks' public has actually brought this meeting type on themselves by their merciless, rude, and mostly ignorant pounding of agency people in the past, which I detest. But, this approach allows for people to talk in a more comfortable manner. Yet a well-run meeting that provides information up front coupled with keen questioning from the presenter can get a lot of ideas out on the table. But that means not letting idiots hijack the meeting, too.

I own a cabin 4 miles up the West Fork. So here's my take:
a) I prefer option 5, which was not presented, which is to do nothing. Leave the Steese as it is now, a gravel road that serves its purpose well as is. It's an adventure to travel the road, super scenic as is, and to me fun to travel both ways. The Denali hiway will soon be paved, so lets leave a bit of gravel around to remind us of the old days -and ya know, for where these tourists come from, a gravel road itself might be an attraction. And, if you have to build a new road, put the $ where the people are -SE Alaska, Anchorage, Mat-Su.
b) If I gotta gotta gotta pick an option, upgrade the Steese, starting at Circle and working backwards toward Fairbanks until the money runs out or the citizens run Senator Wilken out of office.
c) Route A-B is the shortest but building along the RS 2477 that runs up the West Fork is gonna be mighty tough, as that valley is way boggy. Better to go one mile further towards Chena Hot Springs and get up into the high country that's right there.
d) The other two routes…well, just knock yourselves out with those. Unless there's a new Prudhoe Bay between here and Central I don't see it happening but just go right ahead.

Whatever route you take you should call it "Gary's Road". Why Senator Wilken persists with this folly just escapes me. I truly admire what

Sen. Wilken has done on some tough issues such as his School Funding Study and push for organizing boroughs throughout the State. This is excellent, gutsy and hard work that will much to change the future of this state. So what's motivating him to do this? The testimony from Central and Fairbanks will say no, the money to build it says no, and the economics say no. So why? Other than doing it just because they can -a fool's reason- why?

COMMENT SHEET

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS

PLANNING STUDY

CENTRAL, ALASKA

JANUARY 26, 2005

5:00 – 7:00 PM

Name: Joe Cunningham
Street Address: PO Box 61470
City/State/Zip Code: Fairbanks Alaska 99706
Phone: 907 496 2290
Email:

Thank you for attending tonight's meeting. Your comments and involvement are very important to the planning process. Please right your comments or questions in the space provided below.

It would be a good idea for better and or improved Transportation modes and networks To Circle and Chena Hot Springs and other destinations.

I am all for what they are for Hfeard the money will go for something that the public needs and wants → Not what Juneau wants (Spend money on them)

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

Your input is an important element in the planning phase of this project. To help us incorporate your views and suggestions, please provide your comments below and return the form to us. Thank you for your interest!

Name (PLEASE PRINT) DAVE EBERHARDT

Address: 551 Eberhardt Rd.

City, State, Zip Code FBKS, AK 99712

Phone Number 488-3838

Comment: Please tell Gov. Murkowski to study Article XII

~~E-mail~~ Sec. 8. Residual Power of the AK constitution. Hammond, Sheffield, & Knowles knew their power in AK!

A. **COMMENTS:** My Background: Born in Fairbanks 1950. Resident since of 5 mile CHS R prior to construction of CHS Rd. (access by Steele Cr. Rd.) B.S. in Forestry/Land Mgmt from Oregon State University. Worked for State DNR (Land disposal, water rights, Right of way easements) 1977-1980. Placer & hard rock gold mined 1980 to 2004. Had mining claims in the Chena Mining Area 1970-2004.

B. Murkowski's "Roads to Resources" (see attached map of my proposed ridge summer season only route) Resources are gold mining in the Van Curler's air strip vicinity, hard-rock gold near Offertail Creek, tourism loop to central, access in summer to a vast amount of State land (unknown resource) South of Steese BLM "Park," access to Yukon Charlie ("Park."), local Alaskan use of State land & Federal Land? What good did construction of Chena Hot Springs Rd. accomplish for Alaskans historically?

C. Access across Steese Park - Equipment has recently been trucked from Volcano Cr. trail from Van Curlers to Harrison Cr to central. The State owns the water & bed

Chena H.S. to Circle H.S.

summer only Road (pioneer?) route using ridge routes over State land & mining trails (RS2477) through Steese "PARK." Pioneer road branch to Van Curler's has been used in the 1990's by Doug Clark. other RS2477 from 54 mile CHS Rd. To 12 mile summit through Steese "park" would not open up much State land like my proposed route.

Dave Eberhardt


STEESE NATIONAL
~~CONSERVATION~~ ARE
PARK
WHITE MOUNTAINS NATIONAL RECREATION AREA
STEESE HIGHWAY
D
A
FAIRBANKS
NORTH STAR
BOROUGH
CHENA HOT
SPRINGS
CHENA RIVER STAT
RECREATION ARE
CHENA HOT SPRINGS ROAD
Victoria Mountain
Rocky Mountain
Mt Prindle
Table Mtn
Table Top Mtn

COMMENT SHEET

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS

PLANNING STUDY

CENTRAL, ALASKA

JANUARY 26, 2005

5:00 – 7:00 PM

Name: Ken + Lori Elliott
Street Address: P.O. Box 10346
City/State/Zip Code: Fairbanks, AK 99710
Phone: 907-479-3166
Email: loriken@ptialaska.net

Thank you for attending tonight's meeting. Your comments and involvement are very important to the planning process. Please right your comments or questions in the space provided below.

Our concern is the impact on our recreational cabin at 55 mile Chena Hot Springs Road. We are located on the Yukon Quest trail on the North Fork.

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

Your input is an important element in the planning phase of this project. To help us incorporate your views and suggestions, please provide your comments below and return the form to us. Thank you for your interest!

Name (PLEASE PRINT) Yorike Freed

Address: P.O. Box 80464

City, State, Zip Code Fairbanks AK 99708

Phone Number 907-455-6824

E-mail

COMMENTS:

I am strongly opposed to the use of any funds (state or federal) for such an unnecessary purpose. We already have road access and air access to both hot springs. Furthermore the prime route would cross or parallel the Birch Creek Nat'l Wild River in the Steese National Conservation Area. Birch Creek currently provides a rare opportunity for a low budget wilderness river trip (accessible via road from put in to take out). Another road intruding on the river would liquidate this unique opportunity. The proposed route would also further fragment the range of the 40 Mile caribou herd, introducing additional disturbance and hunting pressure. roadless areas such as Birch Creek & SNCA are essential to sustain the already heavy hunting pressure in the region. If you must spend the taxpayer's $ (federal) then do it for something worth while such as renewable energy, health care, education & do not use it for such frivolous purposes as this.

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

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Name (PLEASE PRINT) Karl R Greer

Address: 841 Nine Mile Hill Rd (Chena Hot Springs Rd)

City, State, Zip Code Fairbanks AK 99712

Phone Number 488-0713

E-mail bayhowdy@mosquitonet.com

COMMENTS:

This seems like a useless exercise in spending money to me. The few people that would use it can't possibly justify the expense. There is already a road to both "communities" and I use that word lightly. Total waste of time & energy!

Margaret Carpenter, Project Manager
Chena Hot Spr. to Circle Hot Spr. Planning Study
D.O.T. 2301 Peger Rd.
Fairbanks, AK 99709

Regarding the "planning study" for possible construction of a road in the Chena / Circle Hot Springs area:

Our family has, over the last 5 years, bought land and constructed a cabin on the West Fork of the Chena River. We are quite concerned about the possibility of proposed road construction in the area.
We greatly enjoy the fact that there is **not** presently road access to the area, having built our cabin as a remote "get away" for us. (We understand that there may be residents in the area that desire a road past their cabin, but of course, could have originally purchased land along an existing road if they believed road access was critical for them.)

I hope all individuals owning land, structures & /or businesses in the area will honestly state those interests, prior to providing input to this study, in that these interests will most certainly affect the type of recommendations they make, whether to proceed with this development or to not proceed. However, this "local ownership" should in no way diminish the fact that their opinions & ideas are valuable and may truly make a difference!!

As +20 year residents of Alaska, my wife & I have a number of other concerns & recommendations regarding the possible construction of a road in that area:

1. Though there now appears to be easy access to money for road construction with the recent windfall in oil revenues, there is not even the faint guarantee that there will be money in the future for the huge expense of maintenance on another road. Witness the fact that our state does not in any way currently adequately maintain roads such as the Denali Hwy, the Dalton Hwy, the road to Eagle, etc. etc.

2. There seems to have been good improvements made on the road to Chena Hot Springs over recent years (though it could benefit from consistent snow plowing in the winter). However, it would appear that road funding to upgrade & maintain the Steese Hwy. would be very worthwhile to assure better access to the Yukon River and area communities in the summer (& winter) for residents, present (& future) business owners, and tourists.

3. I do not believe a new Hwy "loop" would do anything significant to stimulate tourism in that area. I and my wife have worked as "step-on tour bus guides" in Fairbanks and have some familiarity with the "state of mind" of these tourists coming to

Fairbanks. Though these (mostly older) tourists are quite enthralled with the bus ride out into Denali Park, many of them are quite exhausted from the long hours of riding a bus when they reach Fairbanks. If they are to be enticed to take another bus ride there must be something very unique & not yet previously encountered (or about to be encountered) such as the wilderness of Denali Park.

I would like to propose that this money being considered for further road construction also be considered for something as novel as providing some type of an Alaskan ferry on the Yukon River. If incoming tourists had available to them the possibility of spending beautiful summer days leisurely traveling the Yukon River, I believe a magnificent and an entirely new reason would be introduced for those tourists to come to the interior of Alaska!!

I strongly believe there needs to be included in this present study of transportation avenues in the region a cost comparison of road building & maintenance expense **vs** the cost for the state of Alaska to create and maintain a ferry / riverboat system (using old or new technology) to travel regularly some portion of the river between Dawson City, Eagle, Circle and / or the Yukon River bridge on the Dalton. Now, how's that for thinking outside of the box?? But I believe that's exactly what's needed at this early point in the process, a complete discussion of all possible transportation development options before becoming locked into a "path of no return" on this present & future huge revenue expenditure.

Thank you for your time & consideration,

Tom & Diane Hansen
1067 Daisy Drive
Fairbanks, AK 99712

----- Message from Diane Hansen <dmhansen56@hotmail.com> on Fri, 28 Jan 2005 10:00:28 -0900 -----

To: margaret_carpenter@dot.state.ak.us, thansen@northstark12.ak.us
Subject: planning study for roads in our area?

Margaret Carpenter, Project Manager
Chena Hot Spr. to Circle Hot Spr. Planning Study
D.O.T. 2301 Peger Rd.
Fairbanks, AK 99709

Regarding the ?planning study? for possible construction of a road in the Chena / Circle Hot Springs area:

Our family has, over the last 5 years, bought land and constructed a cabin on the West Fork of the Chena River. We are quite concerned about the possibility of proposed road construction in the area.
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I hope all individuals owning land, structures & /or businesses in the area will honestly state those interests, prior to providing input to this study, in that these interests will most certainly affect the type of recommendations they make, whether to proceed with this development or to not proceed. However, this ?local ownership? should in no way diminish the fact that their opinions & ideas are valuable and may truly make a difference!!

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2. There seems to have been good improvements made on the road to Chena Hot Springs over recent years (though it could benefit from consistent snow plowing in the winter). However, it would appear that road funding to upgrade & maintain the Steese Hwy. would be very worthwhile to assure better access to the Yukon River and area communities in the summer (& winter) for residents, present (& future) business owners, and tourists.

3. I do not believe a new Hwy ?loop? would do anything significant to stimulate tourism in that area. I and my wife have worked as ?step-on tour bus guides? in Fairbanks and have some familiarity with the ?state of mind?

of these tourists coming to Fairbanks. Though these (mostly older) tourists are quite enthralled with the bus ride out into Denali Park, many of them are quite exhausted from the long hours of riding a bus when they reach Fairbanks. If they are to be enticed to take another bus ride there must be something very unique & not yet previously encountered (or about to be encountered) such as the wilderness of Denali Park.

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Thank you for your time & consideration,

Tom & Diane Hansen
1067 Daisy Drive
Fairbanks, AK 99712

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

Your input is an important element in the planning phase of this project. To help us incorporate your views and suggestions, please provide your comments below and return the form to us. Thank you for your interest!

Name (PLEASE PRINT) DANIEL B. HAWKINS

Address: P.O. Box 80167

City, State, Zip Code FAIRBANKS, AK 99708

Phone Number (907) 457-4395

E-mail ffdbh@uaf.edu

COMMENTS:

1) I don't understand the 'driving force' behind the proposed routes - Why are they needed? Who profits?

2) If there is money available for any of the proposed routes - ALL OF WHICH I am opposed to - I would like to see that money used to maintain the Steese Hwy between FBKS + Central, and especially to improve the Steese Hwy from Central to Circle City.

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

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Name (PLEASE PRINT) LARRY LANDRY

Address: 2246 RAILROAD DR.

City, State, Zip Code FAIRBANKS 99709

Phone Number 479-4586

E-mail MTAVENS@HOTMAIL.COM

COMMENTS:

BAD IDEA. I HAVE SEVERAL MAJOR CONCERNS:

1) DON'T MESS WITH THE WILD & SCENIC RIVER CORRIDOR.

2) LEAVE BIRCH CREEK ALONE! IT IS A GORGEOUS RIVER, A WONDERFUL FLOAT. WE NEED UNSPOILED PLACES LIKE THAT ACCESSIBLE FROM TOWNS.

3) WHERE WILL THE MONEY COME FROM FOR MAINTENANCE? WE ARE almost certainly facing AN ERA OF SHRINKING, NOT EXPANDING BUDGETS IN THE NEXT FEW YEARS. ALREADY OUR MAINTENANCE DOLLARS ARE STRETCHED THIN. WHY EXPAND THE ROAD SYSTEM & INCREASE THE MAINTENANCE LOAD FOR A ROAD WITH LAME JUSTIFICATIONS??

ESPECIALLY IN A MOUNTAINOUS AREA WHERE MAINTENANCE REQUIREMENTS WILL BE HIGH.

I LIKE THE OPTION OF "UPGRADING THE STEESE & KEEPING IT OPEN IN THE

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD
PLANNING STUDY COMMENT SHEET

January 2005

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Name (PLEASE PRINT) SHIRLEY A LISS

Address: 2749 GOLDSTREAM RD

City, State, Zip Code FAIRBANKS, AK 99709-6066

Phone Number 907-455-6614

E-mail salss@alaska.net

COMMENTS:

I am opposed To building This road. ① Tourists don't need it. Steese 40 → Chena 60 → Steese 135 → Circle 135 → FBK steese = 390 mi. Current W. Th proposed Road steese FBK 40 → Chena 80 → Circle 135 = FBK = 275. That saves 115 mi or 2½ hrs. Trivial when Th've driven 3000 mi To get To AK already. ② We don't need an access point at Birch Creek where any of The proposed roads cross it from a camping aspect a Take out at Crooked Creek ~~will~~ would be The only possible asset. ③ The Circle mining district already has a loop road from Circle - over The hills + down Miller creek complex back To Steese. ④ Better fix road Circle HS → Circle. OR build a road To Rampart - Those folks want a road connection. ⑤ Be honest w. Th The public - WHO really is going To benefit - Mayor Whitaker + Sen Wilkinson

support this - why. This looks to be a boondoggle like the "Bob Bennet Hwy" to the Chatanika - which was built let go to pot - holes

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

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Name (PLEASE PRINT) ERIKA MILLER

Address: 425 Rhonda St

City, State, Zip Code Fairbanks AK 99712

Phone Number 488-2315

E-mail millerer@mosquitonet.com

COMMENTS:

I see no reason to build this road.
Why?
Who will it benefit? Tourism?
And then we need to maintain it.
Surely there are other roads in the state that need to be upgraded or even built.
Another thought - is it supposed to provide access to future land development? Borough selling land? Put in a road afterwards if that's the case.

Chris Birch

From: Lou Brown and Jon Miller [loubrown@gci.net]
Sent: Friday, January 28, 2005 10:20 AM
To: margaret_carpenter@dot.state.ak.us
Subject: Chena-Circle Hotsprings Road

28 January, 2005

Margaret Carpenter
Project Manager
Department of Transportation and Public facilities
2301 Peger Road
Fairbanks, AK 99709

Dear Ms. Carpenter:

I attended the public meeting last night for the proposed Chena Hot Springs to Circle Hot Springs road, and would like to make the following comments.

First, and for the record, I am dismayed that during a period of fiscal constraints and budget shortfalls, the legislature saw fit to spend $250,000 on a preliminary feasibility study for a road that serves no clear purpose, and has no obvious constituency. After speaking with personnel from DOT, BLM, and TNH contractors, I remain puzzled as to the impetus for spending public funds to pursue this ill-conceived project. Sad to say, the BEST answer that I received to my questions about the benefits that would accrue to the public from a new road to Central was that the actual construction of the road would temporarily create jobs. There are many capital improvement projects that deserve serious consideration by Alaskans, but this does not appear to me to be among them. This is especially true given the poor state of repair of many existing roads in the state, and the fact that DOT threatened to close the existing road to Circle during the winter due to maintenance budget constraints. I do not understand how building an additional, very expensive road to Central would benefit me or my fellow Alaskans.

--While I use and greatly appreciate the road system in Alaska, I object in principle to the philosophy of building roads to "open up" country that does not have a clear and compelling need to be accessed. One of Alaska's foremost attractions for residents and visitors alike is its frontier and wilderness character, which permits lifestyles that are no longer possible elsewhere in the United States. Clearly, this quality will diminish with time, but our job as forward-looking stewards of this Great Land is to make sure that we do not make rash or unnecessary compromises to existing qualities. I fear that the "open it up" mentality is the greatest single push behind this problematic proposal.

--The Steese National Conservation Area and, especially, Birch Creek National Wild River comprise an important local recreation area with very clear management prescriptions. The recreational and conservation qualities preserved in these federal lands would be irreparably harmed by pushing a road through the Birch Creek drainage. Clearly, the proposed road would violate the underlying reason that this drainage was selected to become a National Wild River. Birch Creek is a much-loved float trip by many Fairbanksans, and you may be assured that there will be considerable local opposition to attempts to plan a road here. However, more important, the area in discussion is a NATIONAL conservation area, and it is disturbing that the state legislature should waste public funds debating the feasibility of crossing a highly restrictive federal conservation unit, even after they have been fully advised of the impracticability of doing so.

--I use Birch Creek for recreation and for hunting. Be assured that I and the many other locals who I know that use this river in similar ways would not view a new road and "expanded access" as a positive change. The relative isolation of this fine river corridor adds immensely to its appeal.

--The proposed alternative that avoids the Steese National Conservation Area--making a shortcut from Chena Hotsprings to Twelvemile Summit, via the West Fork of the Chena--would increase traffic on both the Chena Hotsprings road and the Steese without bringing substantial benefit to the area. Increased traffic on the Chena Hot Springs road would negatively impact both the residents along this road and the many Fairbanksans who use the Chena River recreation area as a "getaway." The added congestion would be a decided disadvantage, in my opinion.

In summary, I not only object to the proposed road, but also to the frivolous expenditure of public funds to study a road that few seem to want, and no-one seems able to justify. In general, I would greatly prefer to see transportation funds devoted to maintaining existing roads than constructing new roads, especially those that do not serve a clear purpose that benefits a broad array of Alaskans, and those that we will be unable to afford to maintain in the future. Without providing us with a more compelling reason to invest further public funds into studying the feasibility of such a road, I suggest that what remains of the $250,000 study funds be recycled into a more productive undertaking.

Thank you for considering my views.

Sincerely,

Jon Miller
2630 Home Run
Fairbanks, AK 99709
(907) 479-5629

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

Your input is an important element in the planning phase of this project. To help us incorporate your views and suggestions, please provide your comments below and return the form to us. Thank you for your interest!

Name (PLEASE PRINT) Michael O'Brien

Address: P.O. 81725

City, State, Zip Code Fairbanks, AK 99708

Phone Number 347-2411

E-mail mcoem2002@hotmail.com

COMMENTS:

1) Option A → B (Chena H.Sp → Circle H.Sp) is horrible and will be mired in environmental / federal litigation. It will be bled dry and never happen. Enviros (me) will fight this to the death.

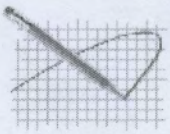
2) Option A → C is as horrible as #1, but lacks any benefit of making a "tourist route" that #1 offers.

Both 1 + 2 disrupt an amazing wilderness float of Birch Creek. Enviros, boaters, trappers will fight an invasion of this wilderness trip

3) Option A → D (Chena to 12 mile) is a "road to nowhere" it will be easier legally (state land) but is far less necessary / useful that #4

4) Improve the Steese! Put the money into where all agree it's needed. Better paving, snow removal on the Steese.

5) Why aren't the Village of Birch Creek involved in this? They're directly impacted.



Robin Senner/Anchorage/URSCorp
12/02/2005 10:54 AM

To Angela Schuler/Anchorage/URSCorp@URSCorp
cc
bcc
Subject Fw: [Fwd: oppose road connection between Circle and Chena Hot Springs]

To: Chris Birch <chrisb@tnh-inc.com>
From: Margaret Carpenter <margaret_carpenter@dot.state.ak.us>
Date: 03/01/2005 08:11AM
cc: Judy Chapman <judy_chapman@dot.state.ak.us>, Robin Senner <robin_senner@urscorp.com>
Subject: [Fwd: oppose road connection between Circle and Chena Hot Springs]

----- Message from tparagi@alaska.net on Mon, 28 Feb 2005 22:27:35 -0900 -----

To: margaret_carpenter@dot.state.ak.us
cc: Senator_Ralph_Seekins@legis.state.ak.us,
Senator_Gary_Wilken@legis.state.ak.us
Subject: oppose road connection between Circle and Chena Hot Springs

28 February 2005
Margaret_carpenter@dot.state.ak.us
Re: Circle Hot Springs to Chena Hot Springs Road

Dear Ms. Carpenter:

I attended the January public meeting in Fairbanks on the proposed road connection between Circle Hot Springs and Chena Hot Springs and read the literature provided at the meeting. I oppose any plans for building more roads in this area. I agree with the general sentiment of Central and Circle residents that funding should be focused on maintenance and improvement of the Steese Highway.

I recall a couple winters ago when then Governor Tony Knowles debated closing the Steese Highway in winter for lack of $80,000 in snow maintenance funds and shake my head when the Alaska Legislature now appropriates $250,000 to study putting MORE roads in this area. At a 9:1 federal match for construction (but no federal funds for maintenance), the estimated $285-300 million for construction would be wasteful during a time of record federal deficits. This area already has RS2477 mining access from decades of exploration and extraction. The state of Alaska would incur high maintenance costs with no realistic hope for substantive revenue recovery from tourism or mining. Given existing access, the fact that private capital has not flowed into further mining development in this area is a glaring clue that the State should not ignore. Expanding barge capabilities on the Yukon and lower Tanana Rivers or building rail access to mineral deposits on the Seward Peninsula are far
more appropriate to expanding capabilities for resource development in Alaska.

Tom Paragi
1271 Lowbush Lane
Fairbanks, AK 99709-6039

Cc: Sen. Gary Wilken

Sen. Ralph Seekins

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

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Name (PLEASE PRINT) WENDELL SHEFFLER

Address: 929 REINDEER DRIVE

City, State, Zip Code FAIRBANKS, ALASKA 99709.6621

Phone Number 907.479.6104

E-mail wjsawgic@ptialaska.net

COMMENTS:

A road connecting (A) & (B) would make a loop adding to the benefits of tourists — but other than "opening up" the country and providing somewhat better access to property owners — I don't really see much other benefit!

Wendell Sheffler

1.28.2005

(1)

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

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Name (PLEASE PRINT) Mike Stredny

Address: 3121 River Bend Rd.

City, State, Zip Code North Pole, Alaska 99705

Phone Number 488-1414

E-mail

COMMENTS:

I would like DOT to consider several of these points in deciding Not to build the Hot Springs loop Rd.

① Cost - not only the building cost but maintenance cost. In the past the Steese Hwy. has been told it will be shut down n' many of the maintenance workers left after being treated like yo-yo's. The 250 k$ that this "study" has cost could have been applied to the Steese Hwy.

② Need, or the lack of. You can drive to either Hot Spring already. A loop rd. would assume that after a soak, your ready to go again. After a good hot soak, I'm more inclined to think of a meal or a nap, not another soak, or even a drink to go get another soak.

over

③ Effort, besides the cost involved, do we really want to cross Birch Creek? Its a wild n scenic river n' would require an act of Congress to build a bridge over it. This project doesn't have local support, let alone national support to ~~support~~ ~~require~~ justify the amount of time n money required to do the job.

If we don't cross Birch, do we head over the old (historical) Fbks - Circle trail? This is currently the route the Yukon Quest uses, how will that affect us. We build a road ~~support~~ "supposedly" to enhance tourist n it wipes out a trail that supplies us with winter tourist.

I would support a road from either hot springs to the wider isolated town of Eagle before I would waste my time n money building a loop rd. between the 2 hot springs.

P.S. ④ Wildlife, the 40 mile caribou herd is hunted hard along the Steese n Taylor Hwy's. What impact will a new road into their range have on a herd that has just started to come back from over hunting?

Once again, we can't afford to build this loop RD

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

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Name (PLEASE PRINT) Matthew Sturm

Address: 693 Gold Vein Road

City, State, Zip Code Fairbanks, AK

Phone Number 907-457-1898

E-mail msturm@crrel.usace.army.mil

COMMENTS:

(1.) There a vastly better things to spend state money on than this road - and roads to better locations

(2.) The state can barely maintain either of the Steese or CHSR road. In winter they are abysmal. The proposed road would be poorly maintained - only in summer. Use the money to improve the existing road.

(3.) Neither the owners of the Hot Springs resorts don't want this. It has no real economic value - prove this before recommending

over →

④ I have a "remote" parcel, the and cabin state sold me on route A → D.

a.) I ~~will~~ want this to stay "remote" and will do everything in my power to try and keep it so, including legal action related to the implied nature of the parcel

b.) The A → D route makes little sense because it fails to by-pass 12-mile and Eagle Summits. Hence it won't benefit the residents over these passes.

⑤ Lots of hunters will bemoan the loss of the country up routes A → B, A → C and A-D, which is accessible by snowmachine and 4-wheeler.

Go for Option D; fix the Steese!

Subject: **Chena-Circle Hot Springs Rd**
Date: Fri, 30 Apr 2004 10:38:44 -0800
From: Paul Prusak <paul_prusak@dot.state.ak.us>
Organization: DOT & PF, State of Alaska
To: Margaret <margaret_carpenter@dot.state.ak.us>

Margaret:

Time to start a Mailing List:

Mathew Sturm
693 Goldvein Rd
Fairbanks AK 99712
Hm: 457-1898
Cell: 353-5183

He has a remote cabin up the West Fork...doesn't like the idea of a road in that area...and in general doesn't think any road is a good idea.

Paul

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

Your input is an important element in the planning phase of this project. To help us incorporate your views and suggestions, please provide your comments below and return the form to us. Thank you for your interest!

Name (PLEASE PRINT) Suzanne Williams

Address: 1937 Gilmore Trail

City, State, Zip Code Fairbanks 99712

Phone Number 457-1985

E-mail

COMMENTS:

I hope that the daily road condition reports on the telephone continve. It is really helpful in deciding whether to head out to Central or not. The highway maintenance folks do a great job trying to keep the summits open.

Regardless of any of the expansion programs, the current level of maintenance and budget should be maintained.

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

Your input is an important element in the planning phase of this project. To help us incorporate your views and suggestions, please provide your comments below and return the form to us. Thank you for your interest!

Name (PLEASE PRINT) BOB ZACHEL

Address: POB 83206

City, State, Zip Code Fairbanks, AK 99708

Phone Number 907 455-6164

E-mail

COMMENTS:

I do not think the Chena Hot Springs to Circle Hot Springs road is a good idea. The road is going to be extremely expensive to build + maintain. The amount of economic development it will foster is minimal. The mineral potential for this area has been extensively prospected already. This road will be primarily a ~~tourist~~ summer tourist road I believe the State should spend the money on a road to Nome.

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS ROAD PLANNING STUDY COMMENT SHEET

January 2005

Your input is an important element in the planning phase of this project. To help us incorporate your views and suggestions, please provide your comments below and return the form to us. Thank you for your interest!

Name (PLEASE PRINT) Cort Zachel

Address: 898 Ballaine Rd

City, State, Zip Code Fairbanks, AK 99709

Phone Number 479-3641

E-mail

COMMENTS:

1. It would be much better to use this money to upgrade the Steese Hwy.
2. Maintainance of a road by any of the proposed routes is going to be very high.
3. Any of the proposed routes require use of extensive areas of permafrost which is difficult to deal with in the best of conditions. With the fires that have burned through the area the soil over large areas will be in a state of ~~fluctuate~~ fluctuating stability for years to come.
4. Any bridge across Brick Creek will compromise its character as a wild & scenic river. One of great joys of Brick Creek is the low number of people that use it because it takes a major time commitment to float the entire access-

to access length. A bridge will drastically alter the use patterns by allowing shorter trips.

5. The land area north of Birch Creek and south of the Steese Hwy already has adequate road access for mineral exploration.

6. I think the scenic quality of any of the proposed routes is of dubious quality. I have walked over a good portion of that country and any route is going to see alot of small black Spruce. The Steese Hwy already offers great scenic views of very some geographical area.

CHS-CHS PROJECT Post-it® Fax Note 7671	Date 2-14-05 # of pages ▶ 5
To CHRIS BIRCH	From BOB TILLY
Co./Dept. TNH - AWC	Co. TNH - FAI
Phone # 343-0263	Phone # 456-7403
Fax # 343-0202	Fax # 456-7413

COMMENTS RECEIVED AT FAIRBANKS OFC.

SCOPING RECORDS RECEIVED SUBSEQUENT TO SCOPING MEETINGS

From: Chris Birch <chrisb@tnh-inc.com>
To: Mac Carter <maccarter@starband.net>
cc: Robin Senner <robin_senner@urscorp.com>, Bob Tilly <bobtilly@ptialaska.net>, Margaret Carpenter <margaret_carpenter@dot.state.ak.us>
Date: Monday, January 24, 2005 10:09AM
Subject: RE: Chena Hot Springs to Circle Hot Springs Planning Study

---

Good Morning!

Thanks for your thoughts and background on the Chena to Circle Planning Study project. I will copy your message to Margaret Carpenter the DOT&PF Project Manager and incorporate your comments in our public record.

I will also pass along your understanding that there may be a preexisting study for a similar road project completed some time ago. This may have been completed as part of a more general planning study of prospective new roads.

Thanks again for your comments. We'll look forward to meeting you at one of our meetings or such other time as you may be available during the planning study timeline (we are to deliver findings to DOT&PF by this December).

Thanks, Chris

Chris Birch, P.E., Senior Engineer
Office: 907.343.0263 Fax: 907.343.0202 Cell: 907.360.8643
chrisb@tnh-inc.com

Tryck Nyman Hayes, Inc. (TNH)
Anchorage - Fairbanks - Juneau - Wasilla - Kingston, WA
www.tnh-inc.com

-----Original Message-----
From: Mac Carter [mailto:maccarter@starband.net]
Sent: Saturday, January 22, 2005 9:29 AM
To: Chris Birch
Subject: Re: Chena Hot Springs to Circle Hot Springs Planning Study

January 22, 2005

Chris Birch

Hello, Thank you for the return call, regarding the planning study for the Chena Hot Springs to Circle Hot Springs Road.

Let me begin by saying that Central and Circle have been left out of road renewal or road construction. Money to improve both the Circle hot Springs road and the Steese Hwy road to Circle have been funded only to be used on other projects. (Like the new DOT Building that was built in Fairbanks during the Knowles admin) I might add it was built in record time at the end of his admin.
The reason the issue of building the road to loop the two Hot Springs has many benefits, Central will grow and new business will open to provide for the increase tourist coming around the new loop road, The economy of both

Central and Fairbanks will provide jobs in all sectors of service.

There was a study that was made many years ago, and the issue of this came up at a committee meeting with the then head of the DOT-PF, more searching should be done to secure this study.

I am supporting the direct route between the two Hot Springs,The Steese can be closed during the winter, between 42 mile and Central, allowing 80 mile camp to be closed during the winter. The section of road between Circle Hot Springs and Chena Hot Springs should be about 60 miles. Chena Hot springs is paved and kept clear of snow all the way to the Hot Springs. The saving of maintaining this road and keeping it open I am sure will out way leaving the whole road open and the 80 mile camp running.

Alaska has not built a new road in Alaska in 30 years, nothing I am sure North of Fairbanks, this road will add a new start for northern Alaska communities and will build a new future for the people of Central, Circle and Fairbanks.

I hope you will consider this challenge and build a new future for Alaska.

Thank You

McLaren C (Mac) Carter
P.O. Box 30009
Central, Alaska 99730
maccarter@starband.net

----- Original Message -----
From: "Chris Birch" <chrisb@tnh-inc.com>
To: "Mac Carter" <maccarter@starband.net>
Cc: "Robin Senner" <robin_senner@urscorp.com>; "Margaret Carpenter" <margaret_carpenter@dot.state.ak.us>; "Bob Tilly" <bobtilly@ptialaska.net>
Sent: Friday, January 21, 2005 3:13 PM
Subject: Chena Hot Springs to Circle Hot Springs Planning Study

> Good Afternoon Mac;
>
> It was great talking with you this morning and learning more about the
> issues and background relating to the subject planning study. While I
> understand you will be in Juneau during our public scoping meetings in
> Central and Fairbanks next week (Wednesday afternoon in Central and
> Thursday
> afternoon in Fairbanks) your written suggestions, insight and
> recommendations would be very much appreciated.
>
> We are planning a public workshop to review the four potential options for
> improving transportation to the Circle Hot Springs area and look forward
> to
> a high level of public interest and participation in this scoping level of
> the project.
>
> By copy of this message to the DOT&PF Project Manager I will forward your
> contact information as follows;
> _____
>
> Mac Carter
> P.O. Box 30009

> Central, Alaska 99730
> 907-520-5999
> _____
>
> Please call if you have any questions or require any additional
> information.
> Thank you for your interest and participation in this effort.
>
> Thanks, Chris
>
>
> Chris Birch, P.E., Senior Engineer
> Office: 907.343.0263 Fax: 907.343.0202 Cell: 907.360.8643
> chrisb@tnh-inc.com
>
> Tryck Nyman Hayes, Inc. (TNH)
> Anchorage - Fairbanks - Juneau - Wasilla - Kingston, WA
> www.tnh-inc.com
>
>

----- Message from Mac Carter <maccarter@starband.net> on Sun, 16 Oct 2005 13:34:43 -0800 -----

To: margaret_carpenter@dot.state.ak.us
Subject: Arctic Circle hot Springs to Chena Hot Springs road.

Margaret;
I writing to inquire about the study being done for the road between the two Hot Springs. I know the study is due by December of this year. I was wondering if there is any preliminary work that has been done.
In my e-mail of Jan. of this year to Chris B. he mentioned that a copy of my letter was sent to you as input for the road.
Please put my name on your list of people to receive a copy of the study information for this project.
Thank You

Mac Carter
maccarter@starband.net

From: Margaret Carpenter <margaret_carpenter@dot.state.ak.us>
To: Chris Birch <chrisb@tnh-inc.com>
cc: Robin Senner <robin_senner@urscorp.com>, Judy Chapman <judy_chapman@dot.state.ak.us>
Date: Friday, January 21, 2005 08:11AM
Subject: [Fwd: Chena Hot Springs Road]

Good Morning!

Thought I would pass this along.

Margaret

----- Message from Karen Austen <artworks@alaska.net> on Wed, 19 Jan 2005 13:37:28 -0900 -----

To: margaret_carpenter@dot.state.ak.us
Subject: Chena Hot Springs Road

Dear Ms. Carpenter
I noticed the info in the News-Miner about the public meeting for the Chena to Circle Hot Springs Road. I can't (won't) go to the meeting but I would like pass on our feelings on this issue.
I was very glad to see option 4 to work on the Steese as it is sensible and a good use of public funds.
The long and short of our comments is please please please do not build the road from Chena to Circle Hot Springs, or any connector between CHSR and the Steese. Doing is is a total waste of effort and funds.
The existing Steese Highway and Chena Hot Springs Road are a mess - in need of MAJOR maintenance. Federal dollars or not, why would we build a road that can only be accessed by highways that are in terrible shape? Have you driven either the Steese or CHSR lately? We live at 10 mile on CHSR and have a cabin in the west fork of the Chena near the springs. The increased traffic will ruin our quality of life in both locations. All the traffic going to and coming from either of the hot springs (or Central Circle City), for that matter, will be on CHSR because it is paved and in better shape than the Steese. Chena Hot Springs Road a very dangerous as things are now. Just the construction traffic to build this proposed road will destroy the existing CHSR.
I have talked to many locals and people in general about this project. I spent over 20 years working for D & C at the State DOT and my old design and construction friends as well as neighbors and acquaintances describe this project in one word. Stupid. Even the hot springs owners have given written opposition to this project.

Circle Hot Springs is closed more than open - what good is a road to a defunct resort? Especially when there already is one?
The idea that this would be an economic improvement is flawed. There will be no incentive for anyone to invest as there is nowhere near enough traffic - tourist or otherwise - to support a business.
Evident enough is the decline of the town of Central and the nearly yearly change of ownership in the two businesses in the Circle area.
Chena Hot Springs has done well, but only due to savvy marketing.
Some friends of ours were visiting last winter and wanted to rent a room at CHS Resort but they were full - and there was only 5 cars in the parking lot. Their clientele are not going to be driving around a 250 mile "scenic loop" that is 75% either mud, dust, washboard, black ice, whiteouts, differential settlement that will put your head into the roof of the car, or broken pavement.
I drive the entire CHSR at least every 2 or 3 weeks year round to use our river cabin and there are many trips when I will not see one other vehicle on the road past the Two Rivers area.
From what I read in the paper, the project is moving forward and there is full intent to build it. Is this true? If so is there a way to get the wishes of the people heard, such as a questionnaire in the newspaper or sent to residents affected so we can get input on the issue?? Public meetings will never represent the real feelings of the populous because people don't have the time or the stamina to attend them.
I have not talked to one person that is in favor of this road. Not one.
Thanks for your time
Alex Chudyk

From: Margaret Carpenter <margaret_carpenter@dot.state.ak.us>
To: Chris Birch <chrisb@tnh-inc.com>, Robin Senner <robin_senner@urscorp.com>, Judy Chapman <judy_chapman@dot.state.ak.us>
Date: Thursday, January 27, 2005 08:55AM
Subject: [Fwd: chena to circle study]

Here is a comment I received by email....hold on to your socks!

----- Message from Nancy A Hummel <nhummel@northstar.k12.ak.us> on Wed, 26 Jan 2005 14:19:38 -0900 -----

To: margaret_carpenter@dot.state.ak.us
Subject: chena to circle study

DOT proposal for Chena Hot Springs to Circle Hot Springs Planning Study
No, don't do it.
What a waste of money.
We have many other priorities that could use the money that this would cost. We can't even adequately maintain the roads we have now for repairs and snow removal, why on Earth would we build another road that would receive minimal use, to a places that already has road access!
When this was first brought up, Mr. Bernie Karl, owner of Chena Hot Springs, and a practical person, didn't even think this was a good idea, though it would seem to benefit his business.
We paid millions of dollars and years of inconvenience, for road upgrades to Trainor Gate and the Old Steese by Dillinger's. But for all of the snowy months of the year (7 months) those streets are reduced to the number of lanes that were there BEFORE the upgrades due to poor snow removal, or lack there of. We do not need any more roads to attempt to maintain any kind of snow removal for, never mind road repairs, Trooper patrols,...
This Chena Hot Springs to Circle Hot Springs Road proposal reeks of corruption; who really wants this road? Do they have land in-holdings along the route, or anywhere in the area that would benefit from this road? It just doesn't make sense.
Nancy Hummel
725 Manchester Loop
Fairbanks, Alaska 99712
PS Can you please have someone read this aloud at the hearing? I would like the others there to hear my ideas. Thanks.

Attachments:

EARLA HUTCHINSON
P.O. BOX 1
CIRCLE, AK 99733
1/27/05

Chris Birch, P.E.
Tryck Nyman Hayes, Ince.
2400 College Road
Fairbanks, Alaska 99709

Mr. Birch:

I just read Diana Campbell's News-Miner article about the 100th anniversary of the DOT. The opening paragraphs got my attention. "Old photos show that Alaska's first highway was little more than a rustic upgrade of a wagon trail The dirt road barely broke through swaths of black spruce and brush..." Before I realized what highway Ms. Campbell was describing, I thought she was talking about the section of the Steese Highway between Central and Circle today!!

SInce the Steese Highway was actually started from the "Circle end" sometime in the 1890's to allow miners and their supplies to have access to the Circle Mining District there has been very little done to upgrade the condition or route. Back in the 1940's or 1950's the "ferry" at Birch Creek was replaced with a railroad bridge from Nenana...the only major improvement. Over the nearly 40 years I've lived in Circle there have been a few minor improvements...a little Typar here and a couple of new culverts there. Over the years with the occasional "grading" the Typar has been unearthed and jagged shreds of it can be seen in the dirt berm on the side of the road. The road is narrow, windy, rough and dangerous.

I was my understanding that by FY89 some really major improvements were to have been made...straighten the road, shorten the length of the section by a couple of miles and relocate the bridge over Birch Creek. For whatever reason that project was nixed.

I was rather concerned when I learned of the grand plans for a road between Circle Hot Springs and Chena Hot Springs. Why? There are two perfectly good roads to each of those resorts. (Just as an aside, Circle Hot Springs Resort has been closed for the last three years.) The millions for this road could be better used to get the Central to Circle section of the Steese upgraded to equal the quality of the Steese from Fairbanks to Central and Circle Hot Springs. The Steese does not end at Central!! All and all the 34 mile section is basically the "forgotten" section. There have been millions spent on upgrading the Fairbanks to Central portion. Beginning in 1968 when they were paving the road from Cleary Summit. These improvement were appreciated.

I opened a general store in Circle 19 years ago and since then I drive to Fairbanks on a weekly basis...about 315,000 miles logged to date. In the early 1990's I taught school in Central and commuted from Circle to Central for three years..another 35,000 mile!. (I've got a lot of miles on the Steese!) It takes about an hour to get from Circle to Central under "good" conditions and as much as an hour and a half other times.

I was really disappointed to discover that, after making the hour-long, one-way trip to Central for the meeting, it had been rescheduled!! Driving to Central in the dark on the windy, narrow road is not my idea of having a good time! In the interest of getting the "real picture" of the Steese Highway a person needs to drive the entire length of the Steese.

Bottom line: Fix up the entire Steese before putting in a new road. Maintain and upgrade what's already in place.

Please consider this as my comments for the public input I was denied.

Sincerely,

Earla Hutchinson

Earla Hutchinson

From: Margaret Carpenter <margaret_carpenter@dot.state.ak.us>
To: Chris Birch <chrisb@tnh-inc.com>, Robin Senner <robin_senner@URSCorp.com>
cc: Judy Chapman <judy_chapman@dot.state.ak.us>
Date: Monday, January 31, 2005 12:10PM
Subject: [Fwd: Circle H.S. to Chena H.S. Road proposal]

Chris,

I will fax you the 2 comment sheets that I received via fax this morning.

Thanks,

Margaret

----- Message from Frank Keim <keimuir@yahoo.com> on Mon, 31 Jan 2005 12:51:39 -0800 (PST) -----

To: margaret_carpenter@dot.state.ak.us
Subject: Circle H.S. to Chena H.S. Road proposal

Margaret,
Here's my official comment on this scheme.
Thanks.
Frank Keim
January 30, 2005
Margaret Carpenter
Dept. of Transportation
2301 Peger Rd.
Fairbanks, 99709
Dear Margaret:

Re the proposal to build a highway from Chena Hot Springs to Circle Hot Springs, I believe this to be another of Frank Murkowski's ill-considered schemes to further break our Alaskan treasury. What an egregious waste of the peoples' money! Money which could be more useful in funding other projects that would truly benefit future generations.

I've been around this state since 1961 and have a pretty good idea of what we need here, and what we don't need. We already have a decent enough infrastructure of roads. We need the money to maintain them. The Steese Highway was almost shut down three winters ago because there was no money to maintain it. And the stretch of road between Central and Circle is the second worst in the state. Why not upgrade that

part of the road, then maintain it?

You've also got an impossible bureaucratic hurdle to overcome re the Wild River status of Birch Creek. I have been told by the DNR that, since there is no 2477 right of way across this beautiful river, you would have to go through years and years and years of special hearings which would assure ultimate defeat of your proposal. Meanwhile, aagh, the money you will have wasted!

I, like so many others in this state, regard Birch Creek as probably the best road-accessible wild whitewater float trip in the Interior, and we would fight tooth and nail to prevent you from compromising this beautiful river.

And try to remember that this is the year of Hubbert's Peak, and that from 2006 on the price of fossil fuels will increase even faster as the China factor begins to really kick in (11,000 new inefficient fossil fuel driven passenger vehicles added to their highways every single day in 2003 alone). New highways only encourage more waste of this ever more valuable product.

And the price tag: one of your own people said as much as 400 million bucks! Outrageous!

So let's just forget this harebrained project, can we? We simply don't need it. Period.

Yours truly,
Frank J. Keim
2220 Penrose Lane
Fairbanks, Alaska 99709

---

28 January 2005

DOT&PF
Project Manager Margaret Carpenter
2301 Peger Road
Fairbanks AK 99701

Attn. Chena Hot Springs to Circle Hot Springs Planning Study

Dear Ms. Carpenter,

I am writing with concerns about the envisioned Chena Hot Springs with Circle Hot Springs road. My understanding is that neither hot springs resort is interested in this road. Further there are already roads to both locations! I can see no advantage to this road, which seems a blatant waste of government money.

It is also my understanding that the routing of such a road might impact Birch Creek and the Steese National Conservation Area. I have had the privilege of fall moose hunt floats on Birch Creek, a National Wild River. Putting in a road, for no good purpose, that compromises a beautiful wild area, very proximal to Fairbanks, is a mistake – for hunter and recreationist alike. Every winter we spend time in these areas, and it is the quiet, the open country, and the wildlife that we treasure it.

If money must be spent, upgrade the Steese. My vote is, please, no new road between these hot springs.

Many thanks,

Marin Kuizenga
PO Box 80343
Fairbanks, AK 99708

WILDERNESS WATCH
KEEPING WILDERNESS WILD

P.O. Box 9175 • Missoula, MT 59807 • p: 406.542.2048 • f: 406.542.7714 • wild@wildernesswatch.org • www.wildernesswatch.org

791 Redpoll Ln
Fairbanks AK 99712
February 14, 2005

Margaret Carpenter
Project Manager
Department of Transportation & Public Facilities
2301 Peger Road
Fairbanks, AK 99709

Re: Chena Hot Springs to Circle Hot Springs Planning Study

Dear Ms Carpenter:

Please accept the following comments on behalf of Wilderness Watch, a non-profit conservation organization specializing in advocacy for the protection and appropriate stewardship of our National Wilderness Preservation System and the nation's National Wild River System.

We are strongly opposed to any proposed new road that would either cross or parallel the Birch Creek National Wild River. Title XI of the Alaska National Interest Lands Conservation Act (ANILCA) requires a significant process be followed before any "*transportation or utility system*" crossing a conservation system unit can be authorized. This would most certainly require among other things, full compliance with the National Environmental Policy Act. Furthermore, Title XI (Section 1104 (g) requires "*…findings supported by substantial evidence with respect to* --- (among others)*: alternative routes and modes of access, including a determination with respect to whether there is any economically feasible and prudent alternative to the routing of the system through or within a conservation system unit…*" In addition, Section 1105 requires a determination that the transportation system is: (1) "*…compatible with the purposes for which the unit was established and* (2) *there is no economically feasible and prudent alternative route for the system.*"

Given the fact that there is already road and air access to both hot spring areas, (which constitute "*economically feasible and prudent alternatives*") it is unrealistic that the proposed road can meet the requirements and standards of ANILCA. Clearly, any new road that would cross or parallel the Birch Creek National Wild River would have significant impacts on the qualities and values for which the river was designated "Wild" and would not be compatible with the proposes of the unit.

Similar requirements would have to be met to construct a new road across the Steese National Conservation Area. Section 401 (b) of ANILCA specified that: "*Special values to be considered in planning and management of the area are caribou range and Birch Creek.*" These values would also have to be considered in justifying any new road across the Steese National Conservation Area.

We understand that one reason given for this road is it would provide more access for caribou hunters. This is likely to not be the case in that it will fragment the roadless country between the two existing roads to hot springs, and actually lower the quality of hunting opportunities currently originating from these roads. Another reason given for the proposal is to provide a "loop" driving experience for tourists. This is not an adequate justification for the impacts that would occur to Birch Creek National Wild River and the Steese National Conservation Area. Because there is already two roads leading to the hot springs in question, we doubt that the large amount of funds required to build a new road is justified.

We hope that results of the study will identify the futility of this route, and recommend no further consideration of the idea. There are far more pressing needs for our tax payer funds than this.

Thank you for the opportunity to comment.

Sincerely,

Fran Mauer

Fran Mauer
Wilderness Watch
Alaska Chapter Representative

From: Margaret Carpenter <margaret_carpenter@dot.state.ak.us>
To: Chris Birch <chrisb@tnh-inc.com>, Robin Senner <robin_senner@URSCORP.COM>
cc: Judy Chapman <judy_chapman@dot.state.ak.us>
Date: Wednesday, February 02, 2005 12:18PM
Subject: CHS to CHS comment

Hello!

I just received a phone call from Mary Shields. She requested that her comments on the Chena Hot Springs to Circle Hot Springs Planning Study be added to the other comments. This is not a quote, but I tried to write her comments as stated.

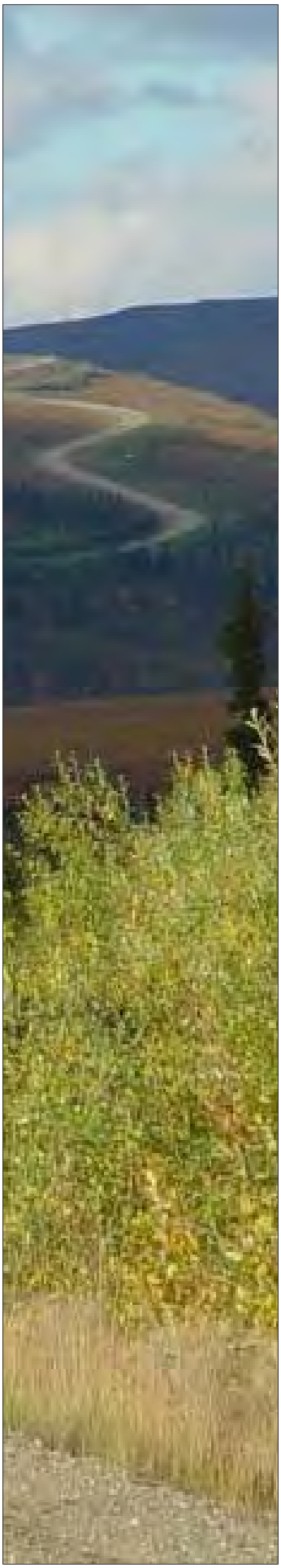
She would much rather the State upgrade and maintain the roads we already have instead of building new roads. She is violently against this type of project which is a waste of money.

Have a good day!

Thanks,

Margaret

11 APPENDIX B: AGENCY CONSULTATION



TRYCK NYMAN HAYES, INC.

911 West Eighth Avenue
Anchorage, Alaska 99501
907.343.0263 • 800.770.0543
Fax: 907.343.0202
Email: chrisb@tnh-inc.com

Chris Birch, P.E., Senior Engineer

Chena Hot Springs to Circle Hot Springs Planning Study
Agency Meeting and Issues Discussion
December 9, 2004, 10 am
BLM Office – Fairbanks

1. Welcome and Introductions

2. Project Overview – Background, Funding, Schedule and Objectives

3. Roles and Responsibilities of Project Team
   TNH – Project Engineering, Alternatives Analysis Design, Estimating and Management
   URS – Environmental Permit Issues and Public Involvement
   Northern Economics Inc – Social and Economic Evaluation
   Shannon and Wilson – Geotechnical
   Northern Land Use Research – Cultural Resources
   PSI – Hazardous Materials Assessment

4. Issue Presentation and Discussion by Agencies

5. Comments

Agencies Contacts:

Holli McClain, U.S. Bureau of Land Management (BLM) 474.2378

Christy Everett, U.S. Army Corps of Engineers 474.2166

Larry Bright, U.S. Fish and Wildlife Service – Fairbanks Field Office 456.0203

Matthew Carr, U.S. Environmental Protection Agency 271.3616 (Anchorage)

Robert McLean, Alaska Department of Natural Resources 659.7281

Alternate Contacts: Bill Morris/Frank Maxwell 451.2728

Mike Jaynes, Alaska Department of Environmental Conservation 451.2117

Tim Vivant, Alaska Department of Fish and Game 459.7266

Todd Boyce, Fairbanks-North Star Borough 459.1266

Tanana Chiefs Conference and Circle Tribal Council

Eric Fitzgerald, Tanana Chiefs Conference 452-8251

Alternate Contact: Doris Miller Assistant to TCC President Buddy Brown

Chief Paul Nathaniel, Circle Traditional Council 773-2822 (Circle)

Margaret Carpenter, Alaska Department of Transportation and Public Facilities 451.2388

2003 Legislation

Senate Concurrent Resolution 1
"Relating to economic development generated by new road construction and to the design and construction of the Hot Springs Loop Road to connect Chena Hot Springs and Circle Hot Springs."

SCR 1 is submitted to advance economic development in Interior Alaska.

This resolution addresses the following:

1) There is considerable tourism activity at both Chena and Circle Hot Springs. Connecting these two sites will spur further tourism activity at both locations, and potentially at new sites established along the way.
2) Local residents also frequent these locations, not only to enjoy the hot springs' facilities, but also to access fishing, hunting, camping and hiking areas that intersect the routes to both hot springs. Extending the road to form a loop will extend and improve access to these Alaskan resources and pastimes.
3) The increased traffic along this Loop Road will lend itself to increased commercial and industrial activities, including resource extraction and entrepreneurial ventures, thus promoting job opportunities and long-term economic growth to the area and to the State.

Project Purpose and Scope per DOT&PF Contract with TNH Team ($197,427)

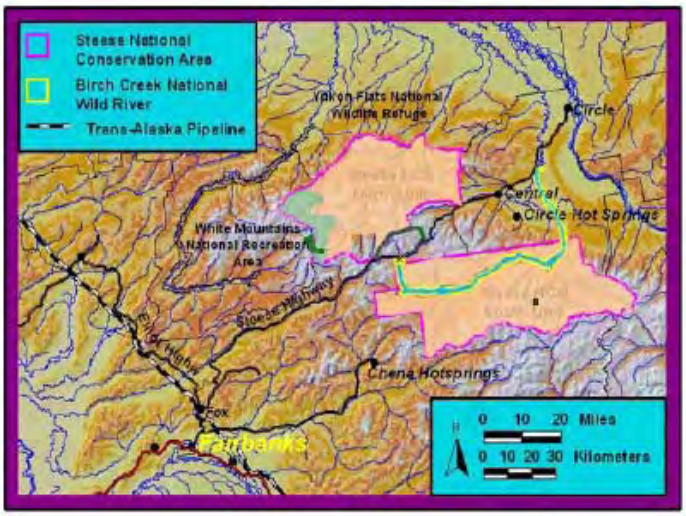
PURPOSE: To conduct a planning and economic study for a proposed new road (approximately 55 miles in length) northeast of Fairbanks and an alternative for upgrading the existing highway. The proposed road would link Chena Hot Springs Road to Circle Hot Springs Road/Steese Highway in the Central area and would establish a scenic highway loop via the Chena Hot Springs Road and the Steese Highway north of Fairbanks. The loop would enhance recreational and tourism opportunities and encourage development in the areas of the two hot springs resorts.

This basic level planning study will help DEPARTMENT officials determine whether or to pursue a future project.

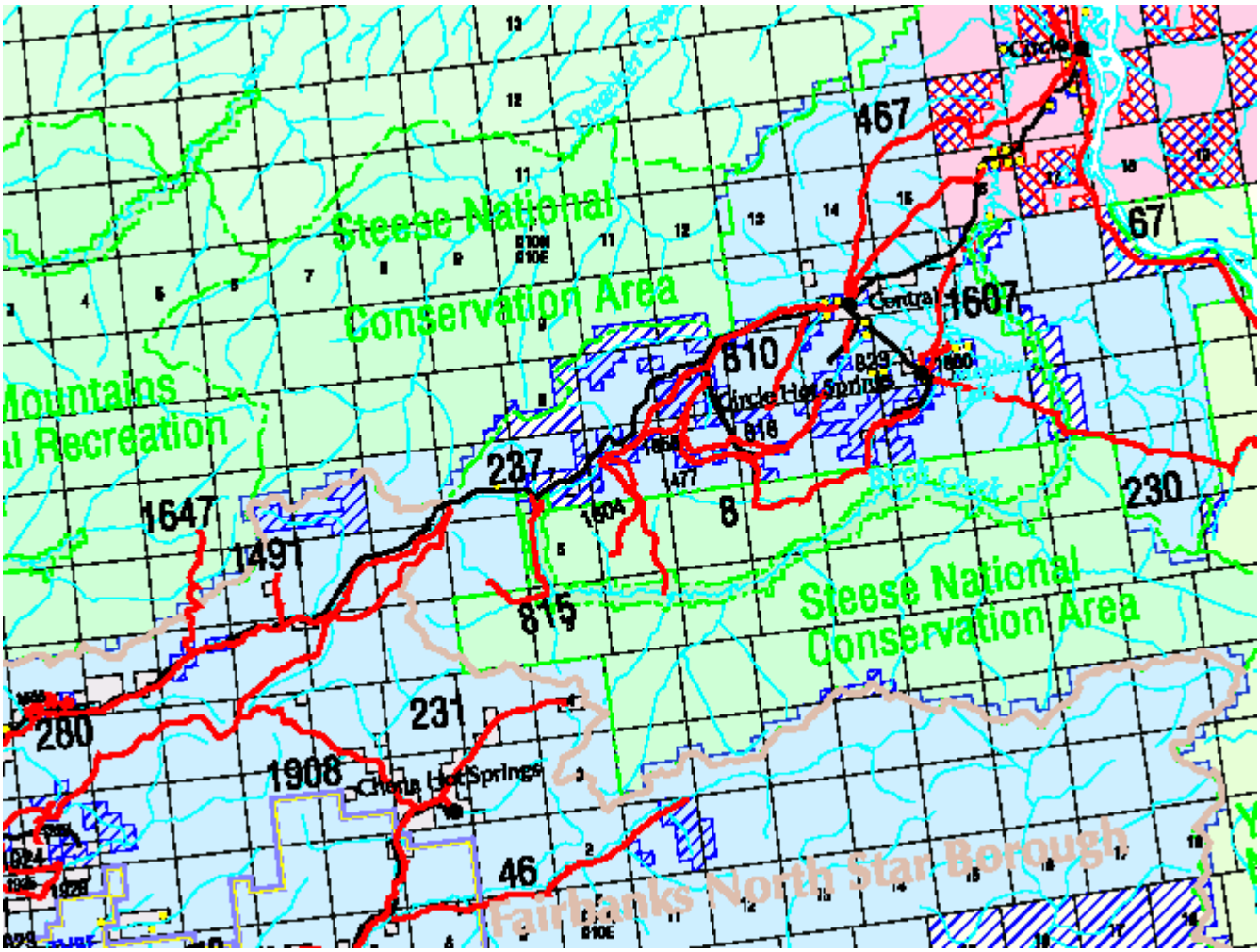
SCOPE: To identify alternatives and analyze a new road connection between Circle Hot Springs Road and the Circle Hot Springs area. Required tasks include:

Summary:
Task 1 - Public Involvement and Agency Coordination.
Task 2 - Inventory and Forecast.
Task 3 - Issues Identification – Environmental and Permitting Issues.
Task 4 - Alternatives Identification, Constraint Analysis & Economic Feasibility.
Task 5 - Recommendations for Future Action/Report Preparation

Project Study Area



RS2477 Alignments in Study Area
State of Alaska General Land Status with RS2477 Trails



Chena Hot Springs to Circle Hot Springs Planning Study
Agency Meeting and Issues Discussion
December 9, 2004, 10 am to 11:30 am
BLM Office – Fairbanks

Agenda

1. Welcome and Introductions
2. Project Overview – Background, Funding, Schedule and Objectives
3. Roles and Responsibilities of Project Team
   - TNH – Project Engineering, Alternatives Analysis Design, Estimating and Management
   - URS – Environmental Permit Issues and Public Involvement
   - Northern Economics Inc – Social and Economic Evaluation
   - Shannon and Wilson – Geotechnical
   - Northern Land Use Research – Cultural Resources
   - PSI – Hazardous Materials Assessment
4. Issue Presentation and Discussion by Agencies
5. Comments

Meeting Minutes:

The Agency Review meeting began at 10am with self introductions and a brief description of agency involvement by respective participants.

Following introductions Chris Birch, the TNH Project Manager, summarized the purpose for the project planning study, including funding, schedule and objectives. He outlined four basic route options the plan will study: a direct connection between Chena and Circle Hot Springs, a route that relies partially on existing RS 2477 routes in the area, a "loop" route connecting Chena Hot Springs with 12-Mile Summit, and an upgrade to the existing Steese Highway. DOT&PF Project Manager Margaret Carpenter provided additional background and intent regarding the planning effort.

Those attending included the following (a copy of the sign up sheet is attached):

Name	Agency/Firm
Chris Birch	TNH
Bob Tilly	TNH
Todd Boyce	Fairbanks North Star Borough
Holli McClain	BLM
Bill Morris	DNR-OHMP
Larry Lysne	USFWS
Bob Henszey	USFWS
Judy Chapman	DOT&PF
Sharon Seim	USACE
Peter Bowers	NLUR
John Rezek	TNH
Robin Senner	URS
Margaret Carpenter	DOT&PF (Project Manager)
Frank Maxwell	DNR

Holli McClain/BLM provided some background on the land use planning process for the Steese National Conservation Area (NCA) and the Birch Creek Wild and Scenic River corridor as well as a providing copies

of a color map of the study area with the conservation area, river corridor and RS2477 trail alignments detailed. An earlier position paper provided by BLM, dated January 8, 2003, was distributed to those attending (copy attached). Holli noted that the January 2003 paper states BLM's current position. There was follow-on discussion regarding the availability of any recent air photos revealing the extent of the 2004 fire season damage in the study area. BLM has overlay mapping in a GIS format that can be superimposed on a map of the area. Holli also indicated that BLM is scheduled to release the updated Steese NCA Land Use Plan in 2010. With regard to the Birch Creek Wild and Scenic River, she stated that a bridge crossing the creek would not be compatible with the corridor as presently regulated and managed under the Wild and Scenic Rivers Act.

Todd Boyce/FNSB noted that while a majority of the study area was north of the Fairbanks North Star Borough (FNSB), the Borough has a continuing interest in the impact this road may have on increased and/or redistributed traffic on the Steese Highway and Chena Hot Springs Road. Todd indicated the FNSB may also have access to fire delineation mapping in the study area.

Bill Morris/DNR-OHMP (Office of Habitat Management & Permitting) noted that the study area includes the wintering ground for the Fortymile caribou herd, the largest and most intensively managed herd in the Interior. The 2004 wildfires may have complicated the situation with respect to caribou habitat use, because the fires burnt down to mineral soils in many areas. Additional permitting would be necessary for work at stream crossings because of anadromous fish in Birch Creek up to the existing Steese Highway crossing. Cataloging of streams for fish populations is ongoing, and individual tributaries may have to be sampled. Aufeis is a problem with side hill road cuts in the area.

Larry Lysne/USFWS noted that there are no known endangered species in the study area. USFWS will be concerned about potential wetland impacts of new construction in the area along any of the river corridors. He also mentioned that Yukon Flats National Wildlife Refuge will be concerned about potential impacts on anadromous fish and water quality.

Frank Maxwell/DNR voiced concern that any push into the conservation area may be perceived as "heavy handed," that there are wildlife and water quality issues, and that new access could lead to increased and more dispersed hunting. He also noted concerns regarding the Fortymile caribou herd and the highway as a source of human ignition for future fires. Most of the fires in the area during the 2004 season were determined to result from lighting strikes. He indicated that RS2477 roads in the area are intended for recreational use, and that their potential use as through-traffic transportation routes would conflict with this purpose. The RS2477s are asserted by the State at a right-of-way width of 100'. Hunters and trappers currently use some of the trails.

Holli McClain/BLM said that the Steese NCA is open to ATVs everywhere but in the Wild and Scenic River corridor. All areas are open to snow machine traffic. BLM is moving toward developing planned trails in the area vs. open access everywhere. The Yukon Quest trail travels up Rosebud Creek and the North Fork of the Chena River on an RS2477 alignment to cross Birch Creek and connect to the Steese Highway. There is also some potential impact regarding remote recreational land disposals on the North Fork of the Chena River. Holli clarified that the Steese NCA Land Use Plan (due for update in 2010) would need to be rewritten to allow the road to penetrate it (assuming this is the preferred option) before moving into a NEPA EIS. The intent of the current land use plan is for a remote, 120-mile river trip with extremely limited access. Also, the Wild and Scenic River corridor (Birch Creek) has a visual resource management level of "1" which means virtually no visual impacts at all. Mining is not allowed within the SCA.

Sharon Seim/USACE said that the Corps of Engineers is principally concerned with the waters of the US. Not much wetlands information is available in the study area but wetlands are likely present in any river corridorand on north-facing slopes and the broader river valleys. The COE works closely with USFWS. Wetland delineation will be necessary if the project moves forward, as there has been very little wetland study done in the area, and National Wetland Inventory mapping has not been conducted there.

Peter Bowers/NLUR said that NLUR will be conducting the cultural resources assessment in the study area, including Section 106 historic assessments to identify sites. Historic mining sites and uplands in the Interior may potentially be cultural sites – small sites are avoidable by alignment refinements. Subsistence issues may be associated with Section 810 of ANILCA, and there is Federal Subsistence in the area.

Bob Tilly/TNH discussed the potential for improved recreational access to Birch Creek for boat/canoe launch and pickup. Holli commented that a 126-mile uninterrupted river float is currently possible, and that the BLM would oppose breaking up the continuity of this stretch with additional vehicle access points.

Margaret Carpenter/DOT&PF noted that under provisions of the Wild and Scenic River Act no road crossings are permitted and there are limitations on the construction of any improvements outside the corridor that may visually impact the viewscape from the river. Indications are that an Act of Congress would be necessary to enable a bridge or other road crossing for Birch Creek in the Wild and Scenic River corridor.

Sharon Seim/USACE commented on the potential impacts on businesses located on the Steese Highway and at Circle Hot Springs if an alternative route to Circle Hot Springs was constructed. A loop could have both positive and negative economic effects on local businesses, depending on changes to existing traffic flow. There was some discussion regarding the potential for a loop route out Chena Hot Springs and returning on the Steese Highway to increase vehicle traffic on both roadways. She encouraged the use of upland material sites to avoid erosion and sedimentation impacts to wetlands and stream or river corridors, but noted that upland sites can produce visual impacts.

Concluding Comments:

Todd Boyce/FNSB noted there may be community support in Fairbanks for improved access to Birch Creek that would potentially be provided with this project. Some Borough residents may appreciate the opportunity of a shorter float trip down Birch Creek if a road linking the two hot springs moves forward.

Bill Morris/DNR seconded Todd's comment and noted the maintenance challenges associated with Twelvemile and Eagle summits on the Steese Highway.

Bob Henszey/USF&WS noted that additional road access may speed the introduction of invasive exotic plant species into the area, a particular concern following the 2004 wildfires

Frank Maxwell/DNR emphasized the need for detailed cost estimates for new road construction. The impacts/costs associated with fires in the area would potentially increase, as a new road would encourage land disposal and a resulting requirement for fire protection in defense of property. Current policy is to let some fires burn, but the addition of private lands in the area may increase response requirements/costs.

Judy Chapman/DOT&PF noted that this was a productive meeting with substantive comments and issues discussions. It will be useful to document and identify any "non-starters."

Sharon Seim/USACE again emphasized the need to review the intent of legislation and potential impacts on small businesses in the area.

Bob Tilly/TNH added that conservation calls for the wise use of resources.

Margaret Carpenter/DOT&PF noted that this effort is a basic planning level study intended to identify questions and recommended alternatives.

The meeting ended at approximately 11:30 am.

Copies to:

Holli McClain, U.S. Bureau of Land Management (BLM) 474.2378

Christy Everett, U.S. Army Corps of Engineers 474.2166

Sharon Seim, USACE

Bob Henszey, U.S. Fish and Wildlife Service – Fairbanks Field Office 456.0203

Matthew Carr, U.S. Environmental Protection Agency 271.3616 (Anchorage)

Robert McLean, Alaska Department of Natural Resources (DNR) 659.7281

Bill Morris/DNR-Habitat / Frank Maxwell/DNR-Lands 451.2728

Mike Jaynes, Alaska Department of Environmental Conservation 451.2117

Tim Vivant, Alaska Department of Fish and Game 459.7266

Todd Boyce, Fairbanks-North Star Borough 459.1266

Tanana Chiefs Conference and Circle Tribal Council

Eric Fitzgerald, Tanana Chiefs Conference 452-8251

Alternate Contact: Doris Miller Assistant to TCC President Buddy Brown

Chief Paul Nathaniel, Circle Traditional Council 773-2822 (Circle)

Margaret Carpenter, Alaska Department of Transportation and Public Facilities 451.2388

Judy Chapman, Alaska Department of Transportation and Public Facilities 451.2386

TNH Team Members

Clarification to the December 9, 2004 interagency meeting notes:

1. The Steese National Conservation Area (Steese NCA) is divided into six management units with three of those units closed to summer ATV use (Primitive, Research Natural Areas and Birch Creek Wild River Corridor) and one unit (Research Natural Areas) is closed to winter snow machine use.

2. The Yukon Quest Trail follows a RS 2477 route up the North Fork of the Chena River but departs the RS 2477 around Boulder Creek before entering the Steese National Conservation Area on Rosebud Summit.

3. Mining is allowed in the Steese National Conservation Area, however the Steese NCA is closed to mineral entry, thus no new mining can take place within the Steese NCA.

4. Visual Resource Management Class I Objectives. The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activities. The level of change to the characteristic landscape should be very low and must not attract attention.

Holli McClain
Outdoor Recreation Planner
Steese National Conservation Area
Fairbanks, Alaska
907.474.2378
Holli_McClain@ak.blm.gov

Response to the Alaska Department of Transportation and Public Facilities
Proposed Road from Chena Hot Springs to Circle Hot Springs
through the Steese National Conservation Area and
Birch Creek National Wild River Corridor

Relevant Legislation and Its Implications for BLM

1. Alaska National Interest Lands Conservation Act

The Steese National Conservation Area was designated by Congress through the Alaska National Interest Lands Conservation Act, which states, "the Special values to be considered in planning and management of the Steese National Conservation Area are caribou range and Birch Creek."

Birch Creek was designated a "wild" river segment component of the Wild and Scenic Rivers Act by the Alaska National Interest Lands Conservation Act (Sec.605 (b)). By classifying Birch Creek as "wild," Congress mandates that Birch Creek National Wild River shall "be managed to be free of impoundments and generally inaccessible except by trail, with watersheds or shorelines primitive, and waters unpolluted . . . representing vestiges of primitive America."

Section 1105 of the Alaska National Interest Lands Conservation Act states that the Federal Agency concerned may grant "a transportation . . . system . . . within the conservation system unit if . . . such system would be compatible with the purposes for which the unit was established."

2. Record of Decision - Resource Management Plan for the Steese National Conservation Area

The *Record of Decision - Resource Management Plan for the Steese National Conservation Area* states, "In order to prevent proliferation of rights-of-way, all future rights-of way will, as far as possible, be located in one of . . . four [transportation] corridors. If it were to become necessary for a right-of-way to extend beyond a corridor, existing trails would be followed whenever possible." A Resource Management Plan amendment would be needed to go outside the proposed transportation corridors.

The BLM Planning Process allows for resource management plan amendments. Such an amendment would involve a two-to-four year public involvement process with accompanying Environmental Impact Statement for a proposal of a road through the Steese National Conservation Area.

3. Wild and Scenic Rivers Act

Section 1(b) states, "That certain selected rivers . . . with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected . . . ."

Section 2(b)(1) defines wild river areas as "those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America."

Section 10(a) of the Wild and Scenic Rivers Act states that "Each component of the national wild and scenic rivers system shall be administered in such a manner as to protect and enhance the values which caused it to be included in said system . . . ."

4. River Management Plan - Birch Creek, A Component of the National Wild and Scenic River System

The *River Management Plan - Birch Creek, A Component of the National Wild and Scenic River System*, allows for "Overland transportation systems within or across the river corridor . . . if it is determined that there are no economically feasible and prudent alternative routes." (Section 1105 of the Alaska National Interest Lands Conservation Act). A River Management Plan amendment would be needed if the Steese Highway or other route not crossing Birch Creek National Wild River is considered a "prudent alternative route."

The BLM Planning Process allows for a River Management Plan amendment. Such an amendment would involve a two-to-four year public involvement process with accompanying Environmental Impact Statement for a proposal of a road across Birch Creek National Wild River.

5. 8351 – Wild and Scenic Rivers – Policy and Program Direction of Identification, Evaluation, and Management

BLM Policy for Management of Wild River Areas as it pertains to Road and Trail Construction is as follows: "No construction of new roads, trails, or other provisions for overland motorized travel would be permitted within the river corridor. A few inconspicuous roads or unobtrusive trail bridges leading to the boundary of the river area may be permitted." (.51A2e of 8351 - Wild and Scenic Rivers - Policy and Program Direction for Identification, Evaluation, and Management (dated 5/19/92))

6. Prior Existing Rights

Active federal mining claims and private inholdings are found along the proposed routes. Any development could not adversely affect any valid existing right.

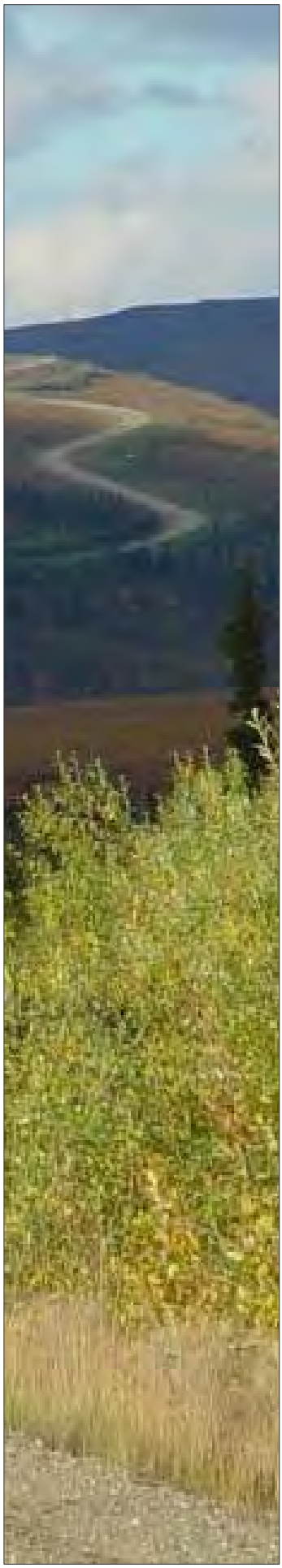
Identification of Federal Land Management Issues

A project-specific Environmental Impact Statement would identify the issues related to the natural and human environment. Some of the more obvious issues are:

1. Cultural Resources – review for eligibility for the National Register of Historic Places and State Historic Preservation Officer consultation
2. Essential fish habitat determination, analysis, consultation based on the National Marine Fisheries Service / Magnuson-Stevens Fishery Conservation and Management Act – (50 CFR Part 600)
3. Floodplains – Executive Order 11988
4. Threatened or Endangered Species – Endangered Species Act of 1973 and Section 7 Consultation

5. Wastes, Hazardous or Solid – Resource Conservation and Recovery Act of 1976, Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Clean Water Act of 1977
6. Water Quality – Surface or Ground – Safe Drinking Water Act of 1974, Clean Water Act of 1977, Water Quality Act of 1987
7. Wetlands/Riparian Zones - Executive Order 11990
8. Wild and Scenic Rivers, Wild and Scenic Rivers Act of 1968 and a Section 7 determination
9. Recreation - impacts to recreation opportunities and a primitive type experience
10. Subsistence - Alaska National Interest Lands Conservation Act Section 810 evaluation of the effect . . . on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use occupancy or disposition of public lands needed for subsistence purposes".
11. Wildlife – Aquatic - impacts to resident and anadromous fish populations
12. Wildlife – Terrestrial - ANILCA listed "caribou range" was one of two special values to be considered in planning and management of the Steese National Conservation Area. A thorough review of the impacts of any highway through the Steese National Conservation Area would need to be completed because of potential effects on caribou and caribou habitat.

12 APPENDIX C: ENGINEERING DRAWINGS AND DATA



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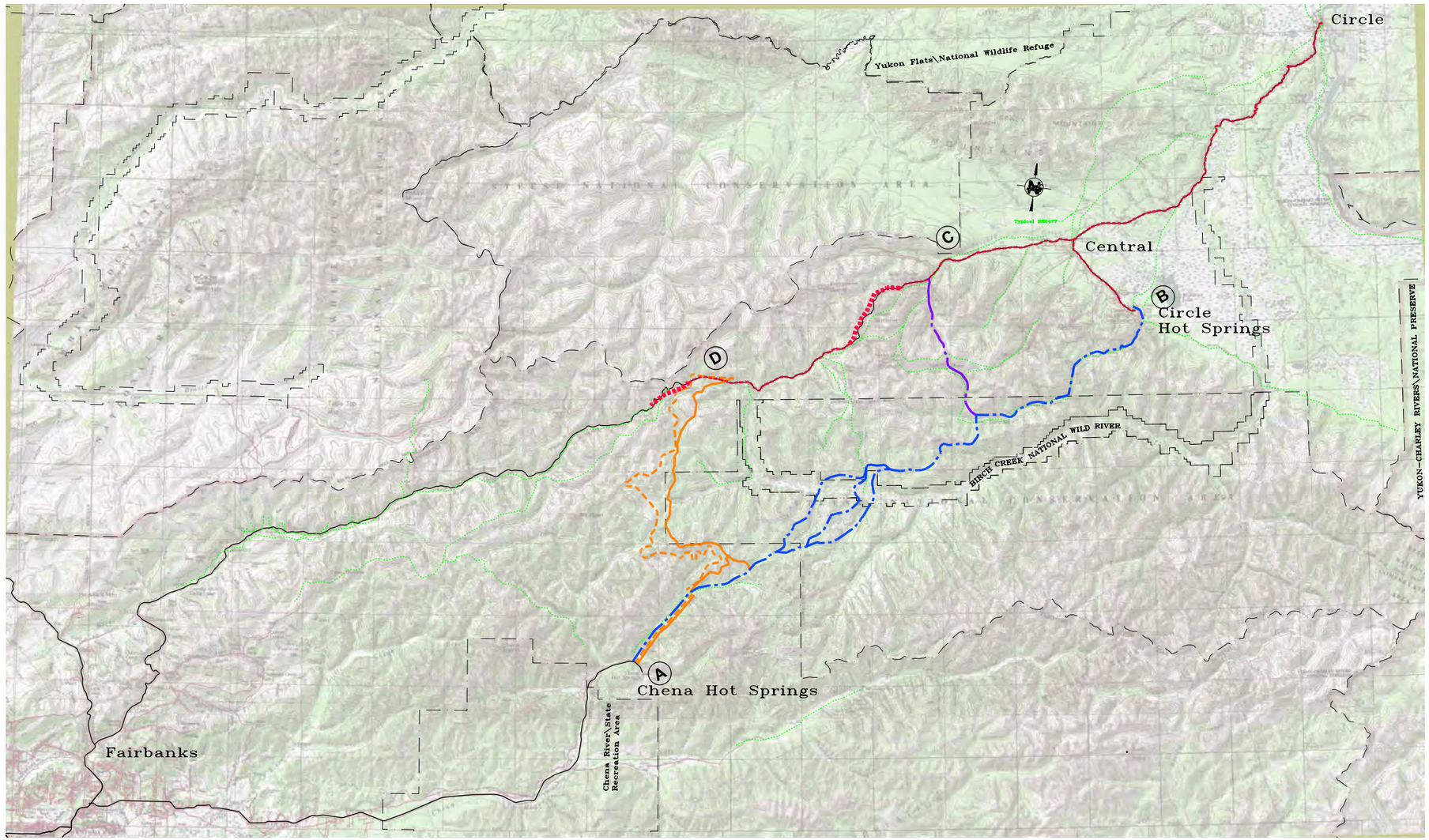

LEGEND

- ALTERNATIVE A - B
- ALTERNATIVE A - C
- ALTERNATIVE A - D
- STEESE HIGHWAY IMPROVEMENTS
- RS2477 ASSERTION
- HIGHWAY
- BLM ADMIN. BOUNDARY

GRAPHIC SCALE
0 2 4 6 8 10
(IN MILES)

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND
PUBLIC FACILITIES

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS PLANNING STUDY

FIGURE: C-1

ALIGNMENT ALTERNATIVES

DESIGNED BY	JJR
CHECKED BY	JJP
DRAFTED BY	BL/ JJP

XREFS

SCALE
N/A

LAYOUT
A1

DRAWING LOCATION	DATE	TIME
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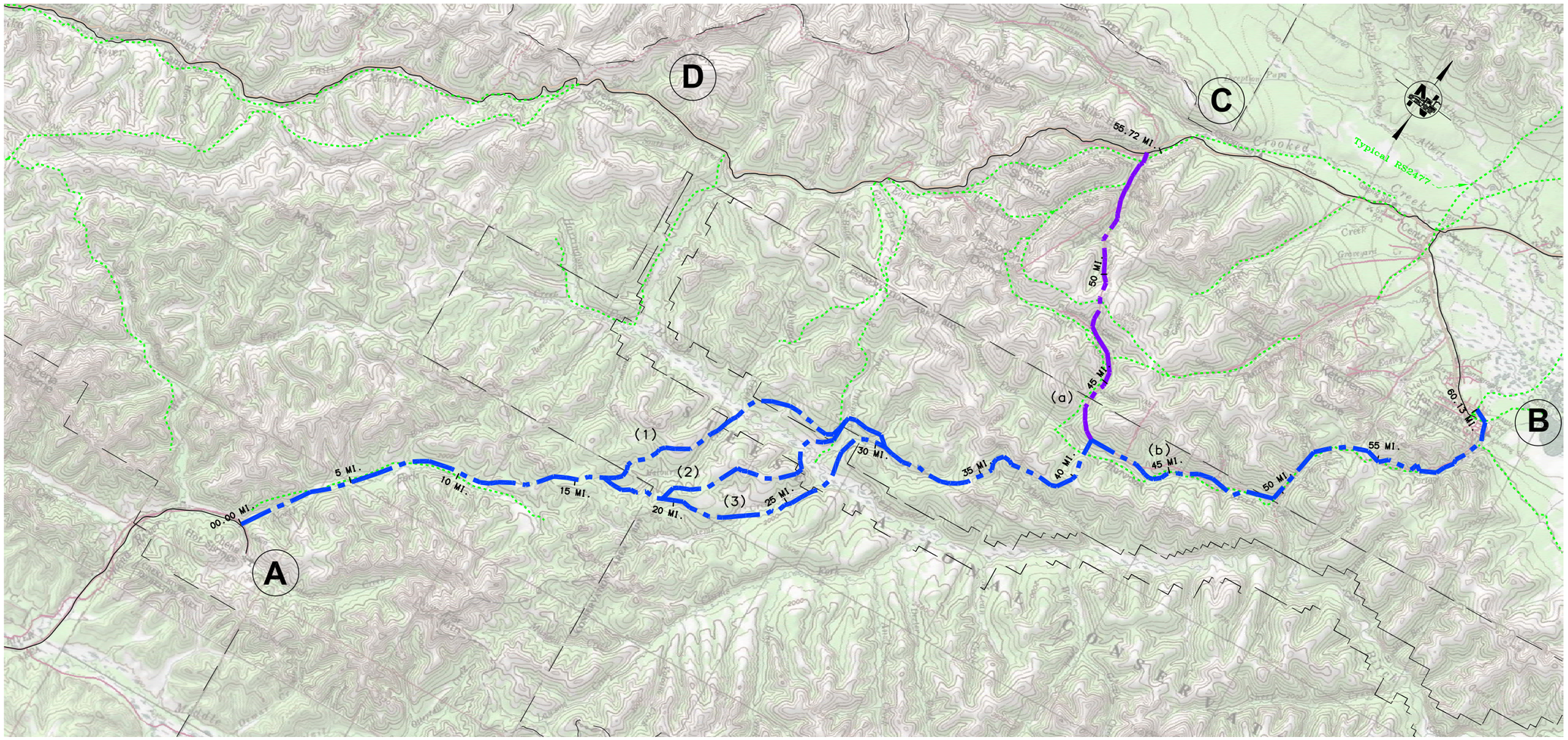
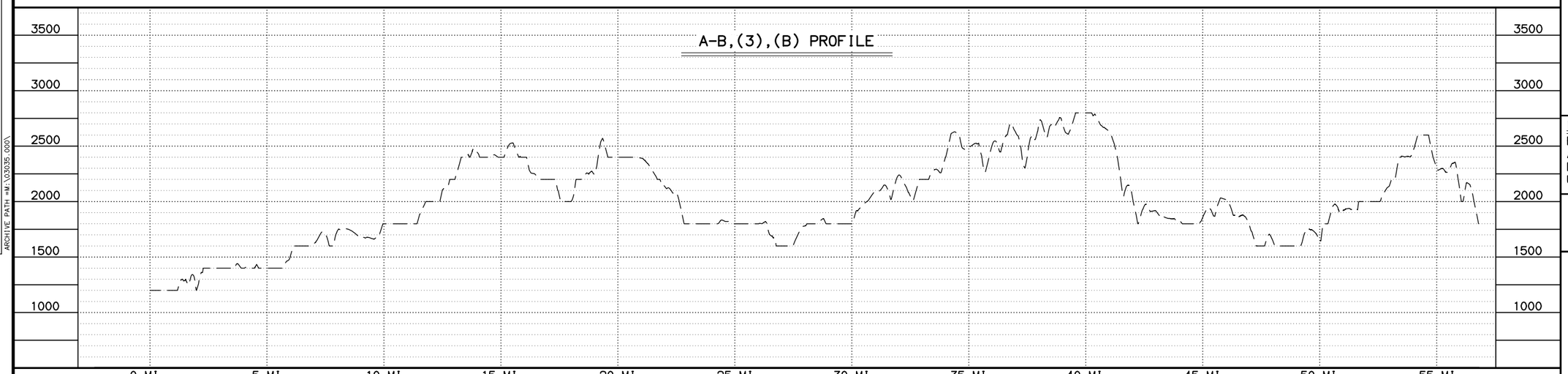


A-B PLAN



SHEET NO.	TOTAL SHEETS
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STATE	YEAR
ALASKA	2005
PROJECT DESIGNATION	
368-4-1-056 / 62626	

FIGURE: C-2

NEW HIGHWAY ALTERNATIVE A-B

ROUGH ORDER OF MAGINTUDE QUANTITY ESTIMATE:

CUT = 16,989,000 CY

FILL = 35,996,000 CY

NOTE:

HORIZONTAL DIMENSIONS ARE IN MILES AND VERTICAL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

PLANS DEVELOPED BY:

TRYCK NYMAN HAYES, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND
PUBLIC FACILITIES

CHENA HOT SPRINGS TO
CIRCLE HOT SPRINGS
PLANNING STUDY

DESIGNED BY JP
CHECKED BY JP / ANH
DRAFTED BY LS/BL

XREFS:

DRAWING LOCATION
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DATE TIME
Aug 17, 2006 - 1:02pm

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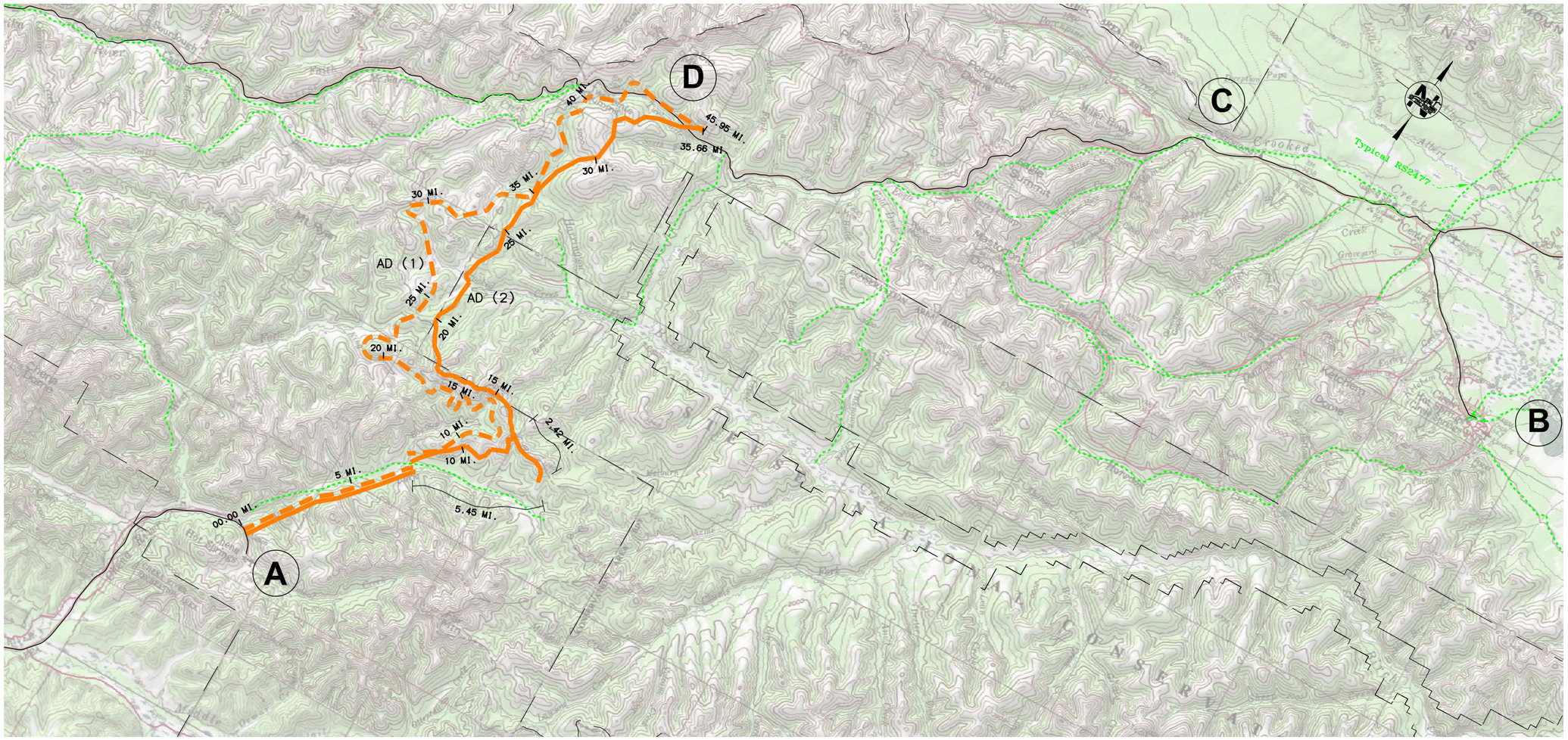
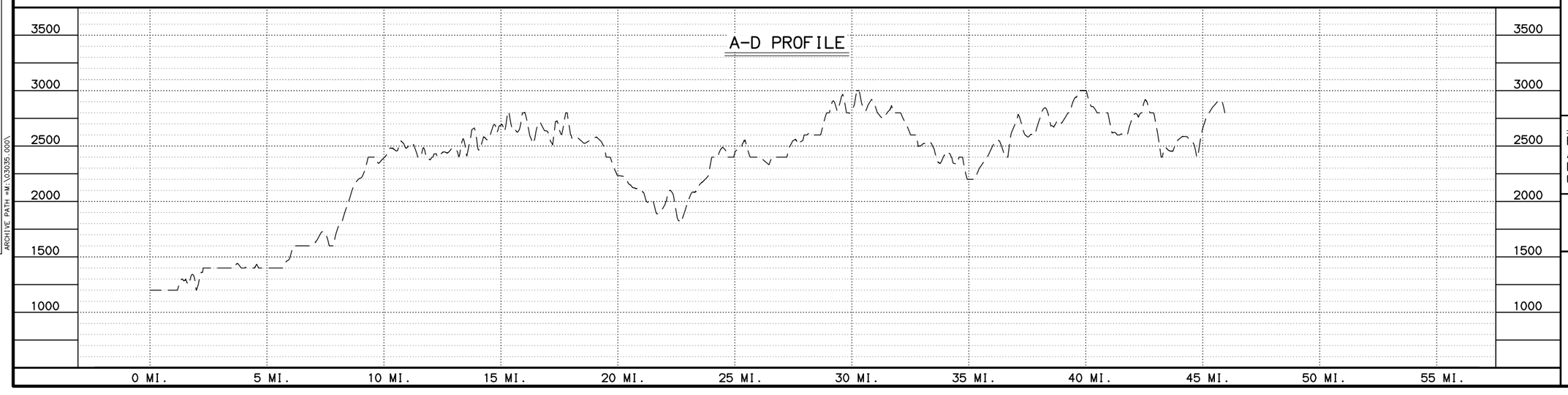


A-D PLAN



SHEET NO.	TOTAL SHEETS
3	4
STATE	YEAR
ALASKA	2005
PROJECT DESIGNATION	
368-4-1-056 / 62626	

FIGURE: C-3

NEW HIGHWAY ALTERNATIVE A-D

ROUGH ORDER OF MAGINTUDE QUANTITY ESTIMATE:

CUT = 22,923,000 CY

FILL = 8,402,000 CY

NOTE:

HORIZONTAL DIMENSIONS ARE IN MILES AND VERTICAL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

PLANS DEVELOPED BY:

TRYCK NYMAN HAYES, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND
PUBLIC FACILITIES

CHENA HOT SPRINGS TO CIRCLE HOT SPRINGS PLANNING STUDY

DESIGNED BY JP
CHECKED BY JP / ANH
DRAFTED BY LS/BL

XREFS:

CTB ADOT-HLE.ctb

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TIME Aug 17, 2006 - 1:12pm

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SHEET NO.	TOTAL SHEETS
4	4
STATE	YEAR
ALASKA	2005
PROJECT DESIGNATION	
368-4-1-056 / 62626	

FIGURE: C-4

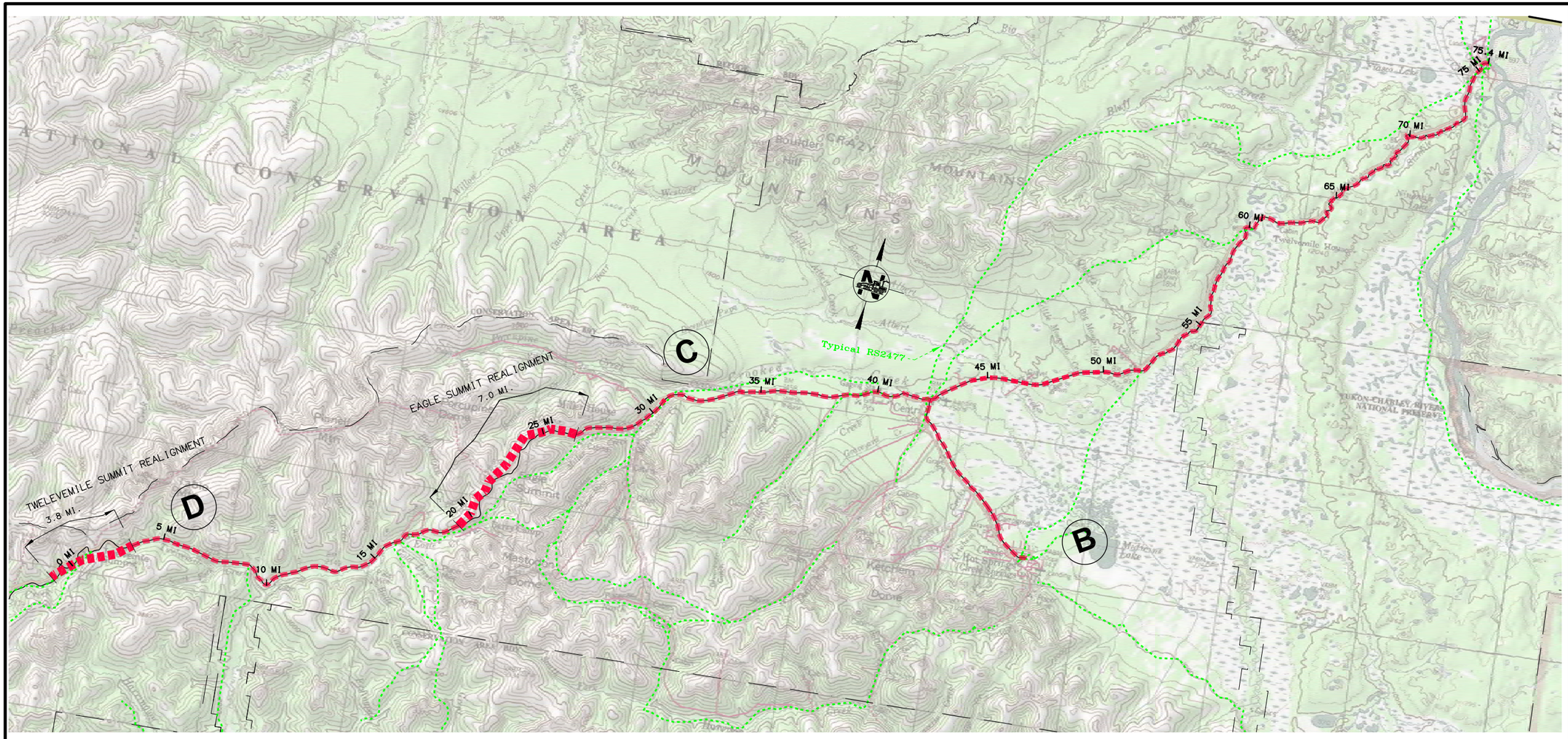
STEESE HIGHWAY IMPROVEMENTS ALTERNATIVE

NOTE:
HORIZONTAL DIMENSIONS ARE IN MILES AND VERTICAL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

PLANS DEVELOPED BY:
TRYCK NYMAN HAYES, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND
PUBLIC FACILITIES

CHENA HOT SPRINGS TO
CIRCLE HOT SPRINGS
PLANNING STUDY



STEESE HIGHWAY IMPROVEMENTS PLAN

DESIGNED BY: JP
CHECKED BY: JP / ANH
DRAFTED BY: LS/BL

XREFS:

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CTB: ADOT-HLE.ctb
DATE TIME: Aug 17, 2006 - 1:21pm

	A-B	A-C	A-D(1)	A-D(2)
miles	60.7	56.2	46	35.7
$/ mile	1275000	1275000	1275000	1275000
	$77,392,500	$71,655,000	$58,650,000	$45,517,500
bridges	8700	8700	5300	5300
@$225/SF	1957500	1957500	1192500	1192500
const contract	**$79,350,000**	**$73,612,500**	**$59,842,500**	**$46,710,000**
Const Engr @ 15%	$11,902,500	$11,041,875	$8,976,375	$7,006,500
Design @ 20%	$15,870,000	$14,722,500	$11,968,500	$9,342,000
Total	**$107,122,500**	**$99,376,875**	**$80,787,375**	**$63,058,500**
With High Float Pavement				
$/mi w/treated base	287,000	287,000	287,000	287,000
$/mi w/o treated base	207,000	207,000	207,000	207,000
Cost w/treated base	$17,420,900	$16,129,400	$13,202,000	$10,245,900
Total construction cost	$96,770,900	$89,741,900	$73,044,500	$56,955,900
Total Proj cost incl CE & Dsn	**$130,640,715**	**$121,151,565**	**$98,610,075**	**$76,890,465**
Cost w/o treated base	$12,564,900	$11,633,400	$9,522,000	$7,389,900
Total construction cost	$91,914,900	$85,245,900	$69,364,500	$54,099,900
Total Proj cost incl CE & Dsn	**$124,085,115**	**$115,081,965**	**$93,642,075**	**$73,034,865**

Estimated Steese Highway Improvement Costs, 11-18-05

Segment	length (miles)	$/mi	Estimated Cost
MP 81 - MP115	33	$750,000	$24,750,000
MP115-MP127	12	$500,000	$6,000,000
sub total			$30,750,000
Central to CHS	8	$500,000	$4,000,000
Total MP 81-CHS			**$34,750,000**
Central to Circle	33	$1,000,000	**$33,000,000**
Realign 12 mi w/paving	4	$2,000,000	**$8,000,000**
Reconstruct Eagle Summit w/paving	3.8	$2,000,000	$7,600,000
Rock exc	0.75	$4,889,000	$3,666,750
Structure	0.5	$8,712,000	$4,356,000
Total			**$15,622,750**

TOTAL Ext Stse incl CHS & Circle		**$91,372,750**
Design & Engineering Costs (D&E)	$	27,411,825
TOTAL Including D&E Costs	**$**	**118,784,575**

Estimated Steese Highway Improvement Costs, for Alternative A-C 11-30-05

Segment	length (miles)	$/mi	Estimated Cost
MP116-MP122	11	$500,000	$5,500,000
sub total			$5,500,000
Central to End of Circle Hot Springs Road	8	$500,000	$4,000,000
Total MP 116 to End of Circle Hot Springs Road			**$9,500,000**

30% Design & Engineering Costs	$	2,850,000
TOTAL including D&E Costs	**$**	**12,350,000**

Estimated Steese Highway Improvement Costs, for Alternative A-D 11-30-05

Segment	length (miles)	$/mi	Estimated Cost
MP 81 - MP115	33	$750,000	$24,750,000
MP115-MP127	12	$500,000	$6,000,000
sub total			$30,750,000
Central to End of Circle Hot Springs Road	8	$500,000	$4,000,000
Total MP 81-End of Circle Hot Springs Road			**$34,750,000**

Realign 12 mi w/paving	4	$2,000,000	**$8,000,000**

Reconstruct Eagle Summit w/paving	3.8	$2,000,000	$7,600,000
Rock exc	0.75	$4,889,000	$3,666,750
Structure	0.5	$8,712,000	$4,356,000
Total			**$15,622,750**

TOTAL Ext Stse incl Circle Hot Springs Road		**$58,372,750**
Design & Engineering Costs (D&E)	$	17,511,825
TOTAL Including D&E Costs	**$**	**75,884,575**