HB

241

ALASKA STATE LEGISLATURE

REPRESENTATIVE
JEANNETTE JAMES
PO Box 56622
North Pole, Alaska 99705
(907) 456-1546
FAX (907) 488-4271



While in Juneau
State Capitol
Juneau, Alaska
99801-1182
(907) 465-3743
FAX (907) 465-2381

House of Representatives
House District 34

Sponsor Statement, HB 241

4/17/01

If all government-funded employment in Alaska disappeared one day, only a few thousand private sector family-wage jobs would remain. It can be argued Alaska does not have an economy. ... Rather Alaska has a series of boom and bust cycles tied to the price of, and demand for, natural resources.

Alaska's economic future will be built on improved infrastructure. Connecting Alaska to the rest of North America by rail will benefit the mining, agriculture, tourism, military, manufacturing, and oil and gas sectors of the economy, while reducing the cost of bringing goods to the state as well as exporting our products.

The purpose of HB 241 is to begin the process of completing the last transcontinental railroad. Without appropriating funds, HB 241 authorizes the Alaska Railroad to delineate a transportation and utility corridor from existing tracks at Eielson AFB to the Canadian Border. After a survey and full delineation is achieved, state land would be transferred fee simple title.

This bill also authorizes and encourages the Alaska Railroad Corp. to obtain ownership or a right of way through any other lands, whether federal or private.

HB 241 mandates a 500-foot wide transportation and utility corridor that could allow for pipelines for gas or water as well as electric transmission lines and fiber optic cable. HB 241 allows the Alaska Railroad to use funds it can obtain, such as from federal appropriations or by sale of bonds, to survey and obtain a right of way to the Canadian border.

A separate section of this bill authorizes the Alaska Railroad to investigate extending to Whitehorse, Yukon.

Fairbanks Industrial Development Corporation

April 12, 2001

Representative Jeanette James
Alaska State Legislature
State Capitol (MS 3100)
Juneau, Alaska 99801-1182

Dear Representative James:

Recently, the Board of Directors of Fairbanks Industrial Development Corporation voted to make the extension of the Alaska Railroad to the Canadian border one of our long-term goals. We feel this project is essential to the future of economic growth in Alaska.

We strongly support the legislation you have initiated regarding the railroad. When you return to Fairbanks and your schedule allows, we would certainly appreciate an opportunity to meet with you and discuss how FIDC can assist your efforts.

If our organization can be of any assistance to you in this matter please feel free to contact me at 452-2185.

Sincerely,

Dean M. Owen
Executive Director

515 Seventh Avenue, Suite 320, Fairbanks, Alaska 99701 (907) 452-2185 Fax: (907) 451-9534

FISCAL NOTE

STATE OF ALASKA
2001 LEGISLATIVE SESSION

Fiscal Note Number:
Bill Version: HB241
() Publish Date: 4/10/2001

Revision Date/Time (Note if correction):
Dept. Affecti DCED
Title: Extension of the Alaska Railroad to Canada and to Whitehorse, Yukon Territory
BRU:
Component:
Sponsor: Representative James
Requester: Representative James
Component Number:

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0
CAPITAL EXPENDITURES						
CHANGE IN REVENUES ( )						

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2001) cost: 0.0

Check this box (X) if funding for this bill is included in the Governor's FY 2002 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: *(Attach a separate page if necessary)*

At this point, the Alaska Railroad Corporation (ARRC) matches all federal grant appropriations with its internal funds. Should this be the case regarding federal funding appropriated for corridor delineation to the Canadian border and Whitehorse, there will be not fiscal impact to the State's general fund. There will be a fiscal impact if the State helps the ARRC match the federal dollars. The ARRC is currently asking Senator Frank Murkowski to look for federal funding options for corridor delineation. It has been estimated it would take approximately $5 million to delineate and survey the corridor from the Alaska Railroad near Fairbanks to the Canadian border. In addition, this bill would allow the ARRC to investigate the extension from the Alaska border to Whitehorse, in the Yukon Territory. At this time, the ARRC has not estimated the cost to determine the Whitehorse route and conduct survey's for this section of corridor. Finally, the bill would allow the ARRC to acquire rights-of-way in the corridor. We assume that State land could be acquired for no cost. Military land could be transferred by our Congressional Delegation. Native lands would require purchase or easements and we do not have estimates for the associated costs.

Prepared by: Wendy Lindskoog, Director External Affairs
Phone (907) 265-2498
Division: Alaska Railroad Corporation
Date/Time 4/24/01 12:00p.m.
Approved by: Commissioner Debcrah B. Sedwick
Date 4/24/2001
Agency: Department of Community & Economic Development

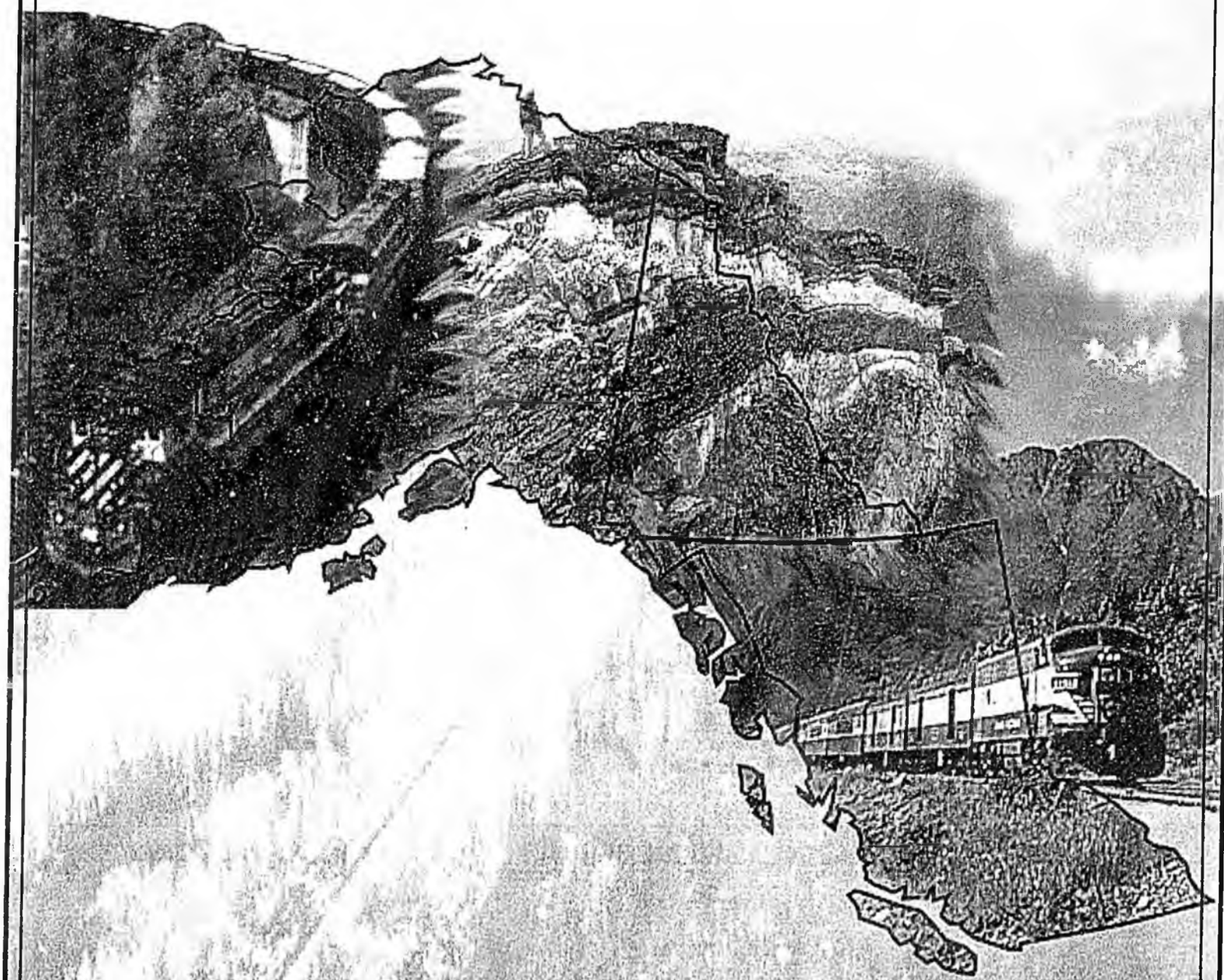
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(Rev 2/7/2001 OMB)

Rec'd 1/31/00

Rails to Resources

Bringing Alaska and the Yukon closer to the world



United States Senator Frank H. Murkowski

Alaska Canada Rail-Link Conference
January 20, 2000
Vancouver, British Columbia

Rails to Resources

Frank H. Murkowski, United States Senator

The following are excerpts of a speech given by Senator Frank H. Murkowski to the CAN/AM Border Trade Alliance on September 14, 1999. The opening section, which discussed the Canada-U.S. Interparliamentary Group, was not included.

I'm very happy to see you all. No bilateral relationship is closer than the one between Canada and the U.S. It deserves the care and feeding this group can give it, and I hope you never lose that sense of mission.

[Canada-U.S. Interparliamentary Group discussion]

Let me take just another few minutes to talk about something else of vital importance to us all.

I want you to imagine for a moment that Canada and the United States have suddenly been given an opportunity to jointly acquire a huge new territory — as big as the Yukon Territory and Alaska combined.

This splendid land is full of natural resources: gold, silver, lead, zinc, copper, and lesser metals; hardwood and softwood timber; fish, wildlife — and truly splendid vistas for the tourist.

Best of all, it is still largely untouched. All we have to do is reach out for it....

Wouldn't that be a wonderful opportunity for the growth of both our countries?

The fact is, we ALREADY have such a region. What we don't have is a fast and efficient way to get goods and people there and back again.

The Alaska Railroad cuts through the center of Alaska from the coast to Fairbanks, less than three hundred miles from the Canadian border.

In Canada, there are two sets of track running as far north as Fort Nelson on one route, and beyond Fort St. James on the other. In both cases, it would take only about 900 additional miles of track to reach Alaska.

I want to enlist the Canadian/American Border Trade Alliance in the growing movement to bring Alaska and the Yukon into the transcontinental rail system.



Senator Frank H. Murkowski of Alaska

The logical route through Canada passes through one of the richest mining districts on the continent, but one which is so remote that few people have ever visited it, and which will probably never be developed without rail transportation. The same goes for the area's timber resources. And it applies to areas of Alaska that also require rail transportation to reach their full potential.

One possible route, from Prince George, British Columbia to Fairbanks, was even surveyed by the U.S. Army Engineers in 1942. So this is not a new idea — it's a project that could have been done, and should have been done, but has been delayed for decades.

Let's resurrect it.

Yes, it would be expensive. Yes, it is visionary in a way that is seldom seen today. But do those things make it intrinsically a bad idea? I

don't think so.

Let's look at it with an open mind. The Interparliamentary group has discussed and understands the need for a whole series of north-south transportation corridors to facilitate the movement of goods and people within North America. This should be seen as a part of that concept.

For those from Canada, think of it as a revival and elaboration of the "Roads to Resources" initiative you had underway years ago. Call it "Rails to Resources." It was a good idea then, and it still is today.

I propose a public/private alliance to conduct a comprehensive feasibility study. Let's join forces to make a modest investment to examine this carefully.
- US Senator Frank H. Murkowski

The Alaska State Legislature recently reauthorized the acquisition of a right-of-way to the border. They haven't spent the money yet — they're just making sure their options remain open. I'd like to see the same thing done in Canada, at the Federal, provincial and territorial levels, as appropriate.

This isn't pie in the sky. We need to start with a cold, calculated look at the project's feasibility, and that's where you come in.

I propose a public/private alliance to conduct a comprehensive feasibility study. Let's join forces to make a modest investment to examine this carefully.

We should look at possible routes with several things in mind: maximizing potential traffic by building adjacent to the most valuable resources, minimizing costs by looking at the best terrain, maximizing potential passenger usage for tourism, and minimizing environmental impacts.

And when it comes to protecting the environment, let's also look at establishing a corridor large enough to accommodate future growth.

Doesn't it make sense to combine things like rail lines, major highways, electrical transmission lines and pipelines as much as possible, so that the rest of the countryside is affected as little as possible? I think it does.

When we're done, we should have in hand virtually everything necessary to move directly into preparing a detailed environmental impact statement for a specific proposal: a preferred route, knowledge of the engineering challenges and costs involved, an understanding of the potential for both freight and passenger movement.

So, here's the bottom line: business is business, and when the nation's business improves, your business improves.

When you leave this meeting, I want you to think seriously about this proposal. I want you to call your executive director, Jim Phillips, and tell him what you think. Write to me, and give me your thoughts. And I want you to write to your own Congressmen, MP's and Senators, and tell THEM why you think this will help both of our countries' economies.

With your support, I will introduce legislation to create and fund a joint public/private commission that will include federal, state, provincial and territorial representatives, First Nations and Alaska Native representatives, and business interests.

That commission will be responsible for identifying specific goals and objectives for the feasibility study I've talked about today, for getting the study underway, and for reporting back to Congress, the Parliament and the public on what we need to do next.

This project has been on the back burner for more than a half-century. Let's turn up the heat.

The North American Rail System

From Real Horses to Real Horsepower

The first primitive "railroad" in the United States used horse-drawn cars on wooden rails, but experiments with steam locomotion began in the early 1800s, and in 1831, regular steam powered service began in South Carolina. Rapid expansion followed. Four years later, over 1,000 miles of track had been laid, and there were 200 railroad charters in eleven states.

Western development in the United States spurred even greater growth. By 1860, there were 11,000 miles of track. The westward expansion also prompted the first Congressional land grants to railroads. Government leaders felt that railroads would spur settlement, and the grants allowed companies not only to retain the rights of way for rail lines but to have saleable land to offset construction costs.

In the United States, four of the first five transcontinental railroads were largely made possible by such grants, along with a considerable number of smaller lines in the western United States. A total of 131 million acres of public land was appropriated to dozens of rail-lines. A receiving company was given the right-of-way along with alternate sections of land, with the Federal Government generally raising the price of the sections it kept. In return, all rates were reduced by 50% for Federal traffic. From 1850 until the practice was ended in 1946, it is estimated that the government saved $900 million; a considerable deal considering that the land was only worth a total of $500 million at the time it was granted. After the Civil War ended, trackage grew from 35,000 miles to an all-time high of 254,000 miles in 1916.

Canada's first railroad began operations in 1836, but by the middle of the century, although some 40 companies had been granted government permission to build rail lines, only six had actually laid any track, totaling only 80 miles. In 1849, the government stepped in to help, offering to lend enough money to cover half the construction costs of any line longer than 74 miles (120 kilometers).

Companies proved eager to take Canada's offer. By 1860, Canada's rail lines reached more than 2,000 miles. The first east-west link was achieved in 1885 when the last spike in the Canadian Pacific Railway was driven. That set the tone, and in just 50 years, from 1850 to 1900, the miles of track available to Canada's railroads grew from 80 miles to 19,000.

Today, Canadian National operates about 17,000 miles of track in Canada and another 950 miles in the United States. The CN network serves all five of Canada's major ports: Halifax, Montreal, Prince Rupert, Thunder Bay, and Vancouver.

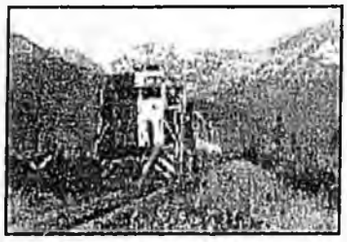
Meanwhile, Canadian Pacific operates a 15,000 mile network extending from Montreal to Vancouver and into the U.S. midwest and northeast. It serves ports on the east coasts of Canada and the U.S. and the Port of Vancouver.

Technological developments for rail lines rode the swelling tide of industrial change. Larger, more powerful locomotives, cars with larger capacities, improved couplers, the application of air-brakes, as well as adoption of standard gauge rail and standard time resulted in huge gains of efficiency and economic rail service. The development of national, rather than regional, economies in North America is owed in no small way to the influence of our railroads.

The Alaska Railroad

The history of the Alaska Railroad begins in 1903 with the Alaska Central Railway; a failed venture that managed to lay only 71 miles of track out of Seward, in an unsuccessful attempt to reach Anchorage.

But Congress still felt it was wrong that a territory twice the size of Texas had no rail system. The Alaska Railroad Organic Act of March 12, 1914 required incoming President Woodrow Wilson to construct a rail not to exceed 1,000 miles and, among other things, to "...best aid in the development of the agricultural and mineral or other resources of Alaska...and so as to provide transportation of coal for the Army and Navy, transportation of troops, arms, munitions of war, the mails, and for other governmental and public uses." The act gave the President broad powers to acquire land, operate terminals, or anything else that could help make the railroad a reality.



In 1915, the government purchased the remains of the Alaska Central for $1.2 million, and selected the current route northward. In 1917, it also bought the Tanana Valley Railroad, a narrow-gauge miners' line northwest of Fairbanks, for $300,000. These acquisitions formed the nucleus of the present system.

By the end of 1920, the Alaska Engineering Commission completed 382 miles of new track, and rebuilt the original 71 miles out of Seward and 32 miles in the Tanana Valley. The main obstacle for completion were bridges to span the Tanana River and Hurricane Gulch. The Tanana bridge had a 701 foot span, which at the time was the longest such in the United States. The Hurricane Gulch bridge spanned a total of 918 feet with a height of 296 feet.

Just before his untimely death, on July 15, 1923, President Warren G. Harding drove the golden spike officially completing the Alaska Railroad.

Military bases and construction projects starting in the 1930s spurred continued refinements to accommodate heavier loads and straighter hauls, and a large "picture postcard" terminal was built in Fairbanks. The assumption was that the latter would become the terminus for a railroad across British Columbia and the Yukon Territory to link Alaska with the railways of the lower 48 states.

World War II provided another influx of new equipment. Post-war rehabilitation encouraged passenger service and in 1946, a blue and gold streamliner, the AuRoRa, made its first run between Anchorage and Fairbanks. For military purposes, a spur to Whittier had been established by tunneling next to Portage Glacier in 1944.

Also during World War II, in 1942, U.S. Army Engineers surveyed a route that would have taken the railroad all the way from Fairbanks to Prince George, British Columbia, connection to the North American rail system there, and extended the Alaska portion of the line all the way to Teller, on the northwest coast.

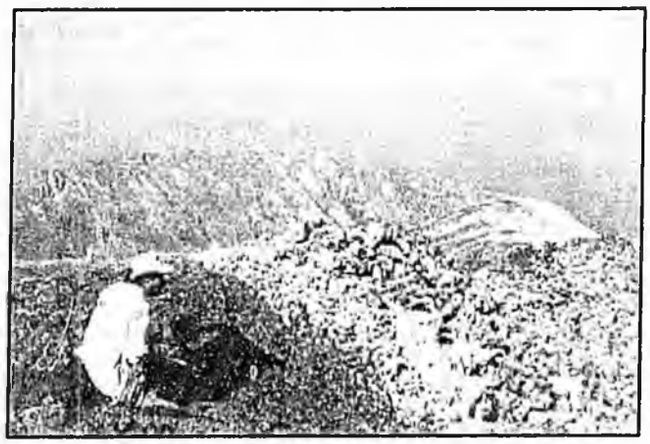
Although the latter parts of the once-planned system have not yet been built, the U.S. Department of Defense has consistently maintained that Alaska's strategic location remains critical, and that rail is an essential element of a comprehensive defense transportation system.

The Alaska Railroad was transferred from the Federal Government to the State of Alaska in 1983, and today it remains a great asset.

Proposed Railroad Corridor Resources

The Tanana uplands, which stretch over 250 miles from the Yukon Territory into Fairbanks, Alaska, appears to be rich in base metal potential (gold, silver, copper, lead, zinc, molybdenum, and tin). Because of the lack of infrastructure, there has been little detailed exploration for base metals other than gold in this region. With rail access, there is no question that significant new base metal deposits will be identified.

The Uplands have a history of incredible resource potential dating back to the gold rush days along the Yukon River. Today the area still remains mostly as it was then: inaccessible. In spite of this, one of the most productive gold mines in the United States, Fort Knox, operates just outside of Fairbanks and produces over 1,000 ounces of gold per day. Access is currently being worked out to reach the Pogo deposit, further to the east, which contains an estimated 5.2 million ounces of gold. Although gold is still a draw, the uplands contain tremendous amounts of silver, tungsten, copper, lead, zinc, and other minerals in identified deposits.



Silver/gold prospect in the Chulitna mining district. photo by K. H. Clautice

Further to the northwest lies the largest coal field in the United States near Point Lay. Not only is this coal very near the surface, but it is of exceptional quality averaging 12,000 BTUs and an extremely low sulfur content of less than 0.02%. Not far south from Point Lay is the Red Dog zinc mine, which last summer announced new finds. Unfortunately, the mine can only ship product for a few months of the year when pack ice retreats enough to allow barge traffic. The Matanuska-Susitna Valley region to the south hides yet another large, high quality coal deposit that already sits on the Alaska Railroad line. With the development of a connection, this would be available for shipment to the rest of the continent.

Claim staking activity in Alaska also has a traditional fall-off curve, but recent years have not seen that tradition followed. 1998 was the third $1 billion year for mining in Alaska. Staking continued strong through the summer of 1999 with results still being processed. Figure 1 shows a select list of Alaska mines near the railroad corridor.

On the other side of the border in the Yukon, active mining, approvals, and exploration are all ongoing, but with similar access problems as occur in Alaska. 1998 mineral production exceeded $100 million (Canadian), and the industry continues to play the largest role in the private sector economy of the territory. Recent exploration and development activity has reached a peak not seen since the Klondike Gold Rush. With a government committed to seeing a healthy investment climate for the mining industry combined with citizen support, mining potential for the Yukon has far to go. Figure 2 shows a few mines in the Yukon Territory near the proposed corridor.

Forestry information along the proposed corridor is similarly bright, but yet again with similar access problems. Within 15 miles of the corridor from the Yukon to Fairbanks lies 117 million cubic feet of hardwood pole timber and 141 million cubic feet of mixed pole timber. The Ladue River valley alone has the potential to create a chipping industry in Alaska even with its low-value fiber.

The forest products industry is still a fledgling in the Yukon Territory, but activity has developed throughout the last couple of decades in the Watson Lake area. Other potential areas include Mayo, Dawson City, Teslin, and Haines Junction. Timber supply shortages in the northwest combined with increased demand in Asian markets keep the future of this industry positive, but much of the territory has yet to be surveyed.

figure 1, mining data in Alaska

Alaska Mines	Ownership	Resource Information
Koyukuk-Huges mining district	production mostly from Alaska Gold Co.	231,000 oz Au produced 1930-1995
Innoko-Tolstoi mining district		Placer Au district; significant Au-Sb-Hg potential 706,267 oz Au produced through 1995
Hot Springs mining district	(numerous)	Placer Au-Sn district; 568,632 oz Au and 720,000 lb cassiterite produced through 1995
Fairbanks mining district	(numerous)	8,022,434 oz placer Au 1902-1995; 304,548 oz Au and over 4 million lbs Sb from veins and shear zones produced through 1990
Fort Knox	Kinross Gold Corp.	3,745,000 oz Au proven and probable reserves open at depth; 702,295 oz Au produced between 1996 and 1998
Ryan Lode	reclaimation by La Teko Resources Inc.	822,200 oz Au and 2.4 million oz Au in two shear zones
Grant Mine		212,000 tons of 0.36 oz/ton Au
True North	La Teko Resources Inc.	Estimated 1,314,000 oz Au
Gil Claims	Kinross Gold Corp./ Teryl Resources Corp.	Resource of 433,000 oz Au
Delta massive sulfide belt		40 million ton reserve containing percentages of: Cu, Zn, Pb, Ag,Au
Taurus		Cu-Au prospect; 140 million ton reserve containing percentages of: Cu, Au, Mo
Big Creek/Ladue		Pb-Au-Ag massive sulfide prospects
Slate Creek	Slate Creek	55 million tons of 6.3% high quality chrysotile asbestos
Fortymile mining district	Kennecott Exploration Co.	Placer Au district; 534,974 oz Au produced 1883-1995
Pogo	Teck Corp./Sumitomo Metal Mining America Inc.	5.2 million oz Au reserves; exploration and development on-going
Red Dog Mine*	Cominco Alaska Inc.	157,8 million tons proven and probable reserves containing percentages of Zn, Pb, Ag; production and exploration on-going; over 1 million tons of concentrate produced in 1998

*Red Dog Mine, in Northwest Alaska, could become the terminus for a spur from Fairbanks to the Ambler mining district.

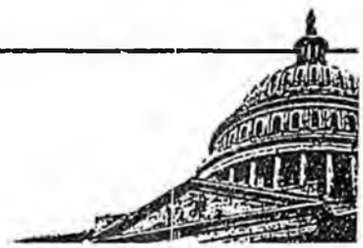
figure 2, mining data in the Yukon Territory

Yukon Mines	Ownership	Resource information
Brewery Creek Mine	Viceroy Resouce Corp.	613,000 contained oz Au; 1997-1998 production of 125,025 oz Au
Kudz Ze Kayah Property	Cominco Ltd.	13 million ton reserve containing percentages of: Cu, Pb, Zn, Ag, Au; final approvals expected in 1999
Sa Dena Hes Property	Cominco Ltd.	3.2 million ton reserve containing percentages of: Pb, Zn, Ag; opened in 1991 but closed in 1992 due to low prices
Wolverine Property	Boliden Ltd./Atna Resources Ltd.	6.237 million ton reserve containing percentages of: Cu, Pb, Zn, Ag, Au; further delineation planned
Minto	Asarco Inc./Minto Explorations Ltd.	7.2 million ton reserve containing percentages of: Cu, Ag, Au; production planned for late 2000
Carmacks Copper	Western Copper Holdings Ltd.	14.1 million ton reserve containing percentages of: Cu, Au; undergoing final stages of environmental assesment
Division Mt. Coal	Cash Resources	52.9 million ton resource at 9,328 BTU/lb and 0.43% Sulfer; under study with environmental assesement to begin next year
Wolverine	Atna Resources/ Expatriate Resources	6.2 million ton reserve containing percentages of: Zn, Cu, Pb, Ag, Au; metallurgical work planned
Wolf	Atna Resources/YGC Resources	4.1 million ton inferred resource containing percentages of: Zn, Pb, Ag; further exploration planned
Fyre Lake	Pacific Ridge Exploration	15.4 million tons preliminary resource containing percentages of: Cu, Co, Au; still in exploration

NEWS FROM THE OFFICE OF

FRANK MURKOWSKI

united States Senator · Alaska



For Immediate Release: Contact: Chuck Kleeschulte or Cindi Bookout
January 20, 2000 O (202) 224-9306; H (301) 283-4149; O 224-8767
(Email: chuck_kleeschulte@murkowski.senate.gov)

Embargoed until noon PST, Thursday, January 20, 2000

Murkowski Willing to Introduce Legislation to Create Commission to Study Alaska-Canada Railroad Extension

VANCOUVER, BC -- U.S. Senator Frank H. Murkowski today said he is willing to introduce legislation in Congress this year to create an impartial bilateral commission to study the economic, environmental and engineering feasibility of completing the trans-continental railroad linking Canada with Alaska.

Murkowski, R.-Alaska, chairman of the U.S. Senate Energy and Natural Resources Committee, said extending the Canadian rail system to link up with the Alaska Railroad might make both economic, strategic and environmental sense, helping greatly the economies and lifestyles of citizens of the Yukon Territory and Alaska.

"If there is a significant showing of support for an effort to look at rail options, I am willing to introduce legislation in Congress to establish the parameters for a bilateral U.S.-Canada commission to oversee a comprehensive feasibility study. Such a bill would establish a process for the appointment of commissioners and could also authorize funds for the commission's operations.

"This would get the ball rolling in the U.S., but reciprocal action also would have to be taken by the Government of Canada, because any commission clearly will have to be bilateral with equal representation from both nations," said Murkowski, in remarks prepared for delivery today during the Alaska-Canada Rail Link Conference being held in Vancouver, BC. The conference was sponsored by Alaska State Rep. Jeannette James, R-North Pole.

In remarks delivered by Murkowski's Transportation aide Bill Woolf, the senator said he envisions a commission made up of business leaders, academicians and representatives of the First Nations and Alaska Natives having sufficient expertise to "ensure that its consultants deliver the best in construction engineering, economics and environmental science."

Murkowski last year, after talks with Canadian Parliamentarians during the Canada-U.S. Interparliamentary Conference, later discussions with Canadian Ambassador Raymond Chretien and Canadian Minister of Transport David Collinette, and talks with the Canadian-American Border Trade Alliance, suggested it might make sense to reconsider the feasibility of building the roughly 1,200 miles of rail that would be needed to finish the railroad, last seriously considered in 1943.

The Alaska Railroad currently ends at Eielson Air Force Base, outside of Fairbanks, about

270 miles from the Canadian border, while the Canadian rail system ends at either Fort Nelson or beyond Fort St. James, about 900 miles from the Alaskan border.

Murkowski said the dawn of a new millennium may be the time to resurrect the railroad because both Alaska and the Yukon, while "land rich," are still "poor" in the amenities taken for granted in other areas of the two nations.

"One of the chief roadblocks to development of the north is the lack of adequate transportation. With all the talk about how the developed countries are moving from manufacturing to 'service' societies, the fact is that we are still dependent on getting material objects -- food, iron ore, lumber, other resources -- from one place to another. And because Alaska and the Yukon do not have the transportation infrastructure they need, both our nations are a little poorer than they have to be," said Murkowski.

He said the railroad's time may have come for several reasons.

He noted the line would allow economic development of the mineral resources of the Yukon-Tanana uplands that stretch from Faro, Y.T., north to Fairbanks. The zone, home already to the Fort Knox gold mine in Alaska and the future home of mines working the huge Pogo gold deposit, contains large amounts of silver, tungsten, copper, lead, zinc and other ores. On the Alaska side of the border there are already more than 14 major hard-rock deposits identified, while in the Yukon there are more than 10 major mineral deposits known. This does not include the Alaska coal deposits a line could move to market.

Murkowski added the railroad's likely corridor is also filed with timber. He said within just 15 miles of a likely railroad corridor, there are 1.4 billion board feet of hardwood pole timber and almost 1.7 billion board feet of mixed pole timber, not counting the possibility of agricultural development or of other Alaska freight that could to help fund the line's costs.

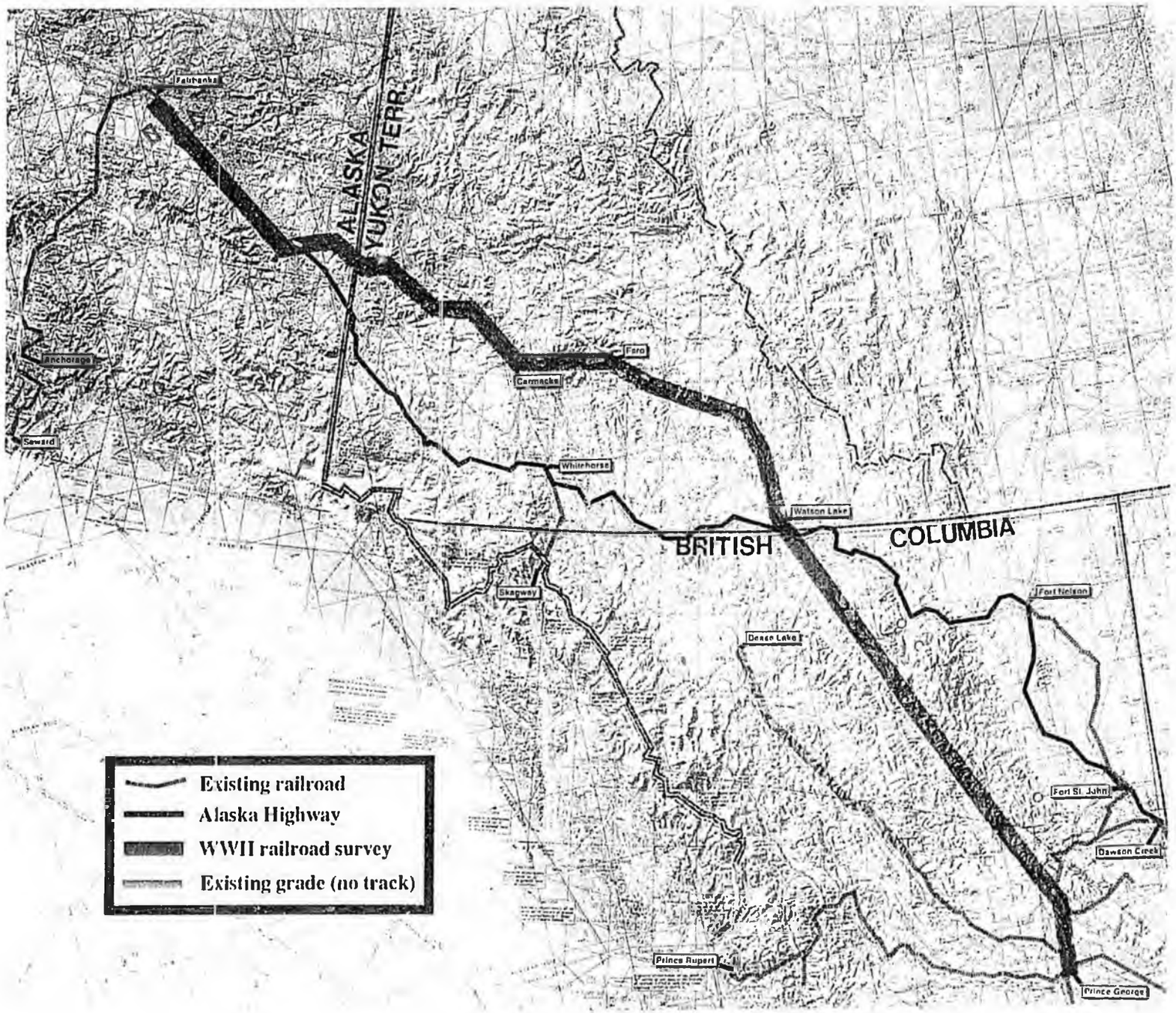
Murkowski, noting that testing is continuing on a North American anti-missile defense system, added that one of the prime sites under consideration for a missile intercepter base is at Delta in Alaska, which could well justify construction of the first 80 miles of the Alaska Railroad's extension toward the Canadian border.

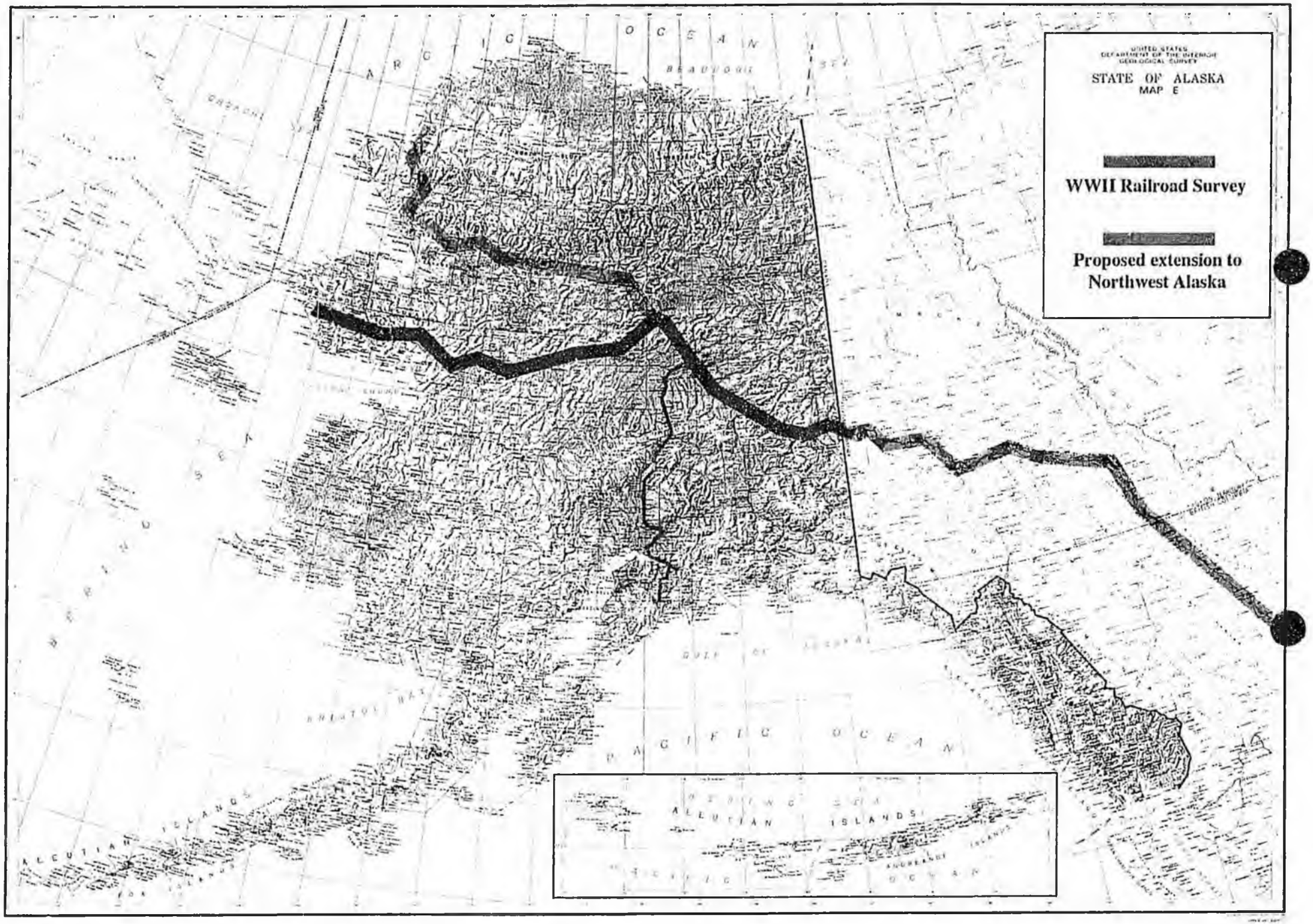
And the U.S. Senator said a railroad corridor would encourage co-location of all pipeline and power transmission lines -- a process that makes environmental sense.

"A rail corridor offers controlled access that removes the environmental threat of uncontrolled development. Rail systems are the most energy efficient and emit the lowest levels of air pollution of any mode of freight transportation. Rather than cause environmental concerns, a railroad offers the best options to protect the environment," said Murkowski.

"We should not be afraid to think seriously about big projects. Just because they're big, doesn't make them bad. In this day and age of great concern for the environment: if one assumes -- as I do -- that the resources of the Yukon and Alaska inevitability will be developed, then rail looks like a very healthy way to make that possible," said Murkowski.

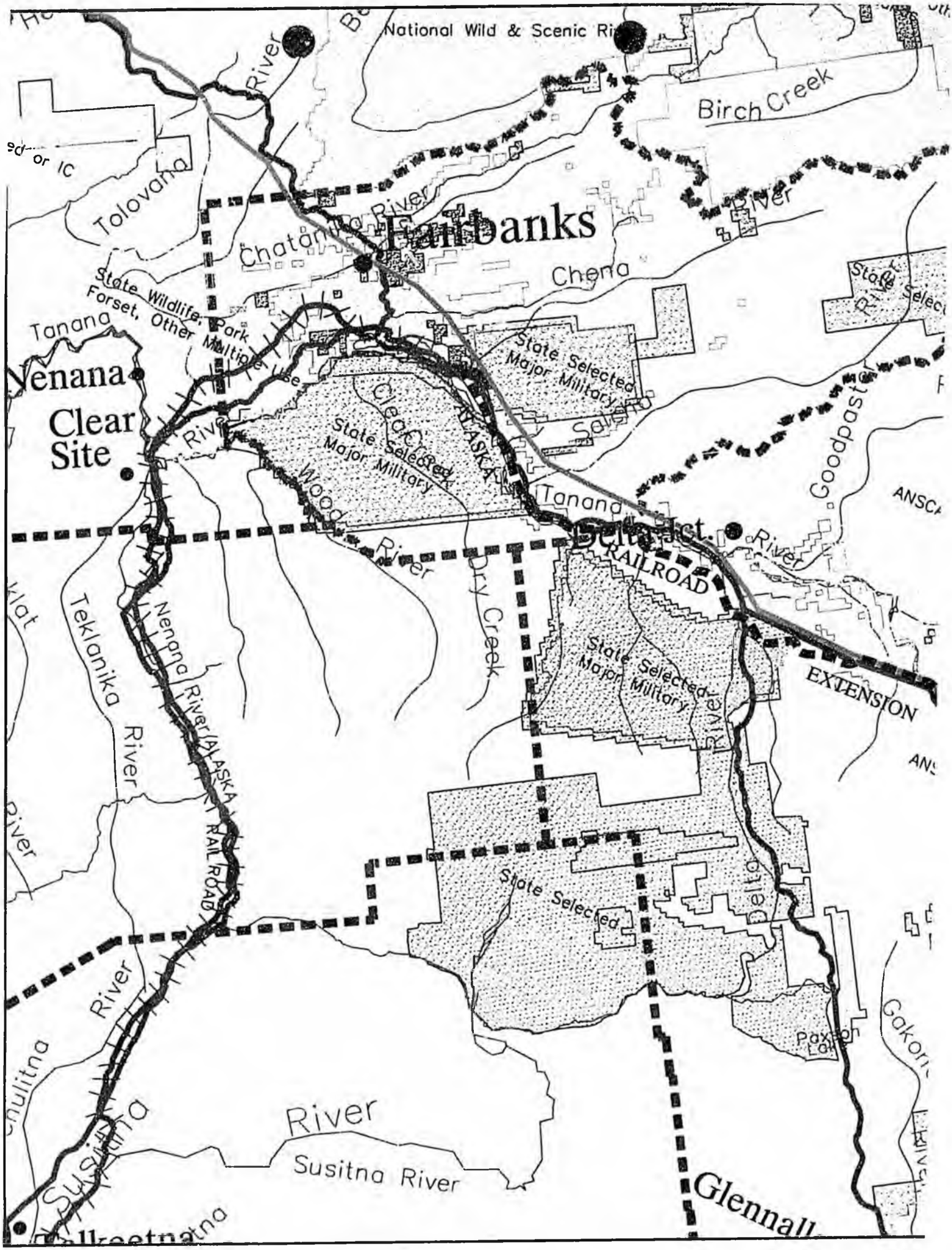
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COLUMBIA
Fairbanks
Anchorage
Seward
Carmacks
Faro
Whitehorse
Watson Lake
Skagway
Dease Lake
Fort Nelson
Fort St. John
Dawson Creek
Prince Rupert
Prince George
Existing railroad
Alaska Highway
WWII railroad survey
Existing grade (no track)


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF ALASKA
MAP E
WWII Railroad Survey
Proposed extension to
Northwest Alaska
ARCTIC OCEAN
BEAUFORT SEA
BERING SEA
BRISTOL BAY
GULF OF ALASKA
PACIFIC OCEAN
ALEUTIAN ISLANDS
ALEUTIAN ISLANDS
PACIFIC OCEAN

Prepared by the office of United States Senator Frank H. Murkowski. For further information, contact Chuck Kleeschulte, Press Secretary, at (202) 224-6665. Altho igh every attempt has been made to assure the accuracy of the information in this packet, changing resource data prevents guaranteeing the authenticity of all the information.

produced by Robert W. Corbisier


National Wild & Scenic Ri
River
Birch Creek
Tolovana
Chatanika River
Fairbanks
Chena
State Wildlife Park
Forset, Other Multiple Use
Tanana
Venana
Clear
Site
State Selected
Major Military
Clear Red
State Selected
Major Military
ALASKA
RAILROAD
Tanana
Wood River
Dry Creek
Goodpaster
River
EXTENSION
Teklanika River
Nenana River
ALASKA RAILROAD
State Selected
Major Military
River
State Selected
Delta
Paxson
Lake
Susitna River
Susitna River
Glennall

HB 241

Report of the

JOINT HOUSE COMMITTEE

on a

RAILROAD / TRANSPORTATION-UTILITY CORRIDOR TO CONNECT ALASKA WITH THE REST OF NORTH AMERICA

Second Printing: April 2, 2001

February 20, 2001
Alaska State Capital, Juneau, Alaska

Published by the office of Representative Jeannette James
Room 214, Alaska State Capital
Juneau, Alaska 99801
Richard F. Schmitz, Editor

URL: www.repjames.org

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State Capitol
Juneau, AK 99801-1182
(907) 465-4955

House Special Committee on Economic Development, Trade and Tourism

March 28, 2001

Dear Reader,

This is a collection of the material presented at the joint committee of Transportation, Oil & Gas and Economic Development, Trade & Tourism on February 20, 2001. It includes all of the testimony from the experts and various members of corporations that want to build a transportation and utility corridor. This information should be helpful to all those interested in the development of this project.

The proposed corridor would benefit several industries and be a significant tool for enhancing economic development. Not only was this joint meeting a productive step toward furthering economic relations between Alaska and Canada, but it likely encouraged the future discussion of related issues between our two bordering countries.

I sincerely hope that you find this information useful as well as informative. If you have any comments or questions regarding the materials contained in this packet or any of the issues we discussed at the joint meeting, please don't hesitate to contact me.

Sincerely,

Representative Lesil McGuire

ADDRESS BY REPRESENTATIVE JEANNETTE JAMES TO PAC-COM CONFERENCE, ANCHORAGE, FEB. 14, 2001

Remember the last time you were stopped at a railroad crossing gate ... Your first reaction was probably great annoyance, particularly if you were in a big hurry.

But think about it ... I'll bet you still looked for that train as it approached. And I'll go so far as to say that you probably felt a little, tiny thrill as the train went by. There's something about a train that seems to just force you to stop, look and listen.

I've always loved trains. And it's no secret that I'd love to see a railroad built to connect Alaska with the rest of North America ... which is the reason I'm speaking to you right now.

Not everyone in Alaska is as big a fan of trains as I am, though. Take Anchorage Daily News columnist Mike Doogan, for example. Mike's big problem with building a railroad to the Lower 48 is that it would be using, and I quote here, "the very best of 19th century technology."

I think Mike Doogan should get out a little more.

Just because railroads were visionary in the 19th century doesn't mean they won't be visionary in the 21st. Have you been in Salem, Oregon lately? The train station there is shiny-new and fully restored to its original grandeur. Seattle's King Street Station will be similarly restored. These are no tourist attractions, they're working train stations -- and they're plenty busy. Amtrak's new Cascades service connects Vancouver, B.C. with Eugene, Oregon three times a day. The lines' new Talgo trains, designed and partly manufactured in Spain, are sleek ... fast ... and packed with passengers. Commuters now move between Seattle and Tacoma on the brand-new Sounder ... double deck passenger cars with locomotives just as new and shiny as the California Zephyr was in 1936.

There's nothing 19th century about either of these trains. There's nothing 19th century about the Eurostar -- the high speed train which connects London and Paris through the Channel Tunnel in about the same time it would take by air, counting the time to and from the airport, for a little less money.

Trains are cutting edge. New locomotives use natural gas as fuel. Other new locomotives use gravity to generate electricity. Intermodal technology allows for rapid movement of cargo.

Railroads were cutting edge in the 1850s. And they're cutting edge in 2001. When the White Pass and Yukon Route was built in 1899, it was considered truly visionary. And it will be visionary when Alaska is finally connected with the rest of North America by rail a century or so later.

Relative to other forms of transportation, railroads are inexpensive, durable, effective and easy to build.

The footprint a railroad makes on the land and environment is small. But the impact a railroad makes on an economy is great. And that's another reason why I'm speaking to you here.

Lets look at Alaska, where railroads are limited compared to most of the rest of North America. Is it just coincidence that Alaska's economic heartland is called "The Railbelt?" Is it only coincidence that Anchorage -- and not Valdez -- is Alaska's largest city? Remember, for a second, that when the visionaries who decided to build the Alaska railroad, Valdez was the main Alaska port and what we now know as Anchorage was a tent city construction camp.

I represent North Pole, and the railroad's economic presence is certainly evident there every time a refinery employee cashes a paycheck. The same could be said for Healy or Usibelli, communities also in my district. Chances are you've watched those gold and blue Alaska Railroad engines haul rail car after rail car of coal or jet fuel.

I was at a committee hearing the other day, and the economist who was speaking made the off-hand comment that "Alaska didn't have an economy." People were kind of taken aback by that statement. ... But I knew exactly what he was talking about. We don't have an economy in Alaska ... we have a series of boom and bust cycles, and do you know the worst part of that? We aren't even the engineer that drives those booms and busts. Alaska's economy is *re*actionary instead of actionary. There ... I made up a new word!

This is why I am such a strong advocate of building this railroad. Over and over again we are told that Alaska must improve its infrastructure. Mining -- which historically has provided among the best-paying jobs this state can offer -- will remain limited to narrow belts around existing roads, ports or cities. A railroad from Eielson Air Force Base to the Canadian Border, however, passes within miles of some of the state's most promising and proven mineral reserves. Not only are the Tanana uplands rich in gold and silver, but there are proven deposits of copper, lead, zinc, tin, molybdenum and tungsten.

This rich geological belt extends across the border to the Yukon Territory, where mining now is in steep decline due to transportation issues. Still, mining is the No. 1 commercial activity in the territory.

Railroads provide mines with exactly the kind of transportation they need, because, once connected with the North American rail system, concentrates can be shipped to a smelter economically and efficiently. Manufactured goods, timber and agricultural products could be sent to market with similar efficiency. And I see a new role for Alaska's ports such as Anchorage. Freighters sailing between the West Coast and Asia pass right by Alaska. With a rail connection to the rest of North America, containerized goods from, or headed to, the Mid West or East Coast could transfer to rail right here, putting Alaskans to work in this transportation sector.

This summer I bought a new, digital camera. One of its features is a lens with an adjustable view. Push the button one way, and you get a wide view. Push it the other way and you get what I call a long view. I believe Alaska must take two looks at this railroad

project: a broad view, and a long view. When I talk about benefits to resource industries, I'm taking the long view ... to a time when the railroad link is up and running.

Now let's look at the wide view.

The project I envision is more than simply iron tracks, ties and locomotives. I see a transportation and utility corridor. When we lay tracks, we must also lay fiber optic cable. I don't think you can have too much fiber optic connectivity. True, Alaska can export mineral concentrates. But Alaska can also export information ... vision ... expertise ... and ideas.

If we are going to have an economy in Alaska, we have to create wealth. To do this we sorely need to have transportation infrastructure, and this is the heart of the reason why I have been pressing this issue since 1993, when I began my service in the Alaska House of Representatives. A railroad connection to the rest of North America will mean incentive and opportunity for the private sector to invest in Alaska, thereby creating the roots of a real and stable economy.

I have learned that for each job in the basic economy, two and a half are created in the service sector. Service industry jobs cannot exist in a vacuum -- or in an economy that lacks long-term stability. To put it simply, If no wealth is created, then there's no one tc pay for services.

In taking a broad view of the railroad I see great potential for tourism. I am convinced tourism will be a major user of this railroad ... particularly when you consider the trip itself will be the destination. In a week you could go from Fairbanks to New York and back. Imagine, you could watch the northern lights one day ... and the lights of Broadway a few days later.

I am fully aware that some of my contemporaries don't believe the railroad will ever be built, and I guess they wonder why I or other supporters of the project bother to put in the effort. ... Let me quote for them from a work of classic literature ... and I'll pose it in the form of a question ...

Just when did we as Alaskans decide to let "I Think I Can, I Think I Can, I Think I Can" be the *end* of the story?

SPEECH TO CHAMBER OF COMMERCE
by REPRESENTATIVE JEANNETTE JAMES,
February 22, 2001

Before I begin, I have to tell you it took a few minutes to come up with suggestions for a title for my address to you here today. ...

So I see from the flyer the final draft turned out to be "The Inside **Track** to a Growing, Healthy Economy."

Now, I know you know that building a railroad to connect our state with the rest of North America is a project I've worked long and hard on. I have to tell you I think it's a very good sign when I find little puns included in titles of my speeches.

I'm working hard on this railroad connection ... How hard? Well, I have to tell you ... I think a gas pipeline to the Lower 48 will be an excellent add-on to this railroad project!

But I'm here to speak about **a growing, healthy economy** ... and about **growing a healthy economy.**

To begin, let me offer you a couple of my basic tenets. ... because I've been repeating them a lot lately, or so it seems.

One. I do not believe Alaska has an economy. Not really. Alaska does have a series of boom and bust cycles, framed by federal pass-through funds. ... All of which are restricted and most of which require a state match.

What we have is an out of balance economy ... most of it in the service sector. We do not have sufficient basic industries to support steady, long-term growth ... and a steady long-term growth pattern is absolutely necessary for a growing, healthy economy and quality of life. ...

We are fortunate right now -- the price of oil is high ... Although the price of oil is an important part of our income, it also increases our cost of living as fuel prices rise.

Our most tremendous asset, of course, is our three guys in Washington. Their seniority and prowess is unmatched. ... But we don't have a lot of control over that, either. At some point we will not have these people holding up what is **really** a major portion of Alaska's economy, and we should all think long and hard about that now. ...

Two. We must have a long term revenue plan. What should that plan look like? ... I will repeat, as I have many times before ...

I believe we need a broad-base tax ... where everyone pays a little ... there ain't no free lunch. And in that statement, two negatives do not make a positive ... they make a bigger negative.

We need to use some earnings of the Permanent Fund. We need to maintain a healthy dividend program over the long term.

We must continue to find efficiencies in government --- and we need to accelerate our opportunities to develop our natural resources ... and that, of course, includes our people.

My constituents are very insistent about cutting and streamlining the cost of state government ... and I fully agree with them .... But backing up is very hard to do.

I would like to tie one and two together with another of my basic tenets ... you can not tax your way to prosperity!

The public does not seem to understand that we have less money coming in than we need to fund the services they want and the ones we are required to provide. In anyone's math, that means we are eating up our savings ... which will soon be gone ... and what then? We have to fill that gap some way.

I believe you understand this issue. You know, as business people who depend on income to cover your expenses and paycheck, you cannot continue to operate by spending more than you take in without inviting disaster.

We have exercised restraint and reduction in spending over the last five years. It has been very, very difficult.

There are only two ways to balance the issue -- one is to cut spending, the other is to increase income. You as business people also understand that you cannot cut spending when it eats into your ability to bring in income ... or your paycheck will disappear.

The general public does not understand this fact ... It takes money to make money. We need to balance our benefits with our responsibilities.

And you can help.

The Alaska public needs a reality check. We need a serious dose of education. As business people you create -- or at least spread the cash flow in this state ... .

We need to be sure we have a reliable source. Is it a spring that will be ever-flowing? Or will it be a slough that just collects runoff?

The public must understand this theory.

I am a supporter of building a rail connection because I am convinced it will become a lynchpin of a real Alaska economy. We lack infrastructure, and therefore much of our state's wealth is off the table.

Trains are cutting edge. New locomotives use natural gas as fuel. Other new locomotives use gravity to generate electricity. Intermodal technology allows for rapid movement of cargo.

Railroads were cutting edge in the 1850s. And they're cutting edge in 2001. When the White Pass and Yukon Route was built in 1899, it was considered truly visionary. And it will be visionary when Alaska is finally connected with the rest of North America by rail a century or so later.

Relative to other forms of transportation, railroads are inexpensive, durable, effective and easy to build.

The footprint a railroad makes on the land and environment is small. But the impact a railroad makes on an economy is great.

Lets look at Alaska, where railroads are limited compared to most of the rest of North America. Is it just coincidence that Alaska's economic heartland is called "The Railbelt?" Is it only coincidence that Anchorage -- and not Valdez -- is Alaska's largest city?

Remember, for a second, that when the visionaries decided to build the Alaska railroad, Valdez was the main Alaska port and what we now know as Anchorage was a tent city construction camp.

I represent North Pole, and the railroad's economic presence is certainly evident every time a refinery employee cashes a paycheck. The same could be said for Healy or Usibelli, communities also in my district.

I am very encouraged about this project. Senator Murkowski passed legislation authorizing a bilateral commission -- and up to $6 million to fund it. The commission's task will be to complete a feasibility study.

A number of meetings will be taking place in Washington D.C. before the month is over, all involved with moving this project forward. I have been told the next step is formally presenting the commission to Canada's federal government.

Folks in the Yukon are solidly behind this project, and I think we are seeing some good signs that the Canadian government will stand behind them.

Much of the criticism of the railroad connection surrounds its cost, which will be in the billions of dollars. But in talking with folks involved with the business of

building a gas line, I am convinced there is an opportunity to see economies of scale in building **both** along a shared corridor.

That's why I'm advocating a transportation and utility corridor. One Environmental Impact Study (EIS) could cover all, allowing for efficient construction of not only a gas line and a railroad, but also fiber optic cable and energy transmission lines.

Someday Alaska may export mining concentrates and coal ..., agricultural products ... frozen seafood ... But Alaska can also export information ... vision ... expertise ... and ideas.

If we are going to have an economy in Alaska, we have to create wealth. To do this we sorely need to have transportation infrastructure, and this is the heart of the reason why I have been pressing this issue since 1993 when I began my service in the Alaska House of Representatives.

A railroad connection to the rest of North America will mean incentive and opportunity for the private sector to invest in Alaska, thereby creating the roots of a real and stable economy.

I have learned that for each job in the basic economy, two and a half are created in the service sector. Service industry jobs cannot exist in a vacuum -- or in an economy that lacks long-term stability. To put it simply, If no wealth is created, then there's no one way to pay for services.

I am fully aware that some of my contemporaries don't believe the railroad will ever be built, and I guess they wonder why I or other supporters of the project bother to put in the effort. ...
Let me quote for them from a work of classic literature ... and I'll pose it in the form of a question ... Just when did we as Alaskans decide to let "I Think I Can, I Think I Can, I Think I Can" be the *end* of the story?

I love to talk about economic development and transportation infrastructure -- but I can't say I love talking about raising taxes. But I have to.

Alaskans -- all of us -- will be facing some bad news in a few short years. I said as much in a newsletter I sent to a little over 3,000 voters in my district. I laid it out just as plain as I know how. ... Here are a few of the things I said:

When it comes to a long-term revenue plan, I have ideas -- but I don't have solutions. ... For that reason, I need to hear from you. No long term revenue plan can ever work if it doesn't have the support of the people.

Then, I explained that in a few years the constitutional budget reserve will be empty. In the long term, some earnings of the permanent fund will have to be used to pay for state government. To balance our budget, we will have to use

some combination of fair and equitable taxes ... and earnings of the permanent fund.

I added that the longer we limit use of the permanent fund to inflation-proofing and paying dividends, the more vulnerable the fund is to IRS taxation.

Well, the constituents who responded to the survey I enclosed offered their support -- and I'm thankful for that -- but, clearly, there is a lot of educating we have to do.

Let me share with you the gist of comments I received in response to my request for their ideas as to how we can balance the budget in the next decade or so. I asked respondents to assume we will need to raise between $500 million and $1 billion a year.

The majority of respondents did not want any new taxes ... or for us to spend any of the permanent fund earnings. They want to keep the dividend as it is ... and they're not willing to let the budget grow with any increased population or cost of living.

Obviously they didn't hear me -- nor do they believe there is a problem.

One respondent said he supports both an income tax and a sales tax -- with two conditions -- surely he jests -- that anyone who receives a permanent fund dividend be exempted from the income tax, and that anyone who has an Alaska drivers license be exempted from the sales tax.

I have no intention of poking fun of the people who've taken the time to respond to my survey. Just the opposite, because I am extremely grateful for the time and effort these folks put in to answering questions none of us have yet been able to answer.

We may be making some progress. In the 1999 "**what part of 'no' don't you understand**" vote, just 16 percent of my district voted in favor of the long-range plan. Of survey results I've tallied, 19 percent said they would at least support a cap on the permanent fund dividend; 36 percent said they could support using excess earnings of the Permanent Fund, and 29 percent said they could support a flat income tax.

Progress? Maybe. ...

One thing my survey respondents did agree on -- almost totally -- was the need to continue to find efficiencies in state government.

But sometimes these efficiencies cost money up front. In other words, we might have to pay to save money in the future.

But we have struggled over five years to cut $250 million in state spending. Yet when you allow for the natural growth in government -- not new programs, but allowances for population increases and cost increases, such as for fuel, we have actually cut much deeper.

So I have to say that it is hard to invest in making government cheaper and better.

In conclusion ... I have a job for you.

I believe people in business have a lot at stake when it comes to finding a fix for our state's revenue issues. But we -- and I'm speaking as a small business owner here -- must begin to educate the public. Most Alaskans are convinced other people beside themselves can be made to pay. Make industry pay more, we are told. Make tourists pay ... while all the time wanting us to spend money on the services they use, need or support.

SECTION 1:

MINUTES, AGENDA, PARTICIPANT PROFILES, SIGNIFICANT LEGISLATION



URL: www.repjames.org

ALASKA STATE LEGISLATURE

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Majority Leader
House of Representatives
House District 34

JOINT HOUSE COMMITTEE on CONSTRUCTION OF A TRANSPORTATION/UTILIY CORRIDOR TO CONNECT ALASKA WITH THE REST OF NORTH AMERICA

February 20, 2001
10:30 a.m.-12:30 p.m.
House Finance Committee Room

AGENDA

10:30 a.m.	Call to order; introduction of participants, other legislators present. 10:30 a.m. (Gavel in Joint House Committee, including Yukon legislators: MLAs Mike McLarnon, Scott Kent and Cynthia Tucker.)
10:30 a.m.	Bill Woolf, speaking for Senator Frank Murkowski from Washington , D.C.
10:45 a.m.	Larry Bagnell, Yukon MP, from Ottawa, Ont.
11:00 a.m.	Scott Kent, Yukon MLA, speaking for Premier Pat Duncan from Whitehorse, YT.
11:15 a.m.	Dr. Milt Wiltse, Power Point presentation: East Central Alaska Geologic Resources and Access Corridors
11:30 a.m.	Dr. Paul Metz, University of Alaska Fairbanks
11:45 a.m.	Jim Kubitz, Alaska Railroad
12 noon	Tom Brigham, speaking for (Alaska Department of Transportation and Public Facilities) Commissioner Joe Perkins
12:15 p.m.	Colin Chapman, for Congressman Don Young, from Washington, DC.
12:30 p.m.	Gavel out.

Scott Kent



Deputy Caucus Chair
Deputy House Leader
Deputy Chair of the Committee of the Whole House

MLA - Riverside
Yukon Liberal Party

Scott Kent was elected as the MLA for Riverside in the general election on April 17, 2000.

Mr. Kent has been a Whitehorse resident since 1973. He attended Selkirk Elementary School and F.H. Collins Secondary School as well as the University of Calgary.

He has been the president of the Yukon Broomball Association since 1997 and is the president of the Whitehorse Flag Football League. He is part owner of a local business and a holding company.

He was most recently the sales and purchasing manager for Whitehorse Distributors, where he worked for the past 10 years.

E-mail: scott.kent@gov.yk.ca

Mike McLarnon



Deputy Speaker
Chair of the Committee of the Whole House

MLA - Whitehorse Centre
Yukon Liberal Party

Mike McLarnon was elected as the MLA for Whitehorse Centre in the general election on April 17, 2000.

Mr. McLarnon is a life-long Yukon resident, born and raised in downtown Whitehorse. He is a former board member of the Yukon Sourdough Rendezvous Society, the Tourism Industry Association and Heritage North.

He is a winner of the Conference Board of Canada "Award of Excellence for Youth Employment" and was a host for the Yukon Pavilion at Expo '86.

He was most recently the owner and operator of the Whitehorse Airport Gift Shop and all visitor services at Parks Canada's S.S. Klondike.

He is married to Jeannette McLarnon.

E-mail: mike.mclarnon@gov.yk.ca

Cynthia Tucker



Government House Leader
Caucus Chair

MLA - Mount Lorne
Yukon Liberal Party

Cynthia Tucker was elected as the MLA for Mount Lorne in the general election on April 17, 2000.

Ms Tucker has been a property manager for commercial, residential and special-use facilities and a small business owner.

She has experience in mediation and negotiation, conflict resolution training, land use planning and zoning and urban land economics. She was a member of the Yukon Horseman's Association and the Yukon Agricultural Association, a Canadian Ranger and a founding member of the Carcross Ranger Patrol.

She was most recently the manager of the Whitehorse Housing Authority and the Chair of the Hamlet of Mount Lorne Council. She was a board member of the Association of Yukon Communities and the Community Training Trust Fund.

Ms Tucker, who is married to Harry Kern, lives in the Robinson subdivision outside of Whitehorse.

E-mail: cynthia.tucker@gov.yk.ca

Home

Français

37th Parliament

Members of the House of Commons

Photo

Name: Mr. Larry Bagnell
Political Party: Liberal Caucus
Constituency: Yukon
Province: Yukon
Telephone: (613) 995-9368
Fax: (613) 995-0945
Email: Bagnell.L@parl.gc.ca

Parliamentary Internet Parlementaire

State of Alaska
Legislature

* please distribute * → Lou Caputo

Please enter my testimony into the record to the

HFIN Committee in regard to the
(Committee Name)

Transp. Corridor to No. Am. on 2-20-01.
(Bill/Subject) (date)

I AM VERY MUCH AGINST THE PROPOSE ROUTE OF THE RAILROAD EXTENSION WHERE IT LEAVES THE AK HWY CORRIDOR AND FOLLOWS THE LADUE RIVER. THAT INVADES SENSITIVE WILDLIFE, -- HABITAT THAT IS USED BY 2 CARRIBOU HERDS, MOOSE + OTHER WILDLIFE. IF YOU HAVE TO HAVE A RAILROAD, FOLLOW THE AK HWY ALL THE WAY THRU AK + CA

SIGNED AL KEECH
(PLEASE PRINT)

POB 362 TOK, AK 99780
ADDRESS AND PHONE NUMBER

I HAVE NOT HEARD ONE WORD SAID ABOUT WILDLIFE OR HABITAT SPOKEN. ???

ALASKA STATE LEGISLATURE
JOINT MEETING
HOUSE SPECIAL COMMITTEE ON ECONOMIC DEVELOPMENT, TRADE AND TOURISM
HOUSE SPECIAL COMMITTEE ON OIL AND GAS
HOUSE TRANSPORTATION STANDING COMMITTEE
February 20, 2001
10:30 a.m.

COMMITTEE CALENDAR

OVERVIEW: UTILITY CORRIDOR & RAILROAD RIGHT-OF-WAY TO CANADA

TAPES

01-8, SIDES A & B

(PLEASE ADD ANY OTHER TAPES)
(Please note these are House Special Committee on Economic Development, Trade and Tourism tapes)

CALL TO ORDER

REPRESENTATIVE McGUIRE, Chair, called the joint meeting of the House Special Committee on Economic Development, Trade and Tourism; the House Special Committee on Oil and Gas; and the House Transportation Standing Committee meeting to order at 10:42 a.m.

PRESENT

Committee members present were Representatives Chenault, Crawford, Dyson, Fate, Green, Guess, James, Kapsner, Kohring, Kookesh, Masek, McGuire, Morgan, Ogan, Rokeberg, Scalzi, and Wilson.

SUMMARY OF INFORMATION

FRED DYSON: Complimented past presentations

JOE GREEN: Asked questions regarding the certainty of deposits discussed by Dr. Milt Wlitse. Also inquired about the safety issues of having a railroad and pipeline so close to a highway.

DREW SCALZI: Asked if there would be an increase in activity that would result in more funding for surveys

BILL WOOLF: Referred to Senator Murkowski's vision for better communication and transportation of resources and encouragement of a transportation corridor.

DR. PAUL METZ: Described possible routes for mining projects, a brief history of recent exploration of minerals.

JIM KUBITZ: Introduction of certain maps that outline possible routes for the utilities corridor.

COLIN CHAPMAN: Told the joint committee that Don Young was fully supportive of the plan to look into these issues for Alaska's future.

TOM BRINGHAM: Spoke about the Northwest corridor plan. Drew attention to looking at community and resident needs in terms of this issue.

ANNOUNCEMENTS

COMMITTEE ACTION

The committee took no action.

ADJOURNMENT

CHAIR McGUIRE adjourned the joint meeting of the House Special Committee on Economic Development, Trade and Tourism; the House Special Committee on Oil and Gas; and the House Transportation Standing Committee meeting to order at 12:30 P.M.

NOTE: The meeting was recorded and handwritten log notes were taken. A copy of the tape(s) and log notes may be obtained by contacting the House Records Office at State Capitol, Room 3, Juneau, Alaska 99801 (mailing address), (907) 465-2214, and after adjournment of the second session of the Twenty-Second Alaska State Legislature this information may be obtained by contacting the Legislative Reference Library at (907) 465-3808.

ALASKA STATE LEGISLATURE

Introduced: 3/25/65
Referred: Resources

BY SENATORS KILCHER, BLODGETT, FOSTER AND WALSH

IN THE SENATE

SENATE JOINT RESOLUTION NO. 66

IN THE LEGISLATURE OF THE STATE OF ALASKA

FOURTH LEGISLATURE - FIRST SESSION

Relating to a highway connection between North America and Asia at Bering Straits.

BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

WHEREAS long-range international agreements and cooperation tend to tie nations together; and

WHEREAS joint projects and common interests of nations are a deterrent to destructive wars; and

WHEREAS an international highway from the southern tip of South America to the Bering Sea will soon be a reality; and

WHEREAS Asia and Europe are already linked together with a complex highway system; and

WHEREAS the narrow Bering Straits are the only obstacle to prevent the tying together of the American and Eurasian continents by road;

BE IT RESOLVED that the United States government contact the government of the U.S.S.R. to explore their interest in constructing such a tunnel; and be it

FURTHER RESOLVED that the U. S. Department of Commerce be requested to cause a feasibility study to be made concerning the construction of an intercontinental highway to the Bering Sea and a tunnel under the Bering Straits; and be it

FURTHER RESOLVED that this resolution be sent to the Honorable Lyndon B. Johnson, President of the United States; the Honorable Dean Rusk, Secretary of State; the Honorable John T.

ALASKA
STATE
LEGISLATURE

Connor, Secretary of Commerce; the Honorable Warren G. Magnuson, Chairman, Senate Commerce Committee; the Honorable Oren Harris, Chairman, House Interstate and Foreign Commerce Committee and the Honorable E. L. Bartlett and the Honorable Ernest Gruening, U. S. Senators, and the Honorable Ralph J. Rivers, U. S. Representative, members of the Alaska delegation in Congress.

Bill History/Action Display

H

BILL: HB 182 SHORT TITLE: APPROP: FAIRBANKS-NOME TRANS. CORRIDOR
BILL VERSION:
SPONSOR(S): REPRESENTATIVES(S) JAMES, Mulder

CURRENT STATUS: (H) FIN STATUS DATE: 4/19/93

TITLE: "An Act making a special appropriation to the Department of Transportation and Public Facilities, northern region, for identification and delineation of a transportation and utility corridor between Fairbanks and the Seward Peninsula; and providing for an effective date."

Full Text | Appropriation Info

Committee Action With Bill History

Jrn-Date	Jrn-Page		Action
2/25/93	456	(H)	READ THE FIRST TIME - REFERRAL(S)
2/25/93	456	(H)	TRANSPORTATION, RESOURCES, FINANCE
3/31/93	893	(H)	TRA RPT 4DP 2NR
3/31/93	893	(H)	DP: MULDER, FOSTER, G.DAVIS, VEZEY
3/31/93	893	(H)	NR: MACKIE, MENARD
4/01/93	920	(H)	COSPONSOR(S): MULDER
4/19/93	1321	(H)	RES RPT 4DP 2DNP 2NR
4/19/93	1321	(H)	DP: CARNEY, GREEN, JAMES, MULDER
4/19/93	1321	(H)	DNP: FINKELSTEIN, DAVIES
4/19/93	1321	(H)	NR: BUNDE, WILLIAMS
4/19/93	1321	(H)	REFERRED TO FINANCE

Similar Subject Match or Exact Subject Match
APPROPRIATIONS
HIGHWAYS
RAILROAD
SPECIAL APPROPRIATIONS
TRANSPORTATION
UTILITIES

Bill Root: | Display History/Action | Clear Bill Root

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Bill History/Action Display

H

BILL: HB 184 SHORT TITLE: APPRO: AK RAILROAD EXTENSION STUDY
BILL VERSION: CSSSHB 184(FIN)
SPONSOR(S): REPRESENTATIVES(S) JAMES, Therriault, Olberg

CURRENT STATUS: RETURN TO (H) RLS STATUS DATE: 2/24/94

TITLE: "An Act making a special appropriation to the Department of Transportation and Public Facilities to determine the cost of acquiring real property within the right-of-way of the proposed extension of the Alaska Railroad from Eielson Air Force Base to the Alaska-Canada border; and providing for an effective date."

Full Text | Appropriation Info

Committee Action With Bill History

Jrn-Date	Jrn-Page		Action
2/25/93	456	(H)	READ THE FIRST TIME - REFERRAL(S)
2/25/93	456	(H)	TRANSPORTATION, FINANCE
1/18/94	2097	(H)	SPONSOR SUBSTITUTE INTRODUCED-REFERRALS
1/18/94	2097	(H)	TRANSPORTATION, FINANCE
1/21/94	2121	(H)	TRA RPT 5DP
1/21/94	2121	(H)	DP: VEZEY, MULDER, HUDSON, G. DAVIS,
1/21/94	2121	(H)	DP: FOSTER
1/21/94	2121	(H)	-FISCAL NOTE (DOT) 1/21/94
2/16/94	2412	(H)	FIN RPT CS(FIN) 5DP 4NR
2/16/94	2413	(H)	DP: LARSON, MARTIN, PARNELL, THERRIAULT
2/16/94	2413	(H)	DP: FOSTER
2/16/94	2413	(H)	NR: BROWN, HANLEY, GRUSSENDORF, NAVARRE
2/23/94	2497	(H)	RULES TO CALENDAR 2/23/94
2/23/94	2497	(H)	READ THE SECOND TIME
2/23/94	2498	(H)	FIN CS ADOPTED UNAN CONSENT
2/23/94	2498	(H)	ADVANCED TO THIRD READING UNAN CONSENT
2/23/94	2498	(H)	READ THE THIRD TIME CSSSHB 184(FIN)
2/23/94	2498	(H)	PASSED Y30 N7 E3
2/23/94	2499	(H)	EFFECTIVE DATE SAME AS PASSAGE
2/23/94	2499	(H)	ULMER NOTICE OF RECONSIDERATION
2/24/94	2522	(H)	RECON TAKEN UP - IN THIRD READING
2/24/94	2523	(H)	RETURNED TO RULES COMMITTEE

Similar Subject Match or Exact Subject Match
APPROPRIATIONS
RAILROAD
RESOURCES
SPECIAL APPROPRIATIONS
TRANSPORTATION
UTILITIES

Bill Root: [ ] Display History/Action | Clear Bill Root

Bill Text

H

BILL ID: SCS CSHB 183(TRA)(EFD FLD S)

SENATE CS FOR CS FOR HOUSE BILL NO. 183(TRA)(efd fld S)
"An Act directing the identification and delineation of a transportation and utility corridor between Fairbanks and the Seward Peninsula."
BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:
* Section 1. AS 19.25 is amended by adding a new section to read:
Sec. 19.25.123. FAIRBANKS - SEWARD PENINSULA TRANSPORTATION AND UTILITY CORRIDOR. (a) Subject to legislative appropriation, the department shall identify and delineate a proposed transportation and utility corridor between Fairbanks and the western end of the Seward Peninsula.
(b) In performing the work required by (a) of this section,
(1) the railroad alignment and identification of a railroad right-of-way of not less than 500 feet, together with adjacent sites that can be developed for necessary construction materials, shall guide the identification and delineation of the corridor; and
(2) the department shall consider the following factors:
(A) grade and alignment standards that are commensurate with rail and road construction standards;
(B) availability of construction materials;
(C) safety;
(D) impacts on and service to adjacent communities;
(E) environmental concerns;
(F) use of public land to the maximum degree possible;
(G) minimization of probable construction costs;
(H) the location of, and the opportunity to obtain access to, identified natural resources that could contribute significantly to the state's economic development; and
(I) prior and established traditional uses.
(c) Within 90 days after receiving a report transmitting the work of the department under (a) of this section, the commissioner shall, in conformity with AS 44.62 (Administrative Procedure Act), if necessary, adopt a regulation approving, modifying, or rejecting the proposed corridor.
(d) If the commissioner approves or modifies the proposed corridor when presented under (c) of this section,
(1) the Department of Natural Resources shall promptly classify, or reclassify, and reserve any state land within the corridor and at adjacent sites that can be developed for necessary construction materials for use as a corridor; and
(2) the department shall
(A) subject to legislative appropriation, exercise its authority under AS 19.05.040 to acquire rights-of-way across land within the corridor that is subject to the state's power of condemnation; and
(B) work with federal officials to secure reclassification and withdrawal of federal land in the corridor for reservations and rights-of-way across the federal land for use as a corridor.
(e) The requirements of AS 38.05 (Alaska Land Act) relating to classification and reclassification of land are inapplicable to actions taken under this section.
(f) To complete the work required by this section, the commissioner may accept any legal gifts and grants and may enter into contracts or other transactions or agreements relating to it with the federal government, an agency or instrumentality of the state, a municipality, or a private organization.
(g) In this section, "corridor" means the transportation and utility corridor required to be identified and delineated by (a) of this section.
* Sec. 2. AS 19.25.123, added by sec. 1 of this Act, is repealed July 1, 2055.

Bill Root: [ ] Display History/Action | Clear Bill Root

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Bill Text

H

BILL ID: CSSB 135(FIN)

CS FOR SENATE BILL NO. 135(FIN)
"An Act making a special appropriation to the Department of Transportation and Public Facilities to determine the cost of acquiring real property within the right-of-way of the proposed extension of the Alaska Railroad from Eielson Air Force Base to the Alaska-Canada border; and providing for an effective date."
BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:
* Section 1. The sum of $10,000 is appropriated from the general fund to the Department of Transportation and Public Facilities for the fiscal year ending June 30, 1995, to determine the cost of acquiring private land and private interests in land within the right-of-way described in the April 1982 updated report of the Department of Transportation and Public Facilities on Route Selection for the Alaska Railroad Extension from Eielson to Canadian Border.
* Sec. 2. This Act takes effect July 1, 1994.

Bill Root: [ ] Display History/Action | Clear Bill Root

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HOUSE JOINT RESOLUTION NO. 51

IN THE LEGISLATURE OF THE STATE OF ALASKA

TWENTY-FIRST LEGISLATURE - SECOND SESSION

BY REPRESENTATIVES JAMES, Dyson, Harris, Whitaker, Foster, Masek, Kott, Coghill, Davies, Croft, Murkowski, Hudson, Therriault, Ogan, Austerman, Kemplen, Cowdery

Introduced: 1/31/00
Referred: House Special Committee on World Trade and State/Federal Relations, Transportation

A RESOLUTION

Expressing support for a cooperative United States-Canada feasibility study on extending the North American rail system through British Columbia and the Yukon Territory to Alaska.

BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

WHEREAS rail transportation is the most cost-effective long distance method of overland transportation; and

WHEREAS rail transportation is an essential component of the North American inter-modal transportation system; and

WHEREAS rail transportation is energy efficient, capable of moving goods three to nine times farther per unit of fuel than highway transportation; and

WHEREAS rail transportation emits lower levels of carbon monoxide, carbon dioxide, nitrogen oxides, and volatile organic compounds per ton of freight moved than other modes of freight transportation; and

WHEREAS rail transportation systems allow controlled access to and reduced overall effects on environmentally sensitive regions; and

WHEREAS rail transportation remains an important component of national and

continental defense planning; and

WHEREAS the North American rail transportation system will not be complete until it extends to all states, provinces, and territories on the continent; and

WHEREAS the State of Alaska recently enacted legislation to reauthorize the delineation and acquisition of a rail transportation corridor from the present terminus of the Alaska Railroad to the border between Alaska and the Yukon Territory; and

WHEREAS Alaska, the Yukon Territory, and British Columbia contain extensive oil and gas, mineral, and timber resource reserves that currently are inaccessible, and bilateral cooperation in the development of a freight transportation infrastructure would facilitate the utilization of these resources for the benefit of the United States and Canada; and

WHEREAS a northern rail system may significantly benefit the visitor industry by facilitating the comfortable movement of passengers over long distances while minimizing the effect of such movement on the surrounding environment; and

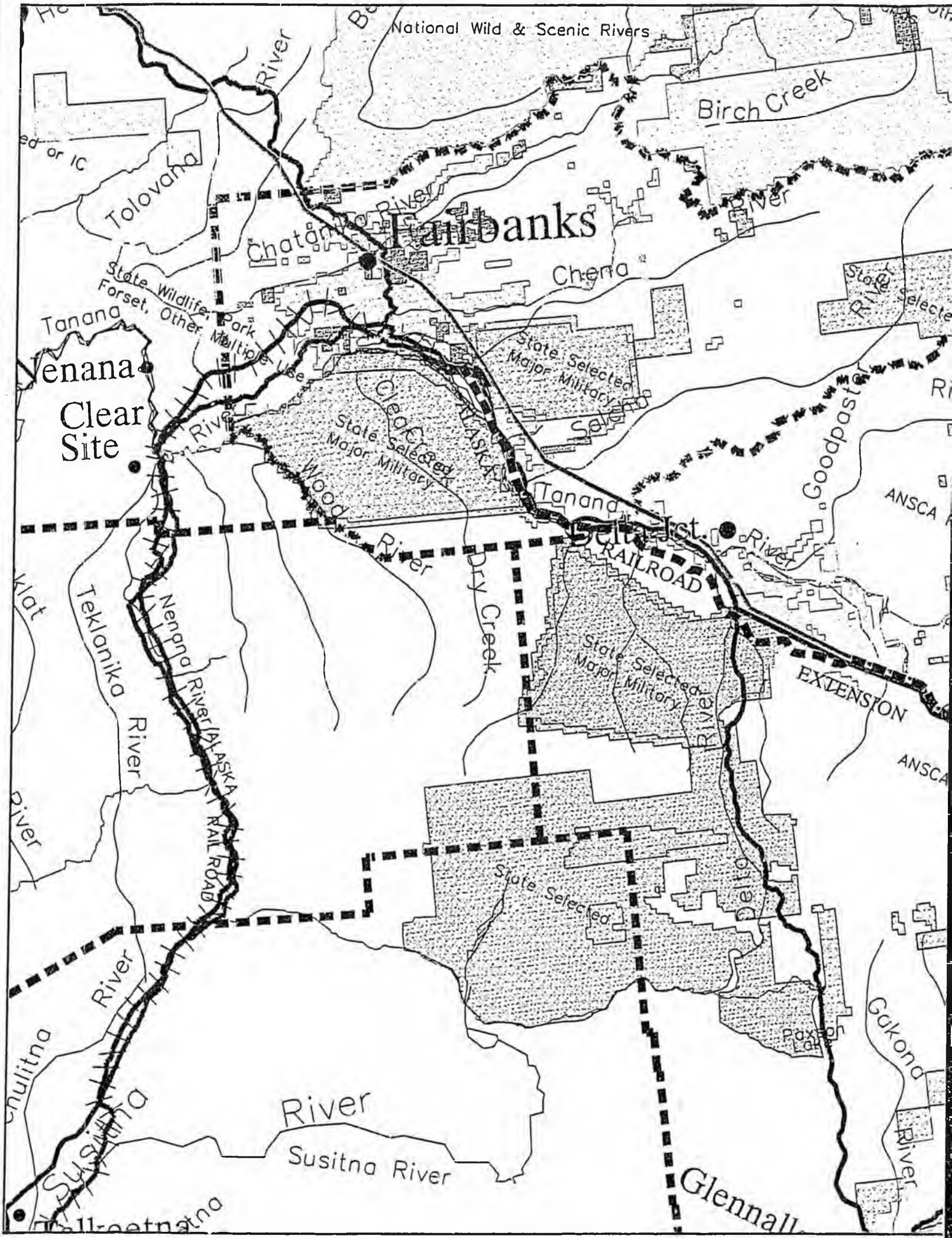
WHEREAS ongoing research and advancements in rail technology continue to increase the efficiency of rail transportation and ensure rail safety and decrease the effect of rail transportation on the environment;

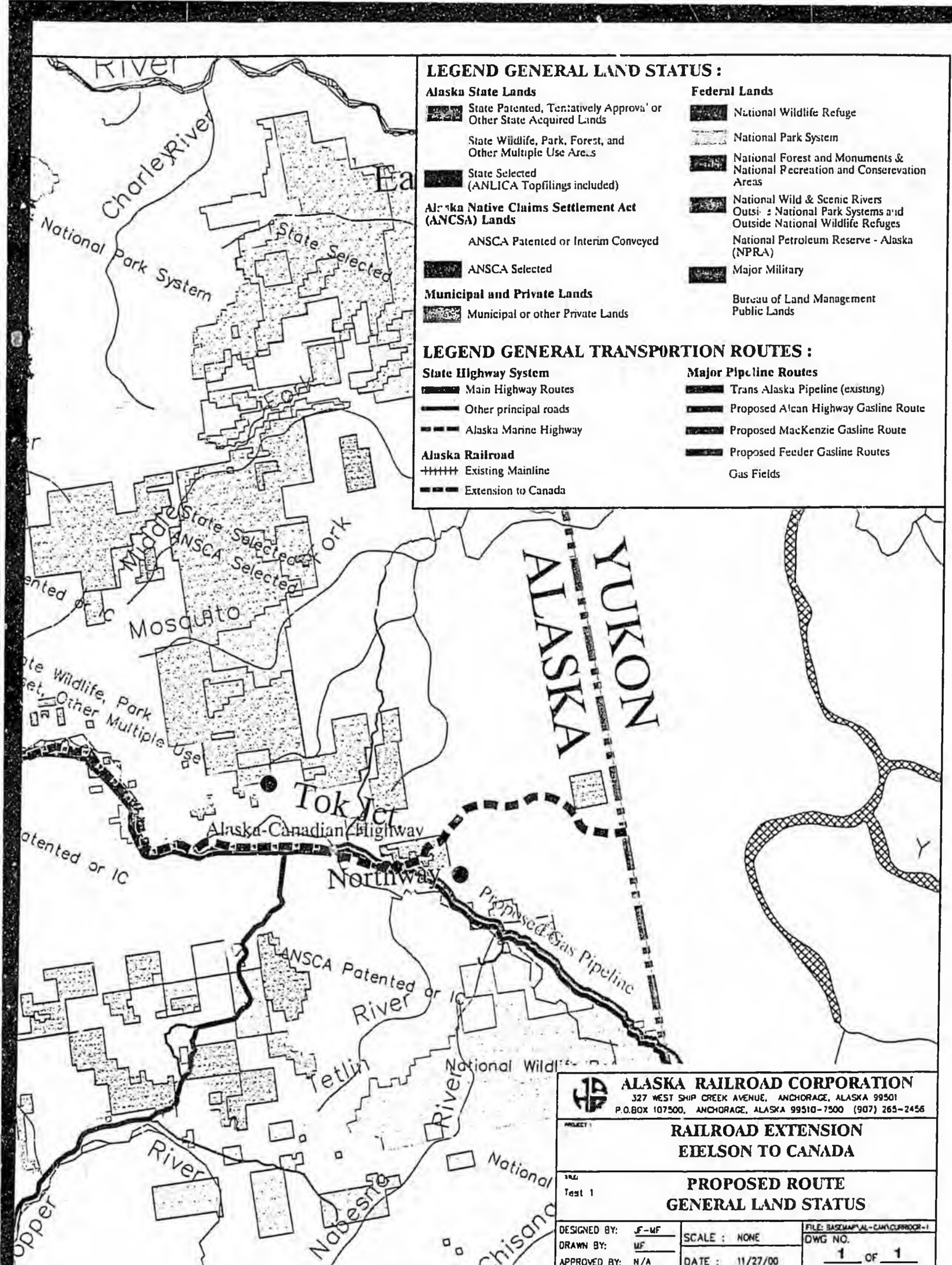
BE IT RESOLVED that the Alaska State Legislature respectfully requests the government of the United States and the government of Canada to engage in a cooperative feasibility study to examine the costs and benefits of constructing a rail connection to link Alaska and the Yukon Territory by way of northern British Columbia with the existing North American rail transportation system; and be it

FURTHER RESOLVED that the Alaska State Legislature respectfully requests the government of the United States and the government of Canada to establish a bilateral commission representing local governments, business interests, and aboriginal stakeholders to define the goals and objectives for the cooperative feasibility study and to report the results of the study to the appropriate governmental entities of the United States and Canada; and be it

FURTHER RESOLVED that the Alaska State Legislature respectfully requests that funding for operation of the bilateral commission and for the conduct of the cooperative feasibility study be considered a priority for the governments of the United States, Canada, British Columbia, the Yukon Territory, and the State of Alaska.

COPIES of this resolution shall be sent to the Honorable Jean Chretien, Prime Minister of Canada; the Honorable David Collenette, Minister of Transport, Transport Canada; the Honorable Dan Miller, Premier of the Province of British Columbia; the Honorable Piers McDonald, Government Leader, Yukon Territory; the Honorable Bill Clinton, President of the United States; the Honorable Madeleine K. Albright, United States Secretary of State; the Honorable Rodney E. Slater, United States Secretary of Transportation; the Honorable Strom Thurmond, President Pro Tempore of the U.S. Senate; the Honorable Jesse Helms, Chair of the Committee on Foreign Relations of the U.S. Senate; the Honorable John McCain, Chair of the Committee on Commerce, Science, and Transportation of the U.S. Senate; the Honorable J. Dennis Hastert, Speaker of the U.S. House of Representatives; the Honorable Benjamin A. Gilman, Chair of the Committee on International Relations of the U.S. House of Representatives; the Honorable Bud Shuster, Chair of the Committee on Transportation and Infrastructure of the U.S. House of Representatives; and to the Honorable Ted Stevens and the Honorable Frank Murkowski, U.S. Senators, and the Honorable Don Young, U.S. Representative, members of the Alaska delegation in Congress.


National Wild & Scenic Rivers
Birch Creek
Fairbanks
Tolovana
Chatanika River
Chena
Tanana
Clear Site
State Selected Major Military
Wood River
Dry Creek
Salcha River
Goodpaster
ANSCA
RAILROAD
EXTENSION
Teklanika River
Nenana River
ALASKA RAILROAD
Susitna River
Glennallen



ALASKA RAILROAD CORPORATION
327 WEST SHIP CREEK AVENUE, ANCHORAGE, ALASKA 99501
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

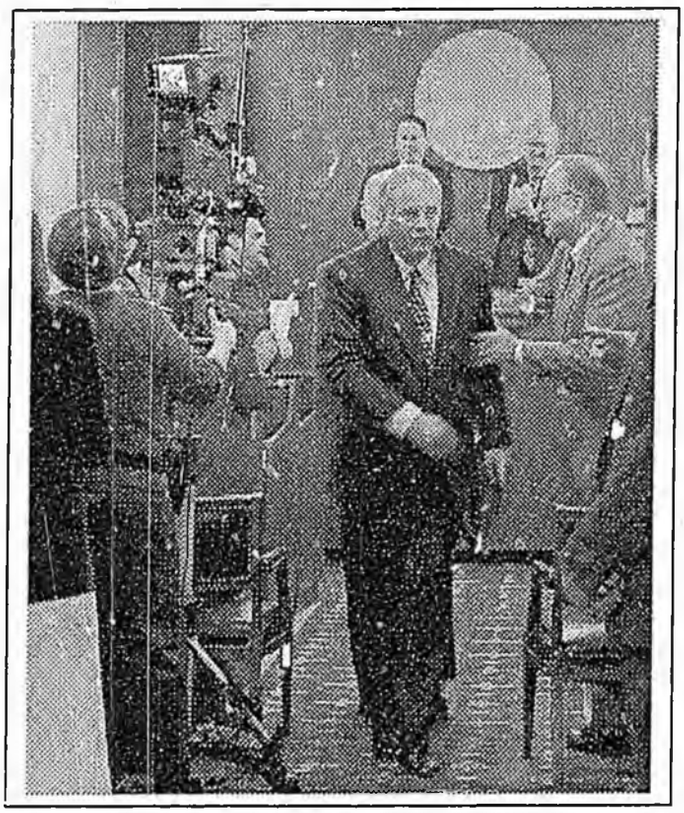
PROJECT :
RAILROAD EXTENSION EIELSON TO CANADA

TITLE
Test 1
PROPOSED ROUTE GENERAL LAND STATUS

DESIGNED BY:	JF-MF	SCALE : NONE	FILE: BASEMAP\AL-CAN\CORRIDOR-1
DRAWN BY:	MF		DWG NO. 1 OF 1
APPROVED BY:	N/A	DATE : 11/27/00	

SECTION 2:

SENATOR MURKOWSKI'S 'RAILS TO RESOURCES' INFORMATION PACKET



URL: www.repjames.org

Rails to Resources

Bringing Alaska and the Yukon closer to the world



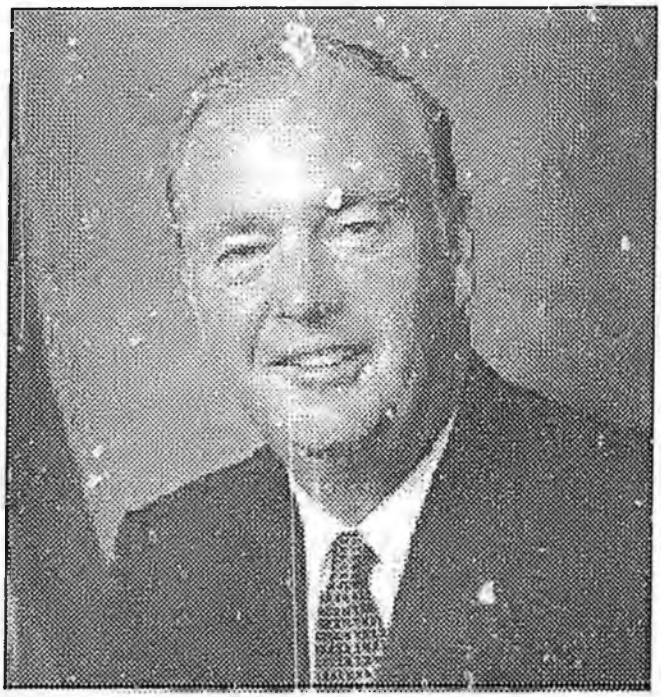
United States Senator Frank H. Murkowski

Press Information Packet
March 16, 2000

Here is an Op-Ed on the Senator's view on expanding railroads in Alaska. It is timely because of the introduction of legislation to set up a commission to consider railroad extension. Please consider for use. (Words 988) 3-15/16-00

Let's Get Alaska's Economy Back on Track by Extending Railroads

By Senator Frank Murkowski



Senator Frank H. Murkowski of Alaska

Back in April 1915, President Woodrow Wilson decided that construction of a railroad to Alaska's Interior was the single greatest step he could take to unlock the then territory's great promise and to get the region's economy on track.

Some eighty-five years later times have *not* changed.

Alaska and the neighboring Yukon Territory in Canada are still North America's last uptapped storehouse of mineral and natural resource wealth. We now know where much of that treasure lies — economic transportation to get the materials to market being the chief impediment to its development.

Over the years one thing has changed: We now know how to develop our mineral, energy and timber resources in an environmentally sensitive manner, so we can protect the beauty and the wildlife of the North, while producing jobs to sustain the region's human inhabitants.

We know there is a mineral zone that extends throughout the Yukon-Tanana uplands near Faro, Y.T., north to Fairbanks. The zone, home already to the Fort Knox gold mine in Alaska and the future home of mines working the huge Pogo gold deposit, contains large amounts of silver, tungsten, copper, lead, zinc and other ores. On the Alaska side of the border there are already more than 14 major hardrock deposits identified, while in the Yukon there are more than 10 major mineral deposits known. This does not include the Alaska coal deposits a line could move to Lower 48 or East Asian markets.

The same zone is also filled with timber. Within just 15 miles of a likely 1,200-mile railroad corridor through Canada into Alaska, there are 1.4 billion board feet of hardwood pole timber and almost 1.7 billion board feet of mixed pole timber.

Further to the North lies a second developmental target that another railroad could help get on track. That is the huge low-pollution, high-quality coal deposits at Point Lay and also the vast minerals of the Amber mining district farther to the southeast.

It would take just a 90-mile line to carry the coal from Point Lay to the Red Dog mine where a 60-mile line along the existing mine haul road would carry it to tidewater. Such a railroad could bring energy, in the form of coal, to the mine where it could be used to power a new electro-refining technology that would add tremendous value to the zinc-lead ore being shipped from Alaska, and most importantly provide additional jobs to the region. It also would finally allow some of the North Slope's 6 trillion tons of coal to be exported.

It would take just a 150-mile line to access the vast hard-rock resources of the Ambler Mining District and bring them to the coast, or about a 350-

mile line to tie into the Alaska Railroad heading south.

Some would say talk of railroad extensic n is nothing more than "pie-in-thesky" rhetoric. But railroads offer a host of benefits. They are the most energy efficient form of transportation. More importantly, they are one of the most environmentally sensitive forms of transportation. Railroads offer controlled access that removes the environmental threat of uncontrolled development. They emit the lowest levels of air pollution and usually cause the least disruption to the land.

And a rail corridor would encourage the co-location of all pipelines and power transmission lines — a process that makes especially good environmental sense.

I propose a public/private alliance to conduct a comprehensive feasibility study. Let's join forces to make a modest investment to examine this carefully.
- US Senator Frank H. Murkowski, speaking to the CAN/AM Border Trade Alliance in September of 1999

Last year, after talks with Canadian Parliamentarians during the Canada-U.S. Interparliamentary Conference, I held discussions with Canadian Ambassador Raymond Chretien and Canadian Minister of Transport David Collinette, and later with the Canadian-American Border Trade Alliance. In January I was further encouraged by estimates that their might be 120 million tons of freight a year from new mines and timber development along the Alaska-Canada rail corridor that would utilize such a new railroad link.

Thus I am introducing legislation in Congress to advance consideration of that railroad project. My bill will create an impartial bilateral commission to study the economic, environmental and engineering feasibility of completing the transcontinental railroad linking Canada with Alaska.

A joint commission should have the funding — I'm proposing $6 million — and the authority to oversee a comprehensive feasibility study of a line from where the Canadian rail system ends at either Fort Nelson or near Fort St. James, about 900 miles from the Alaska border, northward to link up with the Alaska Railroad, 270 miles from the border near Fairbanks.

My bill would create an 18-member commission, half being appointed by each country. The commission would be fully representative of the residents of the area and also include scientific expertise to make sure that the difficult issues surrounding a railroad will be thoughtfully considered.

Quick action to set up the commission is particularly timely since a decision is likely within the next year on whether the United States should proceed with construction of an anti-missile defense system. And perhaps the best site for an initial 100-missile intercepter base is at Delta. That decision might justify extending the railroad to Fort Greeley, 80 miles closer to the border than Eielson Air Force Base — reducing the amount of additional track needed in Alaska to about 190 miles.

We should not be afraid to think seriously about big projects. Just because they're daunting, doesn't make them impossible. In this day and age of great concern for the environment: if one assumes — as I do — that the resources of the Yukon and Alaska inevitably will be developed, then rail looks like a very healthy way to make that possible.

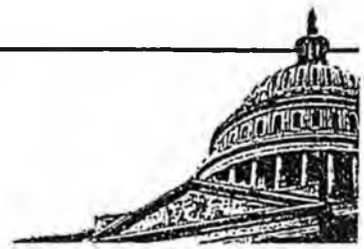
All the commission will do is bring about debate. It will consider and explore new ideas. If a railroad connection is economically, environmentally and socially sound, then we should move ahead with it. If it is not, then it should be dropped. But at the very least, let's give the idea an honest hearing, now before any more decades pass.

-30-

NEWS FROM THE OFFICE OF

FRANK MURKOWSKI

United States Senator • Alaska



For Immediate Release:
March 16, 2000

Chuck Kleeschulte or Cindi Bookout
O (202) 224-9306; H (301) 283-4149; O 224-8767
(Email: chuck_kleeschulte@murkowski.senate.gov)

Murkowski Introduces Alaska-Canada Railroad Extension Bill

FAIRBANKS — Alaska Sen. Frank Murkowski took another step in efforts to link the continental rail system with the Alaska Railroad when he announced today he will introduce legislation to create a bilateral U.S.-Canada Commission to study the feasibility of the rail link.

Murkowski announced legislation in the Senate that would create an 18member commission, equally appointed by the President and the Canadian government, to conduct a technological and economic feasibility study of linking the rail system in Alaska to the "nearest appropriate point" in Canada. The commission would be charged with reporting on the results of its study within five years, and it would be authorized to spend $6 million in American funds on preliminary engineering and environmental work.

"Alaska and the Yukon both are woefully deficit in the transportation systems to move goods to market. A railroad extension might provide the essential transportation infrastructure to allow the Far North to blossom in the decades ahead, while protecting the environment. If a railroad connection proves to be economically, environmentally and socially sound, then let's move ahead. If not, let's drop the idea. But at the very least we need this commission to give the idea a honest hearing," said Murkowski in announcing the legislation.

Last year, after discussions with a group of Canadian parliamentarians, Canadian Ambassador Raymond Chretien, Canadian Minister of Transport David Collinette, and the Canadian-American Border Trade Alliance, Murkowski suggested it might make sense to build the roughly 1,200 miles of rail that would be needed to finish the linkup. The Alaska Railroad currently ends at Eielson Air Force Base, outside of Fairbanks, about 270 miles from the Canadian border, while the Canadian rail system ends at spurs to Fort Nelson or beyond Fort St. James, both about 900 miles from the Alaskan border.

Noting that America is continuing testing on a North American anti-missile defense system, Murkowski noted this is a particularly good time to launch a review of railroad extension since one of the prime sites under consideration for a missile interceptor

base is at Delta Junction in Alaska, which could well justify construction of the first 80 miles of the Alaska Railroad's extension toward the Canadian border.

Murkowski also encouraged a railroad conference held in Vancouver, B.C. in January. He said some estimates during the conference indicated the potential for such a line to carry up to 120 million tons of freight per year — future mineral developments and timber making up the majority of the potential freight.

He noted the line would allow economic development of the mineral resources of the Yukon-Tanana uplands that stretch from Faro, Y.T., north to Fairbanks. The zone, home already to the Fort Knox gold mine in Alaska and the future home of mines working the huge Pogo gold deposit, contains large amounts of silver, tungsten, copper, lead, zinc and other ores. On the Alaska side of the border there are already more than 14 major hard-rock deposits identified, while in the Yukon there are more than 10 major mineral deposits known. This does not include the Alaska coal deposits a line could move to markets in the rest of North America or to port facilities connecting to East Asia.

Murkowski said the railroad's likely corridor is also filled with timber. He said within just 15 miles of a likely railroad corridor, there are 1.4 billion board feet of hardwood pole timber and almost 1.7 billion board feet of mixed pole timber.

"I am not an expert. I cannot verify the 120 million ton freight estimate. But it is fuel for thought and a reason why we need a comprehensive feasibility study," said Murkowski.

He said such a study commission might be opposed by environmentalists because of their bias against the use of natural resources or fear of the opening of undeveloped land in the north by a rail line. But Murkowski said a railroad should be most favored transportation system by environmentalists since railroads have small "footprints," and are controlled access systems that prevent uncontrolled development and uncontrolled land and wildlife impacts.

Under the bill, the commission would be comprised of representatives from local communities and local/Native residents, individuals with economics, engineering and resource management backgrounds, including representatives with minerals, timber and wildlife and fisheries management training. Specifically the American side of the commission will contain two members from local communities, one representing the State of Alaska nominated by the Governor, one representing Alaska Natives, four from commercial activities including one associated with the Alaska Railroad, and two scholars employed by Alaska education institutes, one with subarctic engineering expertise.

The bill will formally be introduced in the Senate on Monday, March 20. -30-

Resolution of Support for a U.S.-Canada Cooperative Feasibility Study on Extending the North American Rail System through British Columbia, the Yukon Territory, and to Alaska

Alaska-Canada Rail Link Conference, January 20, 2000, Vancouver, BC

Whereas, rail transportation is the most cost-effective long distance method of overland transportation; and,

Whereas, rail transportation is an essential component of the North American inter-modal transportation system; and,

Whereas, rail transportation is energy efficient, capable of moving goods three to nine times as far as highway transportation with a given amount of fuel; and,

Whereas, rail transportation emits lower levels of carbon monoxide, carbon dioxide, nitrogen oxides and volatile organic compounds than other modes of freight transportation; and,

Whereas, rail transportation systems allow controlled access and reduced overall impacts to environmentally sensitive regions; and,

Whereas, rail transportation remains an important component of national and continental defense planning; and,

Whereas, the continental rail system cannot be said to be complete until it includes all states, provinces and territories; and,

Whereas, the Government of Alaska recently enacted legislation to reauthorize the delineation and acquisition of a rail transportation corridor from the present terminus of the Alaska Railroad to the Alaska-Yukon border; and,

Whereas, Alaska, the Yukon Territory, and British Columbia contain extensive oil and gas, mineral and timber resource reserves that currently are inaccessible, and require bilateral cooperation in the development of freight transportation infrastructure to facilitate their utilization for the benefit of the United States and Canada; and,

Whereas, northern rail transportation may provide significant potential for the visitor industry by facilitating the comfortable movement of passengers over long distances while minimizing the impact of such movement on the surrounding environment; and,

Whereas, ongoing research and advancement in rail technology continues to increase the efficiency of rail transportation, ensure rail safety, and decrease the impact of rail transportation on the environment,

Therefore be it resolved, that the undersigned call upon the United States and Canada to engage in a cooperative feasability study to examine the costs and benefits of constructing a rail connection to link Alaska and the Yukon Territory via northern British Columbia with the existing North American rail system; and,

Be it further resolved, that a bilateral commission representing local governments, business interests, and aboriginal stakeholders be created to define the goals and objectives for the cooperative feasability study, and to report the results of the study to the appropriate governmental entities of Canada and the United States; and,

Be it further resolved, that funding for operation of the bilateral commission and for the conduct of the cooperative feasability study should be considered a priority by the federal, state, provincial and territorial governments; and,

Be it further resolved that copies of this resolution shall be disseminated to local, provincial, territorial, state and federal governments in the affected regions of the United States and Canada.

Ed Asp, Dease Lake & Tahltan District Chamber of Commerce
Laurel Barger-Sheen, Delta Junction Chamber of Commerce
Dave Beatty, Ironworkers Local 97
Tom Blackbird
John Blair, McElhanney Land Surveys
Douglas Blamey, Whistle Poke Railway Co.
Kells Boland, Prolog Canada Inc.
Morris Booth, The Bering Connection
J. D. (David) Broadbent, Canadian Arctic Railway
Al Broadfoot, Thompson Foundry
Bill Brophy, Fairbanks Industrial Development Corporation
Jim Carlyle, Seaspan International Ltd.
Gil Carmichael, Board of Directors, Intermodal Transportation Institute
Domenico Celli, Canadian Arctic Railway
Terry Chandler
Alben Chmelauskas, MacMillan Bloedel Paper Co
Jim Christie, McElhanney Land Surveyors
Marshall Cohoe, Confederation Pacific Roadways Ltd.
George Colquhoun
Hal Cooper, Cooper Consulting Company
Iain Cuthbert, Triton Environmental Consultants
Graham Dallas
Lyle Dallman, Ahtna Enterprise Corp.
Paul Daniels, The Bering Connection
Steven Dean, Teck Corp.
Jesse Duke, Yukon Dept. Of Economic Development
James Evavold, A Financial Source
Bruce Feltham
Michael Fournier
Peter Fraser, Pacific Corridor Enterprise Council
T. C. Fuglestad, Tryck Nyman Hayes, Inc.
Jim Gleeson
David Gobel, Technical Services and Design
Gloria Goodwin, Fort St. James Chamber of Commerce
Diane Gregory, Kennecott Canada Exploration
Paul Grigsby, BC Chamber of Commerce
Kees Groot, Canadian Arctic Railway
Pete Hallgren, City of Delta Junction (Ft. Greely Reuse Authority)
John Hansen, Northwest Cruise Ship Association
David Hayer
Gordon Hazlewood
Joe Henri, International Bering Strait Tunnel and Rail Group
Laurie Herman, Alaska Railroad
Scott Hinds
Steve Hites, Skagway Street Car Company
Jeannette James, Alaska House of Representatives
Scott Janke, City of Seward
Graham Kedgley, NW Corridor Development Corp./ Kitac Ent. Ltd.
Doug Kelsey
James Kohnke, BC Chamber of Commerce
Gerard Koldyk, Railpower Technologies, Inc.
Pam LaBolle, Alaska State Chamber of Commerce
Paul Levelton, KPMG International
Darren Lewis, Lance Yearly Exp. Metal Trades Division
Arnold Lincoln, Ahtna Enterprises Corp.
Don Lowell, Alaska Transportation Consultants, Inc.
Andrew Lund, Lance Yearly Exp. Metal Trades Division
Donna Mercier, Yukon Chamber of Commerce
Paul Metz, UAF Dept. Of Mining and Geological Engineering
Debbie Miller
Daniel Morris
Roberta Mulholland, BC Yukon Hotel Association
Susan Munro, Ft. Nelson Chamber of Commerce
John Murphy, Cominco Ltd. Transportation Dept.
Hansi Natzke, Pro Tours
Clynton Nauman, Viceroy Resource
Peter Norton
Jerry Ofukany, Canadian Arctic Railway
Bruce Patnode
Stephen Phillips
Merle Railton, Westrail Construction
Steve Rhodes
Scott Robart, Can-Al Rail Link
Marc Ross, National Automobile
Fred Ruddell
Jon T. Rudolph, BC Yukon Hotel Association
Brodie Sakakibara, WESTAC
Helvi Sandvik, NANA Development Corp.
David Servage, Terus Construction Ltd.
Dave Slater
Dave Smith, Thurber Engineering Ltd.
Susan Steen
John Melvin Stewart
R. J. Stoeckly, Southern Railway of British Columbia
John Strini, Thompson Foundry
Steven Szeplaky
David Tait, Tait and Tait Consultants
Joan Tait, Tait and Tait Consultants
Tony Tennessy
Bob Tivy
Jim Togyi, Ft. Saint James
Greg Vezina, Canadian Arctic Railway
Thomas Vissing, University of British Columbia
Patrick Weber, Canadian Arctic Railway
James Wilson
Milton Wiltse, Alaska Division of Geological and Geographic Surveys
John Winter, BC Chamber of Commerce
Mike Young, Fairbanks North Star Borough Assembly
R. Walt Young
Tom Zbaren, Hebert Research
Richard Zimmer

DRAFT--FOR DISCUSSION PURPOSES ONLY--DRAFT

106TH CONGRESS
2D SESSION

S. ____

IN THE SENATE OF THE UNITED STATES

Mr. MURKOWSKI introduced the following bill; which was read twice and referred to the committee on

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A BILL

To authorize the establishment of a joint United States-Canada commission to study the feasibility of connecting the rail system in Alaska to the North American continental rail system; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Rails to Resources Act of 2000."

SEC. 2. FINDINGS.

Congress finds that—

(1) rail transportation is an essential component of the North American intermodal transportation system;

(2) the development of economically strong and socially stable communities in the western United States and Canada was encouraged significantly by government policies promoting the development of integrated transcontinental, interstate and interprovincial rail systems in the states, territories and provinces of the two countries;

(3) U.S. and Canadian federal support for the completion of new elements of the transcontinental, interstate and interprovincial rail systems was halted before rail connections were established to the state of Alaska and the Yukon Territory;

(4) Both public and private lands in Alaska, the Yukon Territory and northern British Columbia, including lands held by aboriginal peoples, contain extensive deposits of oil, gas, coal and other minerals as well as valuable forest products which presently are inaccessible, but which could provide significant economic benefit to local communities and to both nations if an economically efficient transportation system was available;

(5) per ton of freight moved, rail transportation systems emit lower levels of carbon monoxide, nitrogen oxides and volatile organic compounds than other modes of freight

transportation;

(6) rail transportation systems are capable of moving cargo with up to nine times the energy efficiency of highway transportation;

(7) rail transportation in otherwise isolated areas facilitates controlled access and reduced overall impact to environmentally sensitive areas;

(8) the extension of the continental rail system through northern British Columbia and the Yukon Territory to the current terminus of the Alaska Railroad would significantly benefit the U.S. and Canadian visitor industries by facilitating the comfortable movement of passengers over long distances while minimizing effects on the surrounding areas;

(9) extension of the Alaska Railroad system to the Canadian border is consistent with the intent of Congress as expressed in the Alaska Railroad Organic Act of 1914, which called for a system of up to 1,000 miles in length; and,

(10) ongoing research and development efforts in the rail industry continue to increase the efficiency of rail transportation, ensure safety, and decrease the impact of rail service on the environment.

SEC. 3. AGREEMENT FOR A UNITED STATES-CANADA BILATERAL COMMISSION ON THE EXTENSION OF THE CONTINENTAL RAILROAD SYSTEM

The President is authorized and urged to enter into an agreement with the government of Canada to establish a joint commission to study the technological and economic feasibility of linking the rail system in Alaska to the nearest appropriate point on the North American continental rail system.

SEC. 4. COMPOSITION OF COMMISSION.

(a) MEMBERSHIP.—

(1) TOTAL MEMBERSHIP.—The Agreement should provide for the Commission to be composed of 18 members, of which 9 members are appointed by the President and 9 members are appointed by the government of Canada.

(2) GENERAL QUALIFICATIONS.—The Agreement should provide for the membership of the Commission, to the maximum extent practicable, to be representative of—

(A) the interests of the local communities (including the governments of the communities), aboriginal peoples, and businesses that would be affected by the connection of the rail system in Alaska to the North American continental rail system; and

(B) a broad range of expertise in areas of knowledge that are relevant to the significant issues to be considered by the Commission, including economics, engineering, management of resources (such as minerals and timber), social sciences, fish and game management, environmental sciences, and transportation.

(b) UNITED STATES MEMBERSHIP.—Under the Agreement, the President shall appoint the United States members of the Commission as follows:

(1) Two members from among persons who are qualified to represent the interests of communities and local governments of Alaska.

(2) One member representing the State of Alaska, to be nominated by the Governor of Alaska.

(3) One member from among persons who are qualified to represent the interests of Native Alaskans residing in the area of Alaska that would be affected by the extension of rail service.

(4) Four members from among persons involved in commercial activities in Alaska who are qualified to represent commercial interests in Alaska, of which one shall be a representative of the Alaska Railroad Corporation.

(5) Two members from among scholars employed in institutions of higher education in Alaska, at least one of whom must be an engineer with expertise in subarctic transportation.

(c) CANADIAN MEMBERSHIP.—The Agreement should provide for the Canadian membership of the Commission to be representative of broad categories of interests of Canada

as the government of Canada determines appropriate, consistent with subsection (a)(2).

SEC. 5. GOVERNANCE AND STAFFING OF COMMISSION.

(a) CHAIRMAN.—The Agreement should provide for the Chairman of the Commission to be elected from among the members of the Commission by a majority vote of the members.

(b) COMPENSATION AND EXPENSES OF UNITED STATES MEMBERS.—

(1) COMPENSATION.—Each member of the Commission appointed by the President who is not an officer or employee of the Federal Government shall be compensated at a rate equal to the daily equivalent of the annual rate of basic pay prescribed for level IV of the Executive Schedule under section 5315 of title 5, United States Code, for each day (including travel time) during which such member is engaged in the performance of the duties of the Commission. Each such member who is an officer or employee of the United States shall serve without compensation in addition to that received for services as an officer or employee of the United States.

(2) TRAVEL EXPENSES.—The members of the Commission appointed by the President shall be allowed travel expenses, including per diem in lieu of subsistence, at rates authorized for employees of agencies under subchapter I of chapter 57 of title 5, United States Code, while away from their homes or regular places of business in the performance of services for the Commission.

(c) STAFF.—

(1) IN GENERAL.—The Agreement should provide for the appointment of a staff and an executive director to be the head of the staff.

(2) COMPENSATION.—Funds made available for the Commission by the United States may be used to pay the compensation of the executive director and other personnel at rates fixed by the Commission that are not in excess of the rate payable for level V of the Executive Schedule under section 5316 of title 5, United States Code.

(d) OFFICE.—The Agreement should provide for the office of the Commission to be located in a mutually agreed location within the impacted areas of Alaska, the Yukon Territory, and northern British Columbia.

(e) MEETINGS.—The Agreement should provide for the Commission to meet at least biannually to review progress and to provide guidance to staff and others, and to hold, in locations within the affected areas of Alaska, the Yukon Territory and northern British Columbia, such additional informational or public meetings as the Commission deems necessary to the conduct of its business.

(f) PROCUREMENT OF SERVICES.—The Agreement should authorize and encourage the Commission to procure by contract, to the maximum extent practicable, the services (including any temporary and intermittent services) that the Commission determines necessary for carrying out the duties of the Commission. In the case of any contract for the services of an individual, funds made available for the Commission by the United States may not be used to pay for the services of the individual at a rate that exceeds the daily equivalent of the annual rate of basic pay prescribed for level V of the Executive Schedule under section 5316 of title 5, United States Code.

SEC. 6. DUTIES.

(a) STUDY.—

(1) IN GENERAL.—The Agreement should provide for the Commission to study and assess, on the basis of all available relevant information, the technological and economic feasibility of linking the rail system in Alaska to the North American continental rail system through the continuation of the rail system in Alaska from its northeastern terminus to a connection with the continental rail system in Canada.

(2) SPECIFIC ISSUES.—The Agreement should provide for the study and assessment to include the consideration of the following issues:

(A) Railroad engineering.

(B) Land ownership.

(C) Geology.
(D) Proximity to mineral, timber and other resources.
(E) Market outlook.
(F) Environmental considerations.
(G) Social effects, including changes in the use or availability of natural resources.
(H) Potential financing mechanisms.

(3) ROUTE.—The Agreement should provide for the Commission, upon finding that it is technologically and economically feasible to link the rail system in Alaska as described in paragraph (1), to determine one or more recommended routes for the rail segment that establishes the linkage, taking into consideration cost, distance, access to potential freight markets, environmental matters, and such other factors as the Commission determines relevant.

(4) COMBINED CORRIDOR EVALUATION.—The Agreement should also provide for the Commission to consider whether it would be useful and technologically and economically feasible to combine the power transmission infrastructure and petroleum product pipelines of other utilities into one corridor with a rail extension of the rail system in Alaska.

(b) REPORT.—The Agreement should require the Commission to submit to Congress and the Secretary of Transportation and to the Minister of Transport of the government of Canada, not later than 5 years after the Commission commencement date, a report on the results of the study, including the following:

(1) FEASIBILITY.—The Commission's findings regarding the technological and economical feasibility of linking the rail system in Alaska as described in subsection (a)(1).

(2) ROUTE.—If such an action is determined technologically and economically feasible, the Commission's recommendations regarding the preferred route and any alternative routes for the rail segment establishing the linkage.

SEC. 7. COMMENCEMENT AND TERMINATION OF COMMISSION.

(a) COMMENCEMENT.—The Agreement should provide for the Commission to begin to function on the date on which all members are appointed to the Commission as provided for in the Agreement.

(b) TERMINATION.—The Commission shall terminate 90 days after the date on which the Commission submits its report under section 6.

SEC. 8. FUNDING.

(a) RAILS TO RESOURCES FUND.—The Agreement should provide for the following:

(1) ESTABLISHMENT.—The establishment of an interest-bearing account to be known as the "Rails to Resources Fund".

(2) CONTRIBUTIONS.—The contribution by the United States and the government of Canada to the Fund of amounts that are sufficient for the Commission to carry out its duties.

(3) AVAILABILITY.—The availability of amounts in the Fund to pay the costs of Commission activities.

(4) DISSOLUTION.—Dissolution of the Fund upon the termination of the Commission and distribution of the amounts in the Fund between the United States and the government of Canada.

(b) AUTHORIZATION OF APPROPRIATIONS.—Funds are hereby authorized to be appropriated to any Fund established as described in subsection (a)(1) in the total amount of $6,000,000, to remain available until expended.

SEC. 9. DEFINITIONS.

In this section:

(1) Agreement.—The term "Agreement" means an agreement described in section 2.

(2) Commission.—The term "Commission" means a commission established pursuant to any Agreement.

(3) Commission commencement date.—The date determined under section 6(a).

The North American Rail System

From Real Horses to Real Horsepower

The first primitive "railroad" in the United States used horse-drawn cars on wooden rails, but experiments with steam locomotion began in the early 1800s, and in 1831, regular steam powered service began in South Carolina. Rapid expansion followed. Four years later, over 1,000 miles of track had been laid, and there were 200 railroad charters in eleven states.

Western development in the United States spurred even greater growth. By 1860, there were 11,000 miles of track. The westward expansion also prompted the first Congressional land grants to railroads. Government leaders felt that railroads would spur settlement, and the grants allowed companies not only to retain the rights of way for rail lines but to have saleable land to offset construction costs.

In the United States, four of the first five transcontinental railroads were largely made possible by such grants, along with a considerable number of smaller lines in the western United States. A total of 131 million acres of public land was appropriated to dozens of rail-lines. A receiving company was given the right-of-way along with alternate sections of land, with the Federal Government generally raising the price of the sections it kept. In return, all rates were reduced by 50% for Federal traffic. From 1850 until the practice was ended in 1946, it is estimated that the government saved $900 million; a considerable deal considering that the land was only worth a total of $500 million at the time it was granted. After the Civil War ended, trackage grew from 35,000 miles to an all-time high of 254,000 miles in 1916.

Canada's first railroad began operations in 1836, but by the middle of the century, although some 40 companies had been granted government permission to build rail lines, only six had actually laid any track, totaling only 80 miles. In 1849, the government stepped in to help, offering to lend enough money to cover half the construction costs of any line longer than 74 miles (120 kilometers).

Companies proved eager to take Canada's offer. By 1860, Canada's rail lines reached more than 2,000 miles. The first east-west link was achieved in 1885 when the last spike in the Canadian Pacific Railway was driven. That set the tone, and in just 50 years, from 1850 to 1900, the miles of track available to Canada's railroads grew from 80 miles to 19,000.

Today, Canadian National operates about 17,000 miles of track in Canada and another 950 miles in the United States. The CN network serves all five of Canada's major ports: Halifax, Montreal, Prince Rupert, Thunder Bay, and Vancouver.

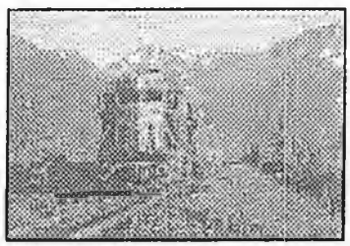
Meanwhile, Canadian Pacific operates a 15,000 mile network extending from Montreal to Vancouver and into the U.S. midwest and northeast. It serves ports on the east coasts of Canada and the U.S. and the Port of Vancouver.

Technological developments for rail lines rode the swelling tide of industrial change. Larger, more powerful locomotives, cars with larger capacities, improved couplers, the application of air-brakes, as well as adoption of standard gauge rail and standard time resulted in huge gains of efficiency and economic rail service. The development of national, rather than regional, economies in North America is owed in no small way to the influence of our railroads.

The Alaska Railroad

The history of the Alaska Railroad begins in 1903 with the Alaska Central Railway; a failed venture that managed to lay only 71 miles of track out of Seward, in an unsuccessful attempt to reach Anchorage.

But Congress still felt it was wrong that a territory twice the size of Texas had no rail system. The Alaska Railroad Organic Act of March 12, 1914 required incoming President Woodrow Wilson to construct a rail not to exceed 1,000 miles and, among other things, to "...best aid in the development of the agricultural and mineral or other resources of Alaska...and so as to provide transportation of coal for the Army and Navy, transportation of troops, arms, munitions of war, the mails, and for other governmental and public uses." The act gave the President broad powers to acquire land, operate terminals, or anything else that could help make the railroad a reality.



In 1915, the government purchased the remains of the Alaska Central for $1.2 million, and selected the current route northward. In 1917, it also bought the Tanana Valley Railroad, a narrow-gauge miners' line northwest of Fairbanks, for $300,000. These acquisitions formed the nucleus of the present system.

By the end of 1920, the Alaska Engineering Commission completed 382 miles of new track, and rebuilt the original 71 miles out of Seward and 32 miles in the Tanana Valley. The main obstacle for completion were bridges to span the Tanana River and Hurricane Gulch. The Tanana bridge had a 701 foot span, which at the time was the longest such in the United States. The Hurricane Gulch bridge spanned a total of 918 feet with a height of 296 feet.

Just before his untimely death, on July 15, 1923, President Warren G. Harding drove the golden spike officially completing the Alaska Railroad.

Military bases and construction projects starting in the 1930s spurred continued refinements to accommodate heavier loads and straighter hauls, and a large "picture postcard" terminal was built in Fairbanks. The assumption was that the latter would become the terminus for a railroad across British Columbia and the Yukon Territory to link Alaska with the railways of the lower 48 states.

World War II provided another influx of new equipment. Post-war rehabilitation encouraged passenger service and in 1946, a blue and gold streamliner, the AuRoRa, made its first run between Anchorage and Fairbanks. For military purposes, a spur to Whittier had been established by tunneling next to Portage Glacier in 1944.

Also during World War II, in 1942, U.S. Army Engineers surveyed a route that would have taken the railroad all the way from Fairbanks to Prince George, British Columbia, connection to the North American rail system there, and extended the Alaska portion of the line all the way to Teller, on the northwest coast.

Although the latter parts of the once-planned system have not yet been built, the U.S. Department of Defense has consistently maintained that Alaska's strategic location remains critical, and that rail is an essential element of a comprehensive defense transportation system.

The Alaska Railroad was transferred from the Federal Government to the State of Alaska in 1983, and today it remains a great asset.

Proposed Railroad Corridor Resources

The Tanana uplands, which stretch over 250 miles from the Yukon Territory into Fairbanks, Alaska, appears to be rich in base metal potential (gold, silver, copper, lead, zinc, molybdenum, and tin). Because of the lack of infrastructure, there has been little detailed exploration for base metals other than gold in this region. With rail access, there is no question that significant new base metal deposits will be identified.

The Uplands have a history of incredible resource potential dating back to the gold rush days along the Yukon River. Today the area still remains mostly as it was then: inaccessible. In spite of this, one of the most productive gold mines in the United States, Fort Knox, operates just outside of Fairbanks and produces over 1,000 ounces of gold per day. Access is currently being worked out to reach the Pogo deposit, further to the east, which contains an estimated 5.2 million ounces of gold. Although gold is still a draw, the uplands contain tremendous amounts of silver, tungsten, copper, lead, zinc, and other minerals in identified deposits.



Silver/gold prospect in the Chulitna mining district.
-photo by K. H. Clautice

Further to the northwest lies the largest coal field in the United States near Point Lay. Not only is this coal very near the surface, but it is of exceptional quality averaging 12,000 BTUs and an extremely low sulfur content of less than 0.02%. Not far south from Point Lay is the Red Dog zinc mine, which last summer announced new finds. Unfortunately, the mine can only ship product for a few months of the year when pack ice retreats enough to allow barge traffic. The Matanuska-Susitna Valley region to the south hides yet another large, high quality coal deposit that already sits on the Alaska Railroad line. With the development of a connection, this would be available for shipment to the rest of the continent.

Claim staking activity in Alaska also has a traditional fall-off curve, but recent years have not seen that tradition followed. 1998 was the third $1 billion year for mining in Alaska. Staking continued strong through the summer of 1999 with results still being processed. Figure 1 shows a select list of Alaska mines near the railroad corridor.

On the other side of the border in the Yukon, active mining, approvals, and exploration are all ongoing, but with similar access problems as occur in Alaska. 1998 mineral production exceeded $100 million (Canadian), and the industry continues to play the largest role in the private sector economy of the territory. Recent exploration and development activity has reached a peak not seen since the Klondike Gold Rush. With a government committed to seeing a healthy investment climate for the mining industry combined with citizen support, mining potential for the Yukon has far to go. Figure 2 shows a few mines in the Yukon Territory near the proposed corridor.

Forestry information along the proposed corridor is similarly bright, but yet again with similar access problems. Within 15 miles of the corridor from the Yukon to Fairbanks lies 117 million cubic feet of hardwood pole timber and 141 million cubic feet of mixed pole timber. The Ladue River valley alone has the potential to create a chipping industry in Alaska even with its low-value fiber.

The forest products industry is still a fledgling in the Yukon Territory, but activity has developed throughout the last couple of decades in the Watson Lake area. Other potential areas include Mayo, Dawson City, Teslin, and Haines Junction. Timber supply shortages in the northwest combined with increased demand in Asian markets keep the future of this industry positive, but much of the territory has yet to be surveyed.

figure 1, mining data in Alaska

Alaska Mines	Ownership	Resource Information
Koyukuk-Huges mining district	production mostly from Alaska Gold Co.	231,000 oz Au produced 1930-1995
Innoko-Tolstoi mining district		Placer Au district; significant Au-Sb-Hg potential 706,267 oz Au produced through 1995
Hot Springs mining district	(numerous)	Placer Au-Sn district; 568,632 oz Au and 720,000 lb cassiterite produced through 1995
Fairbanks mining district	(numerous)	8,022,434 oz placer Au 1902-1995; 304,548 oz Au and over 4 million lbs Sb from veins and shear zones produced through 1990
Fort Knox	Kinross Gold Corp.	3,745,000 oz Au proven and probable reserves open at depth; 702,295 oz Au produced between 1996 and 1998
Ryan Lode	reclaimation by La Teko Resources Inc.	822,200 oz Au and 2.4 million oz Au in two shear zones
Grant Mine		212,000 tons of 0.36 oz/ton Au
True North	La Teko Resources Inc.	Estimated 1,314,000 oz Au
Gil Claims	Kinross Gold Corp./ Teryl Resources Corp.	Resource of 433,000 oz Au
Delta massive sulfide belt		40 million ton reserve containing percentages of: Cu, Zn, Pb, Ag,Au
Taurus		Cu-Au prospect; 140 million ton reserve containing percentages of: Cu, Au, Mo
Big Creek/Ladue		Pb-An-Ag massive sulfide prospects
Slate Creek	Slate Creek	55 million tons of 6.3% high quality chrysotile asbestos
Fortymile mining district	Kennecott Exploration Co.	Placer Au district; 534,974 oz Au produced 1883-1995
Pogo	Teck Corp./Sumitomo Metal Mining America Inc.	5.2 million oz Au reserves; exploration and development on-going
Red Dog Mine*	Cominco Alaska Inc.	157,8 million tons proven and probable reserves containing percentages of Zn, Pb, Ag; production and exploration on-going; over 1 million tons of concentrate produced in 1998

*Red Dog Mine, in Northwest Alaska, could become the terminus for a spur from Fairbanks to the Ambler mining district.

figure 2, mining data in the Yukon Territory

Yukon Mines	Ownership	Resource information
Brewery Creek Mine	Viceroy Resouce Corp.	613,000 contained oz Au; 1997-1998 production of 125,025 oz Au
Kudz Ze Kayah Property	Cominco Ltd.	13 million ton reserve containing percentages of: Cu, Pb, Zn, Ag, Au; final approvals expected in 1999
Sa Dena Hes Property	Cominco Ltd.	3.2 million ton reserve containing percentages of: Pb, Zn, Ag; opened in 1991 but closed in 1992 due to low prices
Wolverine Property	Boliden Ltd./Atna Resources Ltd.	6.237 million ton reserve containing percentages of: Cu, Pb, Zn, Ag Au; further delineation planned
Minto	Asarco Inc./Minto Explorations Ltd.	7.2 million ton reserve containing percentages of: Cu, Ag, Au; production planned for late 2000
Carmacks Copper	Western Copper Holdings Ltd.	14.1 million ton reserve containing percentages of: Cu, Au; undergoing final stages of environmental assesment
Division Mt. Coal	Cash Resources	52.9 million ton resource at 9,328 BTU/lb and 0.43% Sulfer; under study with environmental assesement to begin next year
Wolverine	Atna Resources/ Expatriate Resources	6.2 million ton reserve containing percentages of: Zn, Cu, Pb, Ag, Au; metallurgical work planned
Wolf	Atna Resources/YGC Resources	4.1 million ton inferred resource containing percentages of: Zn, Pb, Ag; further exploration planned
Fyre Lake	Pacific Ridge Exploration	15.4 million tons preliminary resource containing percentages of: Cu, Co, Au; still in exploration

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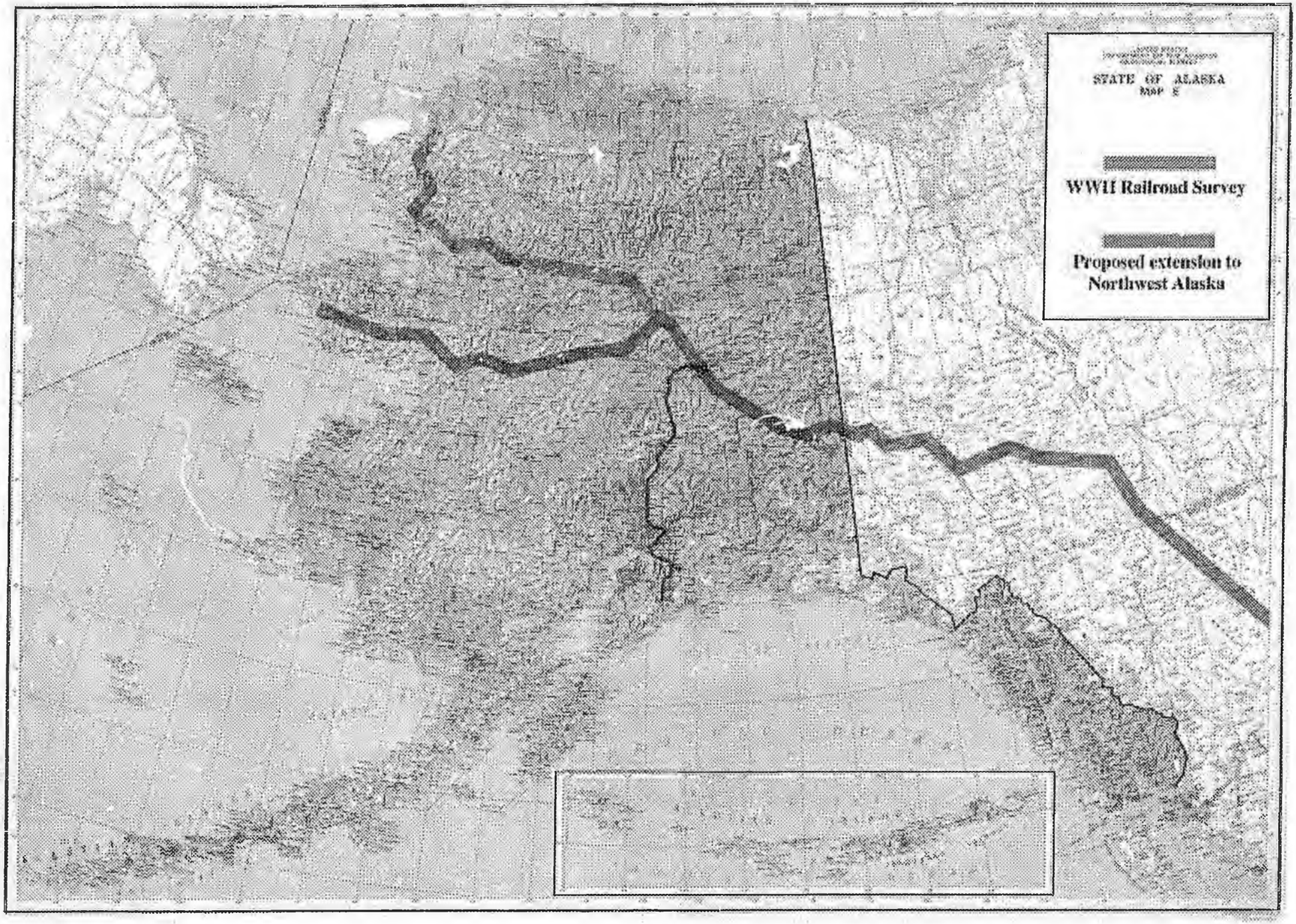

STATE OF ALASKA
MAP E
WWII Railroad Survey
Proposed extension to
Northwest Alaska

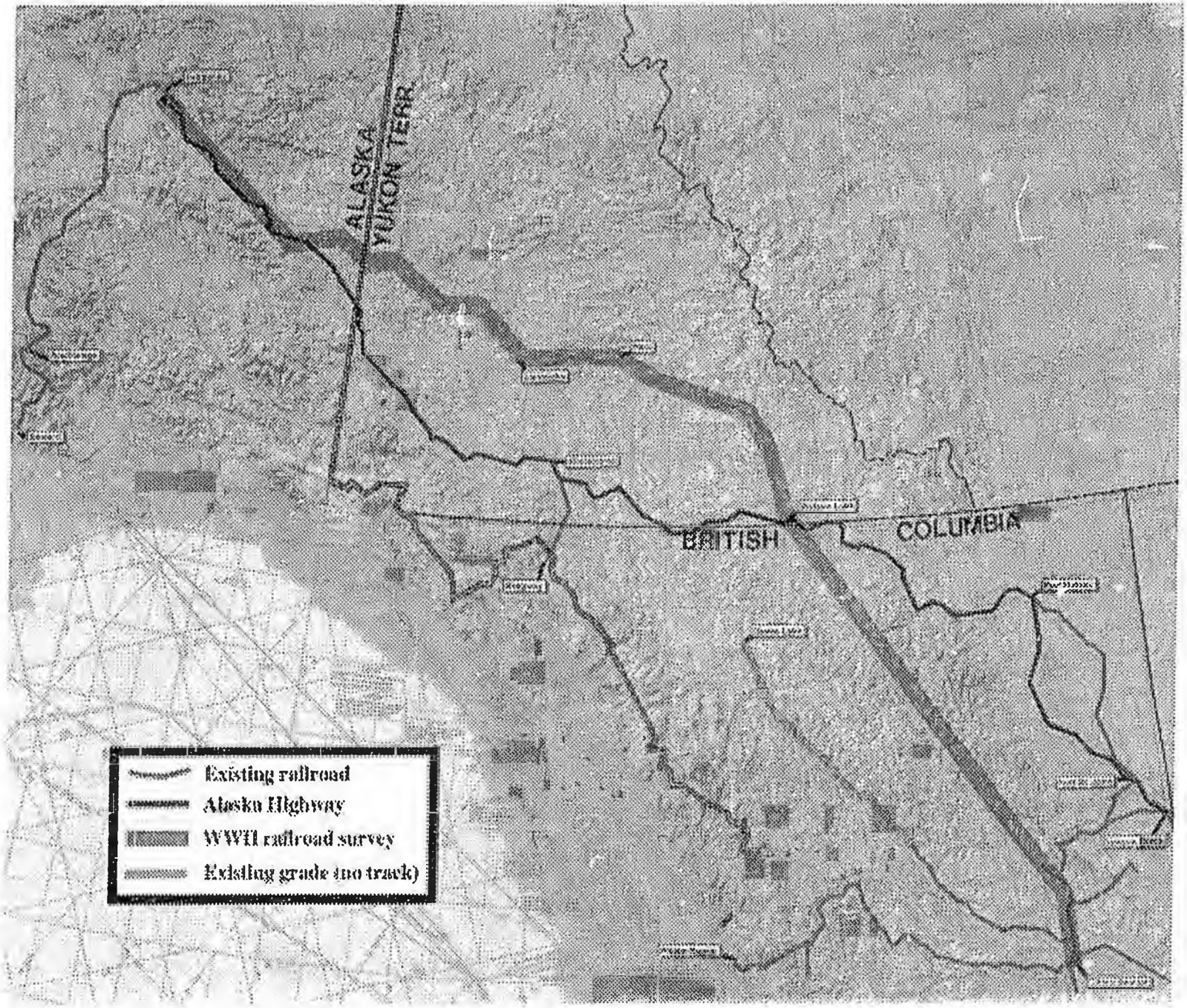
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ALASKA
YUKON TERR
BRITISH
COLUMBIA
Existing railroad
Alaska Highway
WWII railroad survey
Existing grade (no track)

Prepared by the office of United States Senator Frank H. Murkowski. For further information, contact Chuck Kleeschulte, Press Secretary, at (202) 224-6665. Although every attempt has been made to assure the accuracy of the information in this packet, changing resource data prevents guaranteeing the authenticity of all the information.

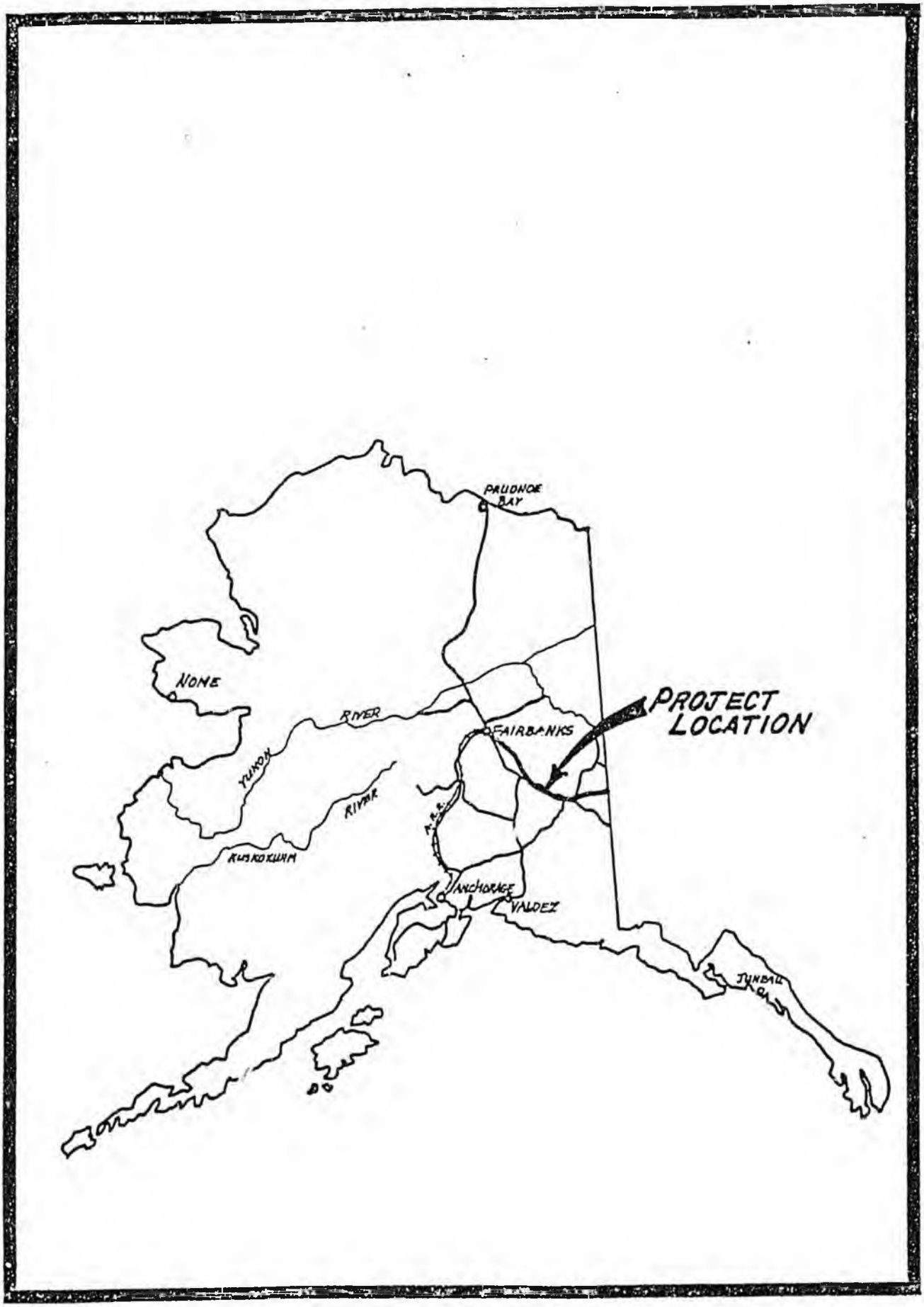
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SECTION 3:

ALASKA RAILROAD EXTENSION: ROUTE SELECTION PROJECT, JULY 1979



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PRUDHOE BAY
NOME
YUKON RIVER
KUSKOKWIM RIVER
FAIRBANKS
PROJECT LOCATION
ANCHORAGE
VALDEZ
JUNEAU

ALASKA RAILROAD EXTENSION

ROUTE SELECTION PROJECT X20089



EIELSON TO CANADIAN BORDER

STATE OF ALASKA
DEPT. OF TRANSPORTATION
& PUBLIC FACILITIES

JULY 1979

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INTRODUCTION

In the spring of 1977 the first session of the tenth Alaska Legislature passed two bills (HB47 and HB48) which dealt with a proposed extension of the Alaska Railroad to the Canadian border. House Bill 47 charges the Interior Region of the Alaska Department of Transportation and Public Facilities with the responsibility to "delineate a proposed utility corridor for the extension of the Alaska Railroad to the Canadian border..." and further stated that the corridor "shall include a delineation of a proposed railroad right of way".

House Bill 48 appropriated $865,000 from the State's general fund to cover the cost of the work necessary to delineate the utility corridor and railroad right of way. In June of 1977, the governor's office authorized $150,000 of the HB48 appropriation to cover costs of the first phase of the railroad extension project.

The Department performed only a limited amount of route reconnaissance in 1977 since $150,000 would not go far toward accomplishing the project goals. However, in January of 1978, the second session of the Tenth Legislature restored the full $865,000 for use on the project. Time then became an important factor since a great amount of work remained to be done on the project before June 30, 1979, when funding was to expire.

In the early months of 1978 the Department completed the selection of a preliminary route which was described in a report issued in April of that year. The reconnaissance work leading to the preliminary route selection is summarized on the following pages.

CRITERIA FOR ROUTE SELECTION

The location of the railroad is really the key to defining the corridor required by HB47 and HB48. The grade and alignment constraints on a railroad location are much more restrictive than for any other transportation mode or utility installation. For this reason, the Department concentrated work on the selection of a railroad location. In effect, a utility corridor will be placed around the best available railroad alignment rather than trying to place a railroad within a pre-selected corridor.

In order to identify the best available railroad location, several factors were considered:

1. Design Standards The railroad should be located so that it can meet grade and alignment standards which are commensurate with the transcontinental rail system standards. The Engineering Department of the Alaska Railroad provided the following recommendations for design standards.

Grades

1%	desirable
1.7%	maximum

Curvature

3°	valley terrain	desirable maximum
6°	mountainous terrain	desirable maximum
10°	absolute maximum	

2. Foundations and Materials The railroad should be located on the best available foundations and in areas where construction materials are readily available. Good foundations are essential in keeping construction and operating costs to a minimum. Funding and time limitations did not allow a program of subsurface investigations and soils analysis. Materials investigations consisted primarily of aerial photo interpretation.

3. Safety Potentially hazardous situations such as highway grade crossings should be avoided whenever possible. The route described in this report crosses the Richardson Highway one time and the Alaska Highway three times.

4. Service to Communities The railroad should be placed such that it will serve local communities and enhance local development plans while still maintaining the "through" nature of the route. This constraint has been adequately met by holding discussions during the reconnaissance phase with Fort Wainwright, Eielson AFB, Fort Greeley, the Delta Junction Chamber of Commerce, Citizens of Tok, the Alaska Department of Fish and Game, and the State Division of Lands. The discussions yielded information that resulted in a location of maximum utility to the agencies and communities who would use the railroad.

5. Environmental Concerns The scope and funding of this route selection project did not provide for a full environmental assessment of railroad construction and operation. However, the Department's Environmental Section as well as other appropriate agencies were consulted in order to maintain an awareness of environmentally sensitive areas and issues which might affect the selection of a railroad route.

6. Right of Way The railroad alignment was placed on public lands wherever possible so as to minimize the costs of right of way acquisition. It is assumed that the railroad right of way will be 300 feet wide.

7. Costs Costs of rail construction were kept in mind and minimized where possible.. However, this study does not include an estimate of construction costs for the proposed rail project.

ROUTE RECONNAISSANCE

Previous developments (highways, pipelines, communications systems, airports) have established a general transportation corridor from the present terminus of the Alaska Railroad at Eielson Air Force Base southeast to the Canadian border. This corridor can be described in broad terms as the valley of the Tanana River or in more narrow terms, as the route of the Richardson and Alaska highways.

A study of topographic and land status maps of eastern Alaska readily shows that the terrain and the associated economic and environmental considerations effectively rule out any general corridor other than the Tanana River Valley. This route study is confined to the Tanana Valley except for the easternmost 50 miles which follow the Ladue River down to the Candian border.

The Ladue border crossing was first proposed in 1942 when the U.S. Army Corps of Engineers surveyed a route for a rail connection to Alaska. Interest in that project faded after the end of World War II, but the route chosen at that time has been reaffirmed many times in subsequent years. The Ladue crossing directs the Yukon Territory segment of the railroad route into the broad valleys of the White, Yukon, Pelly, and Liard rivers. The valleys provide a fairly direct route to Watson Lake, Y.T., through which the connecting link to the existing transcontinental rail system will pass.

It should also be pointed out that the Ladue River border crossing allows the easiest and most direct route to Whitehorse, Y.T., should Canada decide to run the rail connection through that city. This study considers only the Ladue River border crossing.

The first step in selecting a railroad route was to study topographic maps and to identify on these the route possibilities that appeared to merit further study by means of aerial photography.

From the map study it was determined that the 108 mile section from Delta Junction to Tok was adequately covered by aerial photographs taken in September 1976 for the purpose of highway reconnaissance. Likewise, the 80 mile segment from Tok to the Canadian border via the Ladue River had previously been photographed in a 1973 rail study. This left only the 75 mile segment from Eielson to Delta Junction lacking in reconnaissance photo coverage. Photographs of this area were scheduled for the fall of 1977.

Map study of the Eielson to Delta Junction area revealed several possible routes including an alignment along the north bank of the Tanana River and several alternatives south of the river. In September 1977 these routes were investigated by a fixed-wing overflight involving the Regional Geologist, Hydrologist, and Reconnaissance Engineer. After this investigation, three routes were chosen as the most promising rail locations, one north of the Tanana River and two south of the river.

All three of these routes were subsequently photographed in color on October 1, 1977. All of the aerial photos mentioned above are at a scale of 1 inch = 1000 feet.

Through the winter of 1977-78 considerable time was spent studying the reconnaissance photographs in an effort to select a preliminary alignment. The route that was selected for further study was plotted on the maps which are included in the back of this report on pages 13 through 16 These are USGS maps with a scale of 1 inch = 4 miles. These maps provide a scale that is manageable for inclusion in the report, but do not show extensive detail in any given area.

The proposed line was also plotted on the larger scale quandrangle maps as well as the reconnaissance aerial photographs.

The route is marked off in miles beginning with Mile 0 at the recently completed railroad bridge over the Chena River floodway near Eielson AFB and ending with Mile 268 at the Canadian border.

METHODOLOGY

Photogrammetric mapping was chosen as the most effective means of selecting a precise route for the railroad. This method allowed a high degree of latitude in final route selection and was adaptable to the time and funding constraints which had been placed on the project. The mapping work was assigned to two consulting firms which were already under contract to provide mapping services to the State of Alaska.

In early April 1978 maps with flight lines drawn along the proposed route were submitted to the mapping consultants. These consultants reviewed the flight lines and laid out ground control schemes that met their mapping requirements. These control schemes were returned to the DOT/PF by the end of April.

Anticipating an early and intensive surveying season, the Department contacted all affected landowners along the route to secure permission to survey across the owners' lands. Permission was granted by all public agencies and private owners with the exception of the Village of Tanacross. While Tanacross did not deny the request for access to its lands, the decision was delayed to the point where the Department could no longer wait due to the need to have ground control panels in place and mapping photos taken before spring foliage obscured the ground.

The result is that the segment of the route passing through Tanacross lands has not been mapped and therefore has not been described in precise terms. The Tanacross lands form a gap in the mapping project from mile 162 near Cathedral Bluffs to mile 195 near the Coast Guard Loran Station east of Tok. The route selected through this 32 mile area is described in the general terms used in the preliminary route study.

During late April and the first part of May of 1978, Department personnel placed the required photo control panels on the ground along the remaining 236 miles of the route.

North Pacific Aerial Surveys photographed the route on May 9, 1978 at a scale of 1"=500' for mapping purposes.

Concurrently with designing the flight lines, the state entered into negotiations to select a ground control survey consultant. The State selected the firms of Stutzman Engineering and DOWL. These firms were contracted to do all of the ground control survey work in a joint venture.

Control survey work began in early June and continued through the summer of 1978. The field survey was primarily a method of controlling the aerial photographs with a secondary benefit of establishing a system of monumentation along the proposed route corridor which could later be used for additional right of way acquisition, construction lay-out, or other surveys as may be deemed essential to the project. The Alaska State Plane Coordinate system was used for horizontal control throughout the project and involves Alaska Zones 2 and 3.

Since the three segments of the route spanned such an extensive area, a great variety of terrain, ground cover, and accessability problems were

encountered. Each of the field conditions seemed to dictate how the survey should be conducted and what equipment should be utilized. In all cases, coordinate positions and azimuths were originated from existing Geodetic Survey, U.S. Geological Survey, U.S. Army Corps of Engineers, Bureau of Land Management, and two stations established by the International Boundary Commission. The control traverses or nets were also closed onto other stations of the same origin or previously established monuments which had been derived therefrom. After running a field data traverse through the network from geodetic station to station, a compass adjustment was made to position all intermediate points. The thus derived positions of each new traverse or control station were anticipated to be within 1:30,000 accuracy relative to existing control. Actual field determinations have proven this to have been accomplished.

All vertical control was derived from existing U.S.C.& G.S. or U.S.G.S. Bench Marks. A more detailed discussion of the control survey is presented in a report prepared by the consultants upon completion of the survey work. That report also contains a listing of the positions of all control points.

As the Department received control data from the survey consultants, it was sent to the mapping consultants and the production of contour maps began by mid summer 1978. This was accomplished at a scale of 1" = 100' with a 2' contour interval. The band of mapping varied from 500' to 800'. Over most of the length of the project a 500' wide strip centered on the preliminary route was mapped. In some areas of rough terrain a wider strip of mapping was requested to allow more flexibility in selecting a final railroad route.

As the mapping was received, the Department placed a railroad centerline on it. Occasionally the line is tightly controlled by topography. This is most obvious when climbing from the Tanana River to the Ladue Summit. A 1% "Grade Contour" was laid out on the mapping by starting at the Ladue summit and working down to the highway on the Tanana side. A railroad centerline was then drawn to get the best "fit" to this grade contour. The result is a railroad centerline with a sustained 1% grade and continuous curvature for a distance of about 10 miles.

As the alignment was placed on the mapping, the Regional Geologist and Hydrologist reviewed it and recommended needed changes. When the most desirable "fit" was achieved, the State Plane Coordinates of the tangent intersections were scaled off the contour maps and bearings and distances of the tangents were calculated, as well as all curve data. The line has been stationed from the Eielson toward the Canadian border. All of the alignment and coordinate data has been tabulated and is on file at the Interior Regional Office of the Department of Transportation and Public Facilities.

ROUTE DESCRIPTION

The new railroad bridge over the Chena River floodway near Moose Creek was selected as the starting point for the proposed railroad extension. This point was chosen rather than the end of the present line on Eielson AFB in order to avoid two crossings of the Richardson Highway which would eventually require overpasses, and to keep the main rail line out of the developed and congested area of Eielson. The Moose Creek starting point requires about 6 more miles of new track but makes the resulting main rail line about 2 miles shorter due to the more direct alignment through the Eielson area.

From Mile 0 the route proceeds southeast between the Tanana River and the Richardson Highway. This section is located on old river bars which offer favorable foundation conditions but require several slough crossings.

The route runs close to the Richardson Highway at Mile 19.5 and then turns up the Salcha River to a crossing about 1 mile below the highway bridge. After crossing the Salcha River, the route heads toward the west slope of Flag Hill and the Tanana River crossing at Mile 25.

After crossing the Tanana River, the route stays within one half mile of the river for the next 8 miles (to Mile 34). This is an area of alluvial gravels supporting stands of large white spruce.

From Mile 34, the route swings farther away from the Tanana toward a crossing of the Little Delta River at Mile 38.5. This crossing is about ? miles above the mouth of the Little Delta near a low ridge. The stream bed at this point is about 2000 feet wide.

After crossing the Little Delta, the route swings back toward the Tanana River and stays close to the river from Mile 40 to Mile 44. Some bank protection will be necessary in this area. From Mile 44 to Mile 51, the route is located on old wooded river bars 0.5 to 1 mile south of the Tanana River. This is an area of unfrozen alluvial gravels with a thin covering of silt.

The route crosses Delta Creek about 2.5 miles upstream from its mouth and then skirts along the southern side of a 3.5 mile ridge which parallels Clear Creek - Clear Creek being on the northern side of the ridge.

From the east end of this ridge, the route follows along low terraces south of Clear Creek to the vicinity of Mile 67.

From Mile 67 to Mile 74, the route is within a mile of the west bank of the Delta River.

The crossing of the Delta River is in the area near Jack Warren Road. The crossing near Jack Warren Road will require bank protection along the east bank of the Delta River between Mile 75 and Mile 78. Bank protection in this area will be of great benefit to the community of Delta Junction since the river has been actively eroding this section of riverbank in recent years.

At Mile 77.5 the route turns east up Jarvis Creek. This general location through the Delta Junction area was chosen after meetings with the Delta Junction City Council and Planning Commission.

Delta Junction to Tok (Mile 78 to Mile 189)

Proceeding southeast from Delta Junction the route crosses the Richardson Highway just north of the Jarvis Creek bridge (Mile 78) and then follows the east bank of Jarvis Creek on Fort Greely lands for about 4 miles. At Mile 82, the route is near the developed area of Fort Greely although a bridge across Jarvis Creek will be necessary to provide access to the fort.

From Mile 82, the route turns easterly remaining on Fort Greely lands for the next 7 miles as a means of avoiding the private property along the Alaska Highway.

Between Mile 86 and Mile 88, the route winds through the broken terrain of a glacial moraine. The route then leaves Fort Greely near Mile 89 and heads southeast paralleling the Alaska Highway for the next 10 miles. Most of the land in this area has been selected by the State of Alaska under the statehood act.

The railroad route crosses the Alaska Highway near Mile 100, eight miles west of the Gerstle River. The route also crosses the proposed Northwest gas pipeline at this point. This crossing places the railroad on the opposite side of the highway from the Gerstle River Campground. After crossing the highway, the route parallels the highway on the north side until reaching the vicinity of the Little Gerstle River.

To avoid the steep, broken terrain of an old glacial moraine, the railraod route follows along the edge of the Tanana River from Mile 114 east of the Little Gerstle River to Mile 120 at the Johnson River. Department Geologists have some misgivings about the foundation conditions in this area and a detailed soils investigation might lead to a decision to shift a section of the alignment higher up the hill away from the Tanana River.

The route crosses the Johnson River near its mouth where the braided stream bed is about 0.5 miles wide. East of the Johnson River the route swings away from the Tanana River across an alluvial fan reaching the vicinity of the Alaska Highway near Dry Creek (Mile 123). For the next five miles the railroad route closely parallels the highway on the north while running along the edge of an alluvial gravel terrace.

At Mile 128 the route swings away from the highway to cross Berry Creek about 0.5 miles downstream from the highway bridge. The DOT/PF also proposes to shift the highway downstream on Berry Creek, however, there should be no conflict between the highway and the railroad.

At Mile 130, the railroad route runs north of a small lake following the same general location as the 1942 railroad survey. The route returns to the vicinity of the highway at Mile 132 and then swings 0.25 miles to the north to follow the edge of an alluvial gravel terrace for the next 4 miles.

Near Mile 137, the route enters Dot Lake Village lands and drops from the terrace to the Tanana floodplain. Over the next 3 miles the route will be partially located on the poor foundations west of Dot Lake.

After reaching Dot Lake (Mile 140) the route parallels the Alaska Highway for the next 8 miles over the flat terrain of an alluvial fan. At Mile 148 near Jan Lake, the railroad route swings away from the highway to the north in order to skirt the steep hills north of the Robertson River. The route reaches the Robertson River at Mile 154 and crosses that stream about 0.5 miles above its mouth. This crossing is about 3500 feet in length and poses some special problems because of the extensive buildups of ice that occur each winter in the Robertson River.

The route remains near the Tanana River for most of the distance between the Robertson River and Cathedral Rapids (Mile 154-164). East of Cathedral Rapids the railroad would contour around the large alluvial fan at the mouth of Yerrick Creek and again reach the vicinity of the Alaska Highway near Moon Lake (Mile 171). From Mile 171 to Mile 174, the route skirts the base of the hills below the highway and then parallels the highway from Mile 174 to Mile 176.

From Mile 176, the railroad route proceeds due east for 12 miles. This places the route south of the Tanacross airfield (Mile 178) and north of the Haines pipeline pump station (Mile 182). This also places the railroad well north of all the development between Tanacross and Tok. The route passes Tok Junction 2 miles to the north at Mile 189.

Tok to Canadian Border (Mile 189 to Mile 268)

From Mile 189 north of Tok Junction, the proposed railroad route runs southeasterly for about 10 miles in a straight line gradually converging with the Alaska Highway alignment. The route crosses the Tok River at Mile 193, passes north of the Coast Guard installation at Mile 194, and crosses the Alaska Highway at Mile 198.5 one mile west of the Tanana River bridge. The route then crosses the Tanana River just upstream from the highway bridge.

East of the Tanana River, the railroad route skirts along the base of the hills passing one quarter mile south of Tetlin Junction and remaining south of the Alaska Highway for the next 5 miles in order to avoid the steep, broken terrain on the hillsides above the highway. At Mile 206, the route crosses to the north side of the Alaska Highway and begins the climb to the Ladue Summit.

The location of the railroad for the next twenty miles is primarily controlled by grade requirements. The line must climb from an elevation of about 1800 feet at Mile 206 to about 2300 feet at the summit (Mile 216). This requires 10.5 miles of sustained 0.9% grade. This section will also have many maximum degree curves and will require many large cuts and fills.

The location of the crossing into the Ladue River Valley (Mile 216) is the same as that selected by the U.S. Army Corps of Engineers in 1943. This is the lowest available access point to the Ladue Valley.

On the Ladue River side of the summit, maximum grades and curves will not be necessary. The route reaches the valley floor at about Mile 220 at an elevation of 2100 feet. From this point on, the route will follow gentle grades and alignment down the Ladue Valley to the Canadian border.

The Ladue Valley is relatively narrow so that there is not a wide choice of route locations. For the most part, the railroad route will follow along the north side of the valley in order to gain the advantage of the southern exposure. The preliminary route reaches the Alaska-Yukon border at Mile 268.5.

CONCLUSIONS AND RECOMMENDATIONS

The work done on this project has resulted in a railroad alignment with essentially river grades and with curves that can be negotiated at 60 mph. The most notable exception is the section in the area of the Ladue summit where grades are still below 1% but where curvature and the length of sustained grade would reduce train speeds to 25 mph. There are a few curves in other locations with a 50 mph design speed.

The Department has attempted to select the best available railroad route while keeping within the limitations imposed by funding and time constraints. It would have been desirable to put more time and effort into several aspects of the route selection - particularly in the area of foundation investigations.

It should be expected that more detailed study in later phases of railroad development could result in recommendations for changes in the location of portions of the proposed alignment.

In spite of the shortcomings of this study, the Department feels that the route that has been selected is basically a sound and viable railroad route.

It is recommended that a 300 foot wide right of way centered on this route be withheld from the many demands being made on the public lands. It is further recommended that the State of Alaska should move to acquire that portion of the right of way that is within private lands as intended by HB47.

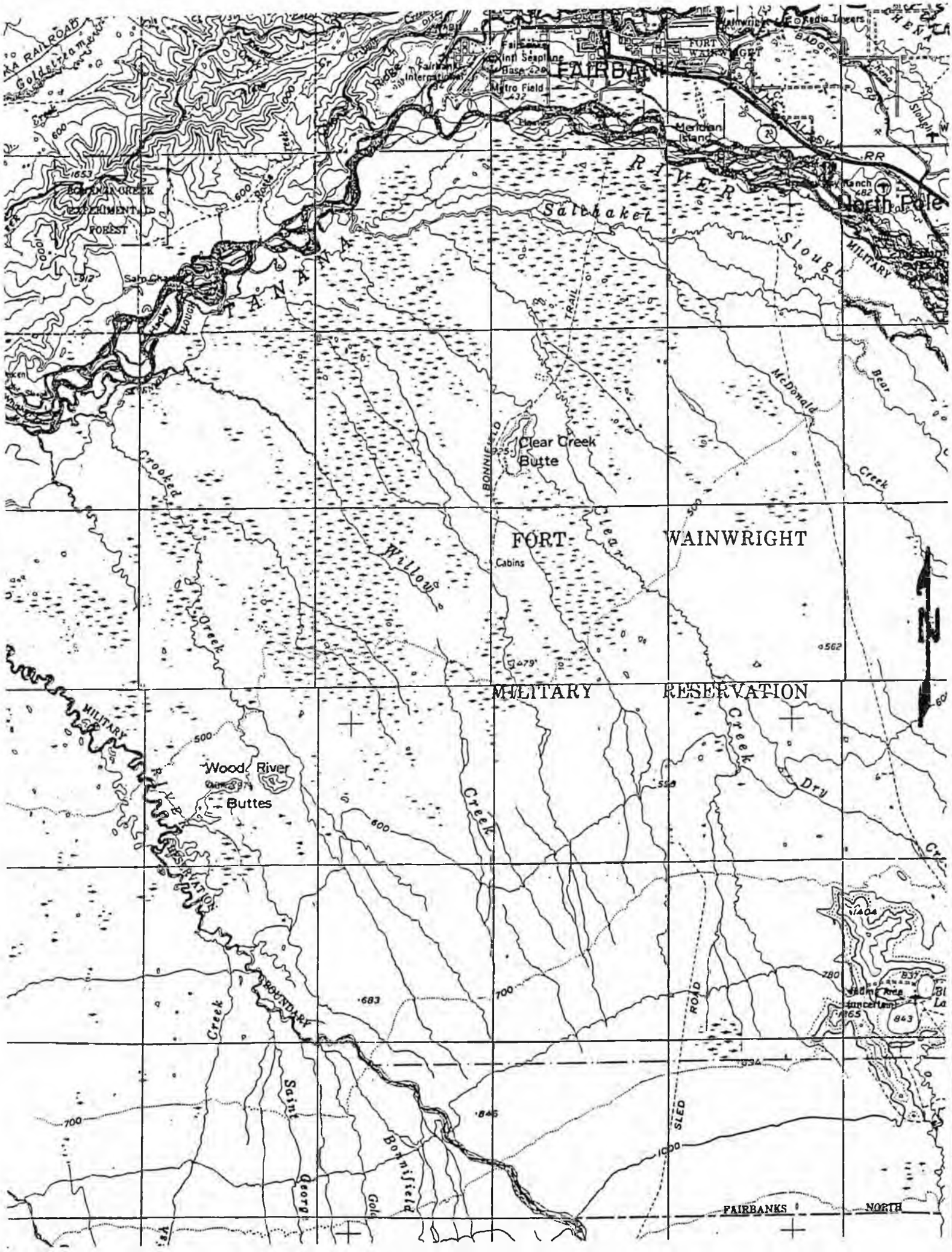
The Department now has on file:

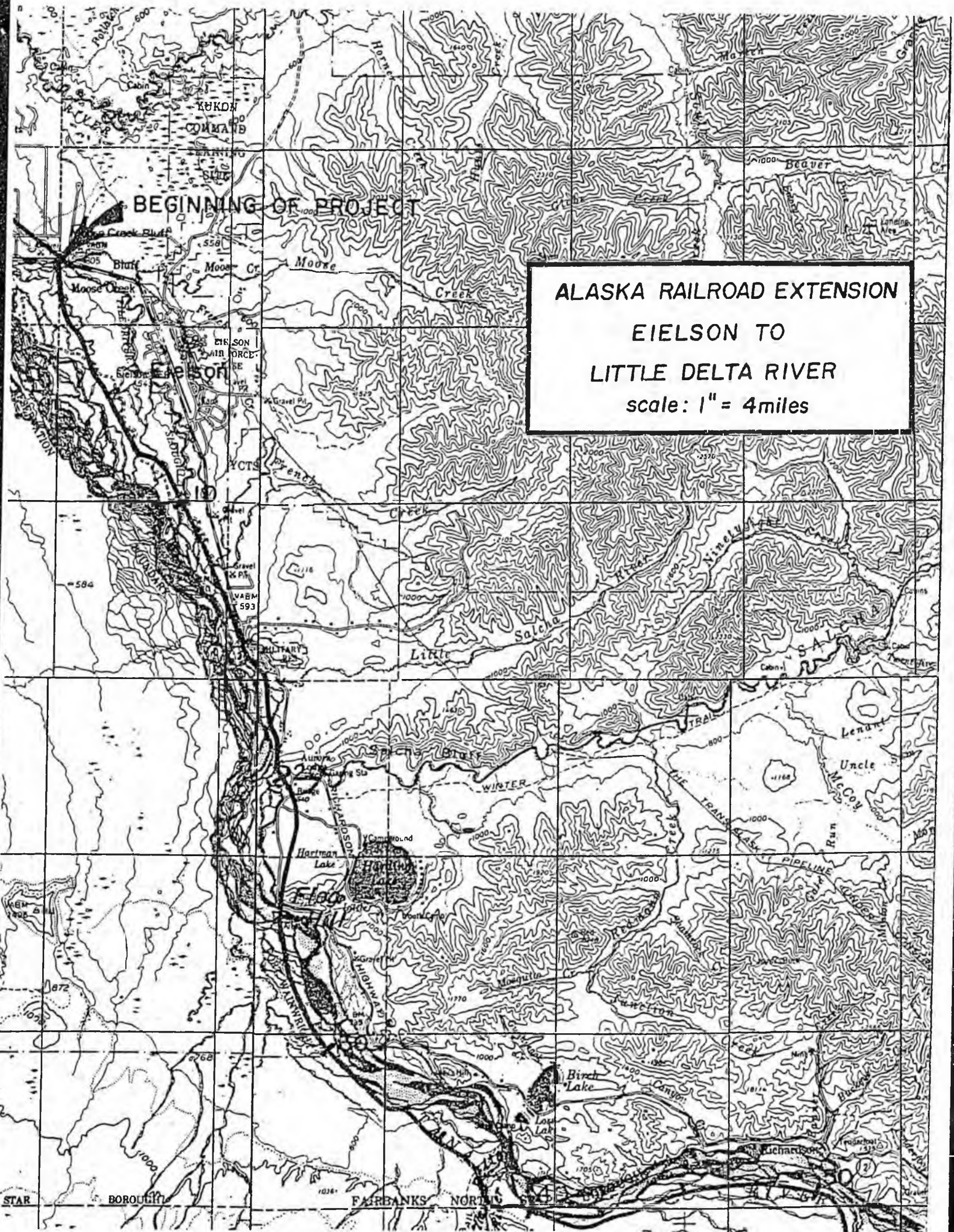
* Aerial photos of the entire route
* Control survey data
* Photogrammatric contour maps of the route
* A tabulation of alignment data
* State Plane Coordinate positions of centerline points

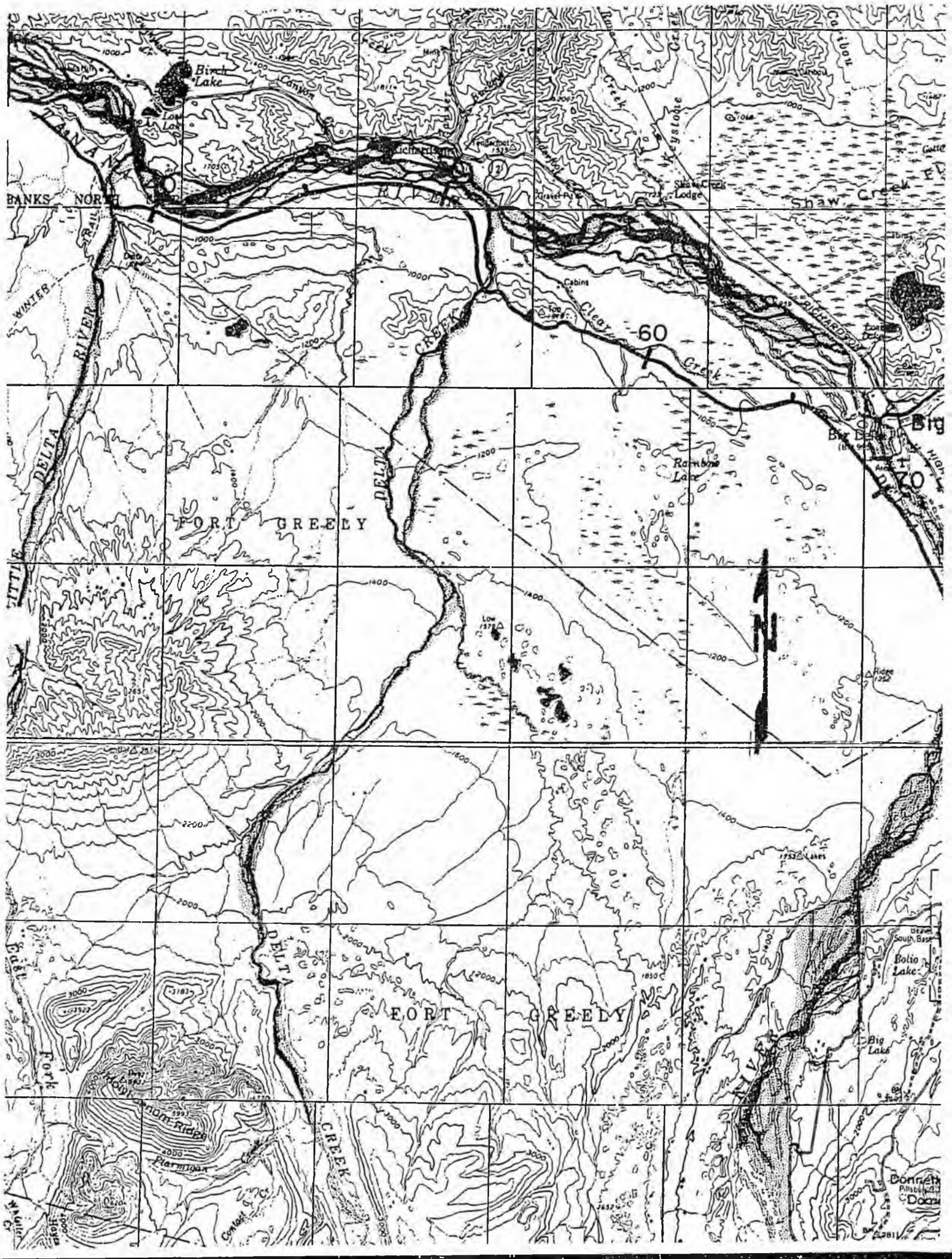
The Alaska State Plane Coordinates of the centerline points constitute a precise legal description of the railroad route.

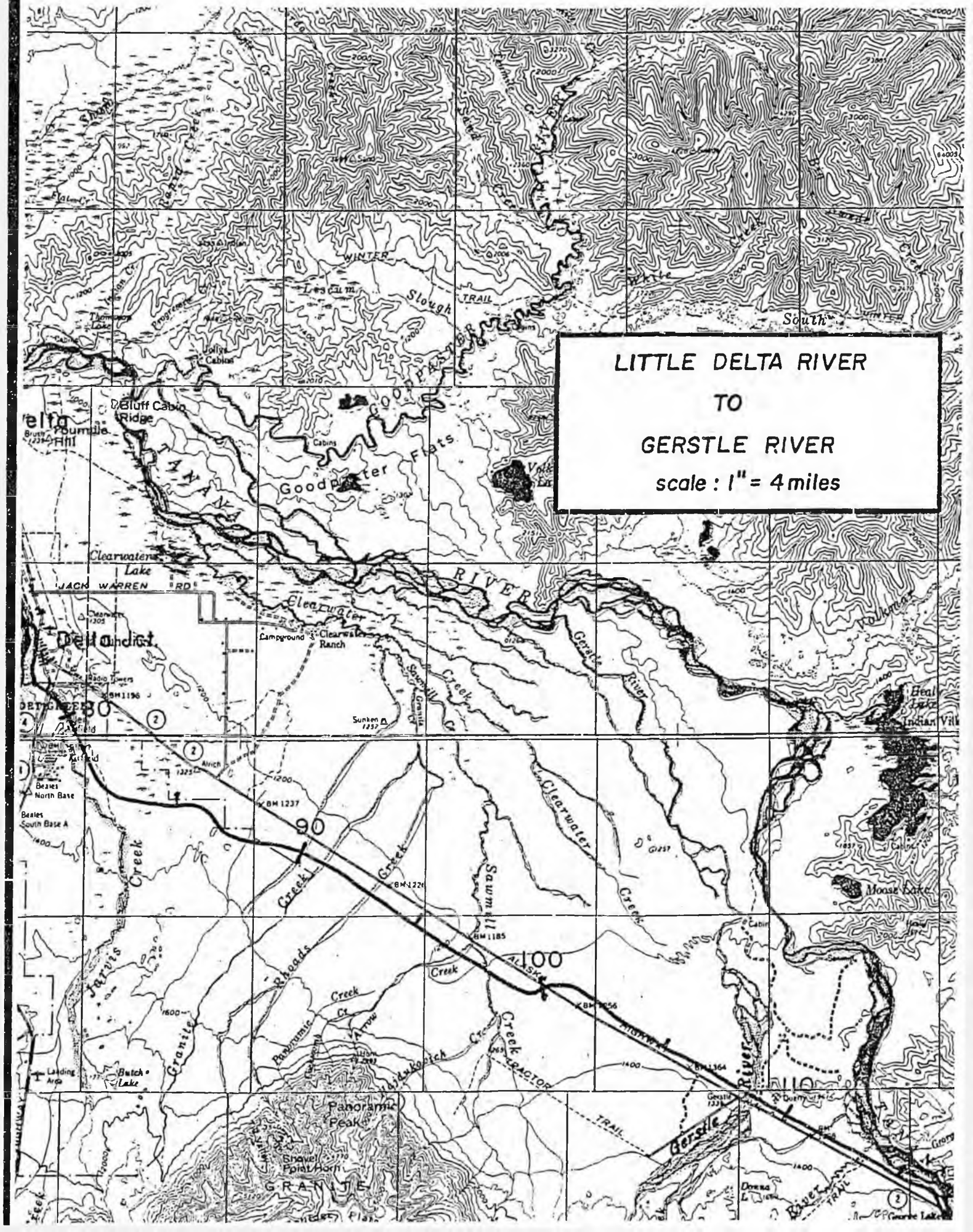
Through the photogrammetric process we also have the capability to produce design cross sections and earthwork quantities from the data already gathered and to make alignment shifts without field surveys. This should speed up the process if the decision is made to proceed to construction on any part of the railroad route.

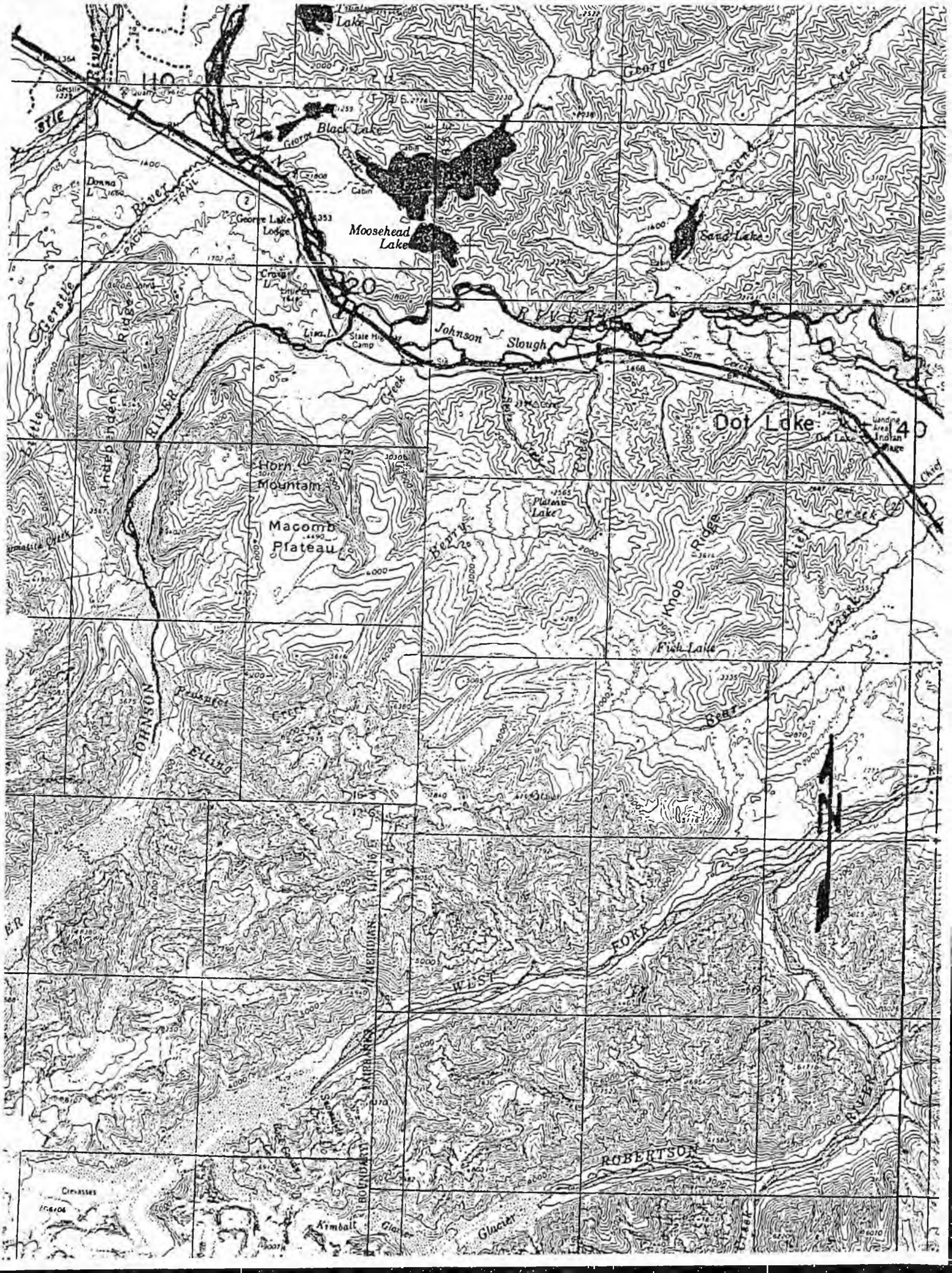
Much of the data gathered for the railroad study will also be of use on highway projects which are planned for the Alaska Highway.

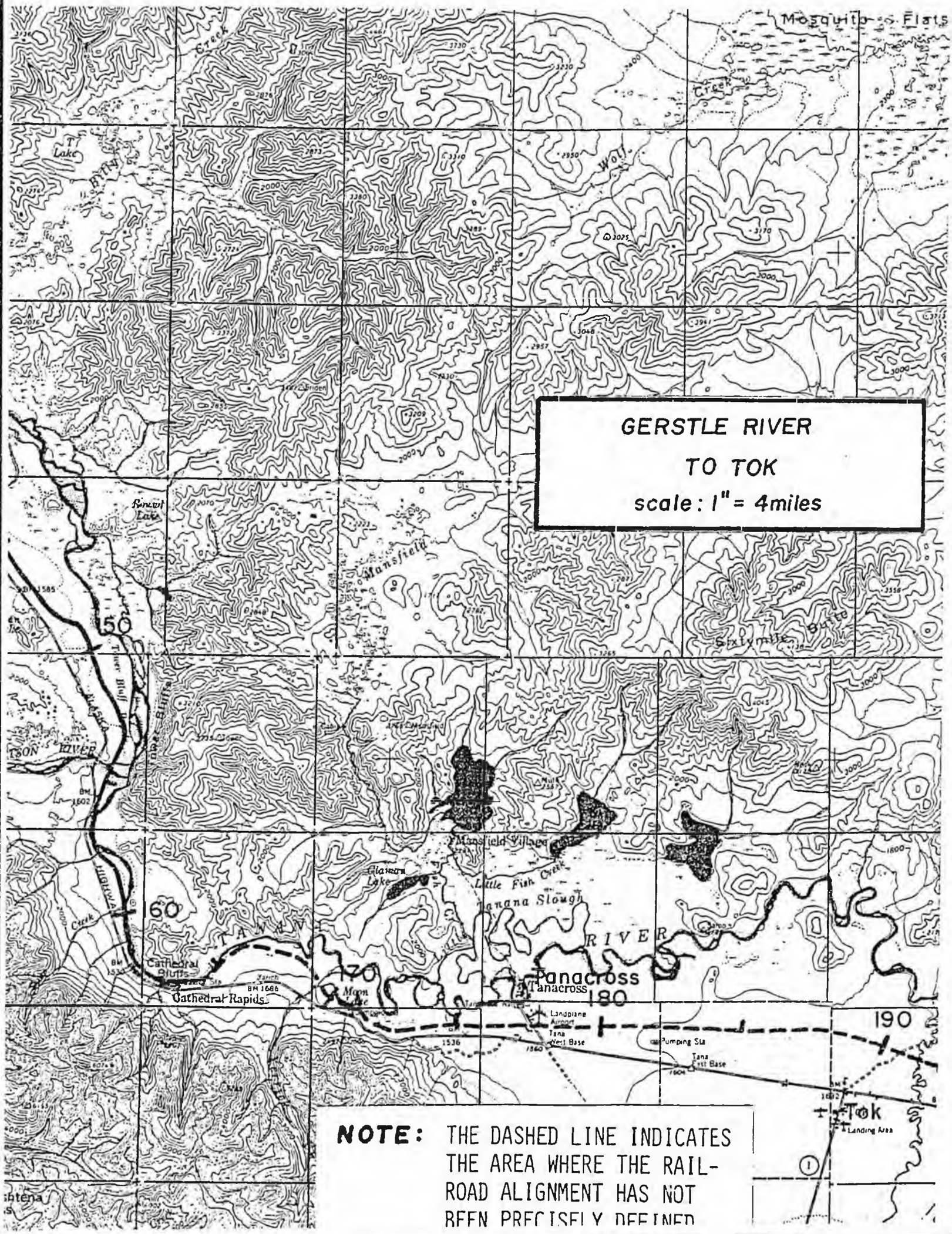

FAIRBANKS
Fairbanks International
Metro Field
Meridian Island
FORT WAINWRIGHT
Cabins
Clear Creek Butte
Salchaket Slough
TANANA RIVER
Wood River Buttes
MILITARY RESERVATION
Willow Creek
Dry Creek
Crooked Creek
Bear Creek
McDonald Creek
Goldstream Creek
Ester Dome
Chena Ridge
Chena Hot Springs Rd
Alaska RR
North Pole
Ranch
Trail
Road
Boundary
Saint Joseph Creek
Bonnifield
Sled
Fairbanks North

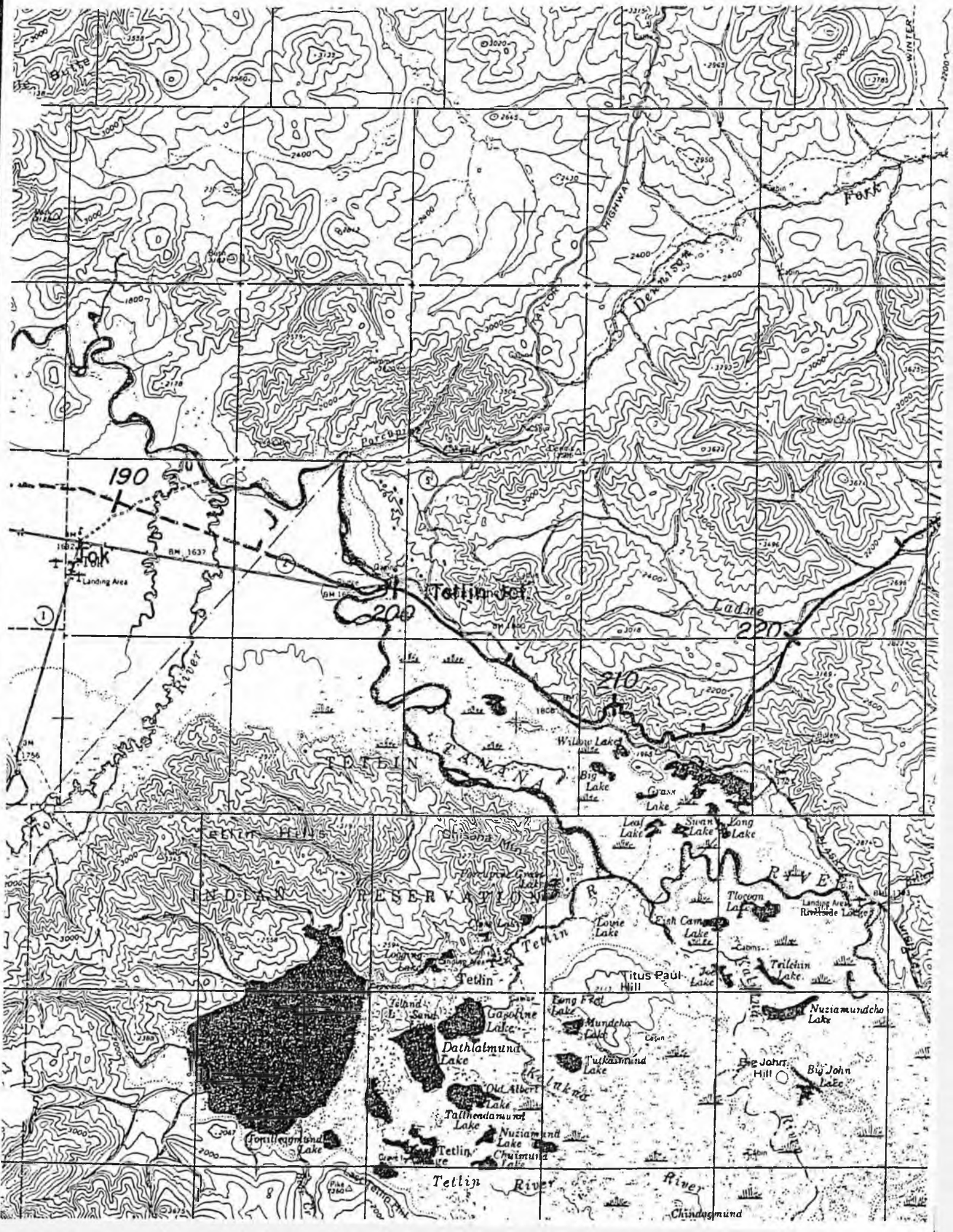

BEGINNING OF PROJECT
ALASKA RAILROAD EXTENSION
EIELSON TO
LITTLE DELTA RIVER
scale: 1" = 4miles
EIELSON
Moose Creek
Moose Creek Bluff
Bluff
Moore Creek
Little Salcha River
Salcha River
Ninemile Creek
Beaver Creek
Hot Springs Creek
Hot Springs Slough
French Creek
Richardson Highway
Alaska Highway
Alaska Pipeline
Trans Alaska Pipeline
Winter Trail
Lenard Trail
Uncle McCoy Creek
Hartman Lake
Birch Lake
Mosquito Creek
Richardson
FAIRBANKS NORTH STAR BOROUGH

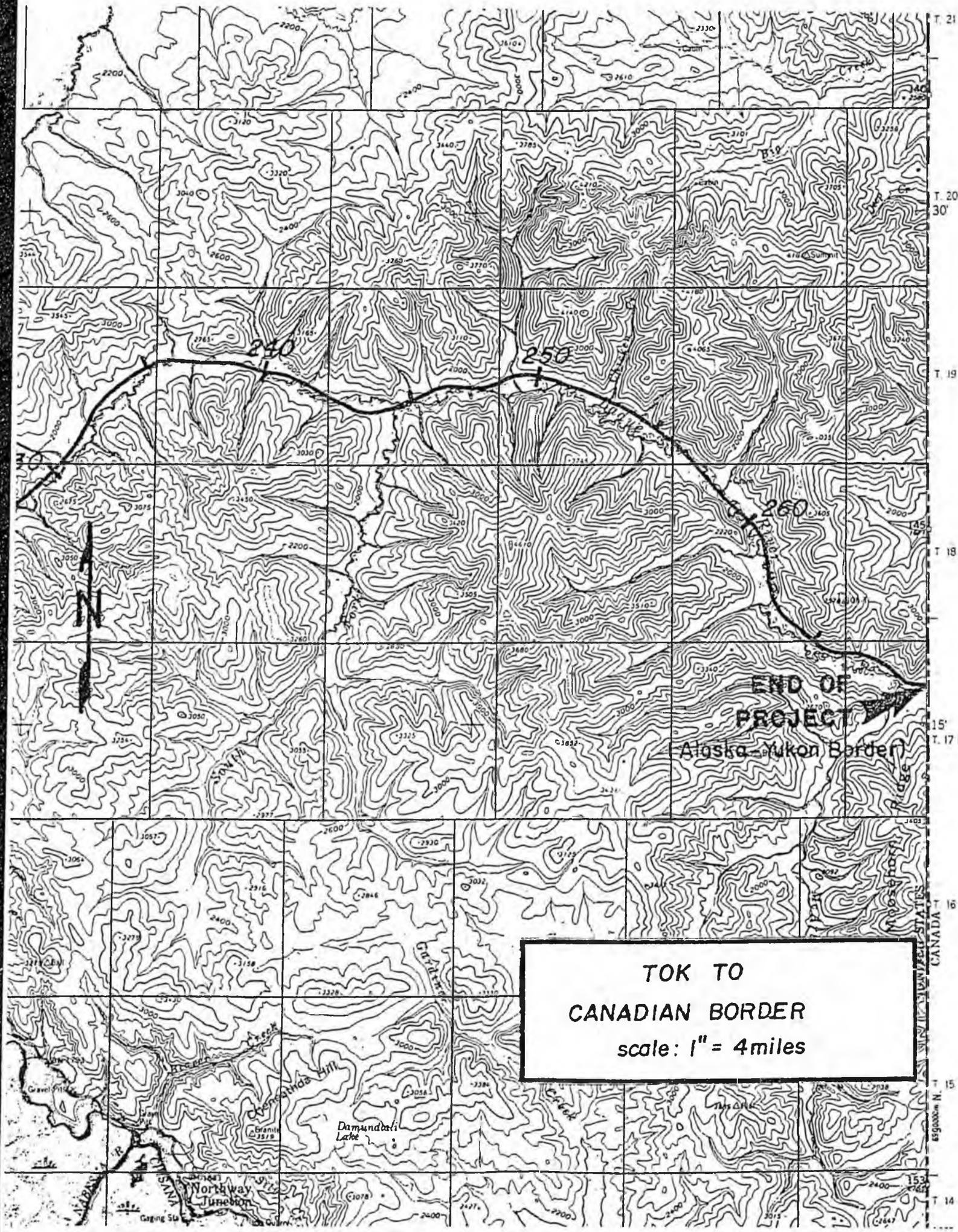

TANANA
BANKS
NORTH
RIVER
Birch Lake
Low Lake
Richardson
Trout Lake
Gerstle River
Keystone Creek
Shaw Creek
Slana Creek Lodge
Cabins
WINTER
DELTA
RIVER
CREEK
Clear Creek
RICHARDSON
60
Big
Rainbow Lake
FORT GREELY
Low 1371
Ridge 1755
1753 Lakes
Bolio Lake
Big Lake
Mount Hayes
Contact


LITTLE DELTA RIVER
TO
GERSTLE RIVER
scale : 1" = 4 miles
Bluff Cabin
Ridge
Tourmile
Hill
Good Water Flats
Good Water
Cabins
WINTER
TRAIL
Lesum
Slough
Thompson
Lake
Cabins
Clearwater
Lake
JACK WARREN RD
Clearwater
Campground
Clearwater
Ranch
RIVER
Delta Junction
Radio Towers
BM 1196
Sunken
Sawmill
Creek
Gerstle
River
Volkmar
Heal
Lake
Indian Vill
Alrich
BM 1237
Beales
North Base
Beales
South Base A
Creek
Sawmill
Creek
BM 1226
Clearwater
Creek
Moose Lake
BM 1185
ALASKA
HIGHWAY
Jarvis
Creek
Rhoads
Creek
Granite
Creek
Mt
Landing
Strip
Butch
Lake
Panorama
Creek
Ct
Mt
Hidukosh
Creek
TRACTOR
TRAIL
Panorama
Peak
Shovel
Point Horn
GRANITE
Gerstle
River
TRAIL
Dowma
L
Concrete
Lake
90
100
110


George Black Lake
Moosehead Lake
George Lake Lodge
Donna L.
Sand Lake
Johnson Slough
Dot Lake
Horn Mountain
Macomb Plateau
Platana Lake
Fish Lake
Knob Ridge
Johnson
Redsplint Creek
Ellinor
Gerstle River
Gerstle Ridge
Hidden Creek
Sam Creek
Chief Creek
Berry Creek
Beat Creek
Fork
West
Robertson River
Meridian
Boundary
Glacier
Kimball
Cirques
Lake
Trail
Pack
State Hwy Camp
Landing Area
Indian Village


GERSTLE RIVER
TO TOK
scale: 1" = 4miles
Mosquito Flats
Mansfield
Sixtymile Butte
Mansfield Village
Alaska Highway
Cathedral Rapids
Cathedral Bluffs
Tanacross
Tanana Slough
Little Fish Creek
Landplane Airport
Tana West Base
Pumping Sta
Tok
Landing Area
60
70
180
190
NOTE: THE DASHED LINE INDICATES THE AREA WHERE THE RAILROAD ALIGNMENT HAS NOT BEEN PRECISELY DEFINED


190
200
210
220
Tetlin Jct.
Ladue
Fork
Landing Area
BM 1637
Tetlin River
TETLIN INDIAN RESERVATION
Tetlin Hills
Wilson Mtn.
Wilow Lake
Big Lake
Grass Lake
Leaf Lake
Swan Lake
Long Lake
Tlocwam Lake
Landing Area
Riverside Lodge
Lovie Lake
Fish Camp Lake
Tetlin
Titus Paul Hill
Teilchin Lake
Gasoline Lake
Dathlalmund Lake
Old Albert Lake
Tallhendamund Lake
Nuziamund Lake
Chuimuna Lake
Tetlin
Mundcho Lake
Tutkasmund Lake
Nuziamundcho Lake
Big John Hill
Big John Lake
Tetlin River
Chindagmund


240
250
260
N
END OF
PROJECT
Alaska-Yukon Border
TOK TO
CANADIAN BORDER
scale: 1" = 4miles
Northway
Junction
Damundali
Lake
Mosquito
Ridge
T. 21 N
T. 20
30'
T. 19
T. 18
15'
T. 17
T. 16
T. 15
T. 14
CANADA
STATES

APPENDIX

Introduced: 1/13/77
Referred: State Affairs and Finance

BY SWANSON, BRADLEY, CHATTERTON, HAYES, KELLY, MCKINNON, MEEKINS, MILES, PARR AND PHILLIPS-

IN THE HOUSE

HOUSE BILL NO. 47

IN THE LEGISLATURE OF THE STATE OF ALASKA

TENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act relating to creation of a utility corridor for extension of the Alaska Railroad; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. AS 19.05 is amended by adding a new section to read:

Sec. 19.05.122. UTILITY CORRIDOR FOR EXTENSION OF THE ALASKA RAILROAD. (a) The interior division of the department shall delineate a proposed utility corridor for the extension of the Alaska Railroad to the Canadian border. The proposed utility corridor shall include a delineation of a proposed railroad right-of-way.

(b) The commissioner shall, in conformity with the Administrative Procedure Act (AS 44.62), adopt a regulation approving, modifying, or rejecting the proposed utility corridor and railroad right-of-way.

(c) If the commissioner approves or modifies the proposed utility corridor and railroad right-of-way,

(1) the Department of Natural Resources shall classify, or reclassify, and reserve any state land within the utility corridor for use as a utility corridor and railroad right-of-way; and

(2) the department shall exercise its authority under sec. 40 of this chapter to acquire rights-of-way across land within the utility corridor which is subject to the state's power of condemnation.

(d) The requirements of the Alaska Land Act (AS 38.05) relating to classification and reclassification of land are inapplicable to actions taken under this section.

* Sec. 2. This Act takes effect immediately in accordance with AS 01.10.-070(c).

Introduced: 1/13/77
Referred: State Affairs and Finance

BY SWANSON, BRADLEY, CHATTERTON, HAYES, KELLY, MCKINNON, MEEKINS, PARR AND PHILLIPS

IN THE HOUSE

HOUSE BILL NO. 48 am

IN THE LEGISLATURE OF THE STATE OF ALASKA

TENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: 'An Act making a special appropriation to the Department of Transportation and Public Facilities, interior division, for delineation of a utility corridor and railroad right-of-way for extension of the Alaska Railroad; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. The sum of $865,000 is appropriated from the general fund to the Department of Transportation and Public Facilities, interior division, for the purpose of reconnaissance photography and studies, field surveys, mapping, engineering work, cost comparisons, and office work to delineate a utility corridor and railroad right-of-way for extension of the Alaska Railroad to the Canadian border.

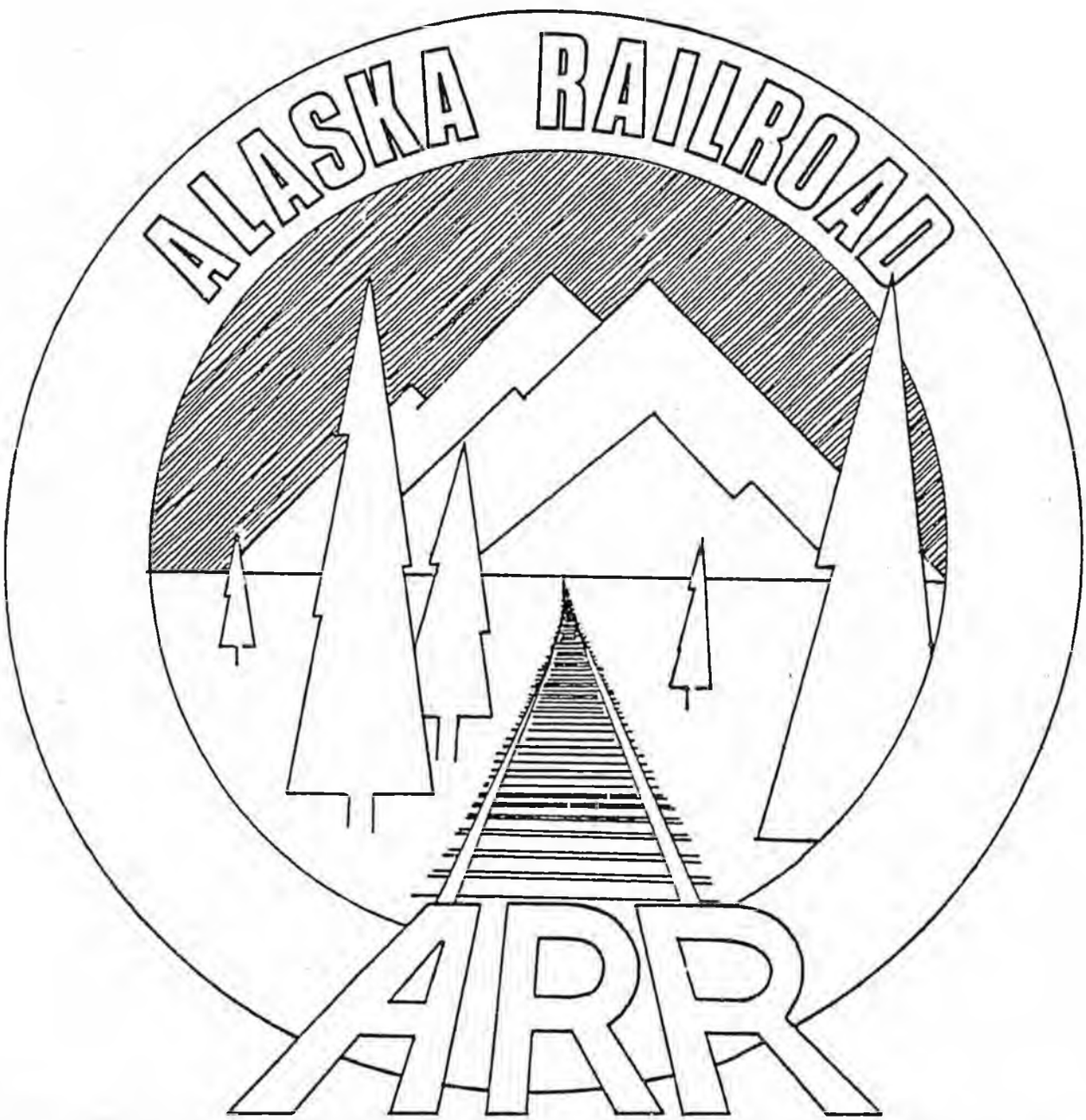
* Sec. 2. The unexpended and unobligated portion of this appropriation lapses into the general fund June 30, 1979.

* Sec. 3. This Act takes effect immediately in accordance with AS 01.10.-070(c).

RECEIVED
APR 29 1980
The Alaska Railroad
Office of Chief Engineer

ALASKA RAILROAD EXTENSI

Eielson to the Canadian Border



State of Alaska Department of Transportation and Public Facilities

ENVIRONMENTAL ASSESSMENT

JULY 1983

PROJECT R51033

ALASKA RAILROAD EXTENSION

Eielson to the Canadian Border

ENVIRONMENTAL ASSESSMENT

STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

NORTHERN REGION

Approved for Distribution:

Regional Environmental Coordinator

Concur:

Deputy Commissioner

July 1983

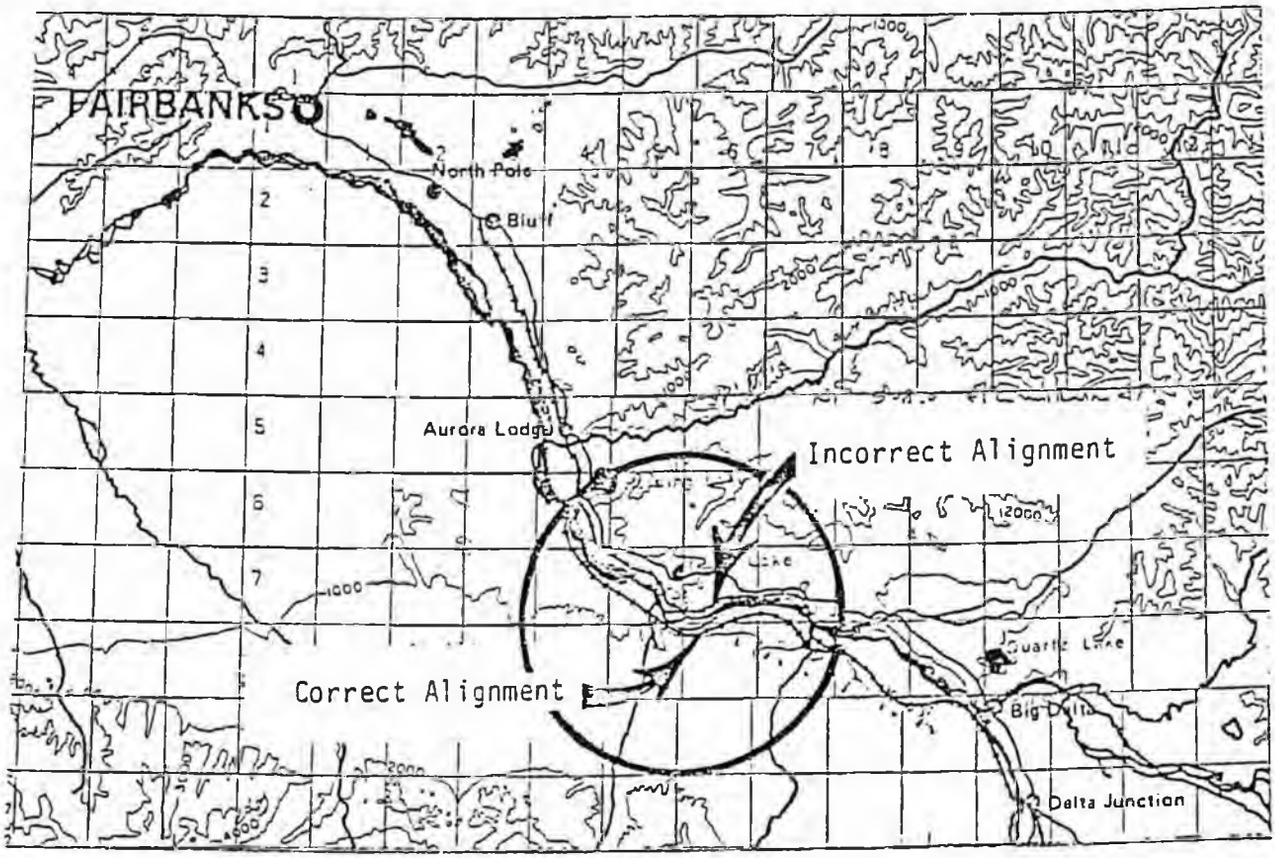
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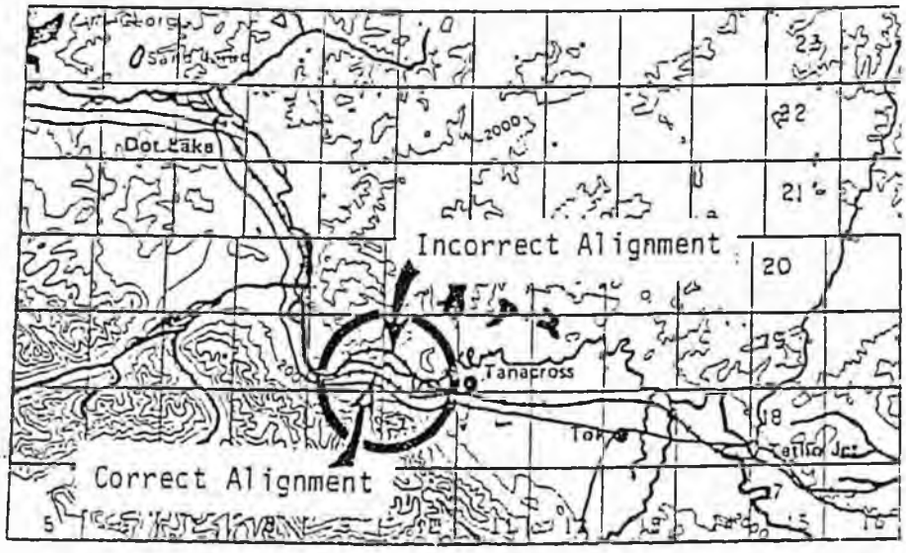
State of Alaska
Department of Transportation
and Public Facilities
2301 Peger Road
Fairbanks, Alaska 99701

Attn: Environmental Section

ERRATA SHEET

Figure 4, Project Corridor (base map), and Figures 7 through 12 contain two segments of incorrect railroad alignment. The correct alignment segments are identified below.





ERRATA CONTINUED

The White Pass and Yukon Railroad route, traversing between Skagway AK and Whitehorse YT, is not shown on Figure 2, Existing Railroad Systems in Alaska and Northwestern Canada.

SUMMARY

At the direction of the Alaska Legislature, the Alaska Department of Transportation and Public Facilities proposes to extend the Alaska Railroad from its present terminus near Eielson Air Force Base to the Canadian border, a distance of approximately 271 miles. The project would provide diverse transportation service possibilities related to regional resource development and, if extended through Canada (by the Canadian Surface Transportation Administration), related to transcontinental shipment. A railroad extension would also afford greater energy efficiency over other transport modes and would connect all of Alaska's major military installations to the railroad system. Proposed project activities would include construction of a single track (mainline), numerous railroad bridges, passing sidings every seven to ten miles, industrial tracks to serve major users not located near terminals or yards, terminal facilities, and a yard or yards to accommodate locomotive and car maintenance shops and switching operations.

In addition to the above preferred project construction alternative, a no-action alternative is considered. Other alternatives are not reasonable.

Significant environmental impacts of the project construction alternative are the commitment of resources for construction, wildlife habitat loss, wetland and floodplain involvement, railroad operation noise and access for natural resource development. The no-action alternative would preclude the possibility of railroad system linkage leading to the contiguous United States. An energy savings, through rail shipment of freight rather than highway or air shipment, would not be realized.

Early project coordination, prior to the initiation of this environmental study, included several Department contacts with agencies and community groups. Identified environmental issues provided guidance for the route location. Further agency coordination during the study identified other areas of project concern. Agency identified areas of concern have included permit acquisitions, potential cultural resource impacts, subsistence pattern changes, and effects on wildlife. Project location and activity concerns will continue to be coordinated during the project development process.

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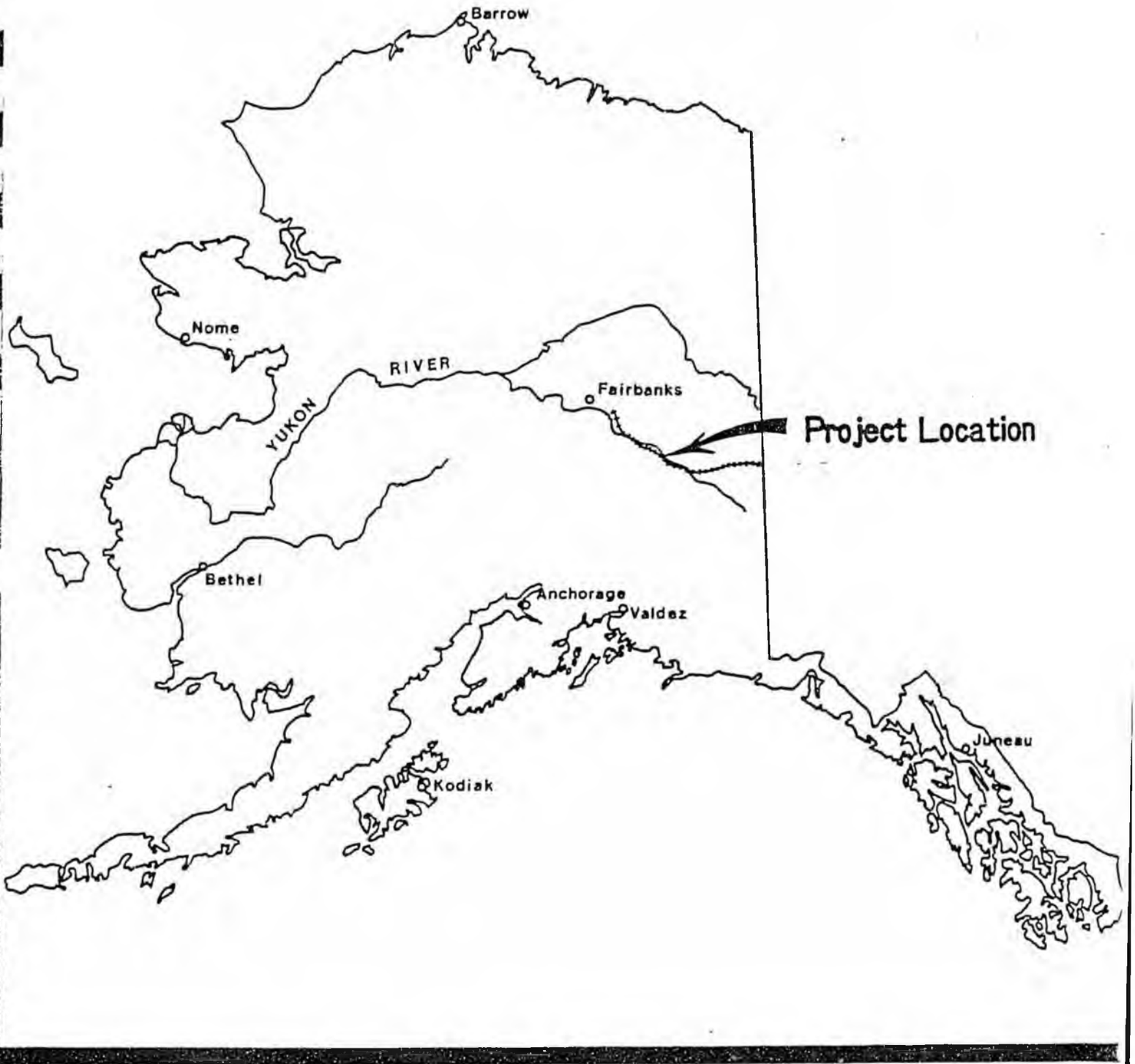


FIGURE 1 - Project Location

PROJECT HISTORY AND PURPOSE

HISTORY

In 1977, the Alaska Legislature passed House Bill 47 which dealt with a proposed extension of the Alaska Railroad. The bill mandated the Interior Region of the Alaska Department of Transportation and Public Facilities to delineate a proposed utility corridor for the extension of the Alaska Railroad to the Canadian border. A July 1981 amendment of House Bill 47 also directed the Department to prepare an environmental study, evaluating the impact of railroad construction.

The idea of an Alaska-Canada transcontinental rail connection to the contiguous United States had existed long before the above legislative intent surfaced. In 1942, the U.S. Army Corps of Engineers surveyed a route for a rail connection. Project interest faded however, after the end of World War II. The Bureau of Land Management, (BLM), Alaska State office, recommended a railroad linkage with Canada in a 1974 report, "Multimodal Transportation and Utility Corridor Systems In Alaska." In 1976, a State-sponsored conference was held to consider the connection of Alaska and Canada by an all rail land route leading to the midwestern and eastern manufacturing centers. The conference reached conclusions that: (1) Alaska was far behind the Yukon Territory and northern Canada in their research on the potential for a rail route and (2) the concept of rail connection between Alaska and Canada looked promising and should be pursued. The Legislature thereafter appropriated funding for preliminary economic studies in 1977, by the Department of Commerce and Economic Development and in 1980, by the Legislative Affairs Agency.

PURPOSE

A rail connection leading to the contiguous United States would provide system linkage and would present diverse transportation service possibilities.

Figure 2 identifies the existing railroad systems in Alaska and northwestern Canada. A feasible connecting route in terms of topographical relief and distance is first from Eielson Air Force Base

southeasterly up the Tanana and down the Ladue River valley to the Canadian border, then down the West Fork of the Ladue to the White River, down the White River valley to the Yukon and up the Yukon past the community of Carmacks, then easterly along the Little Salmon and Magundy River drainages to the Pelly River, then up the Pelly and down the Liard River valleys to Watson Lake, south to Dease Lake, and finally southward to the terminus of the existing tracks extending from Prince George.

Transportation service possibilities from a connecting route are dynamic and diverse. The reader is encouraged to consult the preliminary economic studies identified in Appendix A for a more detailed accounting. Basically, the rail connection is being considered as both a regional resource development tool and a transcontinental trunk route.

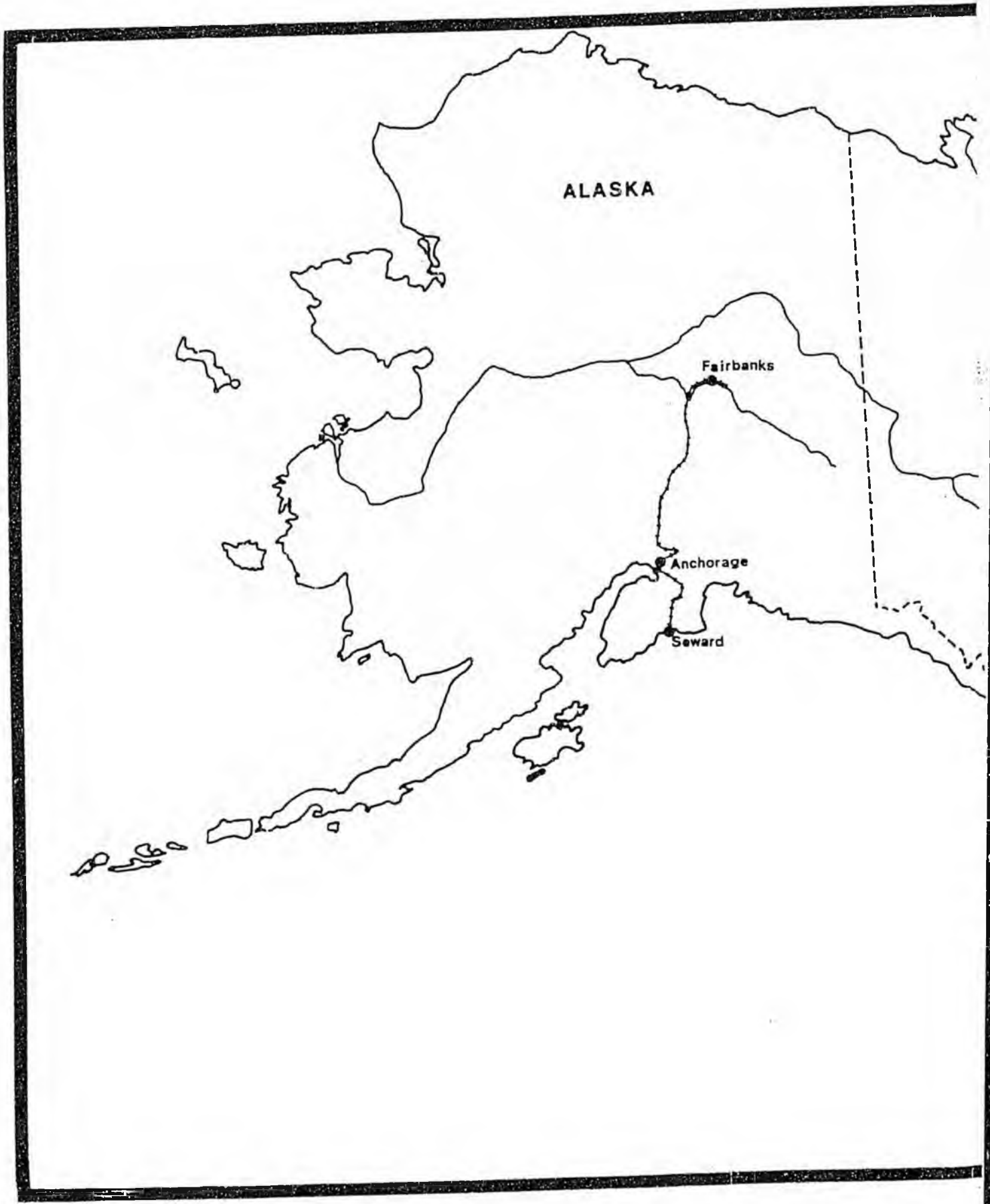
Historically, railroads have been important development tools in large undeveloped land areas. Railroad access to minerals in the Western United States in the late 19th Century is a typical example. In Alaska, it is probably significant that the largest movements on the existing Alaska Railroad include coal transported from Healy to power plants along the railbelt and gravel moved from Palmer to aggregate companies in Anchorage. Petroleum products and logs from Nenana are also important rail movements. A railroad connection to the contiguous United States might afford additional development opportunities for several energy and natural resource industries including oil, mining, agriculture, and forestry. With surface transportation development, the Alaska Miners Association estimates that hard rock mines in Alaska could produce 2,199,000 tons of minerals and 22,688,000 tons of coal annually. Perhaps 15 to 17 million acres of potential farmland exists in Alaska; over 3.3 million tillable acres are located in the Tanana valley alone. Timber resources of Interior Alaska are comparable to the forests of the Great Lake States and it has been estimated that there is enough timber in the Interior to support approximately ten pulp mills on a sustained yield basis.

The value of these resources alone may not sufficiently amortize the cost of a railroad connection however. Mineral deposits can eventually be worked out. Alaska's extreme climatic conditions can cause agricultural production failures. Timber resources are subject to fire and disease. A transcontinental trunk route though, would serve a wider variety of shippers of all types of consumer and industrial goods, including many shippers not even inside the region. A trunk route would not be seriously affected by changes in regional economy. The trunk line would connect ports like Tokyo, Anchorage and Skagway with other population centers like Fairbanks, Whitehorse, Edmonton, Duluth and Chicago. Transport of products from Japan bound for the midwest, midwest goods being shipped to Japan or Russia, or of eastern U.S. goods

for local markets might occur on a transcontinental trunk route. Illustrations in Appendix B indicate some of the products that could move along the route and how the different route segments might be utilized.

Additional merits of a rail connection deserve mention. Alaska has several important military installations. Significant amounts of military freights are shipped into and out of the State. A rail connection would afford more direct military transport and would also connect all of the major military installations, thereby possibly improving national defense. Furthermore, a rail connection would afford greater energy efficiency. With equal amounts of fuel, a railroad can transport more freight per mile than can be moved by either air or highway.

A rail connection entails project commitment by both the State of Alaska and the Canadian Surface Transportation Administration. At the present time the Canadian Government has no plans for construction of the Canadian portion of a rail connection. However, some of the above mentioned transportation service possibilities could still be realized even without Canadian railroad construction. An extension of the existing Alaska Railroad system toward the border would serve regional resource development (e.g., agricultural activity near Delta Junction). It would also connect all of Alaska's major military installations and provide improved energy efficiency over highway and air transport.


ALASKA
Fairbanks
Anchorage
Seward

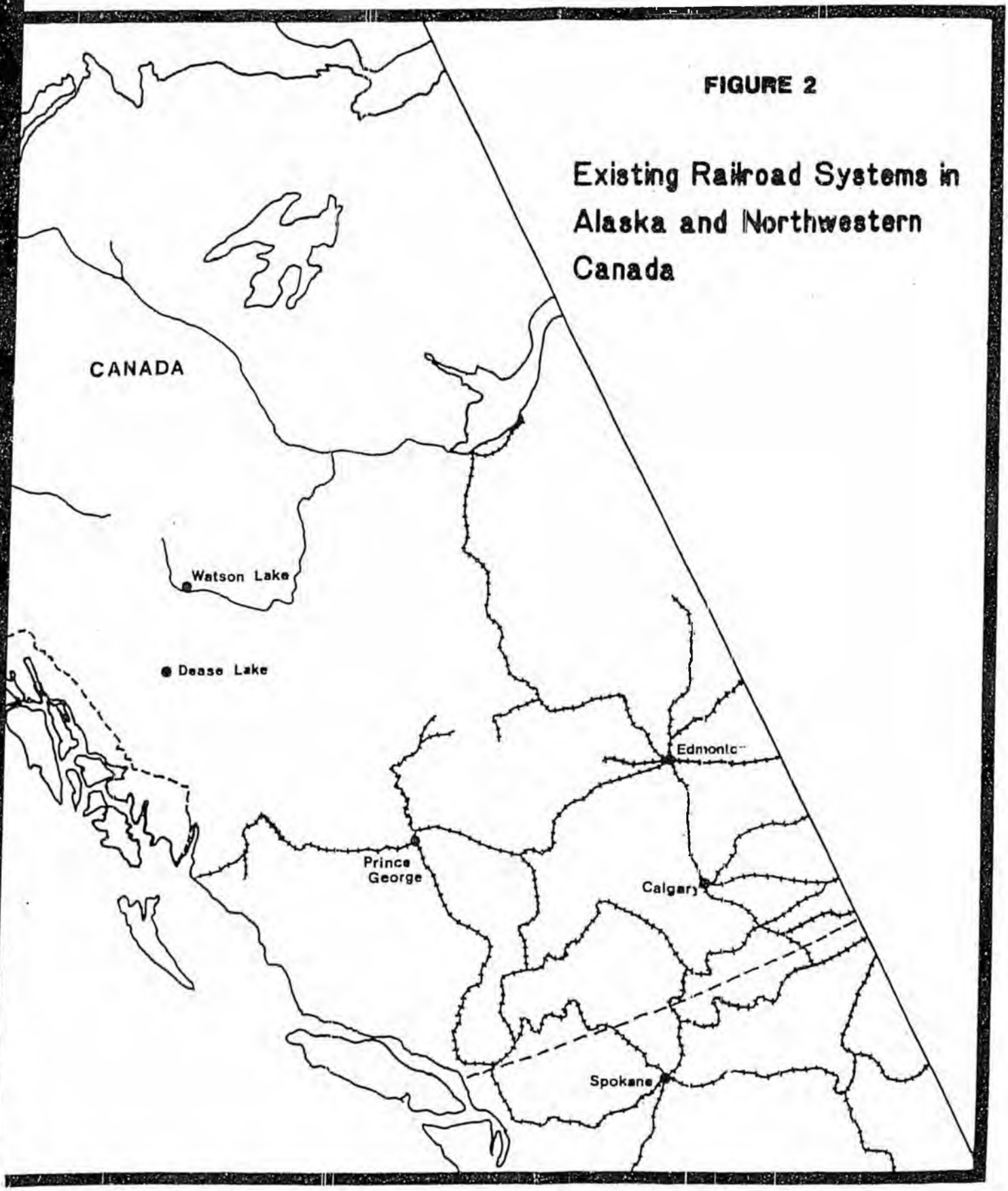


FIGURE 2

Existing Railroad Systems in Alaska and Northwestern Canada

ALTERNATIVE COURSES OF ACTION

Reasonable alternatives considered include a no-action alternative and a project construction alternative.

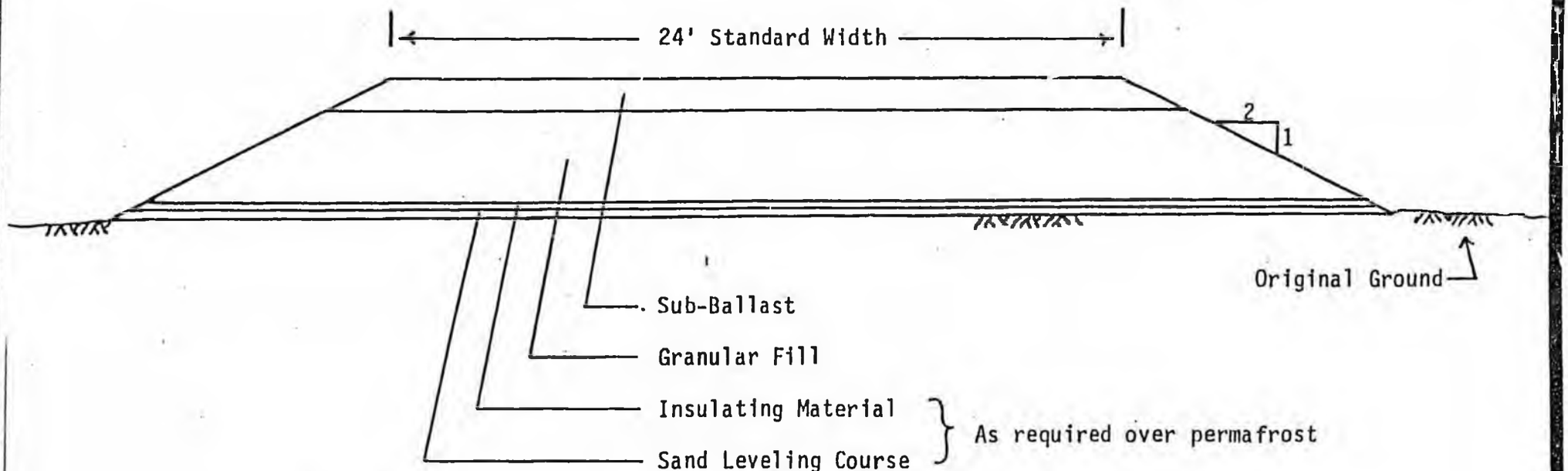
The no-action alternative would exclude any construction of a rail extension from Eielson Air Force Base to the Canadian border.

The alternative for project construction involves placing a single track (mainline) between Eielson Air Force Base and the Canadian border. It also includes necessary railroad bridges, passing sidings (spaced about every 7 to 10 miles so that trains may meet and pass), industrial tracks to serve any major users not located near terminals or yards, terminal facilities, and a yard or yards to accommodate locomotive and car maintenance shops and switching operations.

The proposed mainline track location is described below. It was identified through Department reconnaissance work that began in 1977. Appendix C defines the reconnaissance steps that lead to selection of the proposed route. General specifications for the track and embankment are given in Figure 3. Material source sites for embankment construction and maintenance have not been determined, pending further materials investigations. Right of way width for the mainline track, inclusive of passing sidings, would be 300 ft.

The specific locations for sidings, industrial tracks, and terminal and yard facilities have not been determined at this time. They would be identified during the project design phase. Right of way needs would likely be less than 300 ft. in width at industrial track locations, and greater than 300 ft. at terminal and yard locations.

Project construction would probably involve several construction seasons of work. Functional segments of the route could be placed in operation before construction of the entire route is accomplished. The Canadian border is a legislatively directed project study termini. A project construction alternative with termini of Eielson Air Force Base and an intermediate location (e.g., Delta Junction) is both feasible and probable. An initial intermediate termini may also be more prudent economically and politically.



NOTES

1. Track embankment and bridge structures will be constructed to accommodate cars carrying a load of up to 100 tons each.

2. Fill height will vary depending on foundation soils or floodplain involvement. A 4' minimum is typical over good foundation conditions.

3. Fill slopes will also vary. A 2:1 slope is typical over good foundation conditions.

4. Estimated average quantity of sub-ballast and granular fill: 67,000 cy/mile over good foundation conditions.

FIGURE 3 - General Specifications for Mainline Track and Embankment

ROUTE DESCRIPTION

An existing spur of the Alaska Railroad runs 30 miles southeast from Fairbanks to Eielson AFB. The proposed railroad extension takes off of this spur at the south end of the bridge spanning the floodway for the Chena River Flood Control Project. This beginning point (Mile 0), is five miles northwest of Eielson near Moose Creek Bluff.

From Mile 0 the proposed route runs southeast between the Richardson Highway and the Tanana River traversing old river bars and crossing numerous slough channels. Recent State-disposed agricultural lands surround the alignment from Mile 1.4 to Mile 5.3.

The route remains between the Richardson Highway and the Tanana River up to Mile 20. There are numerous private parcels and homes in this area. Several changes in the alignment have been made to reduce the impacts on these properties. These changes included the introduction of more curvature into the alignment and the shifting of the route across sloughs onto old river bars. At Mile 18.5, the railroad route has been relocated in order to avoid private homes. This location will require bank protection but will provide these homes with protection from erosion which has been severe at this site in recent years.

Near Mile 20, the proposed route turns up the Salcha River to a crossing one mile downstream from the highway bridge. From this point, the route heads toward the Tanana River crossing at the west slope of Flag Hill near Harding Lake.

The railroad route crosses the Tanana River at Mile 24.4. This crossing was chosen early in the route study as by far the best available Tanana crossing and was subsequently considered a fixed point in the route. At Flag Hill, the main river channel is fixed against the hillside and the total width of the active river channel is about ½ mile. In most other areas, the Tanana's braided channels are continually shifting over a channel width of one to 1½ miles.

After crossing the river, the route continues up the Tanana valley traversing the floodplain ½ to one mile away from the river. From Mile 25.2 to Mile 30.1, the route is located on military land (Fort Wainwright). After leaving Fort Wainwright, the route traverses State lands for the next 35 miles.

At Mile 36.5 the route turns south up the Little Delta River to reach a secure site for crossing that stream. The route then continues easterly paralleling the Tanana River for the next 12 miles. At Mile 50, the route again turns away from the Tanana in order to reach a favorable site for crossing Delta Creek. The route crosses Delta Creek at Mile 52.8 and then continues easterly passing south of a three mile long ridge. There is a Federal recreation withdrawal along Clear Creek which runs along the north side of this same ridge and the railroad route has been placed so as to avoid this withdrawal. From the east end of the ridge, (Mile 56.5), the route runs along low terraces about ½ mile south of Clear Creek to the headwaters of the creek near Mile 63.

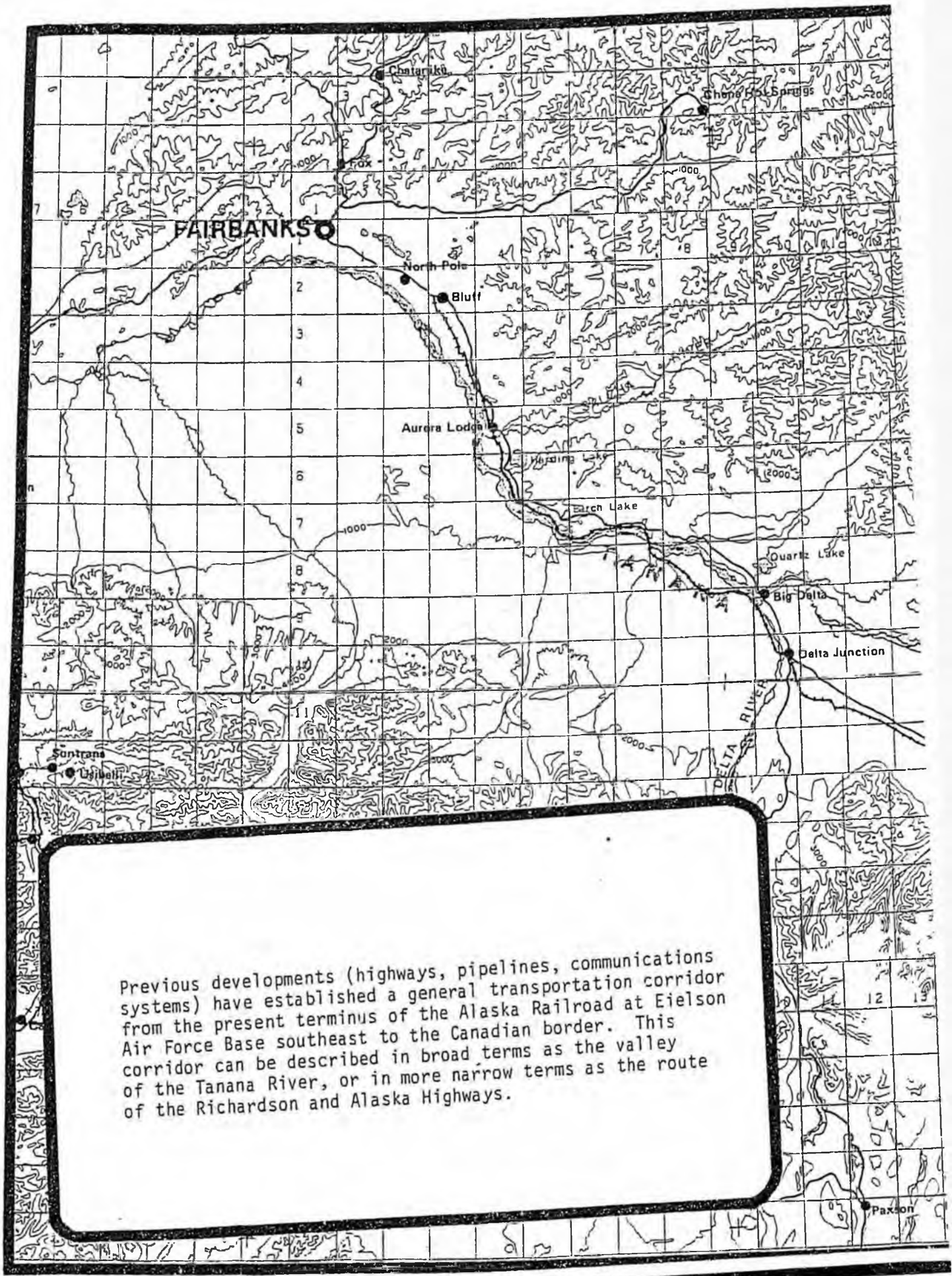
Near Mile 67, the route passes through some private agricultural lands near the confluence of the Delta and Tanana rivers. The route then runs southeast through State lands along the Delta River.

The route turns across the Delta River at Mile 75 and then runs upstream along the east bank of the river for two miles through the Delta Junction area. The location of the railroad is intended to provide bank protection in an area where stream erosion has been a problem in recent years.

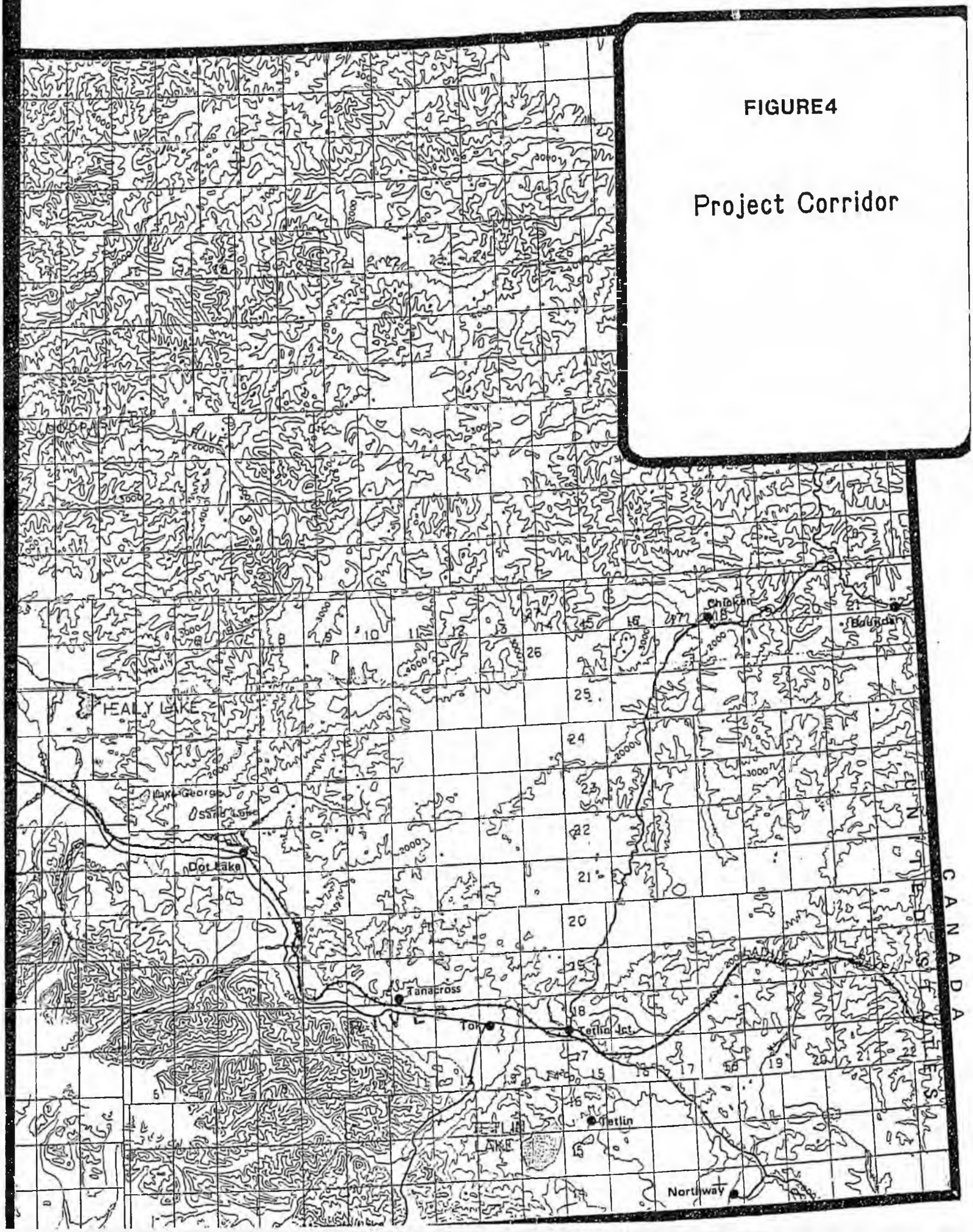
At Mile 77.5, the route turns away from the Delta River and runs along the east bank of Jarvis Creek. The route is situated on military lands from Mile 78 to Mile 88.5. At Mile 82, the route is near the developed area of Fort Greely although a bridge across Jarvis Creek would be necessary to provide direct access to the Fort. From Mile 82 the route turns easterly remaining on Fort Greely lands for the next 6.5 miles as a means of avoiding the private property along the Alaska Highway.

After leaving Fort Greely, the route runs east to the vicinity of the Alaska Highway and then closely parallels the highway for the next four miles. At Mile 99, the route makes an "S" curve in order to cross the highway at an acceptable angle. The route then parallels the highway on the north side for the next 11½ miles. The railroad route has been located so as to be compatible with the route for the proposed Northwest Alaska Natural Gas Pipeline which also parallels the highway through this area.

At Mile 111.5, the railroad route bends around a proposed gas line compressor site and then departs from the vicinity of the highway and runs along the bank of the Tanana River from Mile 114 to Mile 120 at Johnson River. A route higher on the hill was considered on the approach to Johnson River, but the route adjacent to the Tanana was determined to offer the best grades and foundations even though it will encroach on the river in a few places in order to avoid steep, unstable hillsides.



Previous developments (highways, pipelines, communications systems) have established a general transportation corridor from the present terminus of the Alaska Railroad at Eielson Air Force Base southeast to the Canadian border. This corridor can be described in broad terms as the valley of the Tanana River, or in more narrow terms as the route of the Richardson and Alaska Highways.


FIGURE4
Project Corridor
HEALY LAKE
Lake George
Dot Lake
Tanacross
Tok
Tetlin Jct
Tetlin
LAKE
Northway
Chicken
Boundary
CANADA

The railroad route crosses the Johnson River near its mouth and then returns to the vicinity of the Alaska Highway at Mile 123.5. The railroad remains north of and parallel to the highway from Mile 123.5 to Mile 128.3.

The railroad route swings away from the Alaska Highway at Mile 130 near Berry Creek and again at Mile 133 in order to maintain the required grades. In the vicinity of Mile 135, the alignment has been adjusted to accommodate a new State subdivision.

From Mile 135 to Mile 145, the railroad route closely parallels the highway. The highway and railroad rights of way actually overlap in the vicinity of Dot Lake in order to minimize the total right of way through the village area.

From Mile 145, the railroad route pulls away from the highway in order to avoid the rough terrain traversed by the highway just north of the Robertson River. The railroad route runs east of the rough terrain and then crosses the Robertson River just above its confluence with the Tanana River. The route remains close to the Tanana River for the next 12 miles in order to maintain acceptable grades through the Cathedral Bluffs area.

From Mile 165, the railroad turns away from the river and converges with the highway near Moon Lake (Mile 171). For the next six miles the route closely parallels the highway.

At Mile 177, the railroad departs from the vicinity of the Alaska Highway and proceeds in a nearly due east direction through the Tanacross and Tok areas. The route is located on section lines for seven miles to Mile 188.5, two miles north of Tok. From this point, the route turns southeast and gradually converges with the highway.

The route passes north of the Coast Guard installation at Mile 195 and enters Tetlin Village lands at Mile 195.5. The route is located on Tetlin lands for the next 21.5 miles.

At Mile 199.4, the railroad route crosses the Alaska Highway and then crosses the Tanana River just upstream from the highway bridge. The route passes ½ mile south of Tetlin Junction and remains south of the highway to Mile 207. At this point, the route again crosses the highway and begins the climb to the Ladue Summit. This section entails ten miles of sustained one percent grade and sharp curves. The Ladue Summit is the highest point on the proposed railroad route at 2300 ft. above sea level.

ENVIRONMENTAL SETTING AND ENVIRONMENTAL CONSEQUENCES

NO-ACTION ALTERNATIVE

Adoption of a no-action alternative would avoid impacts associated with project construction. No surface disturbance or vegetation loss from embankments, yard facilities, or material source sites would occur. There would be no loss of wildlife habitat; subsistence patterns would not be affected. No encroachment into waters, wetlands and floodplains necessary for bridge construction, would ensue. Air quality, noise, archaeologic and visual impacts of the project, though not significant, would none-the-less be precluded with the no-action alternative. No right of way acquisition would be required. Neither would construction materials, equipment, or labor be necessary. Funding would be available for other uses.

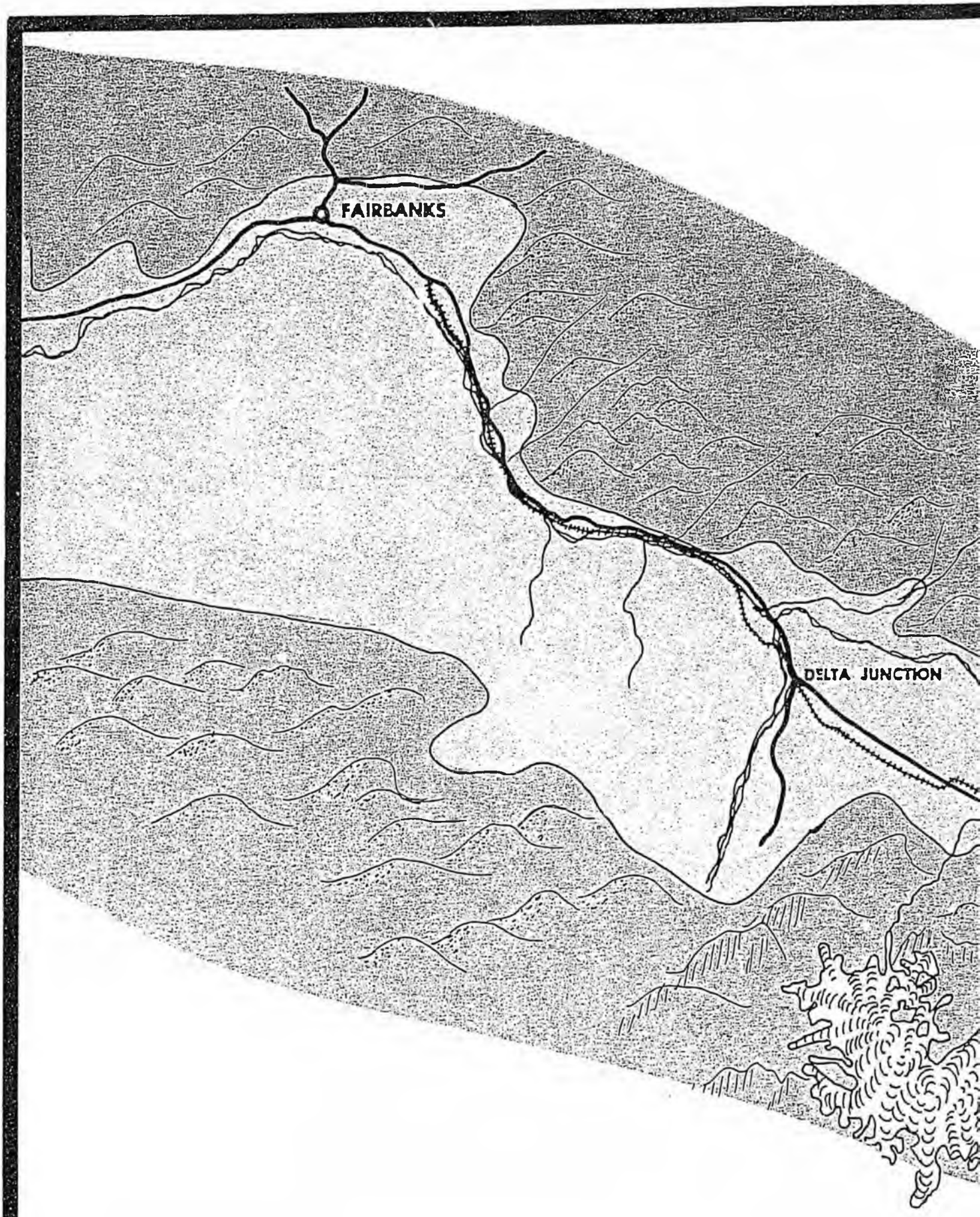
No railroad system linkage, leading to the contiguous United States, would be possible with adoption of the no-action alternative. (Even with extension to the Canadian border however, construction of the rail connection within Canada cannot be assured.) Many railroad generated transportation service possibilities would be diminished or eliminated without the system linkage. An energy savings, through rail shipment of freight rather than highway or air shipment, would not be realized as a result of the no-action alternative.

PROJECT CONSTRUCTION ALTERNATIVE

The environment to be affected by proposed railroad construction and operation and the general impacts that may result are identified under the topics that follow.

GEOLOGY AND HYDROLOGY

The majority of railroad corridor area falls within two land resources identified physiographically as the Interior Alaska Lowlands and the Interior Alaska Highlands (Figure 5). The designations are descriptive of the geologic and hydrologic settings.

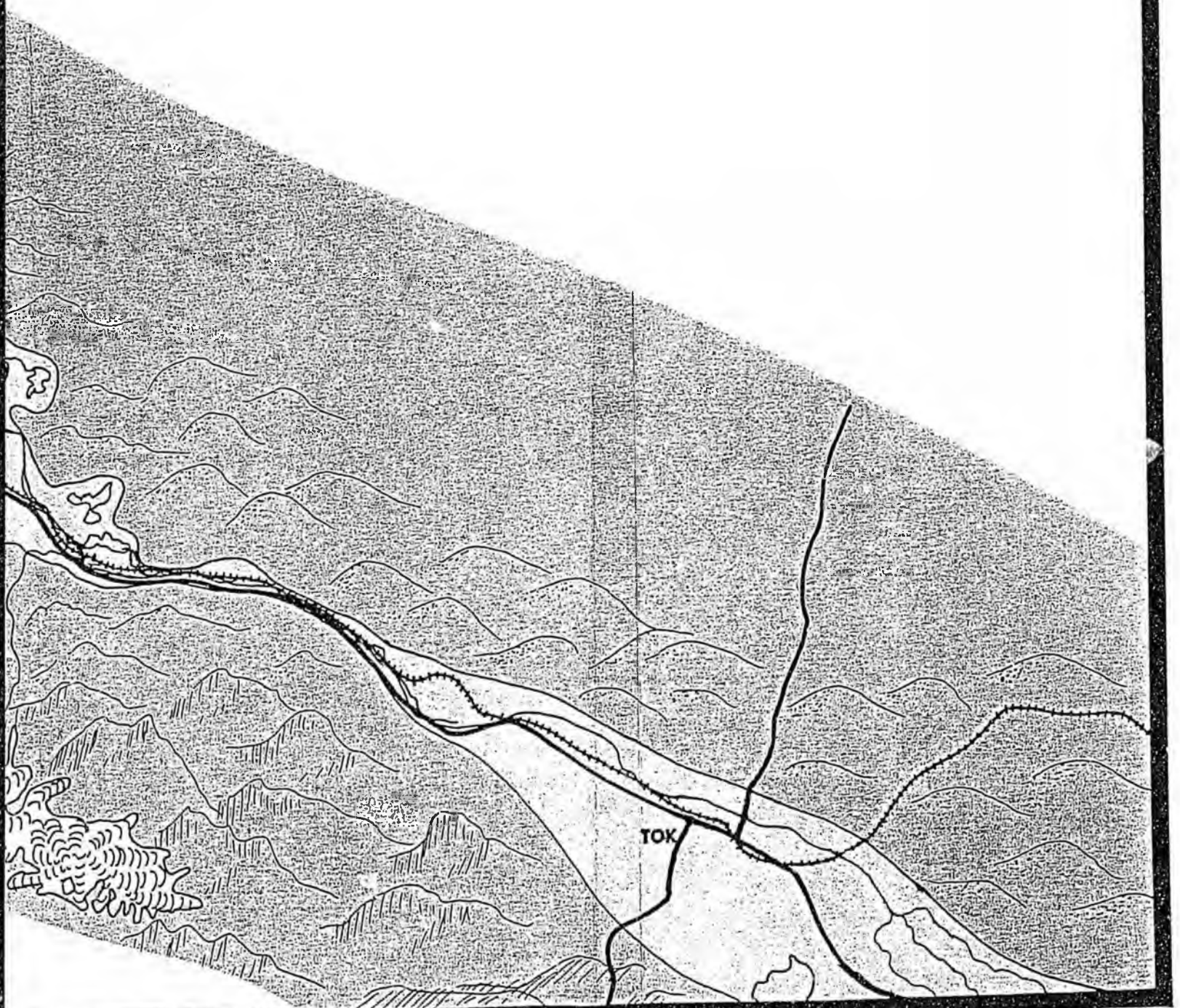

FAIRBANKS
DELTA JUNCTION

INTERIOR ALASKA LOWLANDS

INTERIOR ALASKA HIGHLANDS

FIGURE 5

Physiographic Divisions

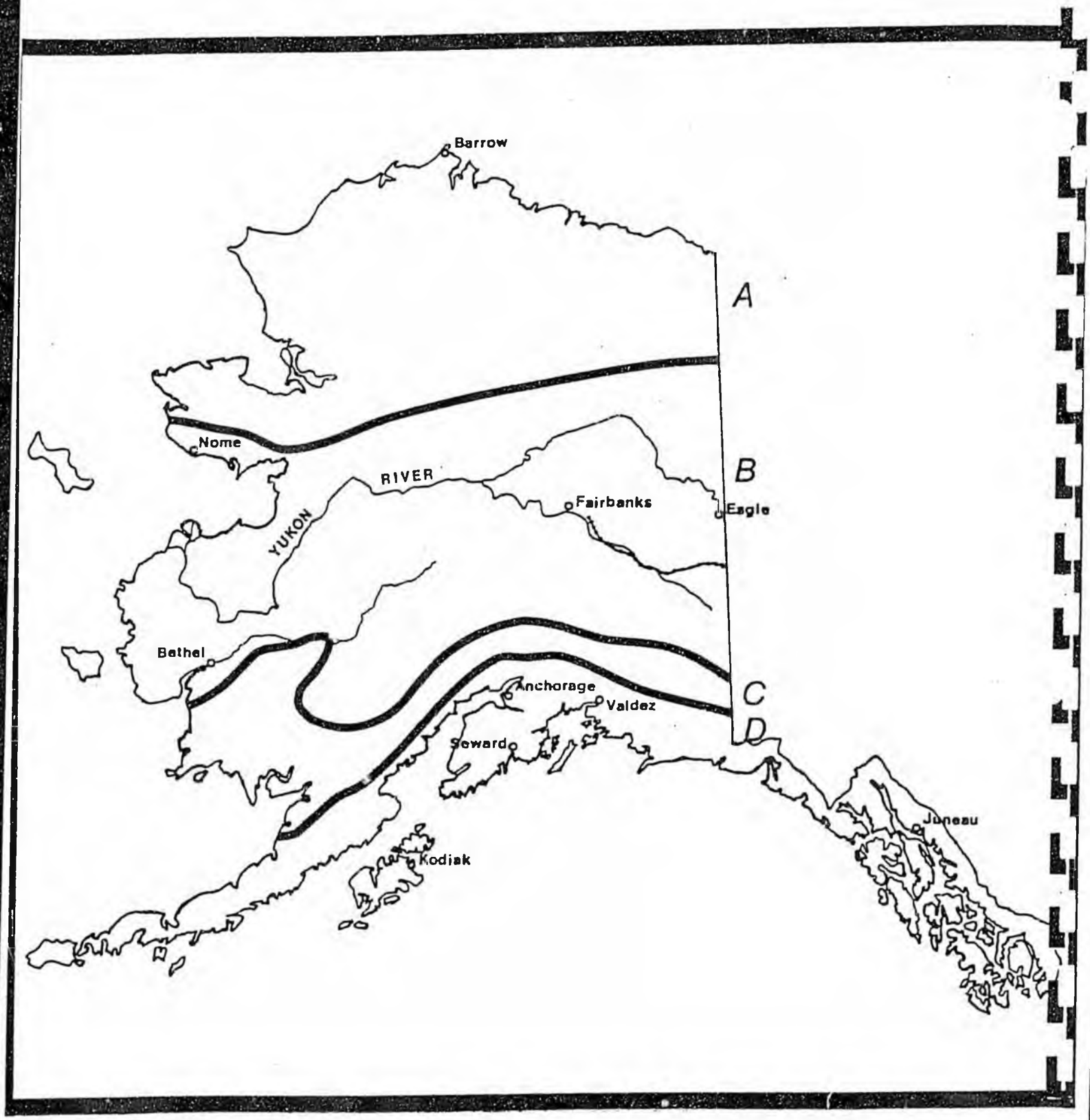


foundations and in areas where construction materials are readily available. Areas of poor foundations, such as sloughs, marshes, and wetlands, offer prohibitive construction and maintenance costs. Large quantities of gravel and rock would be required for the construction of nearly 270 miles of railroad. In addition, a continual supply of gravel and rock would be necessary for maintenance. Railroad roadbed maintenance, including gravel renewal, is critical in Alaska where the amount of moisture during spring breakup can, if not controlled, make track unusable within a single year. Further material demands could also result from flood or earthquake damages. The abundant alluvial gravels of the Tanana lowland should provide adequate gravel and rock sources for construction, operation and maintenance. Specific mining locations have not been determined, however, pending further materials investigations. Importing gravel materials from longer distances over newly constructed portions of railroad alignment might also prove feasible and cost effective. The Design and Construction Impacts section further addresses project materials needs.

The corridor is entirely within the discontinuous permafrost zone of Alaska (Figure 6). Although the permafrost or permanently frozen ground is discontinuous, the corridor traverses more frozen ground than unfrozen. Typically permafrost exists where there is a mean annual air temperature below freezing. Within similar temperature zones favorable for the formation or preservation of permafrost, other environmental factors such as subsurface drainage and surface insulation, affect the distribution of permafrost. Construction produced changes in the surface environment of frozen ground (e.g., clearing of vegetation, alignment construction) can result in thawing of the permafrost, followed by ground subsidence if the frozen material is unstable. Not all permafrost is thaw unstable; gravel and rock materials can remain stable when thawed. Due to the intensive maintenance required on alignments located over thaw unstable permafrost areas, avoidance of such locations is usually prioritized. Where avoidance is not possible, design measures can reduce, but will never eliminate, above-normal maintenance costs. Within the corridor area, the Ladue River valley, containing loamy alluvial sediments, presents the greatest potential for permafrost problems.

Other geological and hydrological hazards to a railroad alignment that occur in the corridor (Figure 7) include terminal moraine slopes of the Johnson and Robertson Rivers, steep slopes between the Tanana and Ladue River valleys and in the vicinity of Harding Lake, icing on the Johnson and Robertson Rivers, flooding in the Tanana River floodplain, flash flooding of Yerrick and Cathedral Creeks, glacier outburst flooding along several rivers and earthquake damage. Although no major faults associated with earthquake activity are found along the Tanana and Ladue River valleys, surrounding hills and mountains do contain faults and have greater earthquake potential.

The probability of project impact from certain hazards can be minimized by engineering practices when alignment avoidance is not possible; other



PERMAFROST ZONES

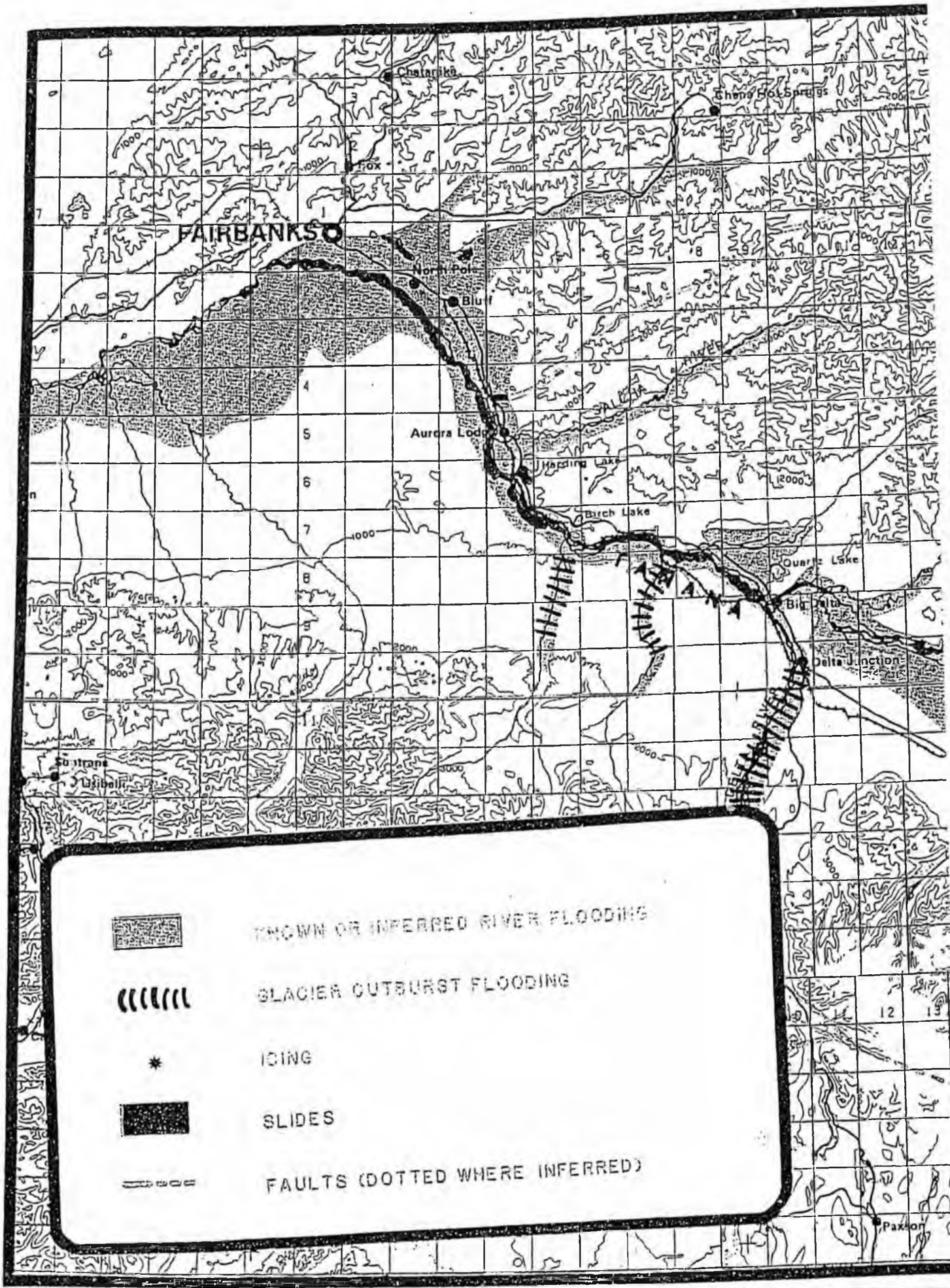
A Continuous

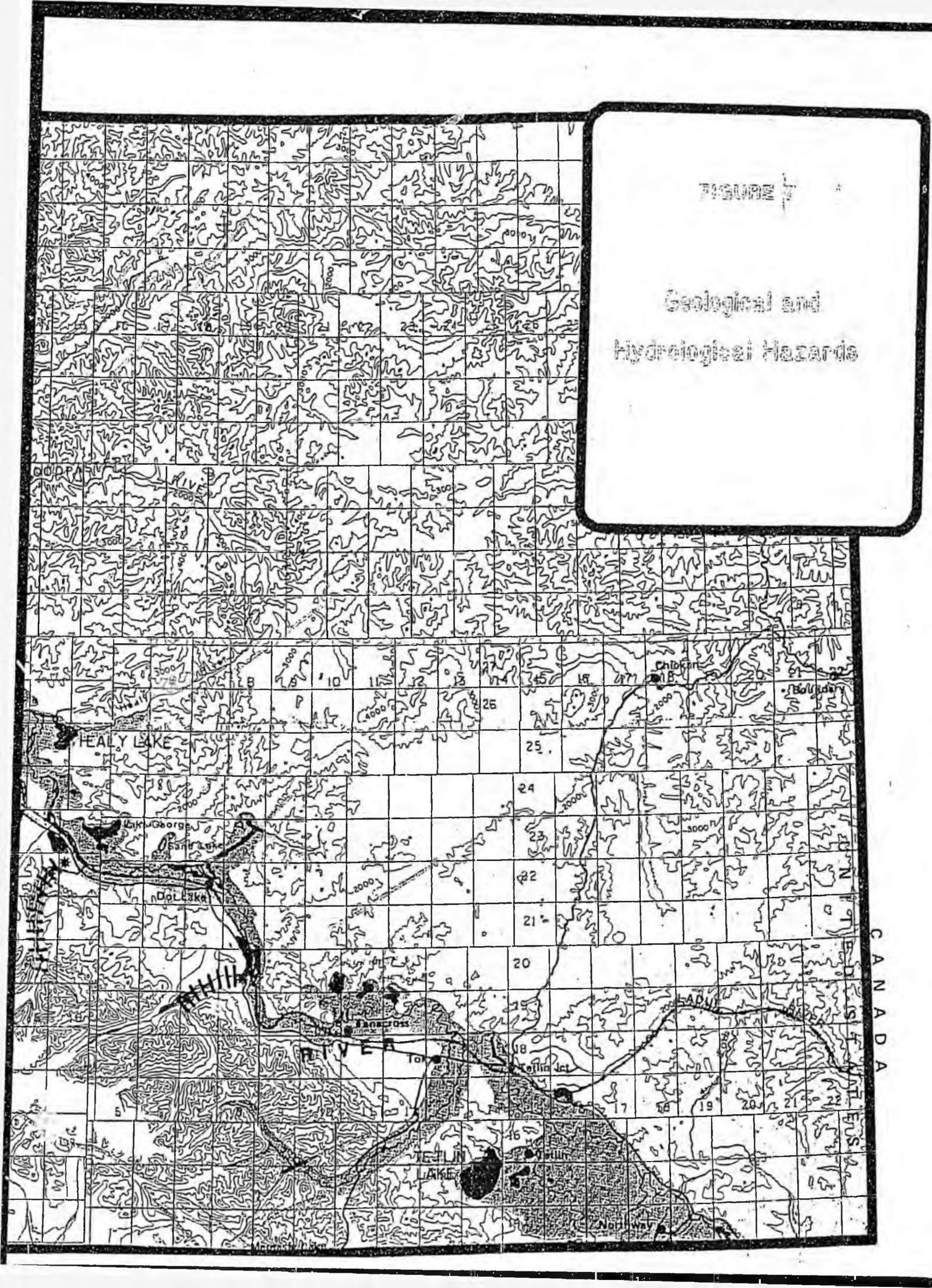
B Discontinuous

C Sporadic

D No Permafrost

FIGURE 6 - Permafrost Zones of Alaska


Chatanika
Chena Hot Springs
FAIRBANKS
North Pole
Blue
Aurora Lodge
Harding Lake
Birch Lake
Quartz Lake
Big Delta
Delta Junction
Salcha
Paxson
KNOWN OR INFERRED RIVER FLOODING
GLACIER OUTBURST FLOODING
ICING
SLIDES
FAULTS (DOTTED WHERE INFERRED)


FIGURE 7
Geological and
Hydrological Hazards
HEALY LAKE
Lake George
Sand Lake
Doll Lake
Tok
Tetlin Jct
TETLIN
LAKE
Northway
Chicken
Boundary
CANADA

hazards are upredictable (e.g. earthquakes) and cost effective mitigation is impractical. Locating an alignment away from the base of steep slopes and constructing backslopes at stable angles will minimize the potential for slope failures. Elevation of tracks (on pile supported bents) or of roadbed across channels and within floodplains where facility overtopping would otherwise be anticipated to occur will minimize icing and flooding hazards.

VEGETATION

The corridor area contains several general plant communities including bottomland spruce-poplar forest, low brush and muskeg bog, lowland spruce-hardwood forest, upland spruce-hardwood forest, moist tundra and alpine tundra (Major Ecosystems of Alaska Map).

The floodplains and low terraces of the Tanana River support the dense white spruce stands occasionally mixed with balsam poplar that comprise the bottomland spruce-poplar community. Vegetative undergrowth is generally dense shrubs including American green alder, thinleaf alder, willow, rose, dogwood, Labrador tea, and berry bushes. Ground cover is usually ferns, bluejoint grass, fireweed, horsetails, lichens, herbs, and mosses.

Low brush and muskeg bog typifies the plant community of the low, wet slough or basin areas within the corridor, including the Salcha drainage and Shaw Creek Flats. Bog vegetation consists of varying amounts of sedges, sphagnum and other mosses, bog rosemary, rose, resin birch, dwarf Arctic birch, Labrador tea, willow, bog cranberry, soapberry, and blueberry.

The lowland spruce-hardwood forest community occurs on extensive areas of glacial outwash plains bordering the south side of the Tanana River. The vegetative community consists of black spruce and tamarack in wet areas and white spruce, black spruce, paper birch, aspen and balsam poplar on knolls. Undergrowth includes willows, dwarf birch, lingonberry, blueberry, rose, Labrador tea, crowberry, bearberry, cotton grass, ferns, horsetail, lichens, and sometimes a thick cover of sphagnum and other mosses.

Upland spruce-hardwood forest occurs on the lower hills and ridges surrounding the Tanana River Valley. This is a fairly dense white spruce, birch, aspen and balsam poplar forest community. Undergrowth consists of mosses and grasses on dry sites and brush on moist slopes. Typical plant species are willow, alder, ferns, rose, highbush cranberry, lingonberry, raspberry, currant, Labrador tea and horsetail.

Moist tundra occurs on the higher foothills of the Alaska Range. Moist

tundra is characterized by a wide variety of low growing shrubs, herbs, grasses, and sedges rooted in a mat of mosses and lichens. Species include polar grass, bluejoint, tufted hairgrass, sedges, mosses, alpine-azalea, wood rush, mountain-avens, bistort, horsetail, low-growing willows, dwarf birch, Labrador tea, American green alder, Lapland rosebay, blueberry, and lingonberry.

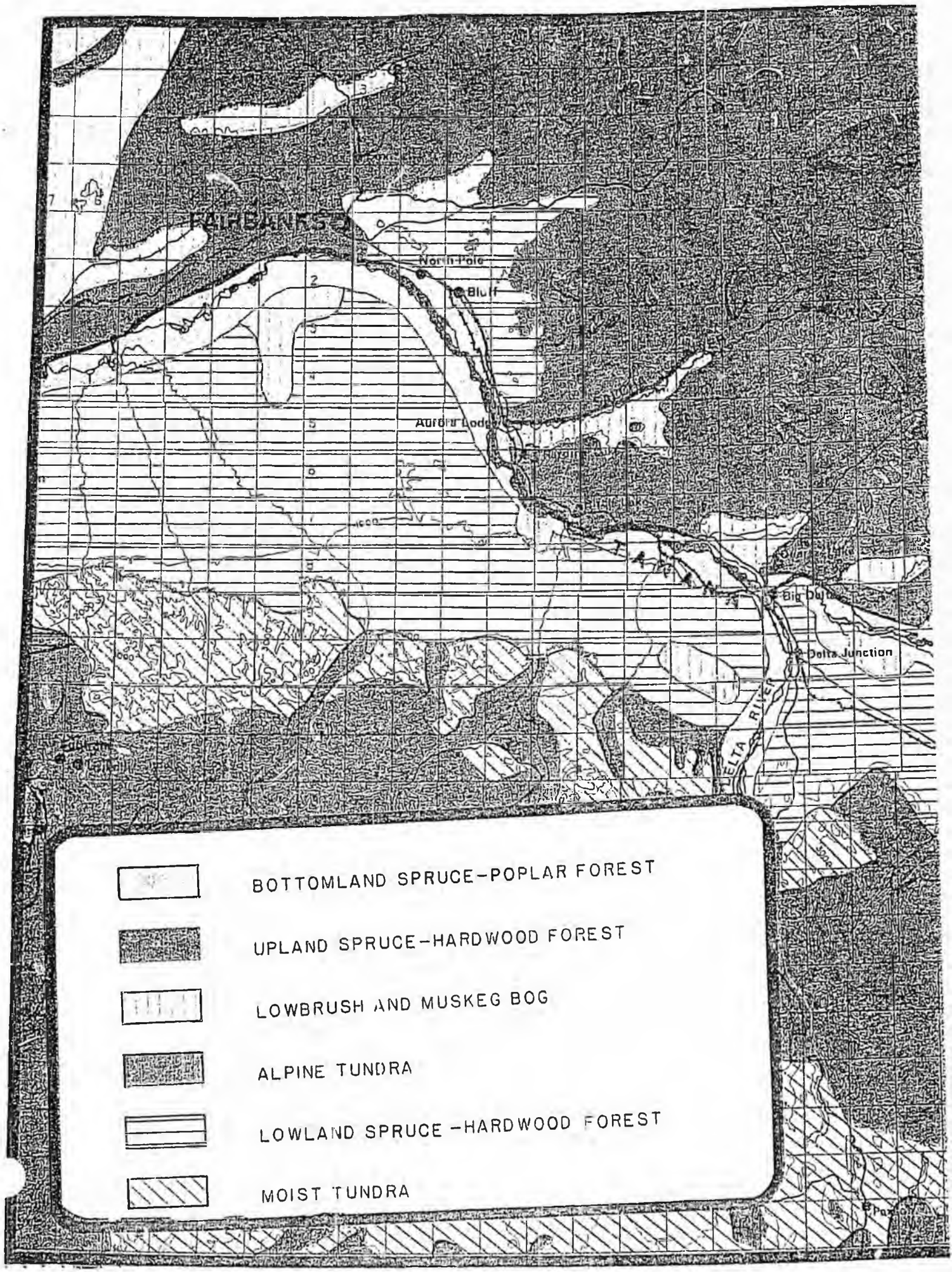
Alpine tundra is found on mountain slopes and ridges, typically above 3000 ft. in elevation within the corridor area. Vegetation is seldom more than a few inches high. Dominant species usually consist of mountain-avens and lichens and low-growing herbs, grasses and sedges. Associated species are resin birch, dwarf Arctic birch, cassiope, crowberry, alpine-azalea, Labrador tea, mountain heath, moss campion, black oxytrope, and Arctic sandwort.

The above general plant communities are abundantly represented in interior Alaska. Estimated acreages are shown below.

TABLE 1
ESTIMATED AREA IN INTERIOR ALASKA*

Community	Acres (Millions)	Percent of State Total
Bottomland spruce-poplar forest	12.0	67%
Lowbrush and muskeg bog	9.2	88%
Lowland spruce-hardwood forest	23.2	66%
Upland spruce-hardwood forest	43.4	68%
Moist tundra	7.0	11%
Alpine tundra	21.1	25%

*Alaska Regional Profiles, Yukon Region


FAIRBANKS
North Pole
Bluff
Aurora Lodge
Big Delta
Delta Junction
DELTA RIVER
BOTTOMLAND SPRUCE-POPLAR FOREST
UPLAND SPRUCE-HARDWOOD FOREST
LOWBRUSH AND MUSKEG BOG
ALPINE TUNDRA
LOWLAND SPRUCE-HARDWOOD FOREST
MOIST TUNDRA

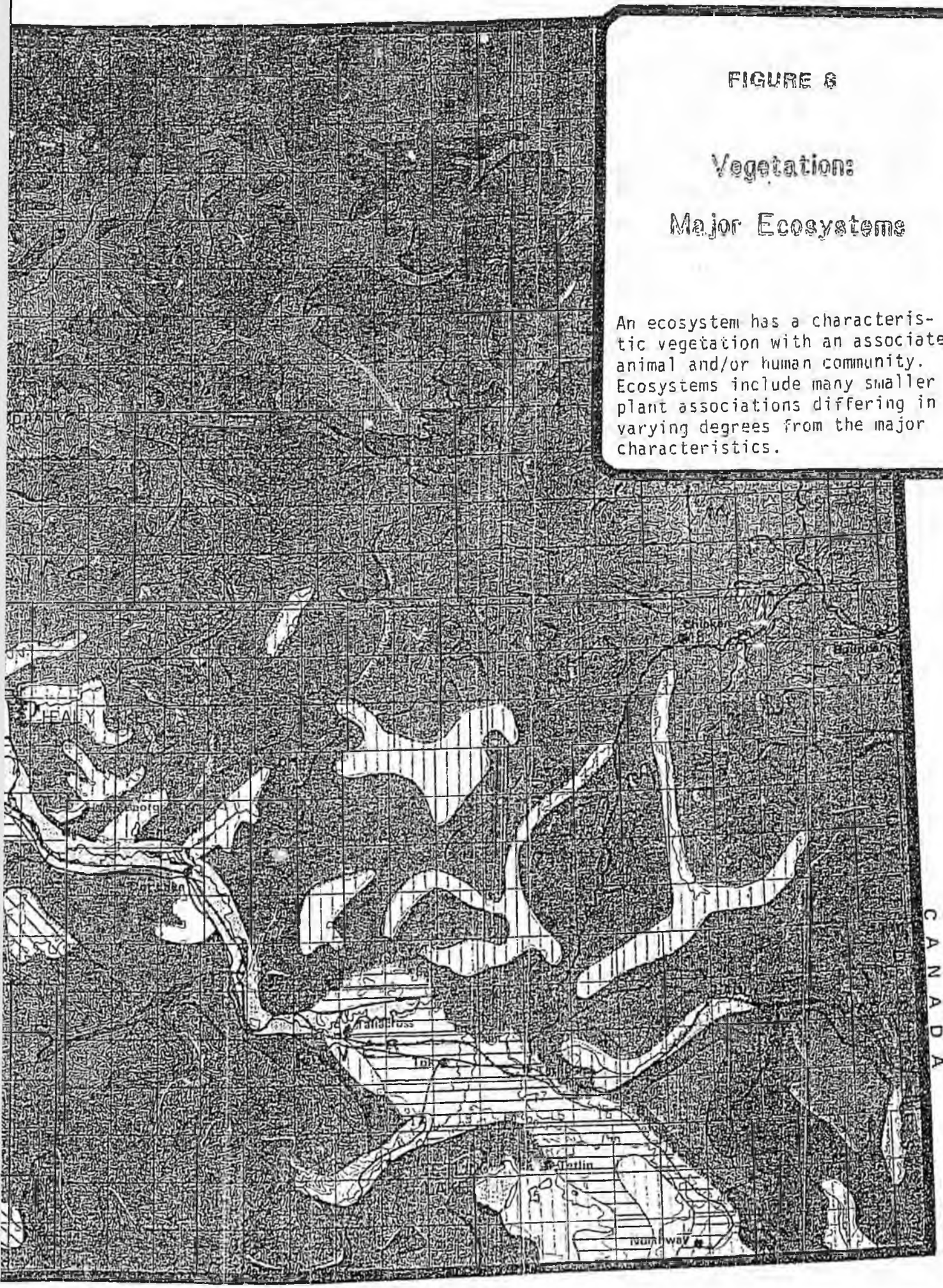


FIGURE 6

Vegetation:

Major Ecosystems

An ecosystem has a characteristic vegetation with an associated animal and/or human community. Ecosystems include many smaller plant associations differing in varying degrees from the major characteristics.

Of the six identified general plant communities, a railroad alignment would primarily impact the bottomland spruce-poplar forest and the lowland spruce-hardwood forest. This is due, in part, to the relationship between the general plant communities (ecosystems) and project engineering constraints. A feasible railroad alignment would be precluded from the tundra communities of higher elevations where steeper gradients predominate. Likewise, poor soil drainage and inadequate foundation strength in the low brush and muskeg bog community would constrain extensive alignment there.

Construction of nearly 270 miles of railroad would require a significant loss of vegetation. Should construction activity and/or railroad right of way clearing standards necessitate removal of vegetation within the entire 300 ft. wide right of way (the most conservative estimate), a loss of 36 acres of vegetation per mile would result. Part of this loss would be temporary, as the area between the edge of right of way and the base of the railway embankment would revegetate by natural succession. However, due to safety and maintenance considerations (e.g., adequate sight distance at curves and road/railroad crossings, removal of trees that could fall and obstruct the tracks, reduced snow drifting and snow removal, etc.) cleared areas would be mechanically or chemically managed to keep vegetation at low growing heights. Impacted forest communities would be replaced, in part, by early successional stage vegetation communities. Additional vegetation loss at material source sites could also occur. The extent of this loss cannot be easily quantified; embankment material availability requires further investigation.

No known listed or proposed threatened or endangered plant species are present in the project area.

Several forested areas within the corridor (on State lands) have been proposed for legislative designation as State Forest Resource Management Areas and Experimental Forest and Watershed Areas (Figure 1.). These and remaining corridor forests supply wood for commercial and personal use, and provide for a variety of non-timber uses. A railroad alignment could traverse through proposed State Forest Resource Management Areas. Except for the loss of timber within a 300 ft. wide right of way, no significant adverse impacts or benefits to the management areas have been identified.

AGRICULTURE

No prime or unique farmlands, as designated by the U.S. Department of Agriculture, Soil Conservation Service, occur within the project corridor.[1] The corridor does contain both developed agricultural lands and lands having a potential for agricultural development. Larger tracts of currently farmed agricultural lands can be found east and southeast of Fairbanks and east of Delta Junction. Figure 12 identifies general areas of current farming activity. Potential agricultural areas in the corridor, with soils suitable for farming activity, include most of the Tanana valley lowlands and some upland areas north of the Tanana River. Both regions have soils with 25-50% suitability for farming

[1] The Farmland Protection Policy Act of 1981 assures preservation of prime and unique farmlands. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides and labor and without intolerable soil erosion, as determined by the Secretary of Agriculture. Prime farmland includes land that possesses the above characteristics but is being used currently to produce livestock and timber. It does not include land already in or committed to urban development or water storage. Unique farmland is land other than prime farmland that is used for production of specific high-value food and fiber crops, as determined by the Secretary. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high levels of specific crops when treated and managed according to acceptable farming methods.

(Soils with Agricultural Potential, Alaska, U.S. Soil Conservation Service, 1973). Future agriculture development will be dependent on demands for producible crops and available means of transporting large volumes of foodstuffs to markets.

Established agricultural lands would probably be impacted by a railroad alignment. Physical separation from and loss of equipment access to isolated fields is a potential project impact. The provision of suitable track crossing sites should be accomplished, when practical, to help mitigate this impact.

WILDLIFE

Numerous wildlife species occur within the Tanana Valley. Principal big game species include moose, caribou, Dall sheep, bison, grizzly bear and black bear. Many furbearers, small game and non-game species are present. Waterfowl and raptors also comprise important species.

Rivers, streams and lakes within the Tanana Basin contain numerous fish species including chum, coho and chinook salmon, grayling, round whitefish, northern pike and burbot. Portions of Tanana Basin waters and associated slough areas provide habitat for spawning of anadromous and resident fish, for rearing locations and for overwintering areas.

Descriptions of specific corridor species and potential related project impacts follow. In general, the health of wildlife populations is partly dependent upon the viability of habitat areas utilized by those populations. Adverse habitat impacts produced by the project can result in wildlife population reductions. A railroad alignment within the corridor cannot preclude all wildlife and habitat impacts. A minimum of approximately 1,309 acres of terrestrial wildlife habitat would be permanently lost by construction of nearly 270 miles of railroad track and embankment.[2] Potential adverse impacts can be significantly lessened by alignment avoidance of sensitive wildlife areas and by special treatment during the design and construction of a railroad facility (see project design and construction impacts and mitigation). Enhancement of habitat for specific wildlife species may also result from the project due to the creation of ecotones, "edge areas" where different vegetation communities meet.

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[2] General assumptions for estimation: 4 ft. of embankment fill, 2:1 embankment slopes, 270 miles of length.

Cumulative wildlife impact would exist with the addition of a railroad facility into the Tanana Valley where an oil pipeline and highway already exist. However, proximity of the three facilities would preclude a significant new zone of impacts that would result should a railroad be introduced into a more remote and undeveloped corridor area.

The U.S. Fish and Wildlife Service has indicated that the American Peregrine Falcon is the only known listed or proposed threatened or endangered wildlife species present in the corridor area. Potential project effects on Peregrines are identified under the section entitled Raptors.

Moose

Moose can be found throughout the project corridor but populations are typically more concentrated in several key habitat areas. Those areas of seasonal or year round concentration include Fort Wainwright Military Reservation lands south of the Tanana River, the Salcha River, Shaw Creek Flats and adjacent lands southwesterly across the Tanana, Billy Creek and the Tanana River downstream from Tower Bluffs to the Billy Creek confluence, Mansfield Creek-Lake Mansfield-Little Tanana Slough, Sixtymile Butte, the northeast slopes of Mount Neuberger-Tok River, the lowlands surrounding the Tanana River south of Midway Lake, and the Ladue River from the upper drainage to the South Fork. Densities of moose in the above areas vary with seasonal use but can roughly be estimated at between 1-2 moose per square mile.

General seasonal movements are made by moose between calving grounds, summer feeding areas, breeding grounds, and winter feeding areas. Of the previously identified key habitat areas, Shaw Creek Flats and the lowlands surrounding the Tanana River near Midway Lake are utilized primarily for calving. Low areas are also utilized for winter feeding, principally stream side locations containing willow thickets. Timberline areas such as Sixtymile Butte and the slopes of Mount Neuberger characteristically provide summer feeding and breeding locations.

Project avoidance of moose habitat is not possible. An alignment anywhere within the Tanana River Valley would transect some key habitat areas (e.g., the Salcha River or Fort Wainwright lands, Shaw Creek Flats or adjacent lands to the southwest, the Ladue River habitat). In these locations, railroad construction would cause a displacement of moose. The railroad embankment and material source sites would directly reduce habitat. Stream crossings could encroach on willow thickets utilized as winter food. Construction activities could also result in a wider habitat area becoming unattractive for use. Railroad right of way clearing practices, however, during post construction railroad operation

would provide limited long-term feeding areas for moose by keeping vegetation in an early successional stage preferred by moose for food. The remaining significant habitat areas in the corridor could be largely avoided by a railroad alignment.

The Alaska Department of Fish and Game has expressed concern over the possibility of train/moose accidents in the Ladue River Valley, where overwintering moose could utilize railroad tracks for movement while avoiding travel through deep snow. Mean annual snowfall in the valley is approximately 40-50 inches. Actual peak ground depth of snow may be less than 1/3 of that amount. Studies have indicated that snow depths of up to 16.4 inches cause little or no hindrance to moose movement; movement becomes slightly restricted at snow depths of 16.4 to 28.7 inches; movement is definitely impeded at depths greater than 28.7 inches.[3] One can conclude, based on the study data, that snowfall would probably not contribute to a train/moose accident problem in the Ladue River valley.

Caribou

Caribou from three herds, Delta, Macomb and Fortymile, utilize habitats bordering on or within the project corridor. Approximately 6,000 Delta herd caribou occupy the north slopes of the Alaska Range between the Nenana and Delta Rivers; movements by Delta caribou have characteristically remained southwest of the Tanana River and Alaska Highway. An isolated group of about 700 caribou are located in the Macomb Plateau area adjacent to the Johnson River. Little, if any, movement patterns occur. Approximately 2,000 caribou use the lower Fortymile country, north of the Alaska Highway. Fortymile caribou comprising this group characteristically tend to migrate in an east-west direction, moving easterly (roughly between Mount Fairplay and Tetlin Junction) in the fall and westerly again in the spring. The Ladue River country appears to be consistently utilized as winter range. There are indications that during the winter of 1981-82, some Fortymile herd caribou crossed the Alaska Highway near Shaw Creek Flats into Delta herd range. This movement had not previously occurred and the consequences to either herd remains to be seen.

Delta herd caribou are not expected to be impacted significantly by the project. Caribou range is southwest of an anticipated Tanana Valley railroad alignment. Unless traditional movement patterns change

[3] Coady, John W. 1973. Interior Moose Studies. Vol. I, Project Progress Report, Federal Aid in Wildlife Restoration, Projects W-17-4 and W-17-5

radically, little or no effect on habitat or caribou migrations would occur. Macomb Plateau caribou habitat is also predominantly removed from a valley railroad alignment and no significant railroad project impacts to Macomb caribou are expected. Fortymile caribou would receive greater project impacts. A railroad alignment in the lower Fortymile country would result in habitat loss. Habitat is particularly important in the Ladue River country where caribou overwinter from October to March or April. A direct loss of forage plants from railroad embankment and material sources would be minor in comparison with the total Fortymile caribou range available. However, construction, operation and maintenance activities could result in a larger area of range becoming unattractive to caribou. Although studies have found caribou to become habituated to powerlines after a period of three to seven years, the effect of a railroad on long-term caribou behavior patterns is unknown. Likewise, no data is presently available to indicate whether train/caribou accidents may have occurred in other locations where caribou habitat has coincided with railroad alignments. As with moose, the depth of winter snowfall might be a determinate of the reluctance of caribou to move away from railroad tracks. Known Fortymile caribou calving grounds in the highlands at the heads of the Salcha and Charley Rivers would remain unaffected by the project.

Dall Sheep

Approximately 800 sheep occupy the "north face" area of the Alaska Range, immediately south of the Alaska Highway between the Robertson River and the Glenn Highway. Sheep habitat is primarily above the 3000 foot elevation, winter and summer range within the same general area. Natural mineral licks are present and utilized by the sheep.

No serious impact is anticipated to existing sheep populations in the "north face" area. Grade constraints preclude any railroad alignment from encroaching into the mountainous terrain utilized as sheep habitat. It is unknown whether noise from construction activity or from passing trains on an alignment in the Tanana Valley below the sheep range could have a disturbance effect on sheep. A railroad alignment on the north side of the Alaska Highway would be at least 2-4 miles removed from the nearest sheep habitat.

Bison

A herd of approximately 375 bison inhabit the Delta Junction area. The bison exhibit seasonal movements. A 90,000 acre State preserve southeast of Delta Junction and south of the Alaska Highway provides fall and winter range. Primary calving and early summer range occurs

along the banks of the Delta River between its confluence with the Tanana River and the Donnelly area nearly 35 miles upstream. The bison have occasionally wandered west of the Delta River and into agricultural areas northeast of the Alaska Highway.

Construction and operation of a railroad could result in a loss of seasonal bison habitat. An alignment through grassland meadows bordering the Delta River would cause a loss of summer pasturage. An alignment crossing the Delta Junction Bison Range would reduce winter forage. Use of Bison Range land is highly unlikely, however, as other alignment possibilities exist. The Alaska Department of Fish and Game has recommended that an alignment parallel the northern border of the Delta Junction Bison Range (1/4 mile from the Alaska Highway). The railroad embankment, combined with adjacent snow fencing, could then produce a barrier, inhibiting bison from leaving the refuge and crossing over into agricultural lands to the northeast.

Grizzly Bear

Two grizzly bear habitat areas border the Tanana Valley. One area coincides roughly with the southern portion of Fort Greely Military Reservation. The second bear habitat area is south of the Alaska Highway between the Robertson River and the Glenn Highway. Both are alpine or timberline habitats, although grizzly bears may occasionally be found at lower elevations.

Human presence is not well tolerated by grizzly bears and development activity in bear habitat areas can result in a reduction of bear numbers. As with sheep however, grade constraints preclude any railroad alignment from encroaching into the alpine terrain most utilized by bears. Therefore, the probability of any significant impact to grizzly bears is remote.

Black Bear

Black bears are found throughout the corridor area. They favor open forests and are relatively abundant along the Tanana River between Eielson and Big Delta and along several tributaries to the Tanana including the Chena River, the Salcha River, Shaw Creek and the Goodpastor River.

Project avoidance of black bear habitat is not possible. Although black bear tolerate human presence better than do grizzly bears, some black bear displacement would occur from a railroad alignment both due to direct habitat loss (i.e.,embankment, material source sites) and to

disturbance effects. Construction would probably cause greater displacement than operation; less disturbance from occasional passing trains would allow a return of bears to previous habitat areas. Long-term black bear habitat enhancement could occur from the project where ecotones of cleared right of way and adjacent forest communities are created. Little likelihood exists of black bears being hit by passing trains.

Furbearers

The following furbearers are known to occur within the project corridor area: wolf, wolverine, muskrat, marmot, mink, lynx, beaver, marten, coyote, weasels, red fox, land otter, red squirrel, flying squirrel and arctic ground squirrel. In general, river and stream bottoms provide most furbearer habitat. Corridor locations with significant furbearer populations include Fort Wainwright Military Reservation lands south of the Tanana River, the Salcha River, Shaw Creek Flats, the Goodpaster River, an area immediately north and east of Delta Junction, the lowlands north and east of Tetlin Lake and the Ladue River.

Railroad project impact upon furbearers is difficult to assess. Stream crossings could encroach on furbearer habitat (i.e., streamside vegetation). Most areas of significant furbearer populations (described above) would be avoided by a Tanana River Valley alignment. Habitat along the Delta River between Big Delta and Delta Junction would be affected with an alignment placed immediately adjacent to the Delta River. In the Ladue River Valley, an alignment could not avoid furbearer habitat and a reduction of furbearer numbers would result.

Small Game and Non-Game

Small game species found in the Tanana-Ladue River valleys include porcupine, snowshoe hare, ruffed grouse, spruce grouse, rock ptarmigan, willow ptarmigan and sharp-tailed grouse. Numerous non-game species such as passerine birds are also present. Both small game and non-game species are widely distributed. Small game populations in the corridor, as througnout the State, are characteristically cyclic, fluctuating in response to weather, food, predation and diseases.

Some habitat for small game and non-game species would be lost with a railroad alignment, probably resulting in an insignificant population reduction. Abundance and large reproductive potential of small game and non-game species would preclude any serious long-term impacts. More significantly however, ecotones created by the project would enhance most small game and non-game habitats

Waterfowl

Numerous waterfowl species utilize corridor locations for breeding, nesting and rearing or as feeding and resting sites during migration. Significant waterfowl habitats within the corridor include wetland areas immediately west of Delta Junction, wetlands adjacent to Billy Creek and Mansfield Creek, the Lake Mansfield -Fish Lake-Wolf Lake area, and extensive wetland areas east of Tetlin Lake. During corridor seasonal use, May through June nesting and June and July rearing are probably the most critical or sensitive waterfowl times.

A railroad alignment would ideally avoid river, lake and wetland areas, typical waterfowl habitat, where existing foundation conditions usually present severe engineering and economic constraints. Significant waterfowl impacts are therefore not anticipated. Where the alignment traverses near small isolated waterfowl habitats (e.g., forest ponds, small creeks), project construction activity could result in some disturbance to nesting.

Raptors

At least nine species of raptors (birds of prey) utilize locations within the Tanana and Ladue River valleys during the breeding, nesting and rearing seasons. Raptors having been identified in the corridor area include peregrines, bald and golden eagles, goshawks, sharp shinned hawks, Harlans hawks, redtailed hawks, osprey and great horned owls. Numerous recently used nesting sites within the Tanana valley have been located through raptor survey work done for the proposed Northwest gas pipeline project. Although known nest locations, both historical and active, have been reviewed for this study, those nest locations and immediate habitat areas will not be disclosed for protection of the raptor species. Additionally, both the American Peregrine Falcon determined to be an "endangered species" (i.e., in danger of extinction throughout all or a significant portion of its range), and the bald eagle are protected by Federal policy and legislation (e.g., Endangered Species Act, Bald Eagle Protection Act).

The project would result in both adverse and beneficial impact to raptors. Construction, railroad maintenance and road haul operations are human "disturbance" activities incompatible with raptor nesting. Disturbances near nesting sites during critical stages of the nesting season (i.e., egg laying, incubation, and early brooding stages) could result in reproductive failure. Although avoidance of raptor nest sites, particularly peregrine and bald eagle nest sites, has been prioritized, several recently active raptor nests are less than one mile

away from the proposed alignment. They include one peregrine, one bald eagle, one osprey, two great horned owl, and three goshawk nests. Near both the peregrine and bald eagle nest sites, the alignment is restricted to its proposed location by constraints of topography, foundation suitability, and hydrological hazards. Other alignment possibilities are not practical. As adverse impact mitigation, construction activities generating high noise levels (e.g., material source mining, rock crushing, construction camps, etc.) within 1-2 miles of these or other raptor nesting sites could be prohibited from April 15 to August 31 (the nesting season). No practical mitigation is known, however, to preclude disturbance to the above eight raptor nest sites by railroad maintenance or operation. Beneficial project impact would occur from a (general) raptor "feeding habitat" enhancement. Raptors generally hunt in open areas. The cleared railroad right of way through forested areas would provide improved small game and non-game habitat, typical prey species for most raptors.

Anadromous Fish

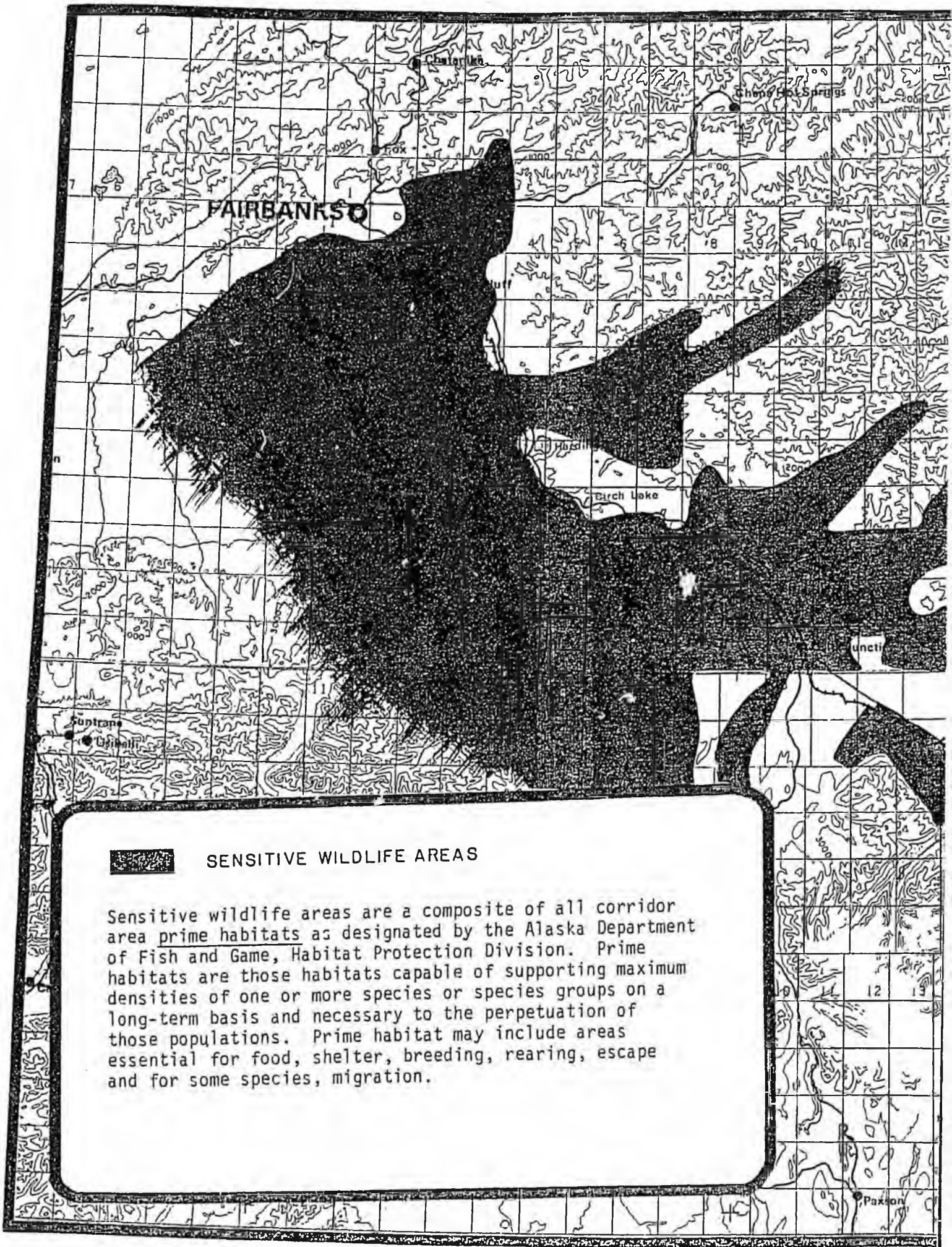
Three species of salmon spawn in the Tanana River, its tributaries and adjacent clear water sloughs. Chum or dog salmon are predominate in number. Chum spawning occurs in several sloughs along the Tanana between Fairbanks and Big Delta; the mouth of the Delta River provides habitat for the largest fall chum spawning in Alaska. Chum spawning also occurs in the Salcha River, in Clear, Shaw and Clearwater Creeks, in the Tanana at the confluence with the Johnson River, and to a minor extent in the Upper Tanana. Spawning times are roughly from mid-September through October. The eggs, and later sac fry, remain in streambed gravels throughout the winter.

Coho or silver salmon utilize sloughs of the Tanana River near Harding Lake, Clear, Shaw and Clearwater Creeks for spawning. Coho spawning is from approximately mid-September through November.

Chinook or king salmon spawn from mid-July to mid-August in the Salcha and Goodpaster Rivers. Both Coho and Chinook eggs and sac fry also remain in streambed gravels over winter.

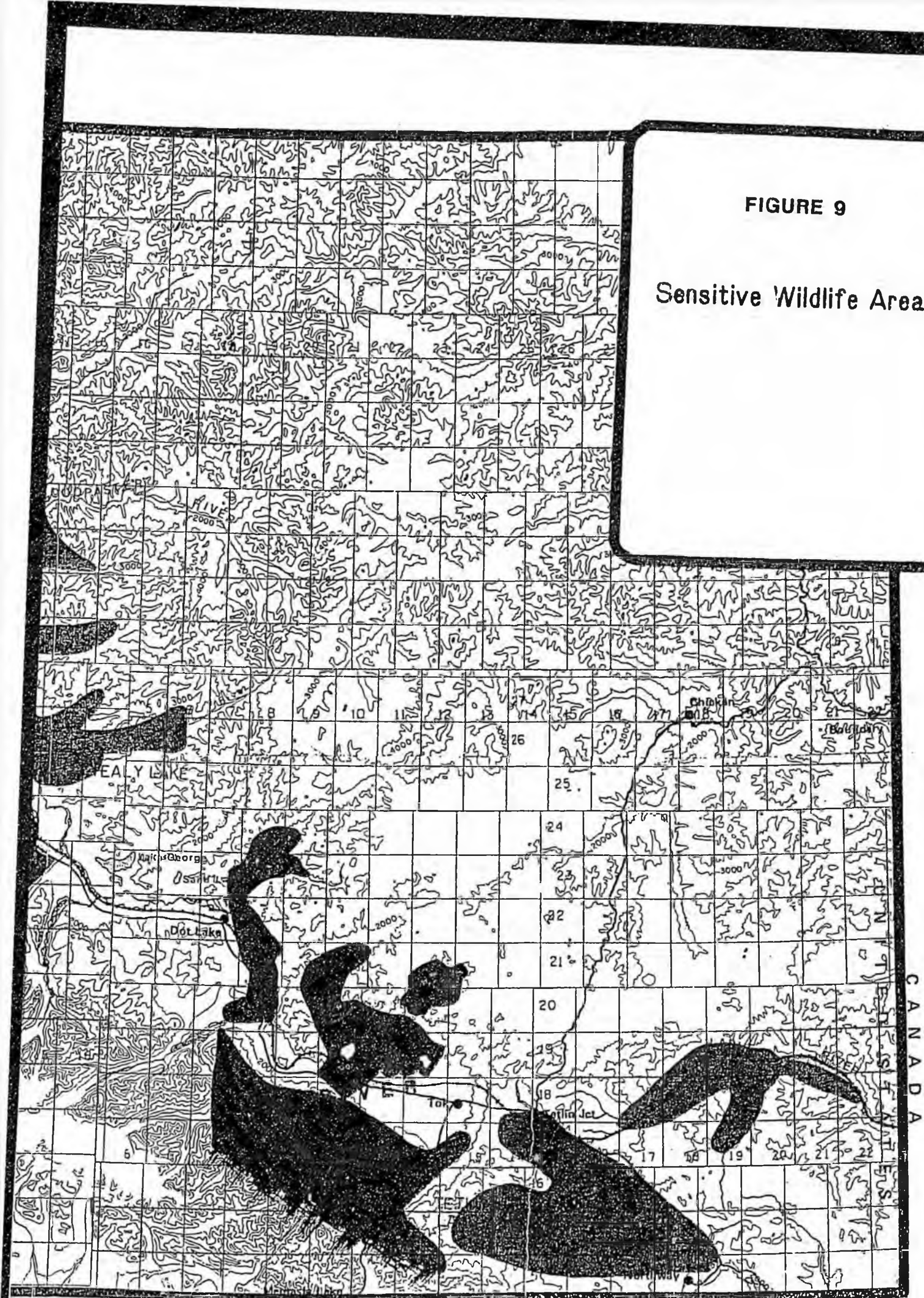
Resident Fish

Resident fish species, including grayling, whitefish, northern pike, and burbot occur in clearwater sloughs and streams in numerous corridor locations. Most overwintering is in the Tanana River. Grayling, in particular, then migrate back into tributary streams, spawning from late April through late May.



SENSITIVE WILDLIFE AREAS

Sensitive wildlife areas are a composite of all corridor area prime habitats as designated by the Alaska Department of Fish and Game, Habitat Protection Division. Prime habitats are those habitats capable of supporting maximum densities of one or more species or species groups on a long-term basis and necessary to the perpetuation of those populations. Prime habitat may include areas essential for food, shelter, breeding, rearing, escape and for some species, migration.


FIGURE 9
Sensitive Wildlife Areas
EALY LAKE
Chicken
Boundary
Dot Lake
Tok
Tetlin Jct
Northway
CANADA

A Tanana and Ladue valley railroad alignment would require numerous drainage crossings. Bridges and culverts would be utilized at crossings and no man-made barriers, stopping fish migration, would be necessary. No loss of the identified spawning beds from in-stream project construction activity would be required, although bridge construction and culvert placements could result in siltation, impacting any immediately downstream habitats.

Habitat Categories

The general areas of wildlife population concentrations for individual species detailed above have been classified by the Alaska Department of Fish and Game into habitat categories. Categories of prime habitat and important habitat have been designated. Prime habitat is defined as those habitats capable of supporting maximum densities of one or more species or species groups on a long-term basis and necessary to the perpetuation of those populations. Prime habitat may include areas essential for food, shelter, breeding, rearing, escape and for some species, migration. Important habitat is capable of supporting medium or high densities of one or more species or species groups for short or long periods and may include areas important (though not essential) for food, shelter, breeding, rearing and for some species, migration. Figure 9, "Sensitive Wildlife Areas," represents a composite of all corridor area prime habitats (except raptor habitats), as designated by the Alaska Department of Fish and Game, Habitat Protection Division. Raptor habitats, each containing nest sites, are not included due to the confidentiality of this information.

SUBSISTENCE

Both local residents and sportsmen from outside the corridor participate in hunting, fishing and trapping activities within the project corridor. Subsistence use is concentrated along routes of access including major waterways, trails and roads and within game concentration areas.

The proposed railroad project is expected to have an impact on corridor subsistence activity; the degree of impact is not known. Little or no affect upon fishing would result. Trapping, primarily occurring along waterways, would be impacted in proportion to the extent of furbearer habitat lost to a railroad alignment. After initial construction, a railroad facility would not accommodate road access (adjacent to the tracks) into previously inaccessible subsistence trapping and hunting areas. Off-road access already exists. With the possible exception of the Ladue River valley, little of the corridor is isolated from routine

off-road vehicle use during hunting and trapping seasons. However, a railroad facility would probably encourage additional off-road use on and immediately adjacent to the railroad alignment. While pre-railroad subsistence patterns could be adversely affected, additional subsistence activity would likely result from the project.

Project induced land development, especially additional mining and agriculture, is also possible although it cannot be quantified. Transportation links between development property and a railroad facility could result in secondary impacts of a potentially significant nature to corridor subsistence.

COASTAL ZONE

The project corridor is not located within the area covered by the Alaska Coastal Zone Management Program.

WATER QUALITY

The project corridor contains numerous tributaries to and a major portion of the Tanana River, and the much smaller Ladue River drainage. Two different types of stream systems are present: glacially impacted streams, carrying heavy sediment loads during summer months, and clearwater streams, originating in the lower foothill regions. All stream flows are typically low during fall and winter months, but show significant flow increases during breakup, glacial melt and peak summer rainfall periods. Extensive wetland areas are also present in the corridor, including Shaw Creek Flats, the Tetlin Lake area and sloughs along the Tanana River.

Most surface water in the Tanana basin is of acceptable chemical water quality and meets Federal and State standards. The dissolved-solids concentration is generally less than 200 ppm; the principal constituents are calcium, magnesium and bicarbonate (USGS, Report HA-319, 1970).

Project activities would result in water quality impacts. Impacts that could be anticipated are both physical and chemical and include:

-erosion and sedimentation resulting from disturbance of streambanks and stream channels by bridge construction activity and in-stream gravel material removal

-potential spills of fuel or oil resulting from in-stream construction equipment operation

-potential spillage (long-term) of materials being transported over the completed railroad

Mitigation for the above water quality impacts would include:

-minimization of stream crossings and crossing placements at the least dynamic stream locations

-expedient recontouring of disturbed streambanks and revegetation or other protective measures to prevent soil erosion into adjacent waters

-contract provisions limiting in-stream construction equipment operation and placing constraints on the timing of in-stream activity to avoid fish spawning or migration impact

-cleanup of spilled materials that would, if not removed, impact water quality

The project is not anticipated to contaminate any principal or sole-source aquifers.

Compliance with water quality standards of the State of Alaska would be necessary and can be accomplished. The acquisition of required permits from the Alaska Departments of Environmental Conservation, Fish and Game, the U.S. Army Corps of Engineers and the U.S. Coast Guard would also be necessary. Gravel material removal from rivers, streams or floodplains involves Title 16 permits from Fish and Game. Activities resulting in discharge of dredged or fill material into waters involves Section 404 and 401 permits from the Corps and Environmental Conservation respectively. Bridge construction would necessitate Section 9 permits from the U.S. Coast Guard. Figure 10 identifies several corridor rivers and streams that would be crossed by a railroad alignment and would require bridge construction.

WETLANDS AND FLOODPLAINS

The term wetlands may refer to a wide range of aquatic habitats including swamps, marshes, bogs, sloughs, wet meadows, shallow lakes, ponds, streambanks, etc. Wetlands provide vegetative material that is the base for many aquatic and terrestrial food chains. Wetlands may also provide breeding, rearing and feeding habitats for species of waterfowl, furbearers and moose. Wetlands reduce the severity of flooding and control erosion; wetlands may recharge groundwater. Numerous recreational opportunities are provided by wetland habitat (e.g., hunting, fishing).

Much of the Tanana and Ladue River valleys contain wetlands. Extensive wetland areas occur in Shaw Creek Flats, the Tetlin Lake area and sloughs along the Tanana River. A railroad alignment would ideally avoid most wetland areas where existing foundation conditions usually present severe engineering and economic constraints (e.g., large amounts of fill material would be required to construct a railroad embankment through wetland areas). However, avoidance is not possible or practical in all cases. Figure 10 identifies numerous corridor rivers and streams that would be crossed by a railroad alignment. Although each location would involve a bridge crossing, the respective riparian or streambank wetlands would still be impacted. Other railroad alignment possibilities would also necessitate crossing most of the same drainages and would consequently impact a comparatively equal amount of wetland acreage. Alignment impact to wetlands would also occur at locations where smaller drainages are crossed, utilizing culverts to maintain the drainage patterns, and where areas of permanently or periodically saturated soils (e.g., wet meadows) are traversed. Appendix G further identifies wetland areas that would be impacted by the proposed alignment. In general, these wetland areas are primarily important as wildlife habitat. None of the areas are known to be unique in relation to total corridor wetland resources. The project would include all praticable measures to minimize harm to wetlands. Examples of such measures include erosion control and maintenance of existing drainage patterns.

Known or inferred river flooding may occur along several rivers of the corridor (Figure 7). Crossing of river floodplains would necessitate construction of bridges capable of withstanding floodstage discharges and elevation of tracks or roadbed where facility overtopping would otherwise be anticipated to occur. This would minimize floodplain risks associated with the project, including the potential for property loss, hazard to life, or interruption of railroad facility use. The project would impact natural and beneficial floodplain values, primarily wildlife habitat values. In comparison though with the total floodplain areas of the Tanana River and its tributaries, significant adverse project impacts on floodplain values are not expected to result. Except for construction of industrial tracks (at presently unidentified locations), the railroad alignment should not induce, directly or indirectly, development in the base floodplain. As with impacted wetland acreages, floodplain involvement offers no practicable alternatives to the project proposal. Other alignment alternatives would result in additional economic or wetland and floodplain impacts.

AIR QUALITY

Little site-specific air quality data has been recorded for the project corridor. Air quality is very good and the project corridor falls within those areas of the State in attainment with national ambient air quality standards mandated by the Clean Air Act Amendments of 1977.[4]

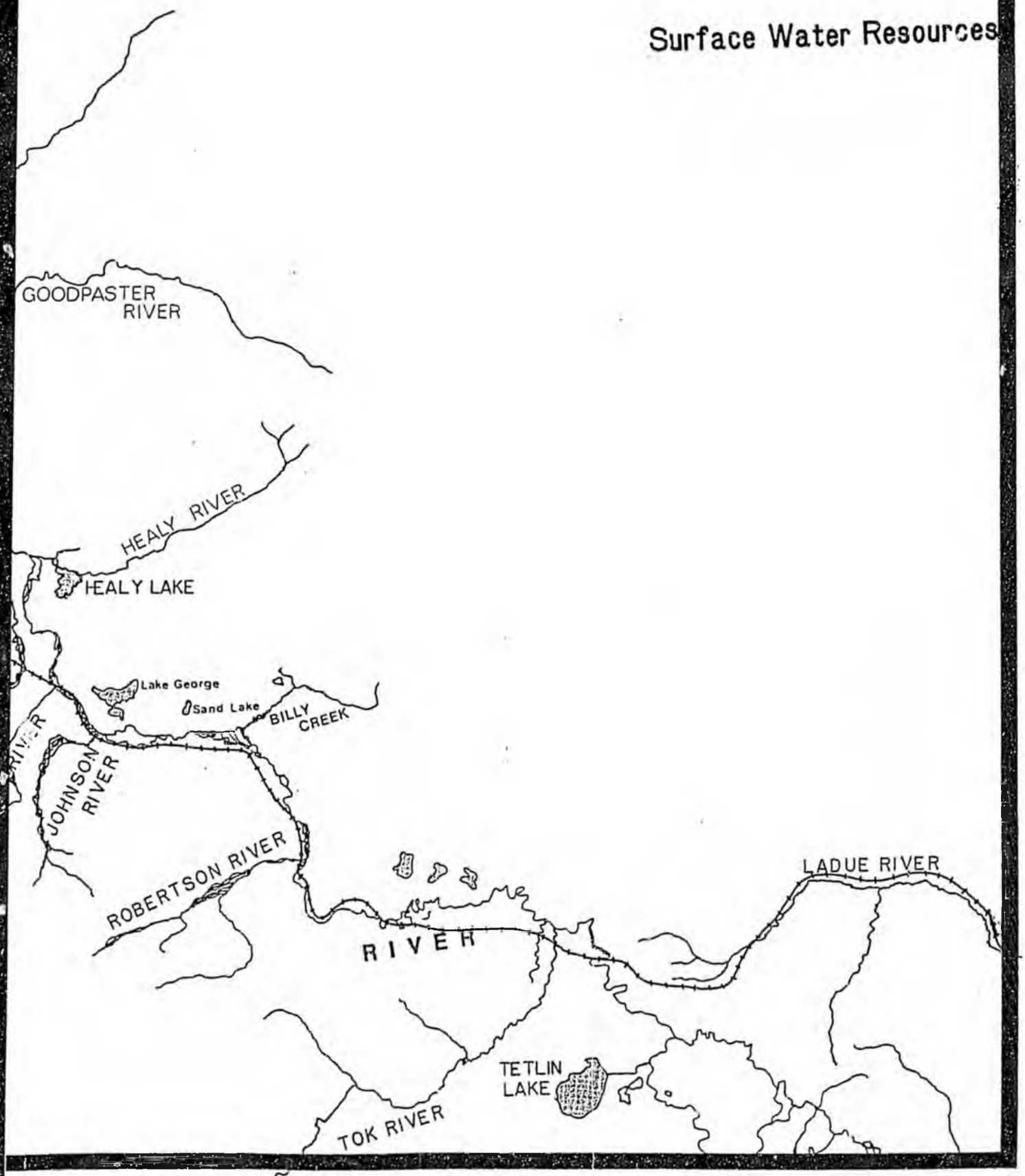
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[4] At the present time, non-attainment areas include Anchorage, Fairbanks and North Pole.

SALCHA RIVER
WOOD RIVER
Harding Lake
Birch Lake
SHAW CREEK
Quartz Lake
TANANA
LITTLE DELTA RIVER
DELTA CREEK
DELTA RIVER
GERSTLE

FIGURE 10

Surface Water Resources



Additionally, the project corridor is within those areas designated as Class II by State air quality classification. State designated Class II standards are more stringent than the national standards. Class II designation allows for regional growth to affect air quality up to approximately one fourth of the national air quality standards.

Project impacts on air quality would include emissions from construction equipment operation, a temporary impact, and railroad locomotive emissions, a permanent impact of the facility. Diesel locomotive emissions contain several pollutants including particulate matter, sulfur dioxide, carbon monoxide, hydrocarbons, nitrogen dioxide, aldehydes, and organic acids. Emission concentrations are variable depending on, among other factors, locomotive use patterns (i.e., railyard switching or road-haul service) and engine configurations. However, an average of emissions produced per locomotive would be comparable to the emissions produced by two heavy-duty, diesel powered trucks or buses. The project should not cause or contribute to air pollutant concentrations which exceed any standards.

NOISE

The effects of noise on human health can be both physiological and psychological, though primarily psychological. Physiologically, excessive noise is capable of producing hearing loss. Pyschological effects may include interference with speech communications, sleep disturbance, annoyance, etc.

Sound levels are measured in decibels, a numerical expression of the relative loudness. Below are some examples of typical decibel readings of common sounds.

40	Quiet Room
50	Quiet Street
60	Normal Conversation
90	Shouted Conversation
107	Loud Power Mower
120	Thunderclap
150	Jet Take-Off

Studies have determined that 67 dBA (decibels, A-weighted sound level) is an average amount of sound received over one hour that begins to

interfere with normal conversation, producing psychological impact.[5]

The Code of Federal Regulations, Title 40, Part 201 specifies Federal noise emission standards that apply to all locomotives and rail cars. Table 2 is a synopsis of total sound levels permitted. Assuming all railroad equipment utilized upon project completion would meet the Federal noise emission standards, a zone of worst case noise impact can be calculated relative to the 67 dBA interference level. Table 3 represents the impact zone.

A large portion of the corridor is undeveloped or relatively uninhabitated. No significant human impact from railroad construction or operation noise would result in these locations. Developed areas that would receive noise impact include the communities of Salcha, Delta Junction and Dot Lake. The degree of impact would be dependent upon the decibel noise levels generated, the duration of the noise and the sensitivity of the noise receptors. The zones of impact identified in Table 3 pertain to a worst case scenario for railroad operation, that is, the interference limits resulting from maximum allowable noise emission levels. More recently manufactured railroad equipment produces less noise emissions, therefore, noise impacts of the railroad could likely be substantially less. Also the 67 dBA disturbance level is related to an hour of noise emission. Moving trains produce a transient noise impact lasting only a minute or two per train. Receptors within the impact zone include residences, a school and a church at Salcha; residences, churches, a school, motels, public meeting rooms, and a library at Delta Junction and a school, church, motel and public meeting room at Dot Lake. A few other isolated residences would also be within the impact zone. Construction mitigation could include scheduling noise generating activities to occur during less noise critical times of day near residential receptors or other noise sensitive areas. Noise mitigation for railroad operation might require noise barriers and/or acoustical construction within existing impacted buildings.

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[5] National Cooperative Highway Research Program Report 117

The human ear is more sensitive to sound energy at high frequencies than at low frequencies. Also, the ear's sensitivity to sounds of different frequencies changes with the level of the sound. The A-weighted sound level (dBA) is the actual measured sound level weighted to match the sensitivities of the human ear.

TABLE 2
FEDERAL NOISE EMISSION STANDARDS FOR RAILROADS

Total sound levels may not exceed the following decibels* (A-weighted sound level)

Equipment & Conditions	Manufactured Before 12-31-79	Manufactured After 12-31-79	At Speeds Up To 45 MPH	At Speeds Greater Than 45 MPH
Locomotives moving at any time or under any condition of grade, load, acceleration or deceleration	96 dBA	90 dBA		
Locomotives at idle throttle setting	73 dBA	70 dBA		
Rail cars in motion			88 dBA	93 dBA

*measured with fast meter response at a point 100 feet from the geometric center of the locomotive along a line perpendicular to the centerline of the track.

TABLE 3
RAILROAD NOISE IMPACT ZONE
(Worst Case)

Equipment & Conditions	Theoretical dBA's Generated*	Distance from Track Centerline to Outside Edge of Noise Impact Zone (67 dBA point)
Idling locomotive	70 dBA	160 ft.
	73 dBA	250 ft.
Rail cars in motion	88 dBA	2500 ft.
	93 dBA	5400 ft.
Moving locomotive	90 dBA	3400 ft.
	96 dBA	8500 ft.

*at a point 100 ft. from the track centerline

ARCHAEOLOGIC, HISTORIC AND CULTURAL RESOURCES

Numerous known archaeologic and historic sites are present within the corridor area. The Alaska Heritage Resource Survey identifies approximately 66 sites within eight miles of the proposed alignment. Only one site, Rika's Landing (a Richardson Highway roadhouse), is on the National Register of Historic Places. Several other sites are potentially eligible for the National Register.

No cultural resource field survey for the railroad project has yet been conducted. Previous archaeological investigations for other projects or purposes have occurred in or near the corridor. They include the following: a survey in 1944 along the Alaska Highway between Fairbanks and Whitehorse by Frederick Johnson, a 1976 survey by the Alaska Division of Parks along the Alaska Highway between Delta Junction and Tok, a survey of Fort Wainwright lands by E.J. Dixon, and a survey conducted for the proposed Northwest Gas Pipeline project by Anne Shinkwin and Jean Aigner. Since there is a potential for project impact to undiscovered sites, the State Historic Preservation Office has recommended a preconstruction cultural resource survey. Detailed survey work would be done along the proposed railroad alignment and at each material source site, construction camp site and at other facility locations (i.e., industrial track sites, yards) to be identified during the project design phase.

While all impacts to archaeological sites from a railroad alignment cannot be accurately quantified prior to cultural resource field survey work, the nature of potential impacts can be discussed. Impacts could be both direct and indirect. The obliteration or alteration of sites by alignment placement could occur. Sites outside of the project right of way could receive indirect impact, the greater accessibility to previously remote locations making these sites subject to disturbance by souvenir hunters.

Of the known corridor archaeologic and historic sites, three sites lie within an area of potential impact by the project. In each case, the impact would be indirect. The sites consist of a winter cemetery and two prehistoric archaeologic sites. None are presently on the National Register of Historic Places. Further field investigation may be necessary to develop the adequate documentation required for determinations of National Register eligibility and of the possible extent of indirect project impact. This would occur prior to construction activity.

Should previously undiscovered cultural resources be found in any project affected area during construction, project work would cease until contact with the State Historic Preservation Office. Appropriate mitigation would then be pursued.

4(F) - PROTECTED PROPERTIES

In accordance with Section 106 of the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act, a project alignment cannot impact significant publicly owned parks, recreation areas, wildlife and waterfowl refuges or historic sites on or eligible for inclusion on the National Register of Historic Places unless a determination is made that (1) there is no feasible and prudent alternative to use of above properties, and (2) the project includes all possible planning to minimize harm to those properties.

State park units within the corridor (Figure 12) include the following:

Salcha River State Recreation Site	61.41 acres
Harding Lake State Recreation Area	168.96 acres
Quartz Lake State Recreation Site	600.00 acres
Rika's Landing State Historic Site	10.26 acres
Clearwater State Recreation Site	26.52 acres
Moon Lake State Recreation Site	22.25 acres
Tok River State Recreation Site	3.83 acres

The proposed railroad alignment is considerably removed from six of the State park units (from approximately one mile up to seven miles). The seventh unit, Moon Lake State Recreation Site, would be directly impacted by the project. Moon Lake is a rest and overnight stop for Alaska Highway travelers as well as a recreation site for local residents. The 22 acre wayside contains 15 campsites, a swim beach, and a boat launching area. The park borders Moon Lake, a naturally blocked slough of the Tanana River. The proposed railroad alignment, north of the Alaska Highway at the Moon Lake location, traverses between the Tanana River and the highway and avoids less acceptable grades on the south side of the highway. There is no feasible and prudent alternative to the above alignment. It would traverse through the wayside requiring a physical occupation of park acreage. The right of way needed for the project would not preclude use of the beach and lake, but would impact the value and utility of the overall park unit.

No components of the National Wild and Scenic Rivers System are located within the project corridor. A Federal withdrawal, PLO 3943, has reserved lands within one-half mile of Clear Creek for protection of public recreation values. The proposed railroad alignment passes south of the withdrawal. No other significant recreation areas exist within the corridor.

Two wildlife refuges occur within the corridor. One is a State refuge, the Delta Junction Bison Range, located southeast of Delta Junction and south of the Alaska Highway. It provides fall and winter habitat for a herd of approximately 375 bison. The second refuge is the 700,000 acre Tetlin National Wildlife Refuge. It is located south of the Alaska Highway between Midway Lake and the Canadian border. Tetline Refuge provides habitat primarily for waterfowl, other migratory birds, large mammals and furbearers. The Tanana Valley corridor in the vicinity of the Delta Junction Bison Range offers feasible railroad alignment alternatives to use of refuge land. The Alaska Department of Fish and Game has recommended that an alignment parallel the northern border of the Bison Range. Thus, the railroad embankment, combined with adjacent snow fencing, could produce a barrier to inhibit bison from leaving the refuge and crossing over into agricultural lands to the northeast. An alignment utilizing the Ladue River Valley would preclude any potential impacts to the Tetlin National Wildlife Refuge.

Corridor archaeologic and historic sites within an area of potential impact by the project include three sites: a winter cemetery and two archaeologic sites. None of the three sites are presently on the National Register of Historic Places. Eligibility for the register is undetermined at this time; determinations would be necessary prior to any construction activity.

SCENIC RESOURCES/AESTHETICS

Regional land forms visually associated with a potential railroad alignment would include forested basins of the Tanana and Ladue River valleys, rivers within the basins, surrounding hills, ridges and distant mountains. A railroad alignment would traverse portions of both remote, undeveloped land and land in close proximity to communities and transportation and utility networks. The above close-up and distant viewscapes are not unique in Interior Alaska, nor would the visual quality over a 270 mile alignment distance change significantly.

Project changes in the natural landscape would primarily include vegetation removal within the project right of way and at material source sites, and the introduction of a railroad facility where none had previously existed. Due to the extensive forested environment present, a railroad facility would be largely concealed from ground views made beyond the right of way.

OUTDOOR RECREATION

The project corridor contains numerous recreational opportunities. Lakes and streams contain a variety of sport fish. Several wildlife species are hunted or trapped. For more information regarding the distribution and seasonal populations of fish, game and furbearer species, refer to the wildlife section. Water sports opportunities include powerboating, sailboating on larger lakes and floatboating. Winter sports consist of snowmobiling, dog mushing and cross country skiing. Picnicking, camping, photography, hiking, prospecting, berry picking, firewood gathering and sight seeing are other recreation activities possible in the corridor. The above activities are most prevalent where access is readily available, such as along the Alaska Highway and secondary roads and along the major rivers. Remote locations in the corridor show less evidence of use.

A railroad is not expected to present a barrier to or preclude any existing recreation activities. A railroad alignment would create a measure of accessibility and thereby introduce another area of linear recreational use. While no roads would be maintained along a railroad alignment after initial construction, the cleared alignment would provide a route more attractive to snowmobile, ATV and foot travel than the surrounding terrain. Consequently, environmental degradation could result from ATV impacts upon fragile soils.

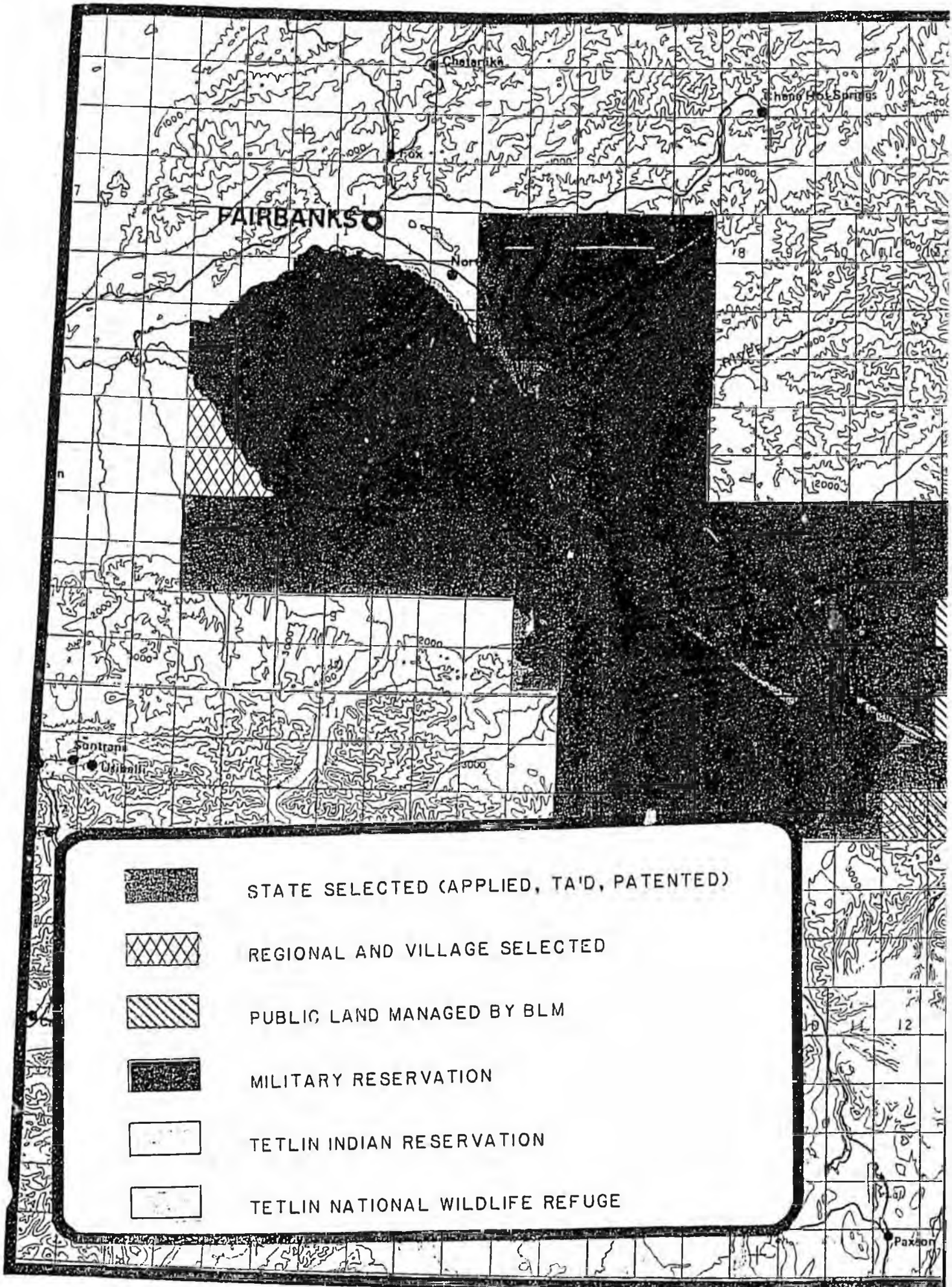
LAND USE

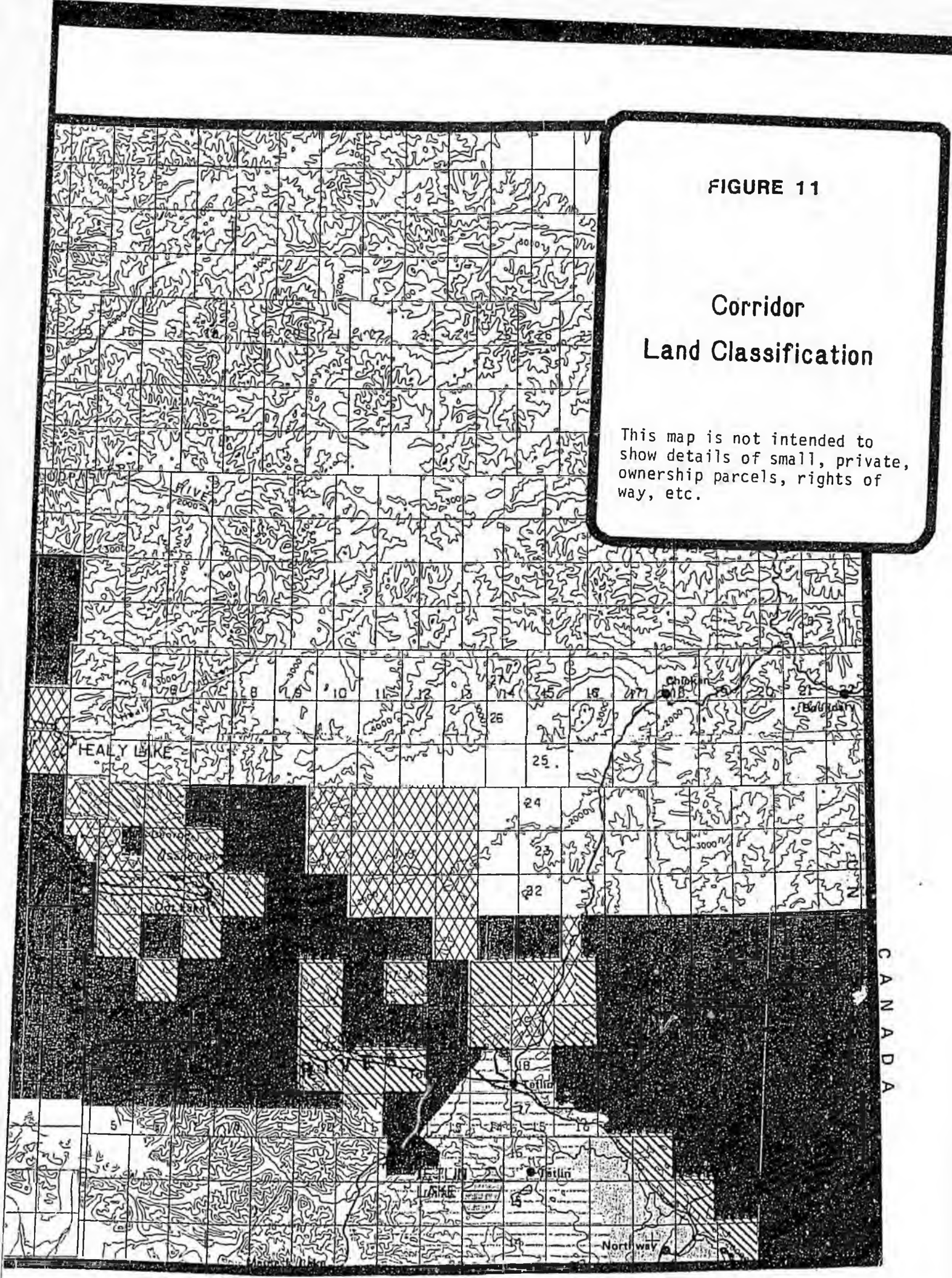
Land classification within the corridor is State, either patented, tentatively approved, or pending; Federal, under Bureau of Land Management, U.S. Fish and Wildlife Service or military jurisdiction; Alaska native regional and village selected or Indian reservation; and private (see Figure 11).

The State of Alaska has selected the majority of corridor lands. Large blocks of State land occur around the Delta Junction area, in the Alaska Range immediately south of the Alaska Highway and in the Fortymile country extending southward and including the Ladue River valley.

Federal lands include the Fort Wainwright Military Reservation, Eielson Air Force Base, Fort Greely, isolated parcels of BLM administered lands scattered throughout the corridor, and the Tetlin National Wildlife Refuge managed by the U.S. Fish and Wildlife Service.

Regional and village native selections include areas around Healy Lake, Lake George, Dot Lake and Tanacross. The Tetlin Indian Reservation occupies an extensive area surrounding Tetlin Lake.


Chatanika
Chena Hot Springs
Fox
FAIRBANKS
Nor
Paxson
STATE SELECTED (APPLIED, TA'D, PATENTED)
REGIONAL AND VILLAGE SELECTED
PUBLIC LAND MANAGED BY BLM
MILITARY RESERVATION
TETLIN INDIAN RESERVATION
TETLIN NATIONAL WILDLIFE REFUGE


FIGURE 11
Corridor
Land Classification
This map is not intended to show details of small, private, ownership parcels, rights of way, etc.
HEALY LAKE
Chicken
Tetlin
Northway
CANADA

Private ownership parcels occur primarily in communities and at sporadic locations along the Alaska Highway.

TABLE 4

CORRIDOR COMMUNITIES

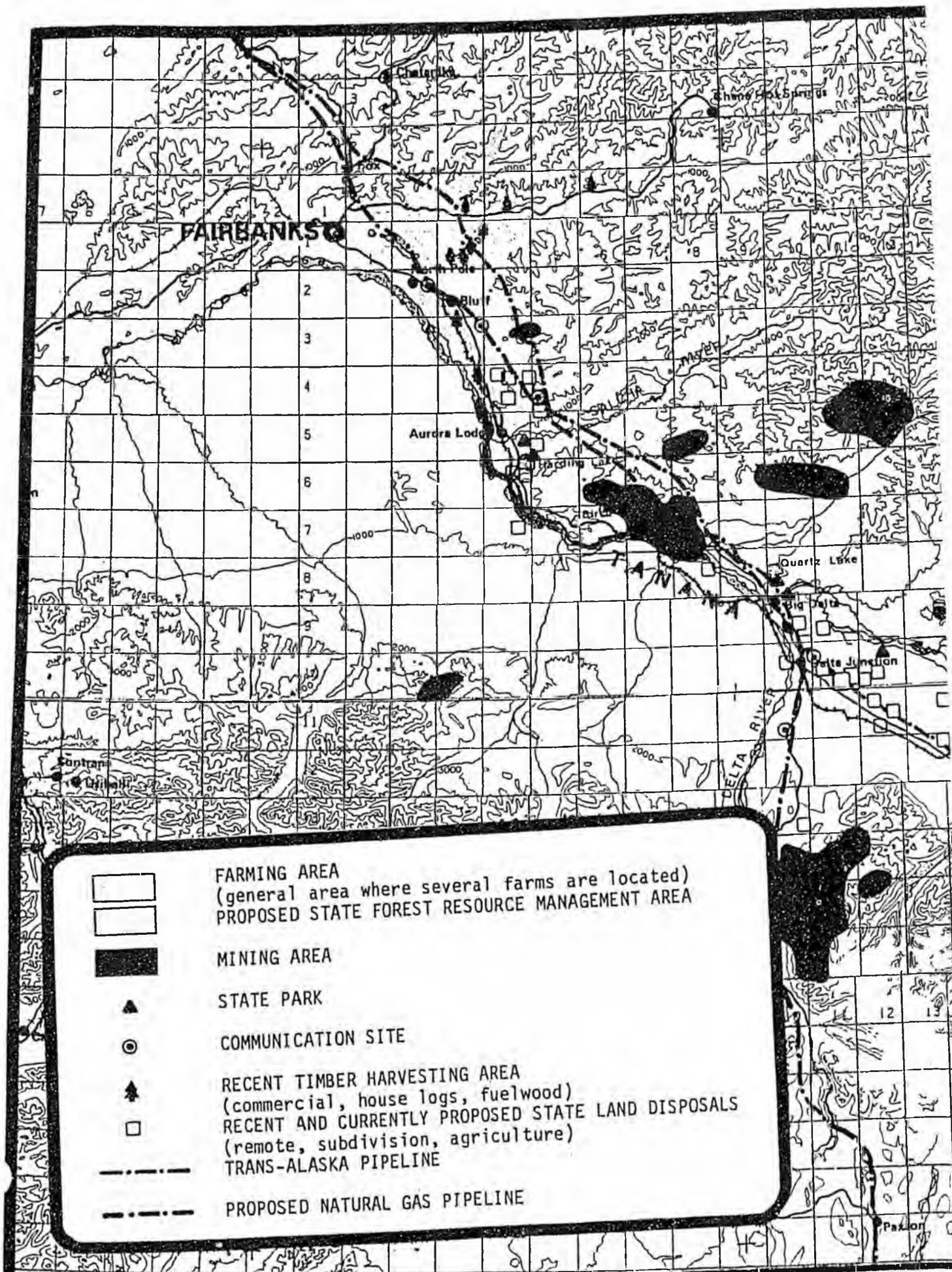
COMMUNITY	1980 CENSUS
North Pole	724
Moose Creek	510
Eielson AFB	5232
Salcha	319
Harding Lake	38
Big Delta	285
Delta Junction	945
Fort Greely	1635
Dot Lake	67
Tanacross	117
Tok	589
Tetlin	107

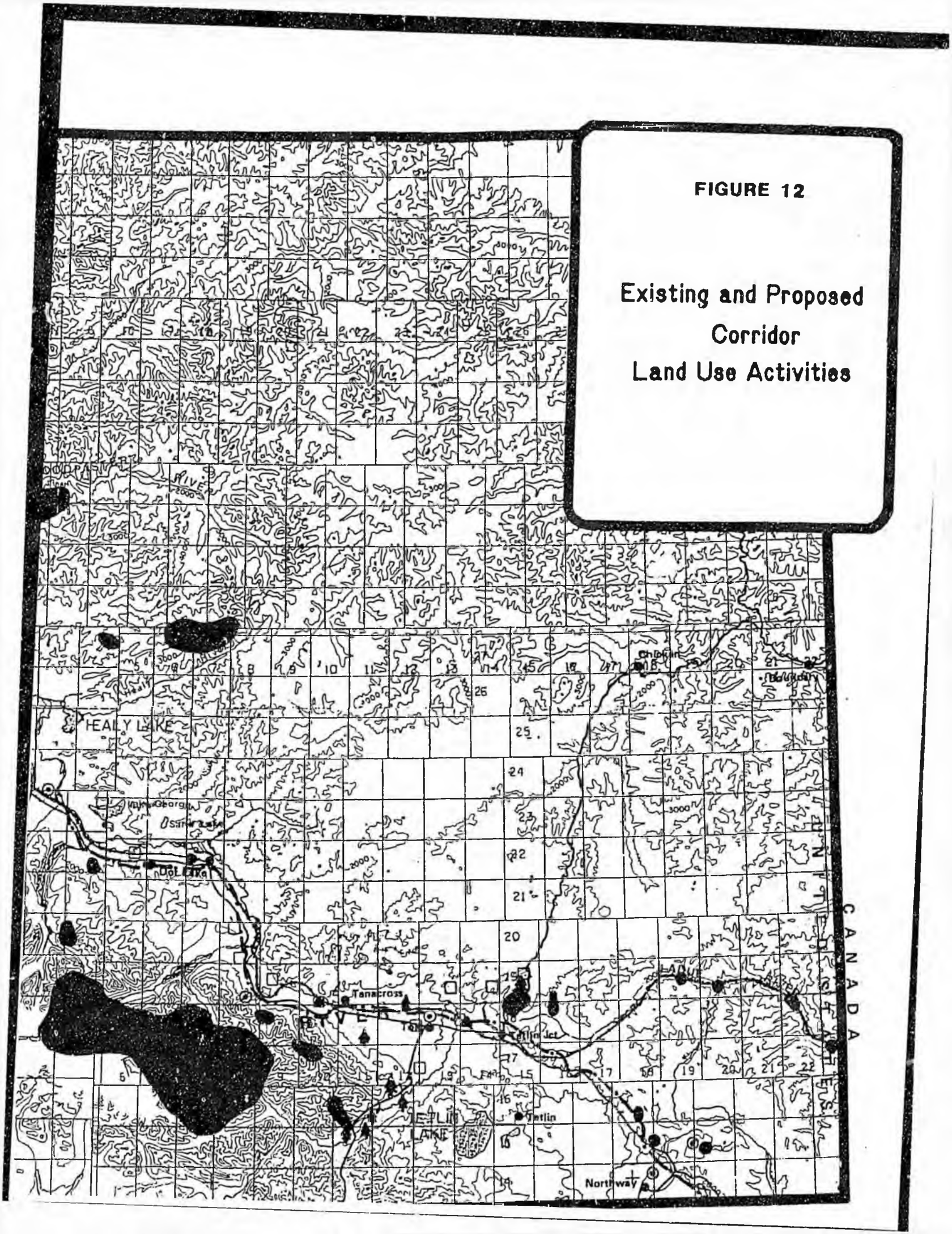
Current corridor development ranges from areas of intensive development to remote undeveloped portions. Table 4 lists corridor communities and 1980 population figures. All of the communities except the remote native village of Tetlin are located adjacent to the State highway system. In addition to residential and transportation land use

activity, the communities of North Pole, Moose Creek, Big Delta, Delta Junction, and Tok also contain commercial and public services land use. Fort Wainwright, Eielson AFB, and Fort Greely are predominantly used for military manuevers and military equipment testing. Communication and utility land uses in the corridor include the U.S. Coast Guard LORAN station east of Tok, a network of microwave stations, TV and radio receiving and repeater sites, the Alyeska Pipeline, and several power and telephone systems. Recreation land use includes State Park units and numerous undifferentiated corridor locations where diverse and multi-season recreation activities occur. Natural resource development includes agriculture, mining and forestry. Agricultural activity occurs east and southeast of Fairbanks and east of Delta Junction. Both mining and timber harvesting areas are distributed throughout the corridor (Figure 12).

Future development trends within the corridor are dependent to a great extent on governmental land use policy. Some corridor communities are in the process of preparing local land use plans for land surrounding their community. The State of Alaska, Department of Natural Resources, has existing management goals and objectives for management of State lands. Several State land disposals are proposed within the corridor. These include small scale agriculture (10-80 acres), subdivision, and remote parcels. The proposed disposals are in various stages of development approval, on-site feasibility, and subdivision layout. A Tanana Basin Area Plan is presently being prepared by the Department of Natural Resources for land use policies and decisions in the basin. A portion of the project corridor also falls within the Bureau of Land Management's FortyMile Planning Unit, with Federal land use goals and objectives. The U.S. Fish and Wildlife Service is working on a plan for the Tetlin National Wildlife Refuge addressing public use, habitat and wildlife management, and transportation corridors in the refuge. A private development proposal in the corridor, contingent on adequate financing is the natural gas pipeline. The pipeline would transport natural gas from the North Slope to the lower 48 states along a route following the Alaska Highway from Fairbanks to the south.

Project inconsistencies with or adverse effects on existing and planned land uses are minimal. Some State land disposal areas, primarily agricultural, would be bisected by the railroad alignment. Physical separation from and loss of equipment access to agricultural fields would be a potential impact. Suitable track crossing sites could be provided to help mitigate this impact. The presence of a railroad in or near subdivision or remote disposals would not necessarily produce a significant negative impact, although occasional passing trains would intermittently affect the serene environment of those areas. Again track crossing sites in appropriate locations would be necessary for continued road access. Proposed land disposals could also be replatted to accommodate the railroad alignment.


FAIRBANKS
North Pole
Aurora Lodge
Harding Lake
Quartz Lake
Delta Junction
DELTA RIVER
Eielson
Salcha
Fox
Chena Hot Springs
Clear
Healy
Cantwell
Paxson
FARMING AREA
(general area where several farms are located)
PROPOSED STATE FOREST RESOURCE MANAGEMENT AREA
MINING AREA
STATE PARK
COMMUNICATION SITE
RECENT TIMBER HARVESTING AREA
(commercial, house logs, fuelwood)
RECENT AND CURRENTLY PROPOSED STATE LAND DISPOSALS
(remote, subdivision, agriculture)
TRANS-ALASKA PIPELINE
PROPOSED NATURAL GAS PIPELINE


FIGURE 12
Existing and Proposed
Corridor
Land Use Activities
HEALY LAKE
Tanacross
Tetlin Jct
Tetlin
TETLIN LAKE
Northway
CANADA

Future land use benefits would result from the project. Benefits relate to the provision of access to resource development areas, to corridor communities with consumer and industrial product needs, and to military installations. Railroad access would connect these locations to markets, suppliers, labor, etc. and increase the land available for development.

SOCIOECONOMIC

No benefit/cost analysis has been done for the project. However, certain general assumptions may be made. Project socioeconomic impacts would be both beneficial and adverse. Beneficial impacts would occur as a result of construction employment. Several hundred persons could be employed during construction activities. Communities near the project would benefit from construction wages spent there. Likewise, an economic benefit to local shippers with siding access would result from the rate competition a rail facility would effect with nonrail carriers. As a regional benefit, general economic growth could result from railroad generated resource development. On the other hand, adverse project impacts would occur. A significant amount of State monies would be expended to construct the railroad extension. During construction, limited highway traffic disruption would occur where the railroad alignment crosses or closely parallels public roads. Also, local community services could be burdened by the influx of project construction workers.

ENERGY

Both energy costs and benefits would result from a railroad extension; neither are quantifiable. Project construction activities would involve the energy commitment of fuel for equipment operation. After facility construction, railroad operation and maintenance would necessitate a continual energy commitment. Since a train is more energy efficient in moving freight than either plane or truck, an energy savings would result in the transport of products that would otherwise be made by the latter two methods. Additionally, an energy savings in highway maintenance might be possible, as the project relieves truck freighting pressure on the Alaska Highway.

CONSTRUCTION IMPACTS/PERMITS

Railroad construction involves several types of activities including the following: foundation investigation, alignment surveying, mobilization of construction equipment, clearing of timber, cut and fill earthwork, bridge construction, base preparation, placement of ties and rails,

and clean up. Although most activities are generally of a progressive nature, combinations of the identified activities could be ongoing at any one time in different locations. Many of the construction activities are also seasonal in nature. Examples of potential construction impacts and possible mitigation activities include the following:

Erosion and Sedimentation

Construction activities would be performed so as to cause the least disturbance to surface areas, vegetation and water bodies.

All disturbed surface areas would be left in a stabilized condition, with revegetation or other means of stabilization accomplished as soon as possible.

Where soil material is expected to be suspended in water, settling basins would be constructed to intercept silt before it reaches streams, lakes or wetlands.

Timber Removal

Trees cut in connection with right of way clearing operations could be made available, when practical, for commercial or private firewood utilization.

Wildlife Disturbance

Construction activities would be restricted in specific locations during key periods of biological activity such as breeding, nesting, rearing or spawning.

In-stream activities would be avoided or minimized near fish spawning beds, rearing and overwintering areas.

Activities causing a blockage to fish passage would be prohibited.

Cultural Resource Discoveries

Should previously unknown cultural resources be found in any project affected area during construction, project work would cease until contact with the State Historic Preservation Office and the Federal landowner where applicable.

Safety and Inconvenience

At locations where a railroad alignment must cross existing public

roads, adequate signing during and following construction work would be required for safety of the motoring public.

Construction at public road/railroad crossings could involve minor traffic delays, however, roads would remain open to traffic use.

Noise

Construction activity could be scheduled to occur during less (noise) critical times of day near residential receptors or other noise sensitive areas.

Air Quality

Open burning of cleared vegetation or other project generated wastes would be prohibited at locations where smoke or odor could have an adverse effect on nearby residences.

* * *

To facilitate the identified construction activities, significant amounts of construction materials, equipment and labor would be required. Construction materials, exclusive of embankment needs, would primarily come from outside the project corridor. Large quantities of gravel and rock would be required for the embankment for nearly 270 miles of railroad. Using the typical section indicated in Figure 3 approximately 37,000 cu.yds. of embankment material per mile over favorable foundation conditions can be estimated to be required. For localized unfavorable foundation conditions (e.g., floodplain, permafrost, etc.) greater quantities would be necessary. In addition, a continual supply of gravel and rock would be necessary for embankment maintenance. The Tanana Basin contains abundant alluvial gravels. However, project materials investigations to identify specific mining locations have not yet occurred. Although normal construction practices utilize material sources as close to the point of embankment construction as possible, importing gravel materials from longer distances over newly constructed portions of railroad alignment might also prove feasible and cost effective. Irrespective of material source locations, large surface disturbed areas would result from gravel mining for the project. With material source mining, additional environmental impacts (e.g., erosion, vegetation and habitat loss, noise, etc.) would follow.

To accommodate construction equipment and personnel, construction camps would also likely be required. Locations for construction camps have not been identified, nor the number of workers that the project would require. Camp location impacts would be reduced by selection of sites away from sensitive environmental areas.

During construction, all applicable standards, guidelines and permit requirements of the State of Alaska and of Federal agencies having jurisdiction would be adhered to. Examples of permits that could be required for a railroad project are shown in Table 5.

TABLE 5

PERMITS THAT COULD BE REQUIRED

PERMIT TITLE	AGENCY WITH JURISDICTION	AREA OF CONCERN
Section 401 Permit (Certificate of Reasonable Assurance)	Alaska Department of Environmental Conservation	Control discharge into navigable waters in order to protect the waters from being polluted
Air Quality Control Permit	Alaska Department of Environmental Conservation	Control air contaminant emissions to prevent, abate and control air pollution
Air Quality Permit to Open Burn	Alaska Department of Environmental Conservation	Prevent, abate and control air pollution
Anadromous Fish Protection Permit	Alaska Department of Fish and Game	Protect and preserve fish in waters that the Commissioner of Fish and Game designated as important to the spawning, rearing, or migration of anadromous fish
Section 404 Permit (Discharge of Dredged or Fill Material into U.S. Waters)	U.S. Corps of Engineers	Conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, navigation, recreation, water quality and, in general, the needs and welfare of the people
Permits for Bridges Over Navigable Waters	U.S. Coast Guard	Insure the navigability of waterways is not impaired and that all environmental impacts have been considered

COORDINATION AND COMMENTS

Early project coordination, prior to the initiation of an environmental study, included several Department contacts with agencies and community groups. Involved in those preliminary project "location" meetings were representatives of Eielson Air Force Base, Fort Wainwright, Fort Greely, the Alaska Railroad, Northwest Pipeline, the Alaska Department of Fish and Game, the Delta Junction City Council, the Delta Junction Planning Commission, and residents of Delta Junction and Tok. Alignment concerns were voiced and considered in the route location process.

On November 24, 1981 the Department held an interagency scoping meeting to determine the scope of the environmental study -- that is, what issues needed to be identified and addressed and to what degree. Below are listed the agencies and organizations invited to participate in the scoping process. Those agencies and organizations identified with an asterik were either represented at the scoping meeting and/or provided written project input. Six environmental study issues deemed most significant by concensus of the scoping meeting attendants were land use (existing and planned), natural resources use, wetlands, noise, floodplain management, and wildlife (including endangered species). Many other issues were also considered important.

Public Works Canada*

Canadian Transportation Administration*

Federal Railroad Administration

Alaska Railroad*

U.S. Department of the Interior

- Bureau of Land Management
- Bureau of Indian Affairs
- Fish and Wildlife Service*

Geological Survey

National Marine Fisheries Service*

U.S. Forest Service*

U.S. Environmental Protection Agency*

Federal Aviation Administration*

U.S. Army Corps of Engineers*

U.S. Coast Guard*

Fort Wainwright*

Eielson Air Force Base*

Fort Greely*

Alaska Office of the Governor

Alaska Office of History and Archeology*

Alaska Department of Natural Resources

Forest, Land and Water Management*

Geological and Geophysical Survey*

Parks*

Alaska Department of Fish and Game*

Alaska Department of Environmental Conservation*

Alaska Department of Commerce and Economic Development

Fairbanks North Star Borough*

City of Fairbanks

City of Delta Junction

Tok Chamber of Commerce

Fairbanks Chamber of Commerce

Tetlin Indian Corporation

Dot Lake Village Corporation*

Doyon Limited

Interior Village Association

Tanacross Village Corporation

Tanana Chiefs Conference*

Healy Lake Village Corporation

Northwest Alaska Pipeline Company*

Alyeska Pipeline Service Company*

Golden Valley Electric Association

Alascom

Sitka Telephone Company

Alaska Power and Telephone Company*

Glacier State Telephone Company*

National Audobon Society

Alaska Conservation Society

Sierra Club

Friends of the Earth

Fairbanks Environmental Center

Comments received regarding the project have specified various concerns; no comments have been unfavorable. Agency coordination will continue throughout project development. The public and special interest groups will also be invited to provide input. Permit acquisitions (e.g., Section 404, Anadromous Fish Protection, etc.), with corresponding stipulations, and the contract provisions, including pollution control requirements and funding, will mitigate to the greatest extent practical environmental impacts of the project. Re-evaluation of this document will also occur, as necessary, throughout project development.

APPENDIX A

Previous Railroad Extension Studies

Alaska - Canada Transcontinental Rail Connection to Contiguous United States, State of Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. January 1977.

Alaska Railroad Extension Route Selection, Project X20089, State of Alaska Department of Transportation and Public Facilities. July 1979 and April 1982 update.

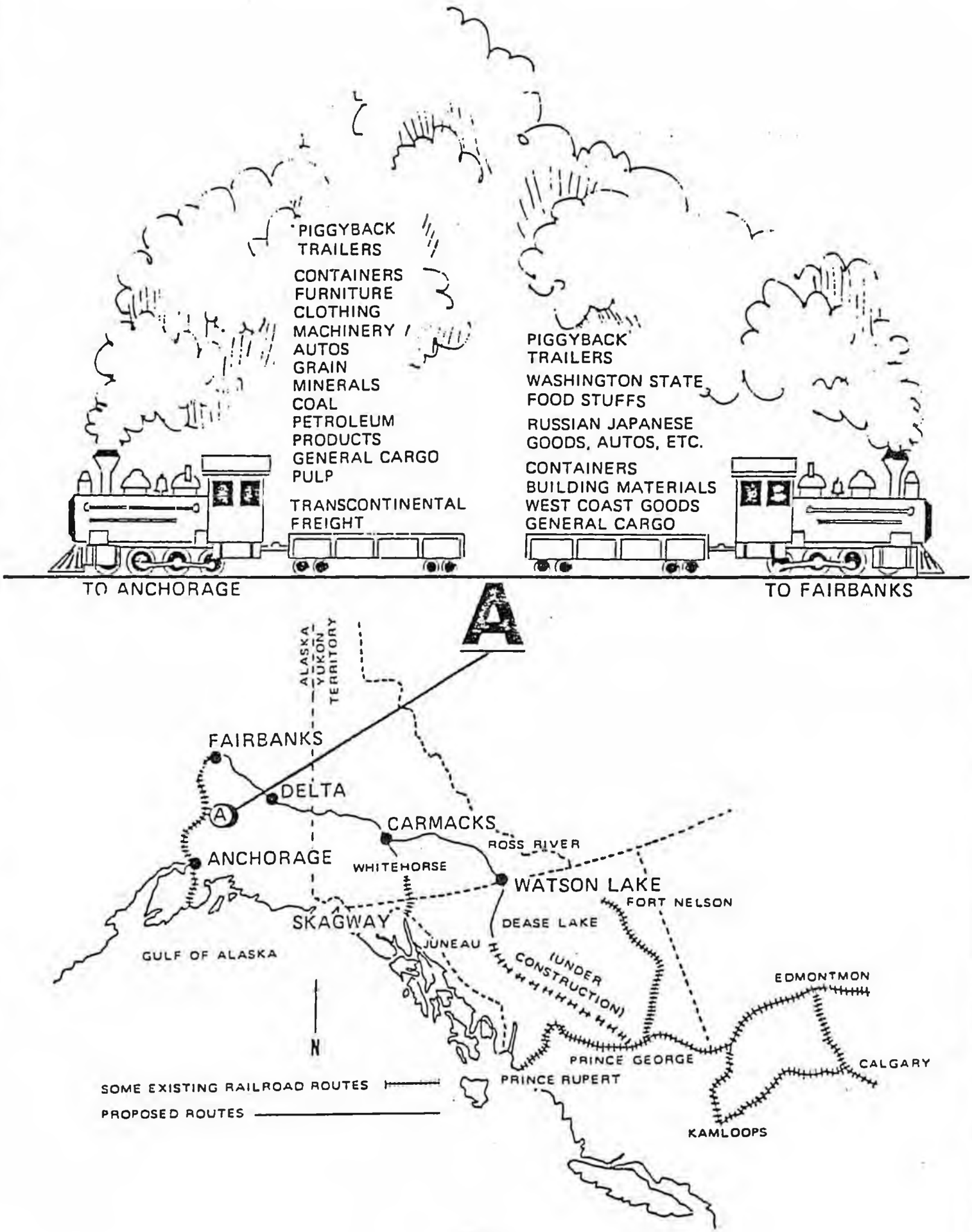
Feasibility Study, Proposed Extension of the Alaska Railroad from Eielson Air Force Base to the Canadian Border, Larry Orsini Associates, Inc. December 1980.

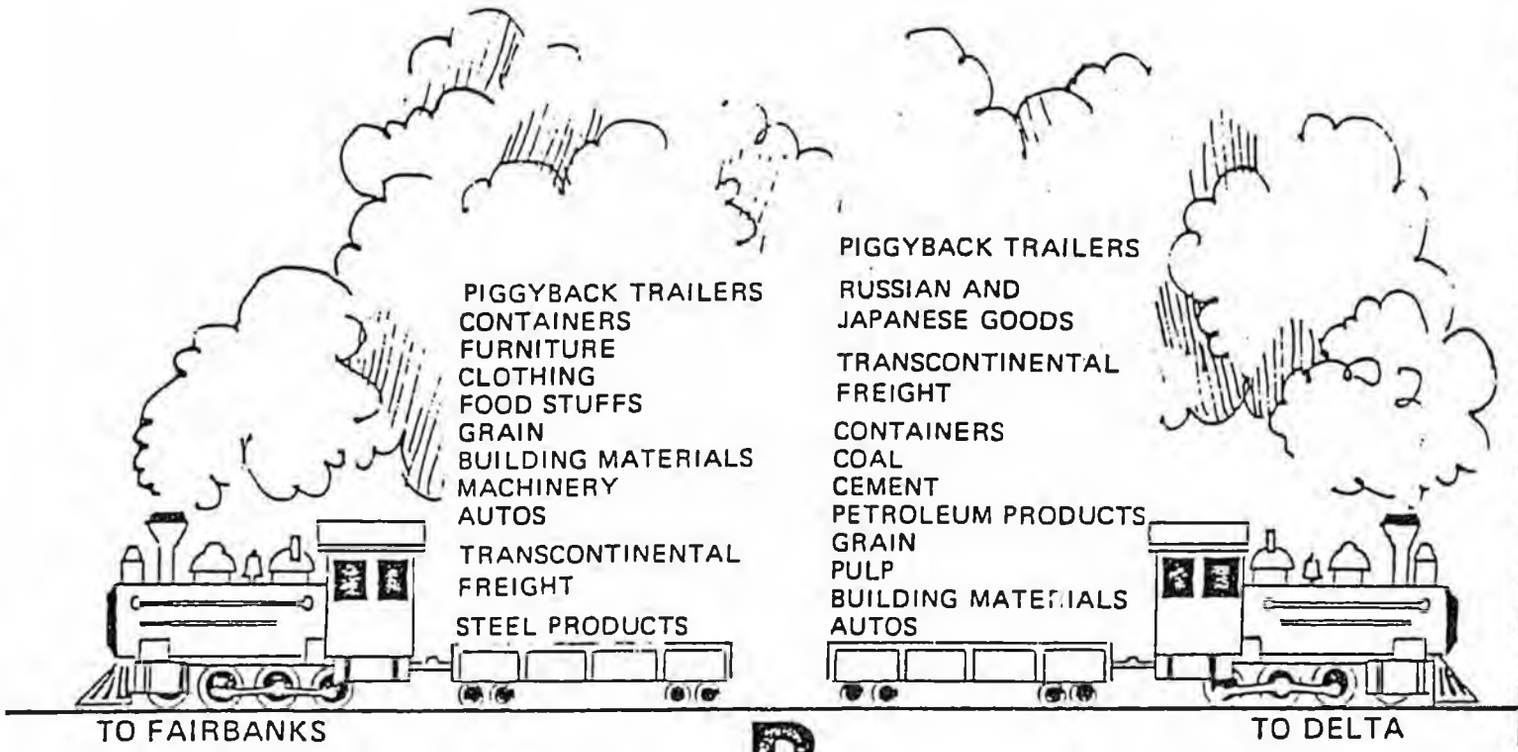
Interior Transportation Study, Project Identification and Evaluation, State of Alaska Department of Transportation and Public Facilities. 1983.

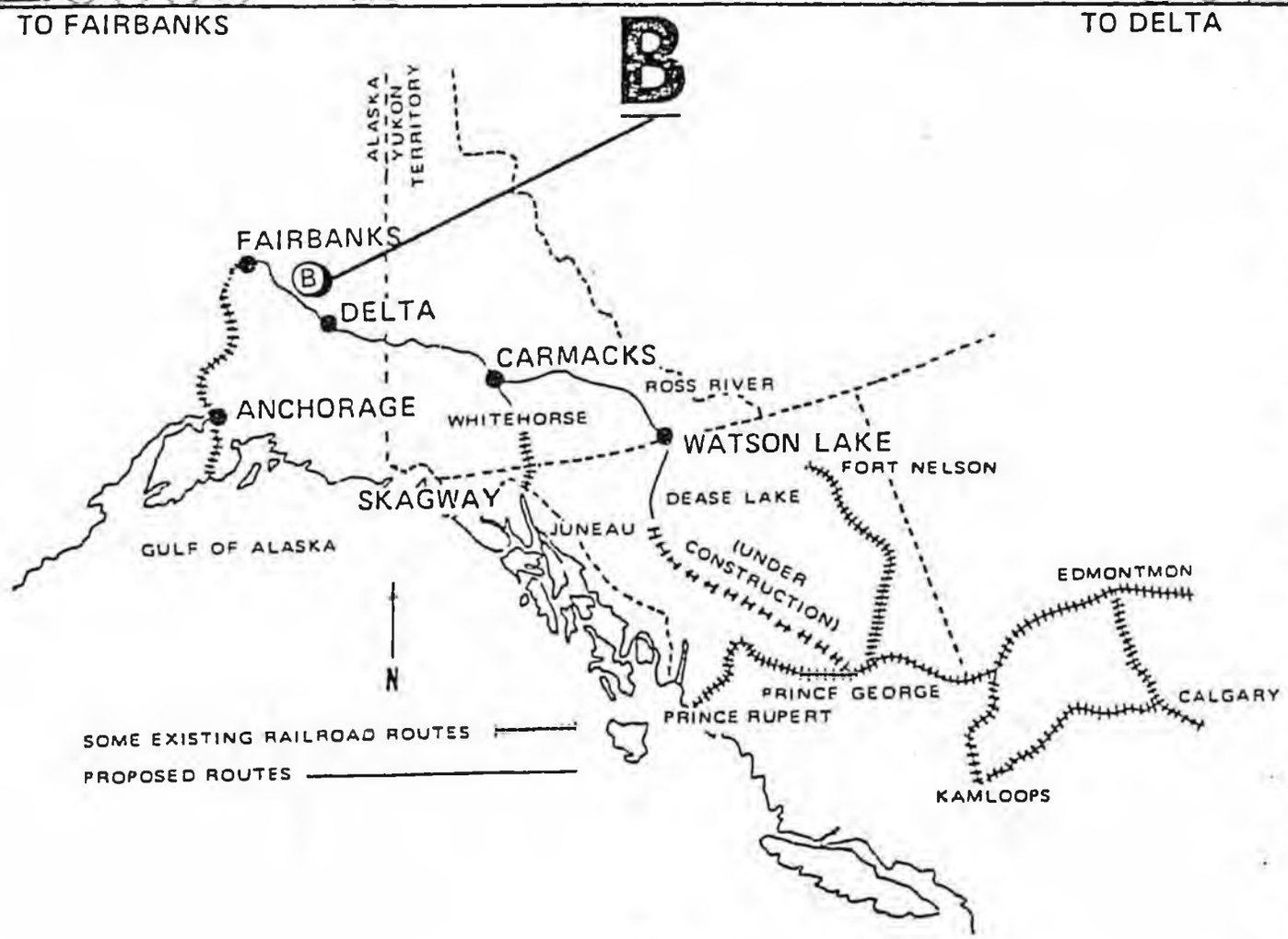
APPENDIX B

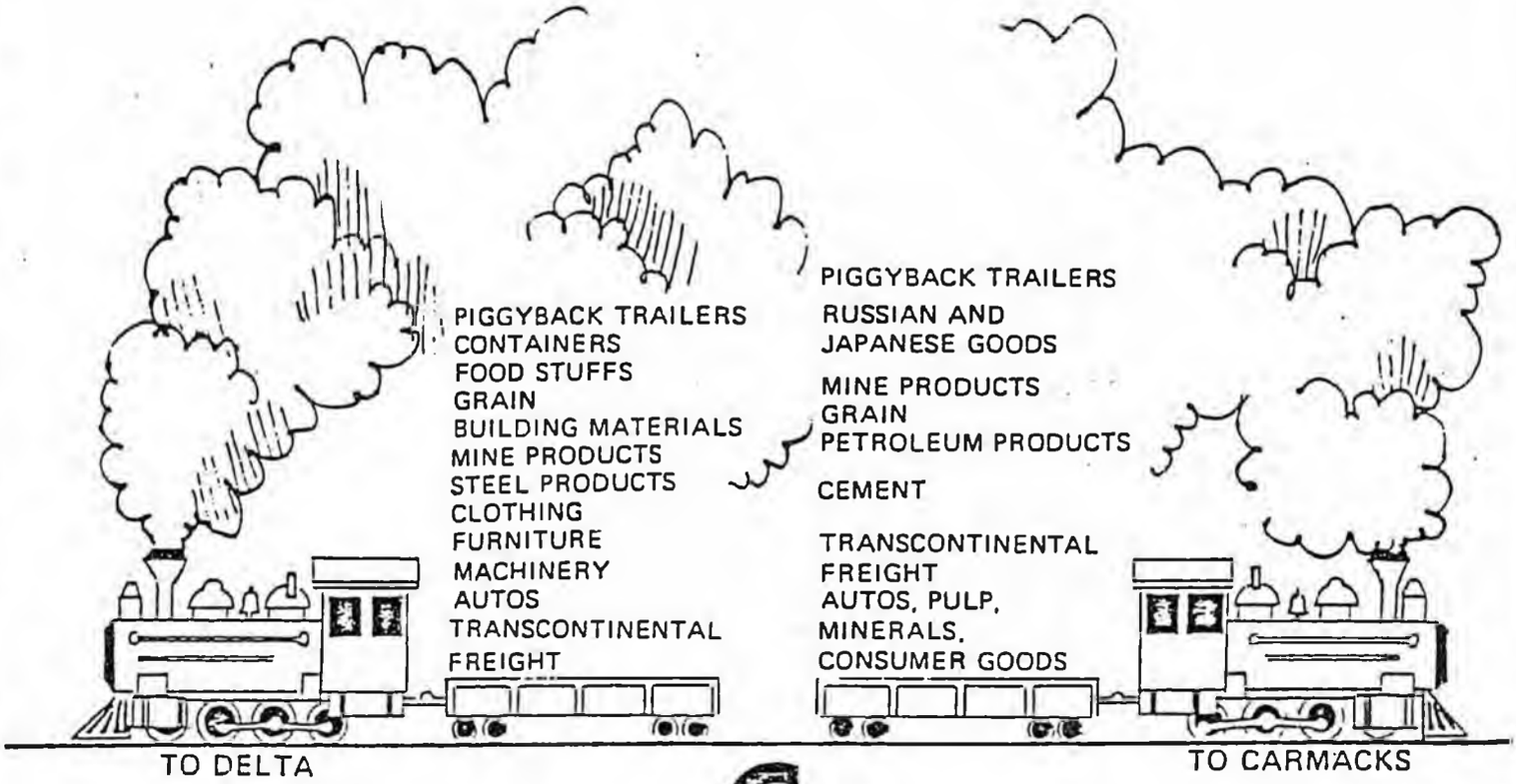
Possible Products Flow Along A Rail Connection

Illustrations from the report: Alaska-Canada Transcontinental Rail Connection to Contiguous United States, State of Alaska Department of Commerce and Economic Development, January 1977.

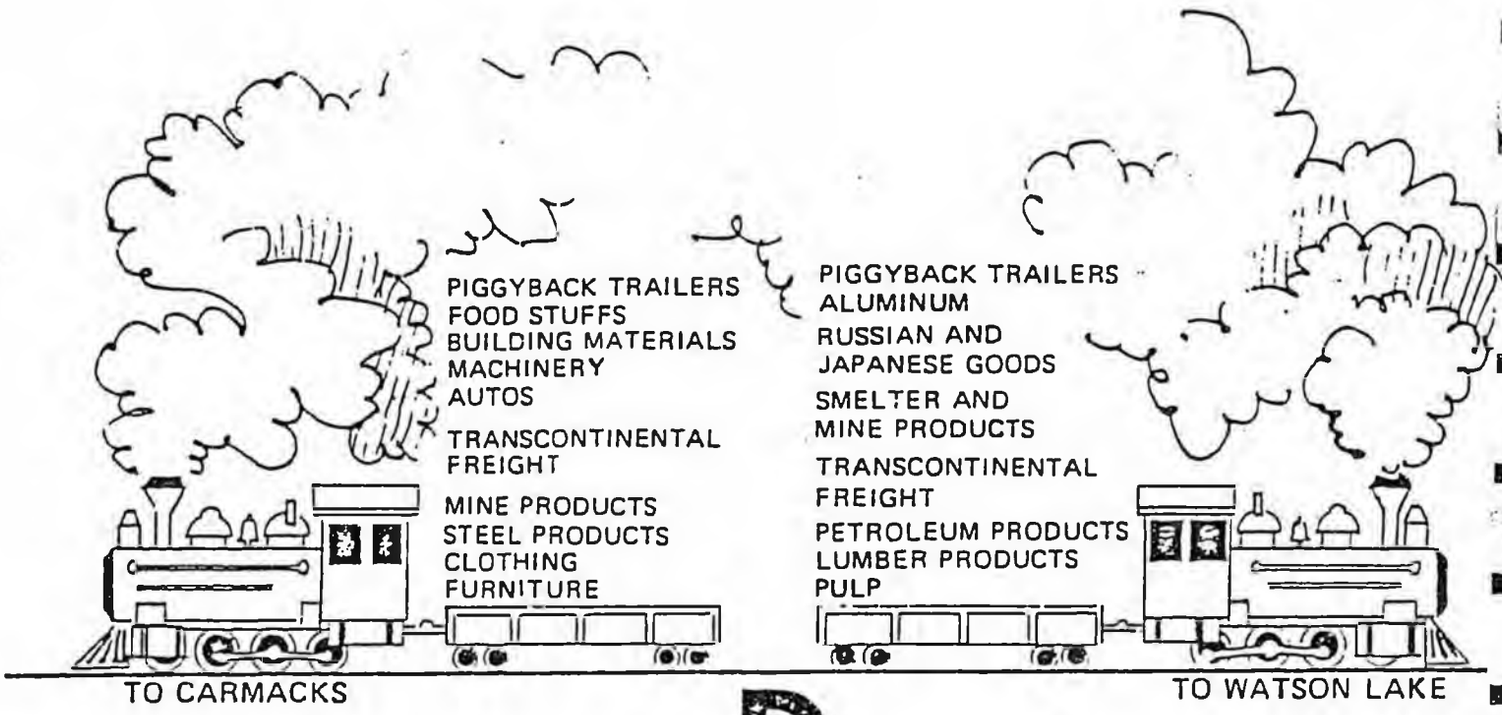

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RUSSIAN JAPANESE
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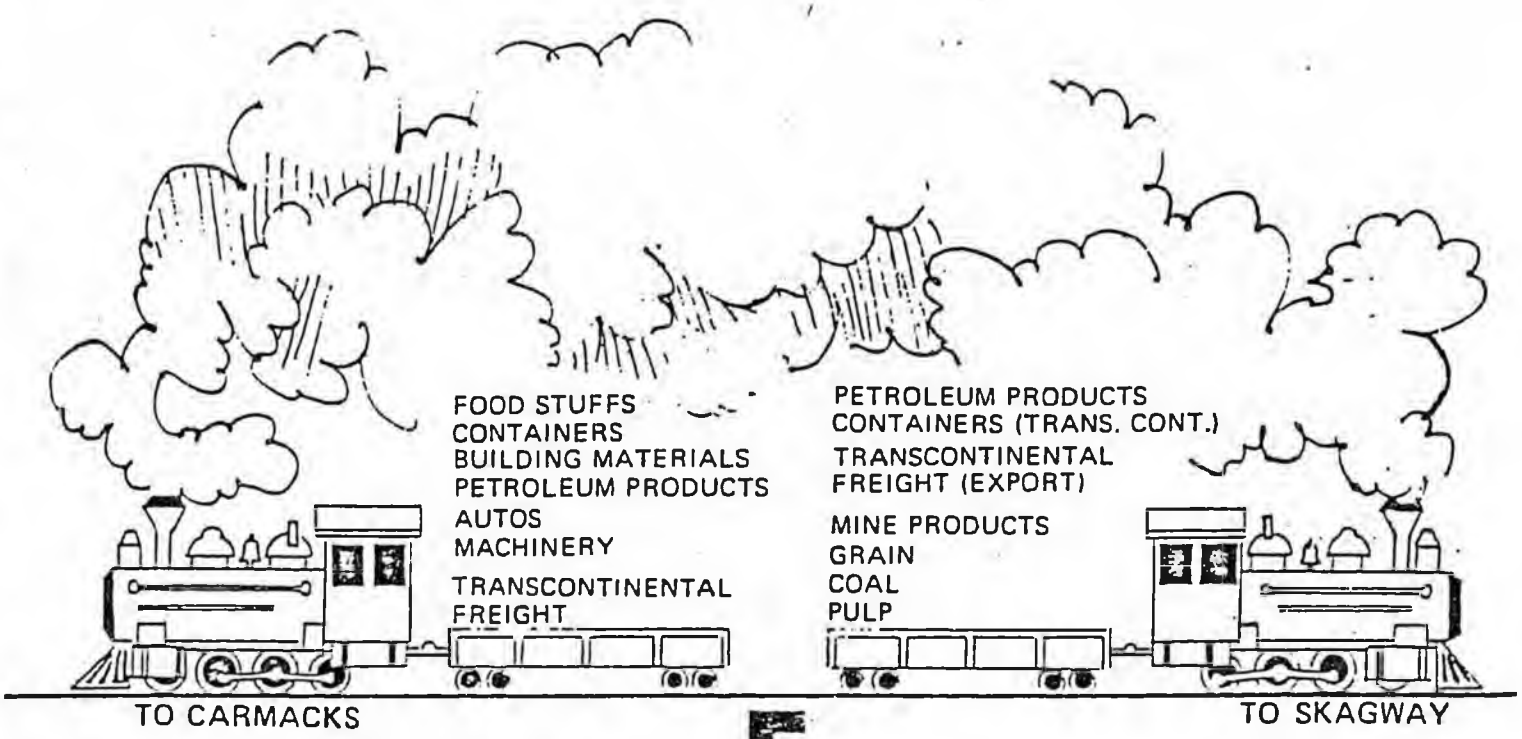

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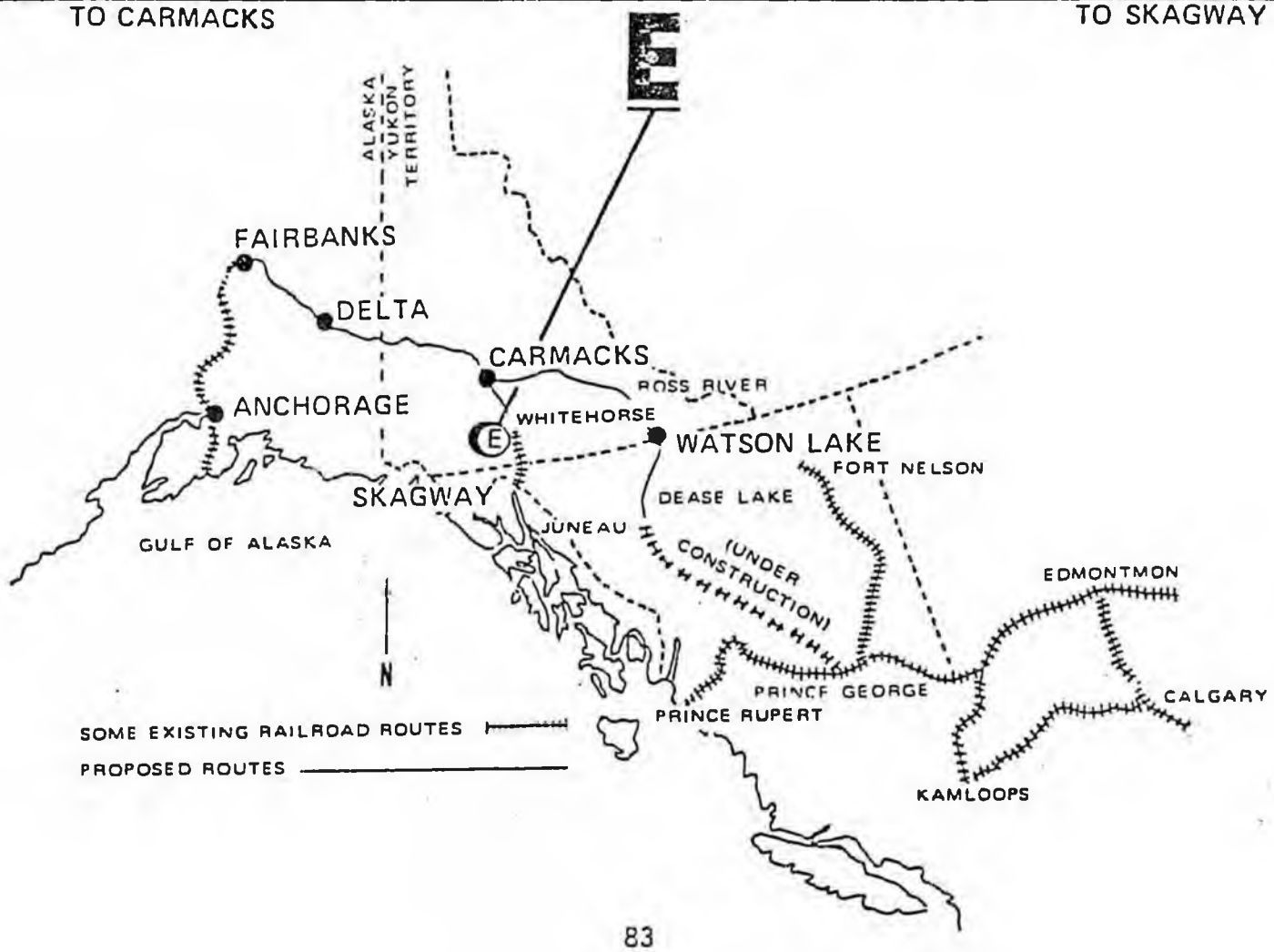

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PROPOSED ROUTES

APPENDIX C

Route Reconnaissance Work

Excerpted from the State of Alaska Department of Transportation and Public Facilities location study: Alaska Railroad Extension Route Selection, Project X20089, July 1979.

Previous developments, (highways, pipelines, communications systems, airports), have established a general transportation corridor from the present terminus of the Alaska Railroad at Eielson Air Force Base southeast to the Canadian border. This corridor can be described in broad terms as the valley of the Tanana River or in more narrow terms, as the route of the Richardson and Alaska Highways.

A study of topographic and land status maps of eastern Alaska readily shows that the terrain and the associated economic and environmental considerations effectively rule out any general corridor other than the Tanana River Valley. This route study was confined to the Tanana Valley except for the easternmost 50 miles which follow the Ladue River down to the Canadian border.

The Ladue border crossing was first proposed in 1942 when the U.S. Army Corps of Engineers surveyed a route for a rail connection to Alaska. Interest in that project faded after the end of World War II, but the route chosen at that time has been reaffirmed many times in subsequent years. The Ladue crossing directs the Yukon Territory segment of the railroad route into the broad valleys of the White, Yukon, Pelly and Liard rivers. The valleys provide a fairly direct route to Watson Lake, Y.T., through which the connecting link to the existing transcontinental rail system will pass.

It should also be pointed out that the Ladue River border crossing allows the easiest and most direct route to Whitehorse, Y.T., should Canada decide to run the rail connection through that city. This study considers only the Ladue River border crossing.

The first step in selecting a railroad route was to study topographic maps and to identify on these the route possibilities that appeared to merit further study by means of aerial photography.

From the map study, it was determined that the 108 mile section from Delta Junction to Tok was adequately covered by aerial photographs taken in September 1976 for the purpose of highway reconnaissance. Likewise, the 80 mile segment from Tok to the Canadian border via the Ladue River had previously been photographed in a 1973 rail study. This left only the 75 mile segment from Eielson to Delta Junction lacking in

reconnaissance photo coverage. Photographs of this area were scheduled for the fall of 1977.

Map study of the Eielson to Delta Junction area revealed several possible routes including an alignment along the north bank of the Tanana River and several alternatives south of the river. In September 1977, these routes were investigated by a fixed-wing overflight involving the Regional Geologist, Hydrologist and Reconnaissance Engineer. After this investigation, three routes were chosen as the most promising rail locations, one north of the Tanana River and two south of the river.

All three of these routes were subsequently photographed in color on October 1, 1977. All of the aerial photos mentioned above are at a scale of 1 inch = 1000 ft.

Through the winter of 1977-78, considerable time was spent studying the reconnaissance photographs in an effort to select a preliminary alignment. The preliminary route was then studied in detail and refined in 1978 and 1979. Photogrammetric mapping was chosen as the most effective means of selecting a precise route for the railroad. This method allowed a high degree of latitude in final route selection and was adaptable to the time and funding constraints which had been placed on the project. The mapping work was assigned to two consulting firms which were already under contract to provide mapping services to the State of Alaska. The Department also engaged consultants to do the control survey work necessary for accurate mapping.

In all cases, coordinate positions and azimuths were originated from existing Geodetic Survey, U.S. Geological Survey, U.S. Army Corps of Engineers, Bureau of Land Management and two stations estalished by the International Boundary Commission. The control traverses or nets were also closed with respect to other stations of the same origin or previously established monuments which had been derived from them. After running a field data traverse through the network from geodetic station to station, a compass adjustment was made to position all intermediate points. The thus derived positions of each new traverse or control station were anticipated to be within 1:30,000 accuracy relative to existing control. Actual field determinations have proven this to have been accomplished.

All vertical control was derived from existing U.S.C. & G.S. or U.S.G.S. Bench Marks. A more detailed discussion of the control survey is presented in a report prepared by the consultants upon completion of the survey work. That report also contains a listing of the positions of all control points.

As the Department received control data from the survey consultants, it was sent to the mapping consultants and the production of contour maps began by mid-summer 1978. This was accomplished at a scale of 1 inch = 100 ft. with a 2 inch contour interval. The band of mapping varied from 500 ft. to 800 ft. Over most of the length of the project a 500 ft. wide strip centered on the preliminary route was mapped. In some areas of rough terrain, a wider strip of mapping was requested to allow more flexibility in selecting a final railroad route.

As the mapping was received, the Department placed a railroad centerline on it. Occassionally, the line is tightly controlled by topography. This is most obvious when climbing from the Tanana River to the Ladue Summit. A 1% "Grade Contour" was laid out on the mapping by starting at the Ladue Summit and working down to the highway on the Tanana side. A railroad centerline was then drawn to get the best "fit" to this grade contour. The result is a railroad centerline with a sustained 1% grade and continuous curvature for a distance of about 10 miles.

As the alignment was placed on the mapping, the Regional Geologist and Hydrologist reviewed it and recommended needed changes. When the most desirable "fit" was achieved, the State Plane Coordinates of the tangent intersections were scaled off the contour maps and bearings and distances of the tangents were calculated, as well as all curve data. All of the alignment and coordinate data has been tabulated and is on file at the Interior Regional Office of the Department of Transportation and Public Facilities.

APPENDIX D

Agency, Organization and Individual Responses

Public Works Canada
Travaux publics Canada

Pacific Region
Région du Pacifique

TECHNICAL SERVICES
Chief, Technical Services
Environment
Materials
Contracts and Review
Consultant Coordinator

12 November 1981

Our File
3720-1

INTERIOR REGION
DIRECTOR D&C
D.O.T.P.F.
Nov 18 2 22 PM '81

Mr. Robert W. Ward
Commissioner
Department of Transportation
and Public Facilities
Pouch Z
JUNEAU, Alaska 99811

Dear Commissioner Ward:

Your letter of November 2, 1981, with attached report is acknowledged. I appreciate receiving the information and request that we remain on your coordination list. I had hoped that either John Hudson, our Senior Departmental Representative in Whitehorse, or myself could have attended the November 24, 1981 meeting in Fairbanks, but regrettably, both of us have previous commitments. I will try to have a representative at your next meeting.

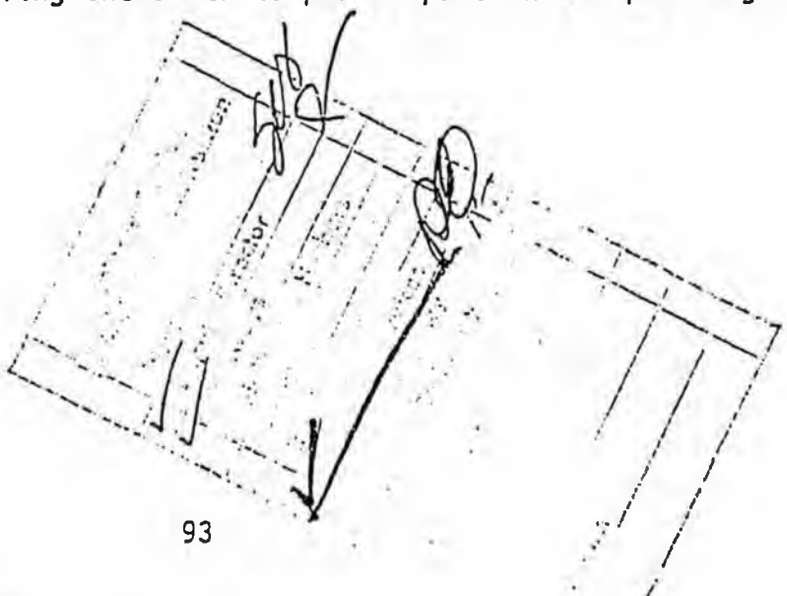
Our responsibility in the Yukon is limited to the maintenance, design and construction of highways, buildings and marine installations. Our interest in your proposed Railroad Extension stems from the need for the various modes of transportation to complement one another. Within our federal family, responsibility for decisions concerning railroads rests with Transport Canada, and I have taken the liberty of forwarding your letter and report, and a November 4, 1981 letter from Stephen C. Sisk to Mr. A.D. McKenzie, Western Regional Co-ordinator, Canadian Transportation Administration, 2760 - 200 Granville Street, Vancouver V3L 1B3. Mr. McKenzie is interested in your plans and can provide information concerning the British Columbia Railway and the Whitepass & Yukon Route (rail).

I very much appreciate receiving the offer to participate in the planning of this project.

Yours truly,

J.W. Gayton
Regional Manager
Design and Construction

cc: S.C. Sisk,
A.D. McKenzie
J. Hudson



1166 Alberni Street
Vancouver, B.C.

1166, rue Alberni
Vancouver (C. -B.)

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 1668
Juneau, Alaska 99802

November 16, 1981

INTERIOR REGION
DIRECTOR D&C
D.O.I.F.F.
Nov 19 1 05 PM '81

Mr. Stephen Sisk
Design and Construction
Interior Region
Department of Transportation
and Public Facilities
600 University Avenue, Suite 8
Fairbanks, Alaska 99701-1074

Dear Mr. Sisk:

We have received Commissioner Robert W. Ward's, November 2, 1981, letter regarding the environmental study to be undertaken by the State Department of Transportation and Public Facilities in response to the charges contained in House Bill 47. Although, it is likely an extension of the Alaska Railroad to the Canadian border could impact some of the fishery resources under National Marine Fisheries Service (NMFS) purview, we cannot provide an in-depth project review or comments at this time. Further, we will not be attending the scoping meeting in November. Adherence to the Federal Railroad Administration environmental guidelines will help to reduce many of our potential concerns.

We appreciate the opportunity provided us to review and comment on project plans to date. Please keep this office of NMFS on your mailing list so that we may keep abreast of this project.

Sincerely,

Robert W. McVey
Director, Alaska Region

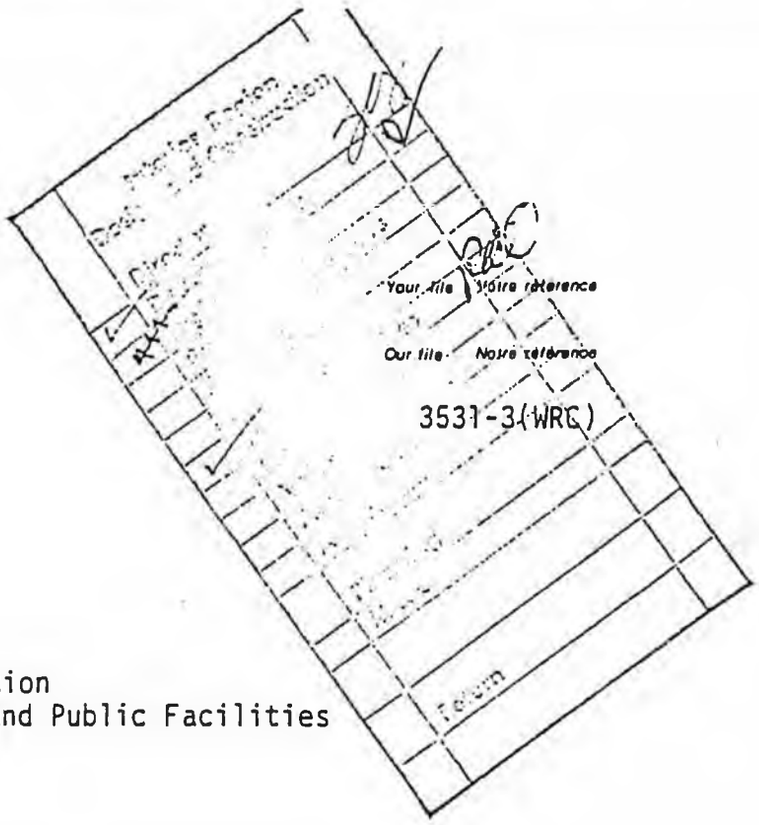
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Design and Construction
Director
Deputy Director
Highways
Buildings & Harbors
Aviation
ROW
Technical Services
Nome Resiency
Valdez Residency
Planning
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Return
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cc
Fox & Co.

NOAA

Transport Canada / Transports Canada

Surface / Surface



November 19, 1981

Mr. Stephen C. Sisk
Director, Design and Construction
Department of Transportation and Public Facilities
State of Alaska
2301 Peger Road
Fairbanks, Alaska
99701

Dear Mr. Sisk,

In view of the fact that railway matters fall within the purview of the Canadian Surface Transportation Administration of Transport Canada, the Regional Director-General of Public Works Canada has referred to me your letter of November 4 regarding a meeting to be held in Fairbanks on November 24 on the subject of a proposed railway extension from Fairbanks to the Yukon border.

We are always interested in hearing details of initiatives being taken in other jurisdictions, particularly with a view to assessing the implications in terms of Canadian policies and programs, but I feel I should tell you that at the present time there seems to be little prospect of Transport Canada becoming seriously involved in the question of establishing a rail link between Alaska and the lower forty-eight states. In the circumstances, it might therefore be inappropriate for us to seek representation at a meeting designed to address very specific issues.

I must hasten to add that this should not be seen as a reluctance to cooperate to the fullest extent with officials of the Government of Alaska and if, as part of your exercise, you require any information regarding those aspects of the Canadian surface transportation system which come under Federal jurisdiction, please let me know and I shall be pleased to assist in any way possible.

NOV 27 2 55 PM '81
INTERIOR REGION
DIRECTOR D&C
D.O.T.P.F.

Yours very truly

A.D. McKenzie
Western Coordinator.

TECHNICAL SERVICES
Chief, Technical Services
Engineering
Materials
Contracts and Review

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1

L ARTMENT OF TRANSPORTATION

UNITED STATES COAST GUARD

Address reply to:
COMMANDER dpl
Seventeenth Coast Guard District
P.O. Box 3—5000
Juneau, Alaska 99802

907-586-7355

16000
25 NOV 1981

Mr. Stephen Sisk, Director
Design and Construction, Interior Region
Dept. of Transportation and Public Facilities
State of Alaska
600 University Ave, Suite B
Fairbanks, Alaska 99701-1074

INTERIOR REGION
DIRECTOR D&C
D.C.T.P.F.
Nov 30 10 14 AM '81

Dear Mr. Sisk:

My office has reviewed the Alaska Railroad Extension Route Selection Project X20089 document dated July 1979 that was received with Commissioner Ward's letter dated 2 November 1981. Two major points that I feel you should consider in your next planning phase are as follows.

First, bridge permits will be required for the crossings of the Tanana River. These crossings include the one at mile 25 and the one just upstream from the Alaska Highway bridge at approximately mile 199.5.

Second, Section 4(f) of the Department of Transportation (DOT) Act provides for the protection of parks, recreation areas, wildlife and waterfowl refuges, and historic sites. The route's projected passage through or near the Moon Lake campground area may be in conflict with the provisions of this Act.

I appreciate the opportunity to review and comment on the proposed project.

Sincerely,

H. E. Stanley

H. E. STANLEY
Captain, U. S. Coast Guard
District Planning Officer
Seventeenth Coast Guard District



Interior Region

DEC 10 1981

Transportation Section

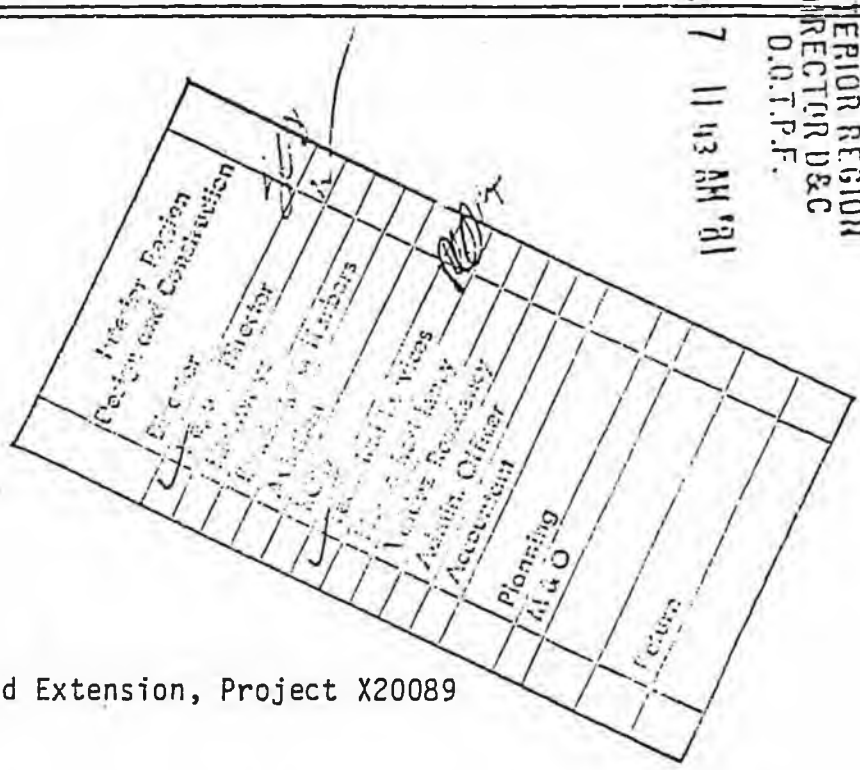
fairbanks north star borough

p.o. box 1267 520 fifth ave. fairbanks, alaska 99707 907-452-4761

DEC 7 11 43 AM '81

INTERIOR REGION
DIRECTOR D&C
D.O.T.P.F.

December 1, 1981



Stephen C. Sisk, Director
Design & Construction
Dept. of Transportation &
Public Facilities
2301 Peger Road
Fairbanks, AK 99701

Attention: Mike Tinker

Re: Alaska Railroad Extension, Project X20089

Dear Mr. Sisk:

Thank you for the opportunity to address plans to construct an extension of the Alaska Railroad from its present terminus to the Canadian border. We ask that you include a bypass of the Fairbanks urban area as part of the project.

Reasons for constructing a rail bypass of Fairbanks are numerous. The existing line into Garden Island creates a serious traffic hazard at road intersections: Sheep Creek Road, the old Nenana Highway, University Avenue, and the two crossings of Phillips Field Road, in particular. With the additional rail traffic, that hazard will increase.

A high quality rail line along the south side of Fairbanks would encourage industrial development in an area already designated for industrial use. We must encourage industrial growth on the outskirts of Fairbanks, where residential neighborhoods will not be disrupted.

With an increase in industrial activity, the need for importing and exporting toxic chemicals and toxic wastes will also increase. A bypass of the City of Fairbanks would reduce the number of people directly exposed to potential hazard, as well as reducing the likelihood of its occurrence.

TECHNICAL SERVICES
Chief, Technical Services
Environment
Materials
Contracts and Review
Consultant Coordinator

Since the state is considering extending the Alaska Railroad to the Canadian border in anticipation of increasing freight traffic, it is imperative that a bypass of Fairbanks be constructed at the same time.

I will be available to discuss a rail bypass of the Fairbanks urban area at your convenience.

Sincerely,

Don Goggin
Planning Director

DCG:PT:mkr

INTERIOR REGION
DIRECTOR D&C
D.O.T.P.F.

2 37 PM '81
RECEIVED
Interior Region

DEC 09 1981

Technical Services

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ALASKA OPERATIONS OFFICE
Room E535, Federal Building
701 C Street, Box 19
Anchorage, Alaska 99513
Phone (907) 271-5083

4 DEC 1981

Interior Region
Design and Construction

Stephen C. Sisk, Director
Design and Construction
Department of Transportation and Public Facilities
2301 Peger Road
Fairbanks, Alaska 99701

Dear Mr. Sisk:

Thank you for your invitation to attend the interagency scoping meeting in connection with the study of environmental impacts associated with the proposed Alaska Railroad extension to the Canadian border. Due to the limited availability of travel funds, our office was unable to send a representative.

We will, however, be interested in maintaining as great a level of involvement in this process as our staff and funds allow, consistent with relevant Agency regulations. To this end, we are interested in reviewing the report prepared by your agency, pursuant to Alaska House Bill 47, delineating a utility corridor for the proposed extension. We would also appreciate the opportunity to review the results of the 24 November scoping meeting, and other meeting minutes and reports that will be produced during this study.

The Alaska Operations Office of EPA will review the products of this study effort, and any resulting project, mainly for consistency with our Section 404(b)(1) guidelines. These regulations require that practicable alternatives to the placement of dredged or fill material in waters of the United States be examined. Compliance with Council on Environmental Quality regulations will generally satisfy most, if not all, of the specific requirements. Bill Britt of my staff will be the Agency contact for Section 404 activities.

To insure that requirements of the National Environmental Policy Act are complied with, you may wish to provide the Environmental Evaluation Branch in our Seattle Regional Office with all appropriate review material. Correspondence to the Regional Office should be addressed to:

Ms Kathy Davidson M/S 443
Environmental Evaluation Branch
Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

TECHNICAL SERVICES
Chief, Technical Services
Environment
Materials
Contracts and Review
Consultant Coordinator

For day to day involvement in the project please contact the Alaska Operations Office. If there is a question concerning the items discussed in this letter, please contact Bill Britt at 271-5083.

Sincerely yours,

W. James Sweeney, Director
Alaska Operations Office

cc: USFWS, Fairbanks
NMFS, Anchorage
ADFG, Fairbanks
ADEC, Fairbanks
CORPS (Regulatory Functions/Environmental Resources)
Kathy Davidson M/S 443

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF PARKS

JAY S. HAMMOND, GOVERNOR

619 WAREHOUSE DR., SUITE 210
ANCHORAGE, ALASKA 99501

PHONE: 274-4676

RECEIVED
Interior Region

MAR 1 5 1982

Technical Services

February 19, 1982

Re: 1120-10

Mike Tinker, Environmental Coordinator
DOT, Interior Region
2301 Peger Road
Fairbanks, Alaska 99701

SUBJECT: Proposed Alaska Railroad Extension

Dear Mr. Tinker:

We have reviewed the subject proposal and would like to offer the following comments:

STATE HISTORIC PRESERVATION OFFICER

Our review indicates that significant cultural resources may be impacted. Specifically AHRS sites XBD 027 and XBD 067 have been seen to be potentially eligible for the National Register of Historic Places. Also XBH-246 appears to be potentially eligible. This site will need further investigation to determine site boundaries and to gather sufficient archaeological material for a determination of cultural affinity. Furthermore, the corridor, as proposed goes through an area deemed to have a high probability for historic/ prehistoric site as noted by E.J. Dixon in the University of Alaska Museum report: Archaeological Survey and Inventory of Cultural Resources Fort Wainwright, Alaska. This area lies Southwest of Harding Lake where the corridor crosses the Tanana River and extends to the southernmost border of the Fort Wainwright Military Reservation. The corridor from this point east to Tetlin Junction may also be considered as archaeologically sensitive, based upon the known cultural resource sites from previous surveys along the Tanana River. That portion of the corridor that passes along the Ladue River may affect unknown cultural resources. The Ladue River has potential for having been a transportation corridor into the Yukon territory via the White and Stewart Rivers. Also, 1980 research along the gas pipeline west of this research area found sites in a topographically similar area (a minor river drainage with a broad, flat valley).

TECHNICAL SERVICES	
Chief, Technical Services	
Environment	
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Contracts and Review	
Consultant Coordinator	

Therefore, per 36 CFR 800 and AS 41.35.070, a preconstruction cultural resource survey/site investigation is recommended. Should there be any questions concerning this review, please call Diana Rigg at this office.

Robert D. Shaw
State Historic Preservation Officer

STATE PARK PLANNING

Recreation opportunities which could be adversely effected is enhanced by the proposed railroad extension should be identified in the Tanana Basin planning project during the next year.

LAND & WATER CONSERVATION FUND GRANT PROGRAM

No Comment.

Sincerely,

for Chip Dennerlein
Director

CD:mlb

RECEIVED
Interior Region

FEB 2 6 1982

Technical Services

Tanana Chiefs Conference, Inc.

Doyon Building
201 First Avenue
Fairbanks, Alaska 99701
Phone (907) 452-8251

February 24, 1982

Mr. Mike Tinker
Environmental Coordinator
State of Alaska
Dept. of Transportation
2301 Peger Road
Fairbanks, AK 99701

RE: November 1981 Scoping results, Alaska Railroad Extension

Dear Mr. Tinker:

Frank Borecki of our Realty section passed along the above noted material for my review.

Our concern for the planning of this project goes beyond the identification of certain surface renewable resources, to the identification of user group patterns and user groups. We view that traditional uses of the lands in question could be significant and that this information must be developed and utilized in the planning of any surface transportation corridor and development.

I note some reference is made in your summary of the November meeting to existing land use, but this is not very clear as to the intended meaning.

Specifically, the use patterns of which we speak refer to such as traplines, trapping cabins and camps, fish camps, access and trails incidental to the activities suggested by the presence of these, berry picking areas, and areas of firewood and house log gathering to mention the more common types of use areas.

Not very much of this information has been carefully documented in the State. The Subsistence Divison of ADF & G has designed a research project to develop this type of traditional land use mapping in the Tanana Basin south of Fairbanks, but the work has not yet begun.

The DNR has also developed a Tanana Basin Land Use Atlas to be used for its Tanana Basin Area Plan. However, we find the Atlas to be incomplete and inadequate inasmuch as traditional land use and occupancy information is not documented on the atlas maps.

I see a reference in the scoping summary:

> The existence/location of mining claims in the Ladue River Valley needs to be investigated.

TECHNICAL SERVICES
Chief, Technical Services
Environment
Materials
Contracts and Review
Consultant Coordinator

We wish to suggest that, in addition to developing that type of information for rail corridor planning to the Canadian Border, traditional land use and occupancy information should also be included.

We are told that, generally some Northway residents do use the Ladue River area for trapping; perhaps the area is important for other activities as well, on one here is certain.

I would appreciate being placed on any mailing lists which are used to update interest parties on this planning effort, and I would appreciate an opportunity to participate at future meetings which are called to address the study of the route.

Sincerely,

TANANA CHIEFS CONFERENCE, INC.

Jim Kowalsky
Director, Wildlife & Parks
Dept. of Community & Natural Resources

JK:ds

cc: Henry Springer

United States Department of the Interior

RECEIVED
Interior Region
JUL 20 1982

FISH AND WILDLIFE SERVICE
1011 E. TUDOR RD.
ANCHORAGE, ALASKA 99503
(907) 276-3800

REPLY REFER TO:
SE

Technical Services

Interior Region
Design and Construction
Director
Deputy Director
Highways
Buildings & Harbors
Aviation
DCM
Technical Services
Name Redacted
Agency
Engin. Officer
Assistant
Drafting
Return
13 JUL 1982
HIGHWAY D&C
INTERIOR REGION
DOT&PF

Mr. Stephen C. Sisk
Director, Design and Construction
Department of Transportation and Public Facilities
2301 Peger Road
Fairbanks, Alaska 99701

Dear Mr. Sisk:

This responds to your June 24, 1982 request for information on threatened or endangered species in the corridor of the proposed Alaska Railroad Extension - Project # R-51033. Based on the best information currently available to us, the American Peregrine Falcon (Falco peregrinus anatum) is the only listed or proposed threatened or endangered species present in the project area.

Peregrine Falcon

The widespread use of chlorinated hydrocarbon based pesticides was the principle factor in the severe decline of Peregrine Falcon populations in boreal forest and tundra regions of Alaska. On June 2, 1970, the American Peregrine Falcon was officially listed as an endangered species.

The Tanana River valley from Nenana to Tetlin was, historically, a major nesting area for Peregrine Falcons in Alaska. Peregrines are known to have nested at 18 locations along this reach of the river. The following table and the attached map identify 12 nesting locations that are within 3.25 miles of the proposed Alaska Railroad alignment.

INTERIOR REGION
DIRECTOR D&C
D.O.T.P.F.
Jul 26 2 57 PM '82

CENSORED

The U.S. Fish and Wildlife Service considers the location of Peregrine Falcon eyries to be sensitive information. The illegal taking of peregrines for falconry continues to pose a threat to this endangered species.

TECHNICAL SERVICES
Chief, Technical Services
Environment
Materials 105
Contracts and Review
Consultant Coordinator

CENSORED

The U.S. Fish and Wildlife Service considers the location of Peregrine Falcon eyries to be sensitive information. The illegal taking of peregrines for falconry continues to pose a threat to this endangered species.

Although many of the nest sites are currently inactive, the peregrine population along the Tanana River has risen from a nadir in 1974 when only one pair was present to 5 pairs in 1982. We are optimistic that many of the presently unoccupied sites will again be used by nesting peregrines as the population fully recovers. We, therefore, believe that all historical nest sites, whether presently active or not, are important for providing for the full recovery of the species.

The Bald eagle, though not considered threatened or endangered in Alaska, is a protected species pursuant to the Bald Eagle Protection Act of 1940, as amended. As many as 10 pairs of bald eagles nest within 3-4 miles of the Alaska Highway within the Tanana River floodplain (Bob Ritchie, ABR, Fairbanks, pers. comm.). More information about bald eagle nesting locations can be provided upon request.

Your letter clearly states that although the railroad extension is not a Federal project, the DOT intends to follow Federal Railroad Administration environmental guidelines. In this regard, we appreciate the opportunity to address endangered species concerns in the planning of this project and look forward to your continued cooperation. Skip Ambrose (452-6785) or Dennis Money (263-3435) are available to further consult with you regarding the Peregrine Falcon and this project. A copy of the Endangered Species Act of 1973, as amended, will be forwarded to you under separate cover.

Sincerely,

Assistant Regional Director

cc: Strobelle, USFWS, Fairbanks
Grundy, Alaska Dept. of Fish and Game, Fairbanks

APPENDIX E

List of Preparers

Coordination and Supervision
Mike Tinker, Regional Environmental Coordinator

Organization and Text
Randy Horner, Environmental Section

Graphics
Belinda Swift, Environmental Section

Typing
Deborah Jernigan, Environmental Section

Project Description Information
Danny Johnson, Reconnaissance Section

Geological Information
Hal Livingston, Regional Geologist

Land Ownership Information
Burle Beard, Right of Way Section

In addition to the above Department of Transportation and Public Facilities personnel, the following individuals were contacted for specific corridor or project-related information:

U.S. Soil Conservation Service
Jim Vancura

U.S. Fish and Wildlife Service
Skip Ambrose
Dennis Money

Alaska Railroad
Ted Trueblood
Francis Weeks
Mike Sudal

Alaska Department of Fish and Game
- Matt Robus
- Dave Kellyhouse
- Larry Jennings
- Dave Johnson
- Dick Peckham
- Pam Bruce
- Al Townsend
- Jack Dietricson

Alaska Department of Natural Resources
- Les Fortune
- Frances Van Ballenberghe
- Rob Walkinshaw
- Chris Glenn
- Diana Rigg

Alaska Department of Environmental Conservation
- Tom Moyer

APPENDIX F

Document Circulation List

Federal Railroad Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

Alaska Railroad
P.O. Box 7-2111
Anchorage, Alaska 99510

Canadian Surface Transportation Administration
2760-200 Granville Street
Vancouver, B.C. V6C 1S4

U.S. Department of the Interior
Office of the Secretary
P.O. Box 120
Anchorage, Alaska 99501

Bureau of Land Management
Fairbanks District Office
P.O. Box 1150
Fairbanks, Alaska 99707

U.S. Department of the Interior
Fish and Wildlife Service
Northern Alaska Ecological Services
Room 110, Federal Building, Box 20
101 12th Avenue
Fairbanks, Alaska 99701

U.S. Department of the Interior
Fish and Wildlife Service
Western Alaska Ecological Services
733 W. Fourth Avenue, Suite 101
Anchorage, Alaska 99501

U.S. Fish and Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503

U.S. Department of The Interior
Bureau of Indian Affairs
101 12th Avenue
Box 16
Fairbanks, Alaska 99701

National Marine Fisheries Service
Alaska Region
P.O. Box 1668
Juneau, Alaska 99802

U.S. Forest Service
Institute of Northern Forestry
University of Alaska Campus
Fairbanks, Alaska 99701

Environmental Evaluation Branch
Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

Alaska Operations Office
Environmental Protection Agency
701 C Street, Box 19
Anchorage, Alaska 99510

Federal Aviation Administration
5640 Airport Way
Fairbanks, Alaska 99701

U.S. Army Corps of Engineers
Alaska District
P.O. Box 7002
Anchorage, Alaska 99510

U.S. Customs Service
620 E. Tenth Avenue
Anchorage, Alaska 99501

Seventeenth Coast Guard District
P.O. Box 3-5000
Juneau, Alaska 99802

Post Commander
Fort Wainwright, Alaska 99707

Base Commander
Eielson A.F.B.
Eielson, Alaska 99702

Post Commander
Fort Greely, Alaska 98733

State of Alaska
Office of the Governor
675 Seventh Avenue, Station H
Fairbanks, Alaska 99701

Alaska Office of the Governor
Division of Policy Development
and Planning
Pouch AD
Juneau, Alaska 99811

Alaska Department of Commerce
and Economic Development
Division of Tourism
Pouch E
Juneau, Alaska 99811

Department of Environmental Conservation
Box 1601
Fairbanks, Alaska 99701

Habitat Division
Department of Fish and Game
1300 College Road
Fairbanks, Alaska 99701

Alaska Department of Natural Resources
Division of Parks
619 Warehouse Drive, Suite 210
Anchorage, Alaska 99501

Office of History and Archeology
State Historic Preservation Office
619 Warehouse Drive, Suite 210
Anchorage, Alaska 99501

Division of Geological and
Geophysical Survey
P.O. Box 90007
College, Alaska 99708

State of Alaska
Department of Natural Resources
Division of Land and Water Management
4420 Airport Road
Fairbanks, Alaska 99701

City of Fairbanks
410 Cushman Street
Fairbanks, Alaska 99701

Tok Chamber of Commerce
P.O. Box 389
Tok, Alaska 99780

Fairbanks North Star Borough
P.O. Box 1267
Fairbanks, Alaska 99707

City of Delta Junction
P.O. Box 229
Delta Junction, Alaska 99737

Fairbanks Chamber of Commerce
550 First Avenue
Fairbanks, Alaska 99701

Tanana Chiefs Conference, Inc.
320 Second Avenue
Fairbanks, Alaska 99701

Dot Lake Village Corporation
P.O. Box 441
Tok, Alaska 99780

Doyon Limited
201 First Avenue
Fairbanks, Alaska 99701

Tetlin Indian Corporation
Tetlin Village
Tetlin, Alaska 99779

Interior Village Association
127½ Minnie Street
Fairbanks, Alaska 99701

Tanacross Village Corporation
Tanacross, Alaska 99776

Healy Lake Village Corporation
Healy Lake, Alaska 99727

Alyeska Pipeline Service Company
Pouch 60290
Fairbanks, Alaska 99706

Northwest Alaskan Pipeline Company
1001 Noble Street
Fairbanks, Alaska 99701

Golden Valley Electric Association
P.O. Box 1249
Fairbanks, Alaska 99707

Alascom, Inc.
949 East 36th Avenue
Anchorage, Alaska 99502

Sitka Telephone Company
P.O. Box 257
Sitka, Alaska 99835

Glacier State Telephone Company
P.O. Box 55129
North Pole, Alaska 99705

Alaska Power and Telephone Company
Box 222
Port Townsend, Washington 98368

Interior Woodcutters Association
P.O. Box 73762
Fairbanks, Alaska 99707

Northern Environmental Center
218 Driveway Street
Fairbanks, Alaska 99701

APPENDIX G

Impacted Wetlands

Approximate Milepost	Wetland	Impact
4	Twenty-three Mile Slough	bridge crossing
8	Twenty-three Mile Slough	bridge crossing
11-14	Piledriver Slough (4)	bridge crossings
14-15	Unnamed drainages (2)	culvert crossings
18	Unnamed drainage	culvert crossing
19	Unnamed drainage	culvert crossing
20	Salcha River	bridge crossing
25	Tanana River	bridge crossing
25-28	Unnamed drainages (10)	culvert crossings
29-30	Unnamed drainages (4)	culvert crossings
31	Unnamed drainage	culvert crossing
35	Unnamed drainage	culvert crossing
38	Little Delta River	bridge crossing
39	Unnamed drainage	culvert crossing
44	Unnamed drainages (2)	culvert crossings
45-48	Unnamed drainages (6)	culvert crossings
50	Unnamed drainages (2)	culvert crossings
53	Delta Creek	bridge crossing
54	Unnamed drainage	culvert crossing
59	Clear Creek	bridge crossing
61	Clear Creek	bridge crossing
75	Delta River	bridge crossing
86	Unnamed drainage	culvert crossing
89	Unnamed drainages (2)	culvert crossings
90	Unnamed drainage	culvert crossing
91	Granite Creek	bridge crossing
92	Unnamed drainage	culvert crossing
93	Rhoads Creek	bridge crossing
97	Sawmill Creek	bridge crossing
109	Gerstle River	bridge crossing
111	Unnamed drainage	culvert crossing
113	Little Gerstle River	bridge crossing
114	Unnamed drainage	culvert crossing
121	Johnson River	bridge crossing
123	Dry Creek	bridge crossing
124	Unnamed drainage	culvert crossing
126	Sears Creek	bridge crossing
128	Unnamed drainages(2)	culvert crossings
129	Berry Creek	bridge crossing
132	Unnamed drainages (2)	culvert crossings
135	Unnamed drainage	culvert crossing
137	Unnamed drainage	culvert crossing
139	Unnamed drainages (2)	culvert crossings
141	Unnamed drainage	culvert crossing

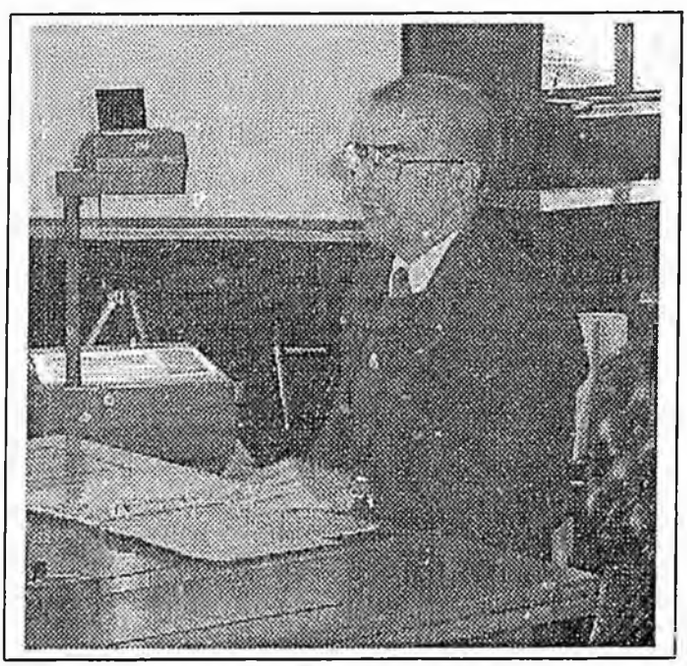
Approximate Milepost	Wetland	Impact
142	Chief Creek	bridge crossing
144	Bear Creek	bridge crossing
155	Robertson River	bridge crossing
158	Unnamed drainages (2)	culvert crossings
159	Unnamed drainage	culvert crossing
160	Sheep Creek	bridge crossing
161	Unnamed drainage	culvert crossing
162	Cathedral Rapids Creek No. 3	bridge crossing
163	Cathedral Rapids Creek No. 2	bridge crossing
164	Cathedral Rapids Creek No. 1	bridge crossing
166	Unnamed drainage	culvert crossing
168	Unnamed drainages (2)	culvert crossings
170	Yerrick Creek	bridge crossing
171	Unnamed drainage	culvert crossing
192	Unnamed drainage	bridge crossing
194	Tok River	bridge crossing
198	Unnamed drainage	culvert crossing
200	Tanana River	bridge crossing
205	Unnamed drainage	culvert crossing
207	Unnamed drainage	culvert crossing
208	Unnamed drainage	culvert crossing
209	Unnamed drainage	culvert crossing
211	Unnamed drainages (2)	culvert crossings
213	Unnamed drainages (2)	culvert crossings
219	Ladue River	bridge crossing
220	Ladue River	bridge crossing
224	Ladue River	bridge crossing
225	Unnamed drainage	bridge crossing
230	Unnamed drainage	bridge crossing
233	Unnamed drainage	bridge crossing
234-235	Unnamed drainages (2)	bridge crossings
237	Unnamed drainage	culvert crossing
238	Unnamed drainages (2)	culvert crossings
241	Unnamed drainage	bridge crossing
243	Unnamed drainage	culvert crossing
245	Ladue River	bridge crossing
245	Unnamed drainage	culvert crossing
246	Ladue River	bridge crossing
247	Unnamed drainage	culvert crossing
248	Unnamed drainage	bridge crossing
249	Unnamed drainage	culvert crossing
250	Unnamed drainage	culvert crossing
251	Unnamed drainage	bridge crossing
253	Unnamed drainages (3)	culvert crossings

Approximate Milepost	Wetland	Impact
255	Chicken Creek	bridge crossing
256	Unnamed drainage	culvert crossing
257	Unnamed drainage	culvert crossing
258	Unnamed drainage	culvert crossing
259	Unnamed drainage	bridge crossing
260	Unnamed drainage	culvert crossing
261	Unnamed drainage	culvert crossing
262	Unnamed drainage	culvert crossing
263	Unnamed drainage	culvert crossing
265	Unnamed drainage	culvert crossing
267	Unnamed drainage	culvert crossing
268	Unnamed drainage	culvert crossing
269	Unnamed drainage	culvert crossing
270	Unnamed drainage	culvert crossing

It is probable that the project would also impact other presently unidentified wetland areas where saturated soil conditions exist despite the absence of visible flowing surface water.

SECTION 4:

STATEMENT OF DR. PAUL METZ, PhD



URL: www.repjames.org

Testimony of Paul Metz, Ph.D., DIC, P.G.
Before the Joint House Committee Hearing on the Status of the Alaska-Canada Rail Link
February 20, 2001

Introduction and Statement of Qualifications

I would like to thank Representative Jeannette James for the opportunity to testify before this joint committee hearing on the US-Canada Rail Link. I am testifying as an individual and my credentials are given in the attached Curriculum Vita. I have undergraduate and graduate degrees in engineering, economic and mining geology, and business administration with an emphasis on engineering economics and finance. I teach courses in geological engineering, mineral exploration, mineral valuation, and mineral economics at the University of Alaska Fairbanks. I have conducted research on the mineral deposits and mining geology of Alaska and on the evaluation of mineral resources in the state and elsewhere. I have worked as a consultant to the mineral industry and have testified as an expert witness in litigation related to the mineral industry including eminent domain proceedings in state and federal court.

Engineering Geology of the Transportation Corridor from Fairbanks to the Canadian Border

In 1996, a proposal was submitted to the Alaska Railroad and later the Alaska Department of Transportation & Public Facilities for the production of engineering geologic maps and derivative geologic hazards maps for the transportation corridor from Seward to Fairbanks. In the summer of 2000 the project was revised to place an emphasis on the transportation corridor from Fairbanks to the Canadian Border as Phase I of the proposal and the corridor from Seward to Fairbanks as Phases II & III. As proposed this was a joint project between the Geological Engineering Program at the University of Alaska and the Alaska Division of Geological and Geophysical Surveys. A precedent for such cooperation was set by a bedrock geologic mapping program initiated in 1981 for the mineral districts in interior Alaska and referred to as the "Interior Mining Project" A summary of the results of that program is attached.

The objectives of the Transportation Corridor Project and the use of multipurpose engineering geological maps are summarized in the follow two attachments. The utilization of the multipurpose engineering geological by design engineers in the public and private sector will result in minimizing the risk and cost of geologic hazards to engineering works constructed in the corridor. These costs include both the capital costs of construction as well as annual maintenance and repair costs associated with the entire spectrum of geologic processes that can degrade engineering works. And most importantly the utilization of such maps minimized the risk of loss of life associated with catastrophic structural or earth failures due to a major hazardous geologic event.

A summary of the project, project history, the project status as of December 2000, and a discussion of the significance of this project was outline in my letter to Dr. Wiltse dated December 4, 2000 and attached herein. The changing economics of an Alaska Natural Gas Pipeline to the contiguous states has resulted in a major change in the economic parameters of the construction of the Extension of the Alaska Railroad to the Canadian Border and the connection to the Canadian Railroad System.

Changes in Mineral Resource Economics within the Transportation Corridor as a Function of the Availability of Natural Gas

Major mineral deposit types found in Alaska within fifty miles of the proposed extension of the Alaska Railroad to the Canadian Border include but are not limited to:

1. Bulk mineable low grade intrusive hosted gold (Fort Knox Type Deposits)
2. High-grade gold quartz veins (Pogo Type Deposits)
3. Bulk mineable moderate grade gold occurrences (Donlin Creek Type Deposits)
4. Porphyry Copper Occurrences
5. Porphyry Copper-Molybdenum Occurrences

6. Coal Deposits (Jarvis Creek Coal Field)
7. High purity limestone deposits for lime and portland cement production
8. Platinum Group Elements and podiform chromite in Alpine Ultramafics (Clinton Creek Type)
9. Platinum Group Elements in Layer Gabbroic Complexes (Paxson Mt.)
10. Precious metal enriched volcanogenic massive sulfide occurrences (Wolverine Complex Type)
11. Antimony-gold vein occurrences (Scrafford Type)
12. Tungsten skarn occurrences (Can-Tung Type)
13. Placer gold and platinum occurrences (Goodnews Bay Type)

The future availability of natural gas as a source of energy could greatly decrease the cut-off grade and thus positively impact the feasibility of developing bulk mineable mineral deposits in the corridor. The economic feasibility of bulk mineable mineral deposits is extremely sensitive to tonnage and grade and energy costs since energy is the single largest operating cost for such deposits. The combination of lower cost energy for what are now stranded mineral resources and the availability of a bulk transportation system would greatly enhance mineral exploration and development in the corridor in East-Central Alaska (see attached maps).

Other Sources of Tonnage for the Alaska Railroad and the Impact of the Economic Feasibility of the Transportation System

The uncertainty of future mineral discoveries should be carefully considered in the economic analysis of the Extension of the Railroad into Canada. Few railroads constructed in the 19th Century had defined markets prior to construction. The Alaska Railroad was constructed in the 20th Century under the same constraint. The only significant certain mineral deposits along the route of the Alaska Railroad prior to construction were the coal deposits in the Matanuska and Nenana Coal Fields and the placer gold deposits in Fairbanks. The deep and low-grade placer deposits in Fairbanks required dredges for their economic feasibility and the railroad was needed to get that equipment into the region. The placer deposits only contained 8 million ounces of gold. Today as a result of numerous gold discoveries since the completion of the "Interior Mining Project" there are over 40 million ounces of proven and drill indicated reserves in interior Alaska. This is 10 million more than the historic gold production of the entire state. Similarly the reserves of both the Greens Creek Mine and the Red Dog Mine have more than tripled since the initial feasibility studies for these projects. The availability of energy and transportation will result in increased mineral reserves at known mineral deposits and new mineral discoveries that cannot even be projected at this time.

Other sources of freight such as value added products from a petrochemical plant in Fairbanks and processed forest products as well as probable passenger revenues must be added to the expected cash flows from the mineral industry. The economic feasibility of the railroad extension should not be limited to the tonnage requirements of the mineral industry.

Effect of Lower Risk of Geologic Hazards with the Extension of the Railroad to Canada versus the Route from Seward to Fairbanks

The transportation corridor from Seward to Fairbanks transects some of the most hazardous geologic terrains in the world. This is a function of the plate tectonic boundary between the Pacific Plate and the accreted terrains along the margin of the North American Plate. By contrast the extension of the railroad into the Yukon Territory and either northern British Columbia or Alberta will transect on older and more stable interior plateau. Thus the rail extension will provide a relatively low risk transportation system for interior and even south central Alaska during future major earthquakes comparable to the March 1964 event. This factor must be included in the final economic analysis of the feasibility of the Extension of the Alaska Railroad. The same must be considered in the analysis of the Alaska Natural Gas Pipeline system.

Subject: Joint DNR-UAF Proposal Area
Date: Thu, 11 Jan 2001 15:28:07 -0900
From: Michele_Gorham <Michele_Gorham@dnr.state.ak.us>
To: Milton A Wiltse <milt_wiltse@dnr.state.ak.us>

Milt:

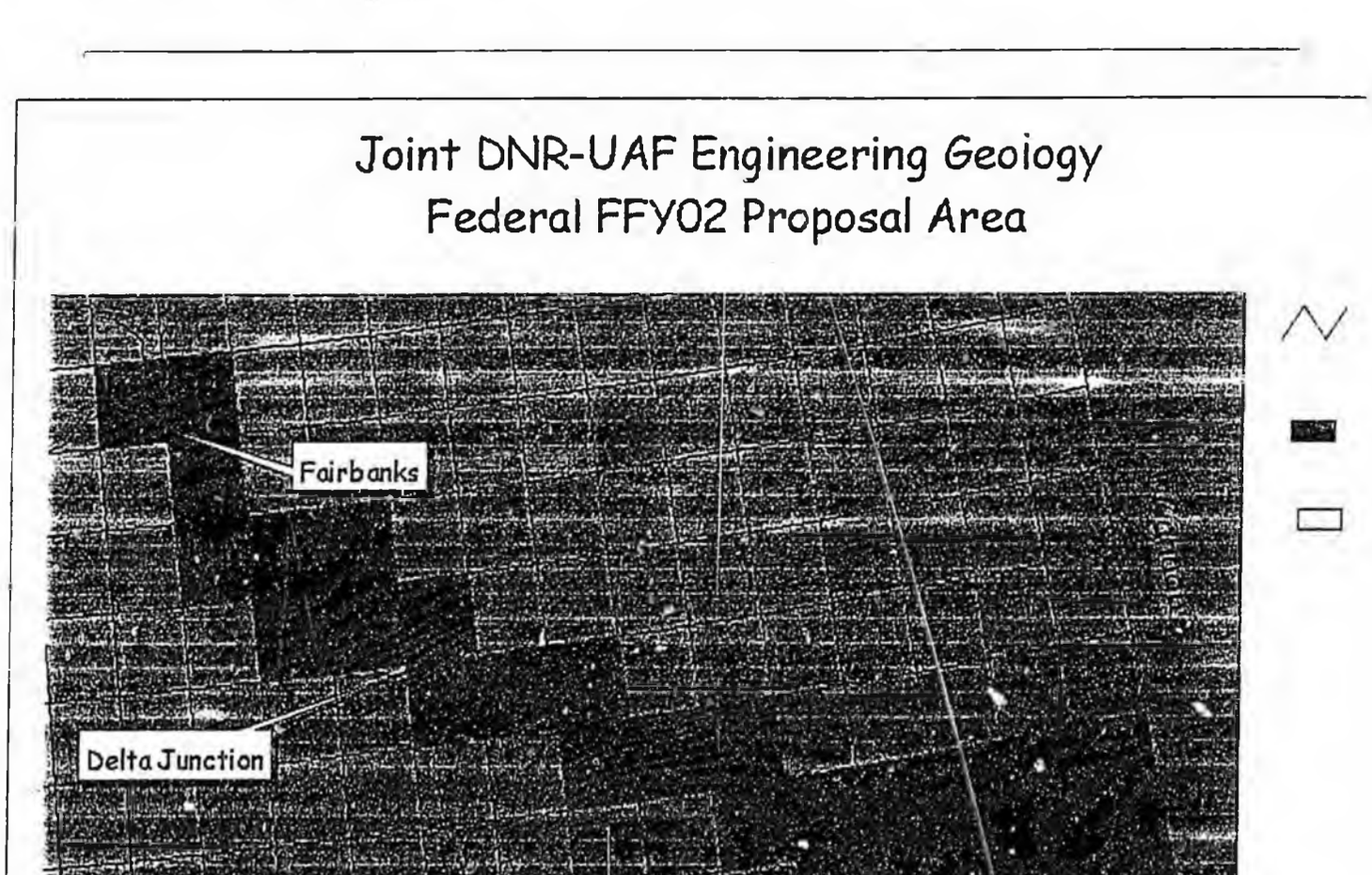
I have attached a jpg file depicting the outline of the Joint DNR-UAF Engineering Geology Federal FFY02 Proposal Area that I generated using the information I received yesterday.

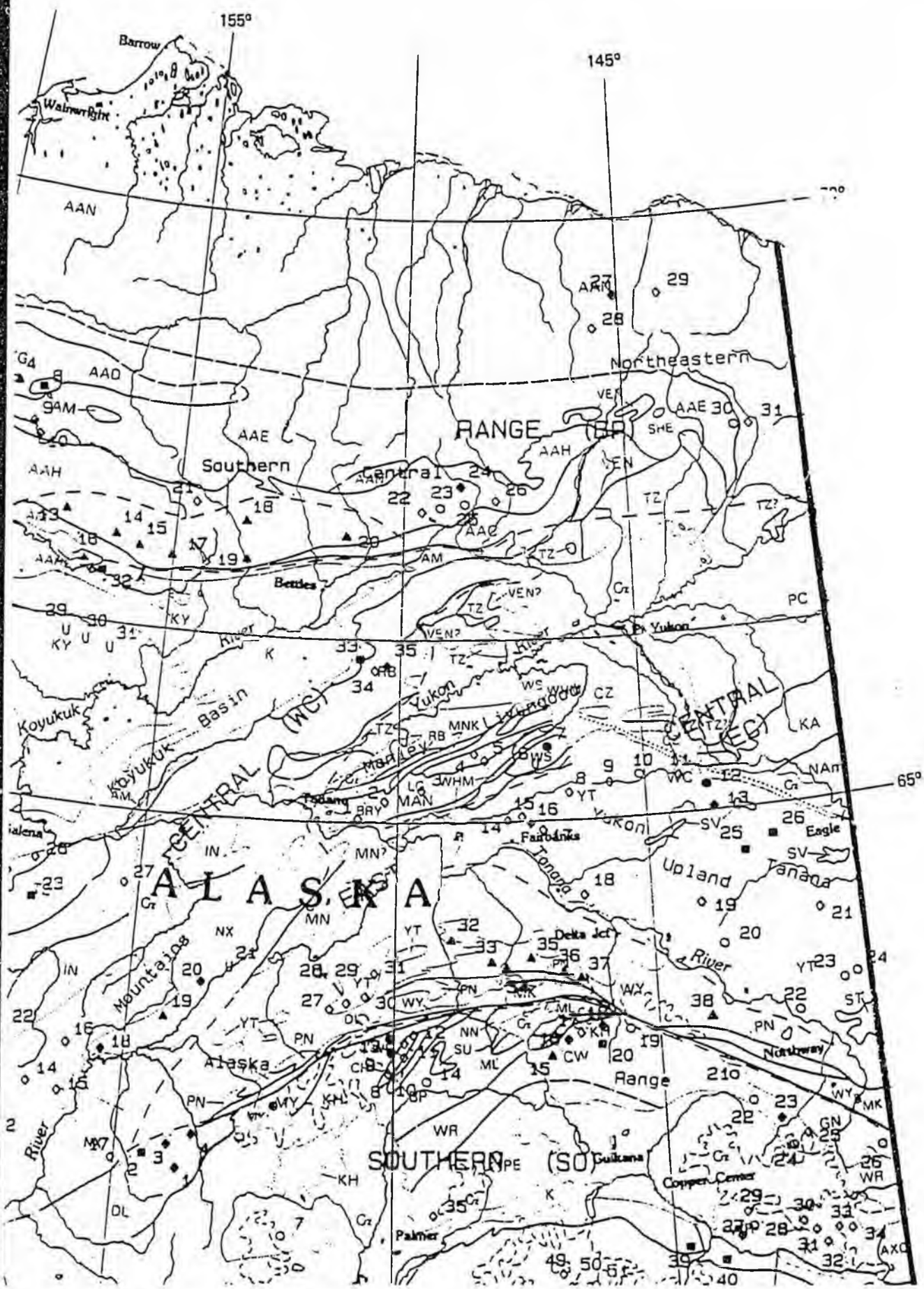
Please let me know if this is the correct area or if I need to make corrections.

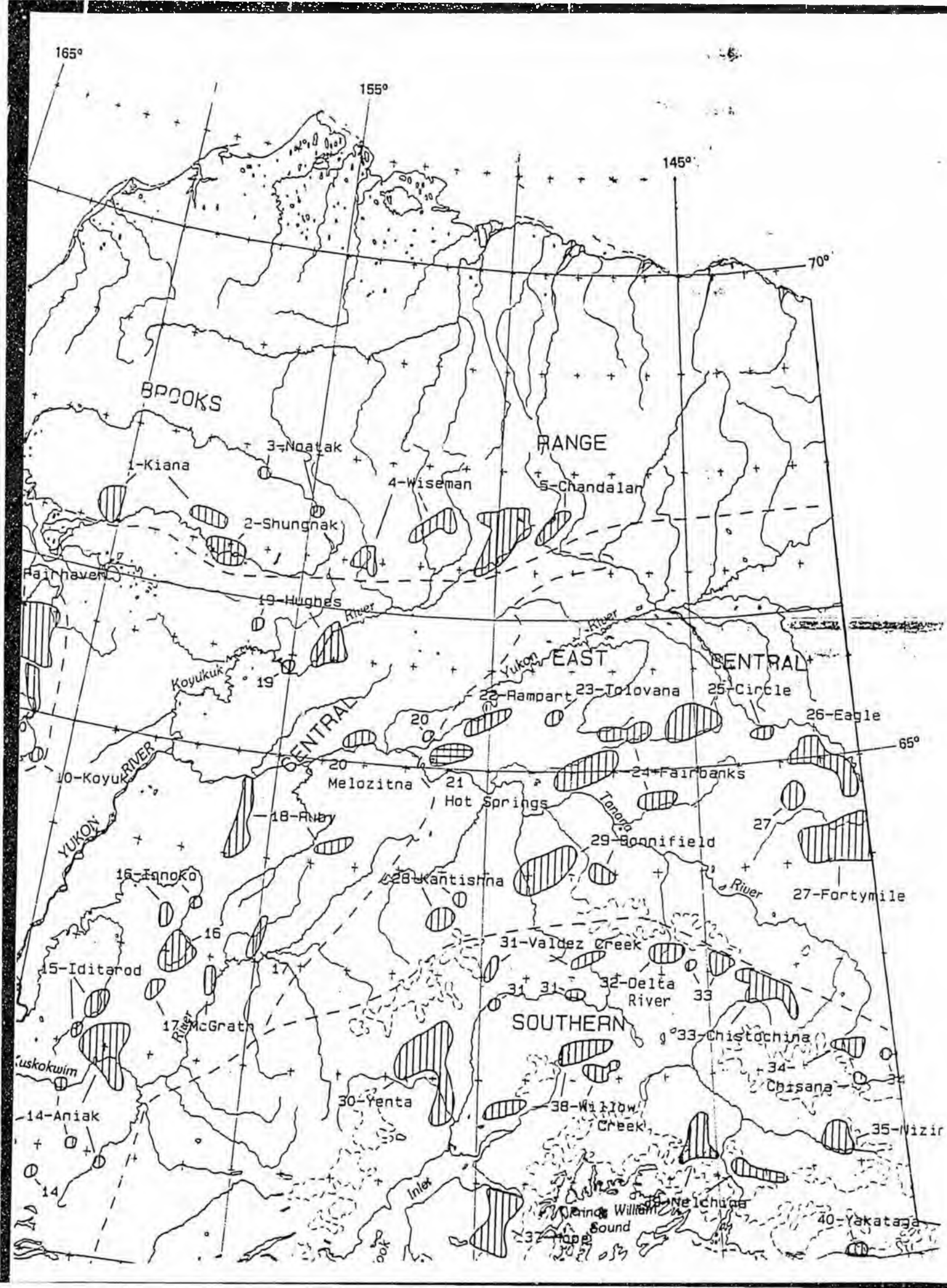
Thanks!

Michele

--
Michele Gorham, GIS Analyst/Programmer
Alaska DNR, 550 W. 7th, #706, Anchorage, AK 99501
(907) 269-8855 (ph) // (907) 269-8920 (fax)
email: michele_gorham@dnr.state.ak.us




155°
145°
65°
Barrow
Wainwright
AAN
AAM
AAD
AAE
AAH
Northeastern
RANGE (BR)
Southern
Central
Bettles
Koyukuk
Basin
CENTRAL (WC)
CENTRAL (EC)
Yukon
River
Fairbanks
Eagle
Upland
Tanana
Delta Jct
Alaska
Mountains
Range
Northway
Glennallen
Copper Center
Palmer
SOUTHERN (SO)
ALASKA


165°
155°
145°
70°
65°
BROOKS
RANGE
1-Kiana
2-Shungnak
3-Noatak
4-Wiseman
5-Chandalar
Fairhaven
19-Hughes
Koyukuk
River
Yukon
River
EAST
CENTRAL
22-Rampart
23-Tolovana
25-Circle
26-Eagle
CENTRAL
20
19
10-Koyuk
RIVER
YUKON
20
Melozitna
21
Hot Springs
18-Ruby
24-Fairbanks
Tanana
River
29-Bonnifield
27
27-Fortymile
16-Ignoko
28-Kantishna
16
15-Iditarod
17
31-Valdez Creek
31
31
32-Delta
River
33
17
McGrath
River
SOUTHERN
33-Chistochina
Kuskokwim
34-
Chisana
14-Aniak
30-Yenta
38-Willow
Creek
35-Nizir
14
Inlet
39-Nelchina
Prince William
Sound
40-Yakataga
37-Tope

Engineering Geological Mapping
Of the Alaska Transportation Corridors

Phase I

Fairbanks to the Canadian Border

Cooperative Investigation by

The Geological Engineering Program
School of Mineral Engineering
University of Alaska Fairbanks

And

The Alaska Division of Geological and Geophysical Surveys

Objectives:

1. Completion of airborne geophysical and engineering geological maps for the 20 quadrangles (15 minute) transected by the Alaska highway and the proposed route of the Alaska Natural Gas Pipeline and the extension of the Alaska Railroad from Fairbanks to the Canadian Border.

2. Assessment of the soil and rock mechanics of the geological materials in these quadrangles.

3. Completion of geologic hazards maps as derivatives of the engineering geological maps and geophysical maps.

4. Development of a Geographic Information System for all the geotechnical data

5. Provide the regional geological database for the location, permitting, design, and construction, and maintenance of ALL engineering works in the transportation corridor.

Multipurpose Engineering Geological Maps

1. Location and engineering classification of bedrock units
2. Location and engineering classification of soil units
3. Location and orientation of geologic structures
4. Hydrogeological conditions
5. Geomorphological conditions
6. Geodynamic phenomena
    a. Erosion and deposition on floodplains
    b. Aeolian processes
    c. Slope processes
    d. Permafrost and related cryogenic processes
    e. Karstification
    f. Suffusion
    g. Soil liquefaction
    h. Expansive soils
    i. Seismicity and active fault zones
    j. Volcanism

Summary of the Interior Mining Project

By
Paul A. Metz, Ph.D., P.G.

On February 29, 1980 a joint proposal entitled "Mineral Resource Appraisal of the Interior Alaska Mining Districts was completed by Paul Metz (Mineral Industry Research Laboratory, School of Mineral Engineering, University of Alaska Fairbanks) and Wyatt Gilbert (Alaska Division of Geological and Geophysical Surveys) and was submitted to the Fairbanks North Star Borough as a Capital Improvements Project for fiscal year 1981 (Proposal No. MIRL 80-24 total budget $948,000). The stated objective of the proposed project was "to conduct a mineral appraisal of the interior Alaska mining districts adjacent to or included in the Fairbanks North Star Borough, thus stimulating the establishment and the growth of the mineral industry in the region". The procedure for the appraisal included geological mapping of each district at a scale of 1 inch equals 1 mile, detailed mineral prospect mapping, geochemical sampling of outcrops, stream sediments and heavy mineral concentrates from stream gravel and mineral deposit modeling using trace element, stable isotope, fluid inclusion, and radiogenic isotopic geochemistry. All published geological, geochemical, and geophysical data for the four interior mining districts (Fairbanks, Livengood, Circle, and Richardson) was compiled prior to the field mapping and geochemical sampling.

Fieldwork began in the Fairbanks district in 1981 and the field maps, field notes, and geochemical data were released as public data files as field geologists and laboratory staff produced them. The geologic mapping defined favorable rock units for future mineral discoveries while the geochemical sampling defined specific areas of high potential for future mineral deposit discoveries. The data immediately stimulated individual prospectors, exploration geologists and exploration and mining firms to re-examine the Fairbanks mining district. Prospectors and explorationists began to relocate old placer mining claims and stake new lode mining claims at an unprecedented rate. The fieldwork and laboratory investigations in the Fairbanks District resulted in the definition of 14 new anomalous areas of potential gold mineralization. Joe Taylor and George Johnson, local prospectors, used this data to locate 34 lode claims adjacent to their 19 Fort Knox placer claims near Gilmore Dome. Today those claims have evolved into one of the largest gold mines in North America which employs 250 highly skilled workers, contains an estimated 7.5 million troy ounces of measured and inferred reserves, and produces 1000 troy ounces of gold per day for 365 days per year.

By 1984 the geologic mapping and geochemical sampling of the four districts was completed. Dozens of geologic maps, thousands of geochemical analyses and hundreds of pages of technical reports were published and/or presented at exploration and mining conferences (see Metz and Halls, 1981; Metz and Hawkins, 1981; Metz, 1982, Metz, 1983; Metz, 1984d). In addition to the Fort Knox geochemical anomaly, 62 other geochemically anomalous areas were discovered during the interior mining project investigation. These anomalous areas have been the subject of thousands of new mining claims being staked in the four mining districts.

The Fort Knox Gold Mine is a major producer of new wealth for the Fairbanks Community but more importantly it has demonstrated the economic feasibility of bulk mineable gold production in interior Alaska. This fact has resulted in the expenditure of tens of millions of dollars per year for mineral exploration and development not only in the Fairbanks mining district but in the entire area of interior Alaska from the North Flank of the Alaska Range to the South Flank of the Brooks Range. As a result of the Fort Knox Mine development, another 33 million troy ounces of gold have been discovered in interior Alaska (at $300 per troy ounce the gross value of these discoveries is approximately $ 12 billion). This has resulted in the interior mining districts developing into the single most important region of new gold discoveries in North America since 1980.

Since 1984 over a dozen Master of Science theses and one Doctor of Philosophy dissertation have been completed on the geology and mineral deposits of interior Alaska. Presentations of these works as well the results of exploration and development programs by mining companies at international mining conferences has continued to stimulate and guide private sector investment in mineral exploration in interior Alaska (see Metz and Hamil, 1986; Metz, 1987; Robinson, Smith and Metz, 1990; Metz, 1991). In the interior mining project proposal, the discovery of at least one world class mine was predicted. The Fort Knox Mine fulfilled that prediction however expectations have been greatly exceeded. The gold discoveries at the True North Project, the Golden Summit Project, and at the Pogo Project will result in at least three more major gold mines in interior Alaska in the near future.

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December 4, 2000

Milton Wiltse, State Geologist and
Director Alaska Division of Geological
& Geophysical Surveys
794 University Avenue, Suite 200
Fairbanks, Alaska 99707-3645

Subject: Engineering geology and geologic hazards assessment of the transportation corridors in Alaska – UA state and federal initiatives

Dear Dr. Wiltse

Attached is a copy of a University of Alaska Initiative submitted to the State Administration entitled, "Engineering Geology and Geologic Hazards Assessment of the Transportation Corridors in Alaska". A companion federal initiative was submitted to the Congressional Delegation through the Offices of the Provost and the Chancellor, University of Alaska Fairbanks and the University of Alaska Statewide Administration. The scope of work is similar to the scope of work that we jointly presented to President Hamilton during the Spring Semester of 1999. The recent initiatives include a third phase of work that encompasses the transportation corridor from Fairbanks to the Canadian Border as a first priority. The corridor investigations from Seward to Anchorage and from Anchorage to Fairbanks are assigned to Phases II and III respectively. In addition, airborne geophysical surveys have been added to the project thus significantly adding to the geological engineering database and the project cost.

These recent initiatives reflect the increased need for a comprehensive examination of the engineering geology along the proposed route of the extension of the Alaska Railroad through Canada and the construction of the Alaska Natural Gas Pipeline along the Alaska Highway route. These are major engineering projects essential to the long-term sustained growth of the Alaska economy. These engineering projects require regional geological engineering data collection, reduction, and analysis. This engineering data must include engineering geological maps that depict the mechanical and physical properties of the soils, rocks, ground water as well as the structural and dynamic process that affect the strength of these foundation and construction materials. This data is essential to the constructors of the Alaska Natural Gas Pipeline, the Alaska Railroad, and

the Alaska Communication industry that will in all likelihood install a fiber optic cable along these transportation systems.

As you may recall, I submitted the original proposal to the Alaska Railroad in May 1996 for the now Phase I & II work. Over the past four years endorsements for the original project have been forth coming from the Alaska Railroad, the Alaska State Emergency Response Commission, the Technical Advisory Commission of the Municipality of Anchorage, the Fairbanks North Star Borough, and the Alaska Department of Transportation & Public Facilities. The interior delegation also indicated support for this project, particularly at such time that it was in the Governor's Budget.

Initially funding for the Phase I & II of the project was sought from federal highway appropriation that would require a 10% (ten percent) match by the State of Alaska. Prior to completing the documentation for a publicly initiated highway project for Phases I & II there was a strong indication that federal and state support for an extension of the Alaska Railroad through Canada was becoming a reality. This support was in part a function of the proposal for a National Missile Defense System to be located in the Big Delta area. Construction of the National Missile Defense System would be facilitated by the existence of a rail-link from Fairbanks to Big Delta. As you recall at the Alaska-Canada Rail Link Symposium in Vancouver last January, we were informed that federal highway funds could be utilized for the construction of the Alaska Railroad extension to Canada. Furthermore the collection, reduction, and analysis of the geotechnical data for site selection, permitting, and foundation design can be accomplished with federal highway funds.

Since our invited presentations at the Alaska-Canada Rail Link Symposium, I have been in contact with the co-sponsors of the meeting, Senator Mukowski and State Representative Jeannette James. They were kind enough to make presentations to our engineering students on November 6, 2000 on the synergies of the construction of both the Alaska Natural Gas Pipeline and the extension of the Alaska Railroad. They emphasized the need for engineering solutions to the complex geotechnical and environmental problems associated with both of these projects. At the Resource Development Council for Alaska, Inc. Annual Meeting on November 16-17, 2000, both the Senator Murkowski and State Representative James reiterated the problem solving nature of the geotechnical data collection, analysis, and reduction process and the timely permitting and design of both of these projects. After the RDC annual meeting, I meet with the local representatives from BP and Phillips Petroleum. Attached is a one-page summary of the project that was presented to these firms. They likewise emphasized the need for sound engineering data for the permitting as well as the design phase of the Alaska Natural Gas Pipeline. It was their consensus that there was not enough time to secure federal highway funds and a state match of those funds to allow collection of the required geological engineering data within their preferred time frame for the permitting and design of the Alaska Natural Gas Pipeline. In order to fast tract our project we will

need the timely assistance of the Congressional Delegation, the Office of the Governor, and the Alaska State Legislature.

I cannot stress enough the critical engineering nature of this project. All those involved must bring to the table a strong understanding of the difference between geological engineering data collection and simply the collection of bedrock lithologic and surficial geologic data. Engineering geological mapping and data collection emphasizes the mechanical and physical properties of the earth materials as they relate to specific engineering projects or general evaluation of a terrain for identification of geologic hazards that may adversely impact engineering works. Bedrock geologic maps and surficial geologic maps are not engineering geological maps although they may contain data that is an important component of the engineering geological map. I have attached a copy of a short treatise by Dearman (1976) on engineering geologic mapping. Each field person involved in this project must be familiar with the topics included in this paper. A more in-depth discussion of the subject along with the engineering geological mapping methods utilized by the British Geological Survey is included in Dearman (1991).

Airborne and ground based geophysical methods provide measurements of the physical and mechanical properties of soils and rocks as they exist in the field. The various geophysical techniques thus provide essential engineering data over larger vertical and lateral dimensions than are available to direct observation in the field or available to surface and subsurface sampling techniques. The project proposal has provisions for airborne magnetics, electromagnetics, and radiometric methods. The efficacy of these methods in engineering geological mapping has been discussed by Dearman (1976, 1991), Pitkin (1968) and Ward (1981) and the general use of these methods have been reviewed by Fitterman (1987), and Hanna (1987).

Scott and others (1990) give a very comprehensive review of the utilization of geophysics in the study of permafrost. Permafrost is the most challenging geologic hazard that will be encountered by both the Alaska Natural Gas Pipeline and the Alaska Railroad. Geophysics will be an essential tool in the identification and mitigation of this hazard. Ground based geophysical methods available in the Engineering Geophysics Laboratory in the Geological Engineering Program at UAF are listed as follows:

Engineering Geophysics Laboratory
Ground Based Geophysical Methods

1. Seismic Refraction Method
2. Gravity
3. Magnetics
4. Resistivity
5. Self Potential
6. Electromagnetics
7. Gamma Ray Spectrometer
8. Ground Penetrating Radar (FY 02 Budget Request)

The Geological Engineering Program at UAF also maintains a Geological Materials Engineering Laboratory with the following materials testing capabilities:

Geological Materials Engineering Laboratory
Soil and Rock Materials Testing

1. Soil moisture content
2. Specific gravity
3. Sieve analysis
4. Hydrometer analysis
5. Liquid limit test
6. Plastic limit test
7. Shrinkage limit test
8. Engineering classification of soils
9. Constant head permeability test
10. Falling head permeability test
11. Standard proctor compaction test
12. Modified proctor compaction test
13. Standard field unit weight test
14. Direct shear test
15. Unconfined compression test
16. Consolidation test
17. Triaxial compression test
18. Miscellaneous field geotechincal instrumentation

Individuals participating in this project must be familiar with the results of such geophysical surveys and testing methods and the depiction of the results on engineering geological maps. These tests may be supplemented by additional testing in-house or acquired though commercial laboratories and the materials testing laboratories of other state agencies.

Our clients, the users of this geological engineering data, are the constructors of the Alaska Natural Gas Pipeline, the Alaska Railroad, the Alaska Department of Transportation & Public Facilities, the geotechnical consulting industry and the Alaska communication industry, as well as the state and federal agencies that are permitting these engineering works. This project must be coordinated with these clients to maximize the benefit of the collected data and minimize the cost of data collection.

The project cost estimate contained in the federal and state initiatives includes the cost of acquisition and analysis of the specified geological engineering data. Additional data collection, reduction, and analysis by the UAF Geological Engineering Program, by the Alaska Division of Geological and Geophysical Surveys, or by other entities not specified in the initiatives will result in increased costs.

The Alaska Railroad and the Alaska DOT&PF have reviewed our original detailed proposals. The same cannot be said for the owners of the North Slope natural gas. The Alaska Natural Gas Pipeline presents a whole new set of geological engineering challenges not encountered in the Trans-Alaska Oil Pipeline. Due to the temperature of the oil in the ground, the energy necessary to transport the oil and the necessity to keep the paraffin at elevated temperatures to minimized oil viscosity, the oil pipeline is a significant heat source. In permafrost terrain, this heat source had to be decoupled from the ice rich permafrost. The Alaska Natural Gas Pipeline will be a very high-pressure line that will transport the fluid at temperatures below the freezing point of water. This will result in ice development around the pipe in areas where groundwater is available. Unabated, this will result in frost heave and longitudinal stresses on the pipe. Thus the presence of permafrost and groundwater are critical geological engineering parameters that must be delineated on engineering geological maps.

The Geological Engineering Program at UAF is currently conducting a large scale test of a cold buried gas pipeline in discontinuous permafrost. This is the largest scale test of its kind and is funded by the Japanese Government and a consortium of Japanese companies. It is expected that data from this test facility will provide critical information on the stresses in a buried cold natural gas pipeline in soil and groundwater conditions similar to the permafrost rich silts in the Fairbanks area.

The detail of the geological engineering data that can be provided by this investigation is limited to the scale of the mapping and the project budget. The geotechnical consulting industry will be the source of more detailed and site specific data collection, reduction, and analysis. However it is critical that the constructors of the Alaska Natural Gas Pipeline establish the detail of the geological engineering parameters that they would like to be provided with by the public sector. The same is true of the regulatory agencies. With this input there may be need for additional participants and an increased level of public funding.

Since the geological engineering work in the transportation corridor was first proposed to the Alaska Railroad in 1996 there have been at least a dozen derailments some of which were directly related to soil mechanics and groundwater flow in discontinuous permafrost. The derailment near Talkeetna in 1999 will cost the Alaska Railroad an estimated $9,000,000 (nine million dollars). The recent landslide along the Parks Highway near Ester will cost the State of Alaska an estimated $10,000,000 (ten million dollars). During the same time period avalanches were responsible for 14 fatalities in the transportation corridor between Seward and Anchorage. In addition the Alaska Railroad and DOT&PF have spend large sums of money mitigating other geologic hazards in the corridor such as soil creep, debris flows, and permafrost. The mitigation of a single geologic hazard along the route of the Alaska Natural Gas Pipeline and railroad extension will more than offset the cost of the proposed geological engineering investigation.

The "Engineering geology and geological hazards assessment of the Transportation Corridors in Alaska, Phase I – Fairbanks to the Canadian Border" is an integral part of these construction of the Alaska Natural Gas Pipeline, the Extension of the Alaska Railroad, and parallel fiber optic cable systems. The Geological Engineering Program and the Alaska Division of Geological and Geophysical Surveys have taken a lead role in predicting the need for funding for such geological engineering investigations. These entities must take a lead role in implementation of these engineering investigations. As noted above, the timely completion of this geological engineering project is predicated on the good graces of the Congressional Delegation, the Office of the Governor, the Alaska Sate Legislature, the University of Alaska and the users of the engineering data.

Sincerely

Paul A. Metz, Professor of Geological Engineering
And Licensed Professional Engineering Geologist

Cc: Robert Carlson, Interim Dean
School of Mineral Engineering

Martha A. Stewart, Director
Federal Relations

Representative Jeannette James

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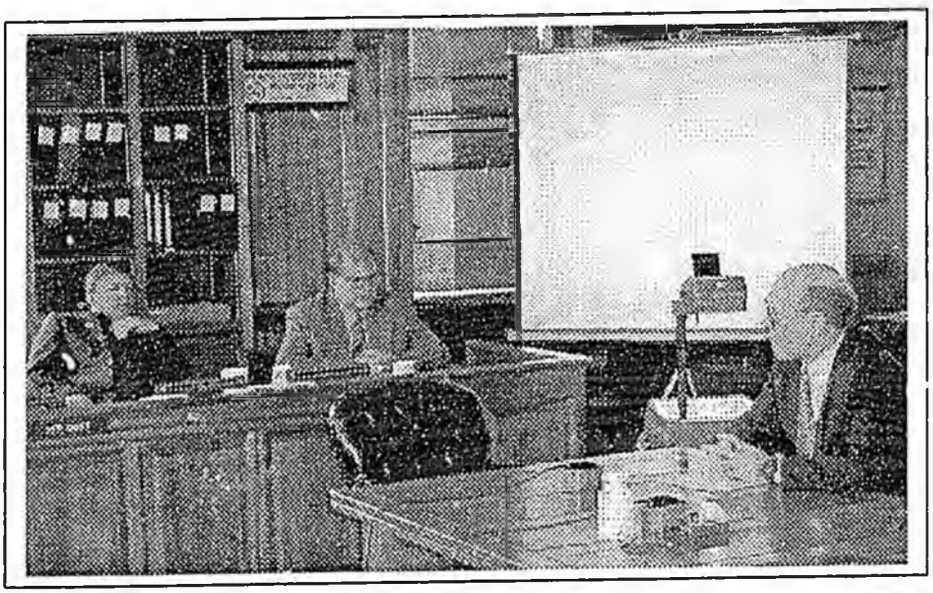
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SECTION 5:

REPORT OF DR. MILT WILTSE

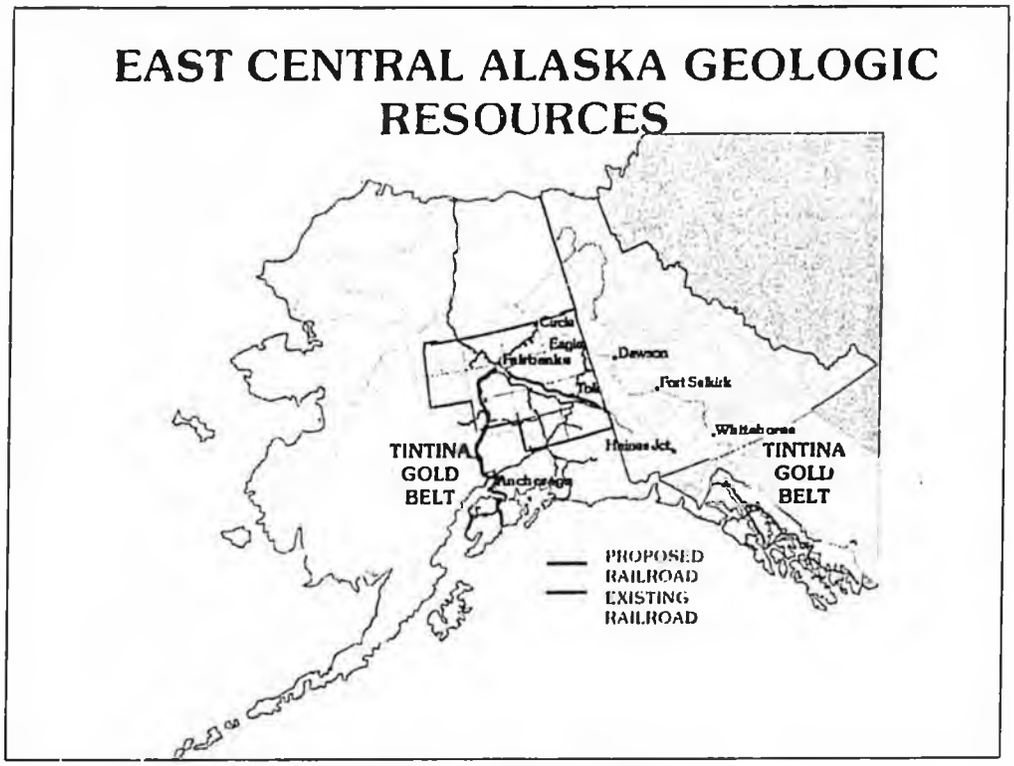


EAST CENTRAL ALASKA GEOLOGIC RESOURCES AND ACCESS CORRIDORS

ALASKA DIVISION OF GEOLOGICAL AND GEOPHYSICAL SURVEYS

JUNEAU, ALASKA

FEBRUARY 20, 2001

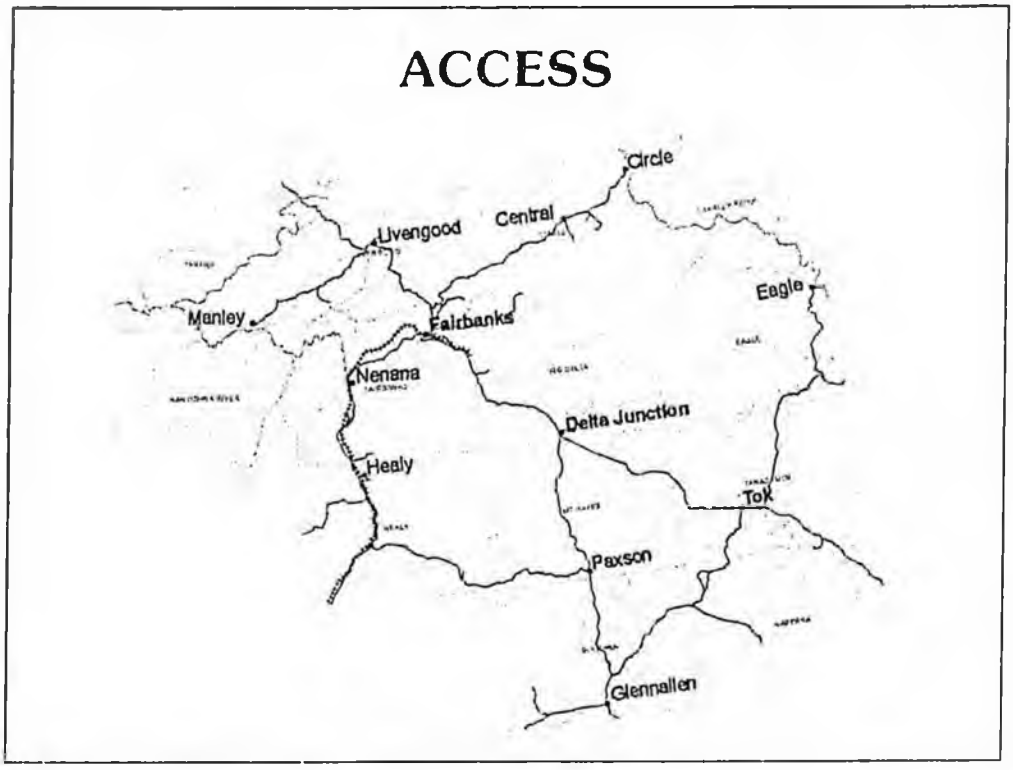


East Central Alaska includes the central portion of a regional international United State - Canada mineral trend that informally has acquired the designation of "Tintina Gold Belt"

Gold is not the only mineral commodity within the "Gold Belt." This region also contains significant coal deposits, and copper, lead, zinc, nickel, and platinum group metal prospects.

The proposed extension of the Alaska Railroad is located within a highly mineralized portion of the Tintina Gold Belt.

ACCESS



The area shown in the following graphics represents about 78,000 square miles. As an indication of scale, it is about 100 miles (165 km) between Fairbanks and Delta Junction.

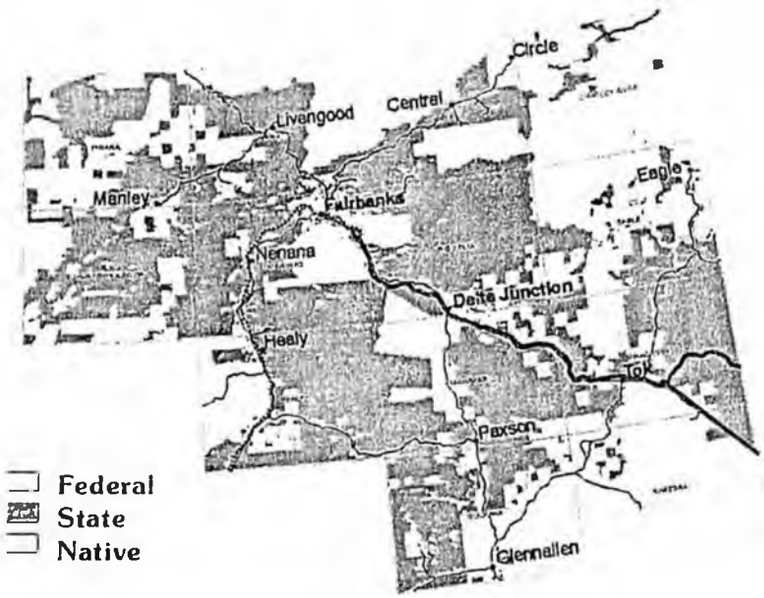
The existence of a road and railroad transportation network has been a significant positive factor in fostering mineral exploration and development in East-Central Alaska.

The Fairbanks commercial center; serviced by the Alaska Railroad, the Parks Highway, and the Alaska Highway; disburses equipment, supplies, and services to regional towns and villages that serve as staging areas for mineral exploration and development ventures.

Fairbanks is a world-scale mining center. Delta Junction is the terminal supply point for developing the recently discovered Pogo gold deposit. Tok serves the Fortymile and Delta mineral districts. The town of Healy supports the states largest active coal mine and is a local supply center for mineral exploration in the Bonnifield and Chulitna district.

A large percentage of East Central Alaska lies within fifty miles of an existing road.

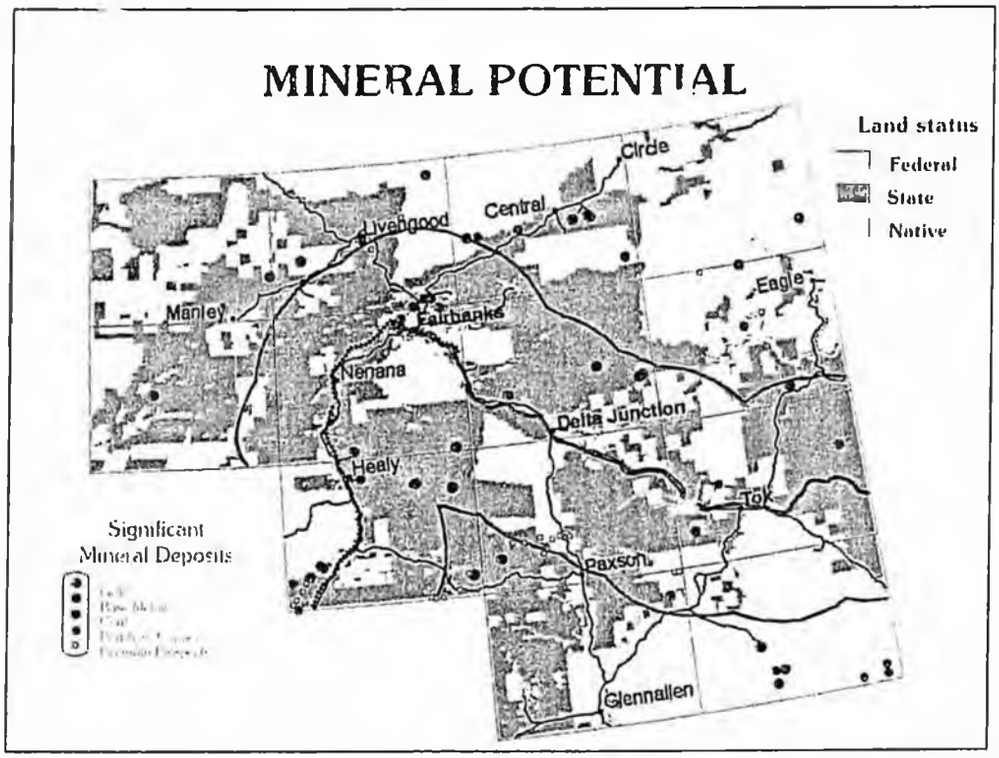
LAND OWNERSHIP



There are three major classes of land owners in Alaska: 1) the federal government; 2) the state of Alaska; and 3) Alaska Native Regional- and Village-Corporations. Other private land owners are a small minority when measured by acres in private fee-simple ownership.

The majority of known significant mineral deposits in East-Central Alaska are located on state or Native controlled land.

Much of the land selected by the state of Alaska and the Native Corporations was purposely chosen because of perceived high mineral potential. In spite of the existence of several known significant mineral deposits, these lands are under-explored. A fact amply demonstrated by the discovery of a gold deposit by sampling the road cuts of the Alaska Highway near Tetlin Junction last summer



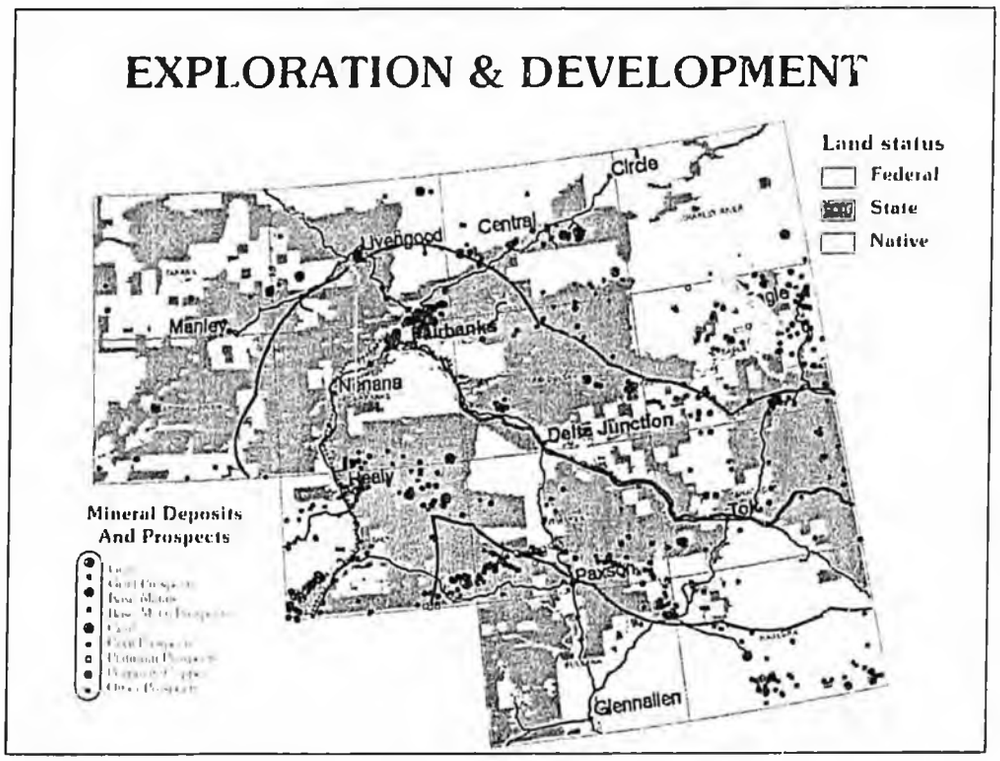
A majority of the most valuable known mineral deposits of East-Central Alaska are located within fifty miles of the proposed or existing Alaska Railroad, e.g., Usibelli Coal Mine (1.4 billion tons), Fort Knox Gold Mine (6 million ounces), Pogo Prospect (5.2 million + ounces), True North Prospect (1.3 million ounces), Ryan Lode (0.8 million ounces).

The region hosts several other significant prospects and mineral districts, e.g. the Bonnifield gold and massive sulfide copper-lead-zinc district east of Healy; the copper-lead-zinc Delta District southwest of Tok; the Richardson gold district northwest of Delta Junction.

There is growing interest in a series of nickel-copper-platinum group metal prospects north of Paxson.

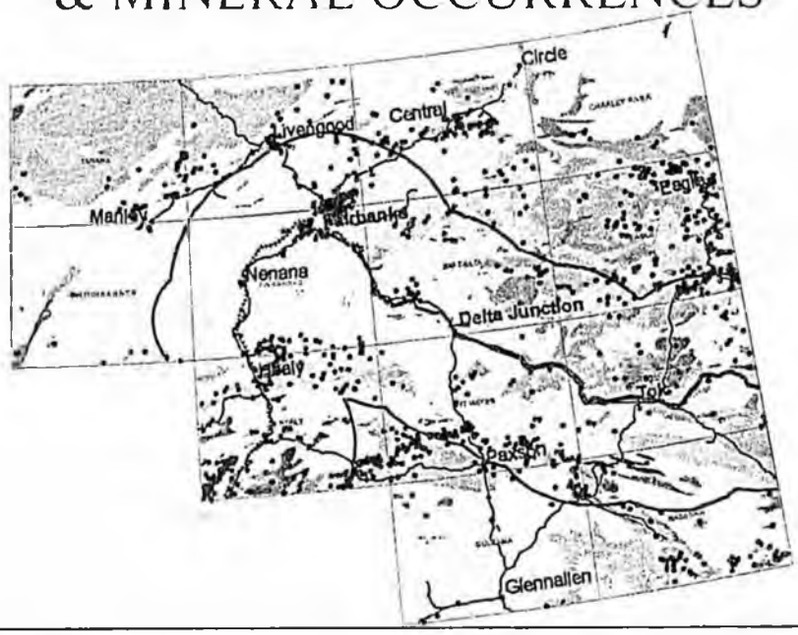
There are brief references for some of these deposits in the appendices of the *Alaska Mineral Industry –1999* annual report published by the Alaska Division of Geological and Geophysical Surveys.

Using a non-quantitative definition of "significant," there are about thirty significant mineral deposits or prospects within the existing and proposed 100-mile wide rail-belt corridor.



In addition to these "significant"deposits, there are scores of lode gold, base metal massive sulfide, copper porphyry, and nickel-copper-PGM, tungsten, and tin prospects within the rail-belt corridor and many others surrounding the corridor.

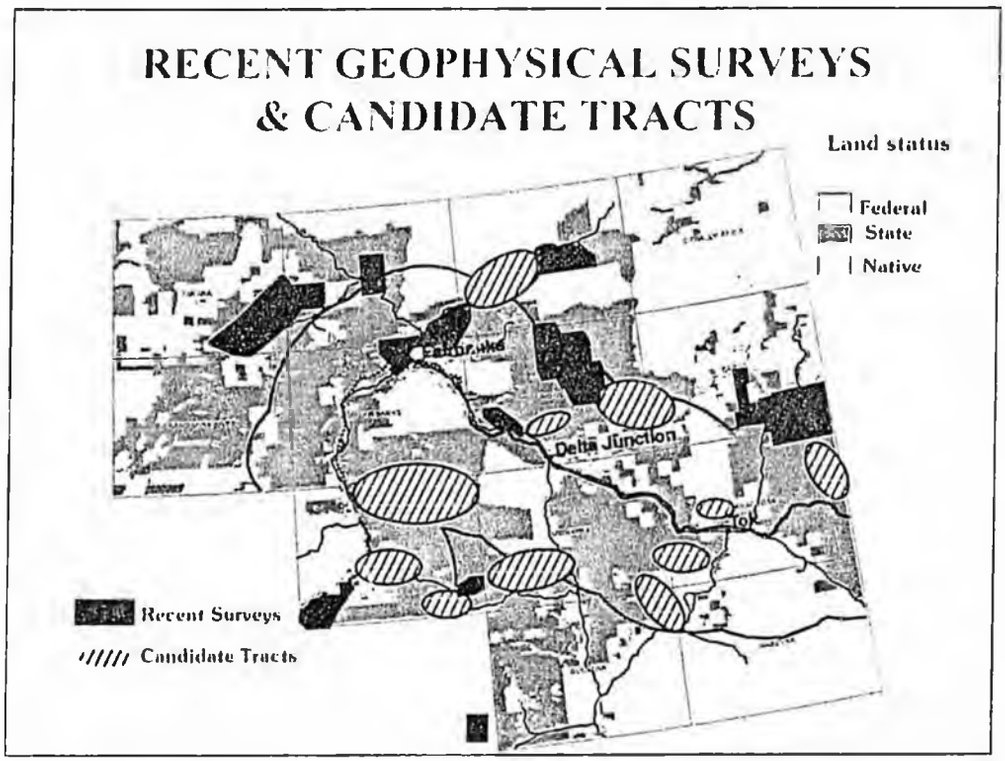
GEOLOGIC FRAMEWORK & MINERAL OCCURRENCES



Placer gold deposits and districts have proved effective in identifying areas hosting significant lode deposits of several mineral commodities. If placer gold occurrences are added to the lode occurrences already shown, one gets a feel for just how widespread indications of mineralization are within East-Central Alaska.

Both lode and placer occurrences exist within a framework of varied and complex geology. By world standards, this geology is very poorly understood. We really have only crude initial hypotheses for most of the East-Central Alaska area. Most of this country has not been geologically mapped at scales useful for detailed mineral exploration.

Much of the geo'ogic mapping that does exist is derived from regional scale (4 mile to the inch) maps that were generated from field data collected between 1950 and 1975.



Beginning in 1993, the state of Alaska has sustained an annual airborne-geophysical/geological ground-truth geologic mapping program in an effort to improve the general knowledge of the geology and mineral resource potential of state lands.

The airborne-geophysical/geological mapping programs are centered on historical mining districts or on lands nominated by various members of the Alaska geological community because of their perceived high mineral potential.

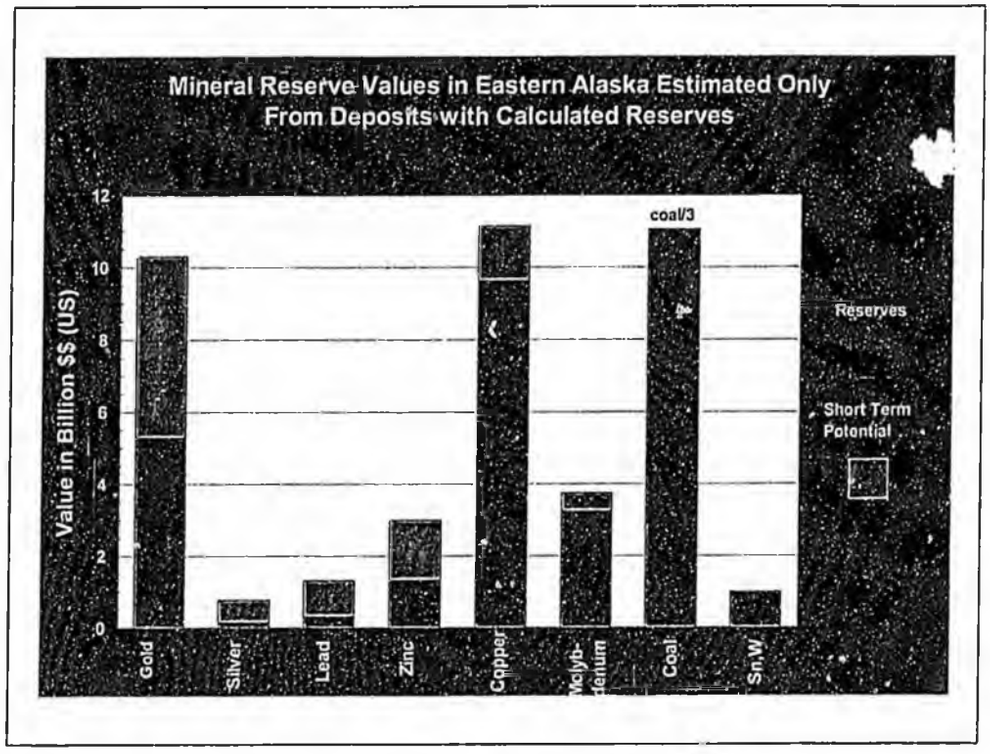
To date, nine tracts have been geophysically surveyed within East-Central Alaska. Modern ground-truth geologic maps at a scale of 1:63,360 (1 inch = 1 mile) are available for six of these tracts. The Fortymile mining district is currently being mapped.

There are 444 i square miles of airborne-geophysical surveys represented by the gray polygons shown in this figure

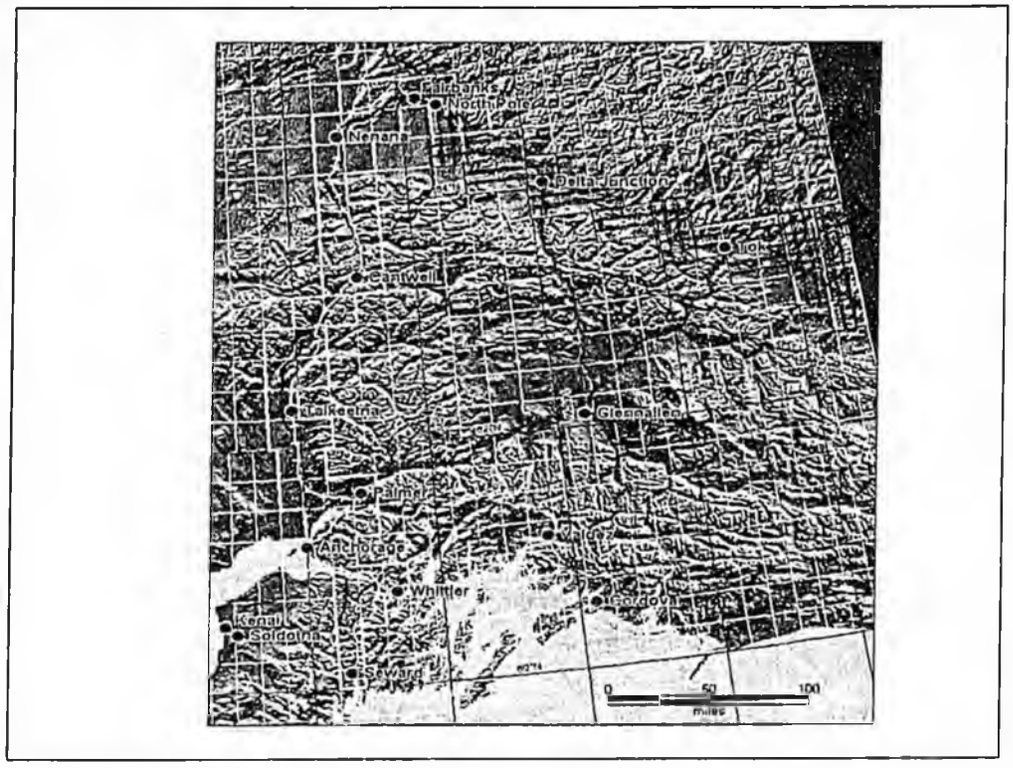
These new geophysical and geological data have catalyzed a tremendous private sector investment in mineral exploration and development within East-Central Alaska.

In addition to the nine tracts already surveyed, the proposed rail-belt corridor includes all or portions of eight additional candidate areas: Steese, Salcha, southeastern-Pogo, Sixty-mile Butte, Ladue River, Delta, Mentasta Pass, Broxson Gulch, and Bonnifield.

Completing the remaining surveys is contingent upon special annual appropriations.



From a global perspective, the Tintina Gold Belt has recently been recognized by the mineral industry as an "emergent district." That is, a region in which additions to reserves are expected to follow regularly with continued exploration. This is a young exploration region with a limited knowledge base. There is still a lot of room for success.



There is no doubt that the general corridor of the proposed extension of the Alaska Railroad passes within less than fifty miles of many significant mineral deposits. A useful and responsible next step in developing the railroad extension would be to conduct a full technical corridor analysis in order to optimize the alignment for the extension. Because the corridor for the railroad approximately coincides with the corridor for the proposed natural gas pipeline from Fairbanks to the Yukon border, one analysis could serve both projects for the Alaska portion of the railroad and pipeline.

DNR has submitted a proposed gas line supplemental project that includes some preliminary aspects of a true corridor analysis. DGGS has also worked with the NASA through the Alaska SAR Facility at the University of Alaska Geophysical Institute to acquire a detailed digital elevation terrain model for this corridor. That terrain model will probably be completed by next October. A true corridor analysis requires many layers of data beginning with corridor-wide engineering geology data at a scale of at least 1 inch=1 mile, definitive land status, geologic hazards assessment, and more information on construction materials and other geologic resources. Corridor analyses are routinely conducted for major construction projects in the Lower-48 to maximize project efficiency and minimize adverse impacts. We could benefit from following this strategy in Alaska.

The existing Alaska Railroad and railroad extension would intersect a road network providing access to about 78,000 square miles of land.

Much of that land is in nominal control of the state of Alaska or Native Corporations.

Much of the land within East-Central Alaska that is state or native corporate land was selected because of its perceived high mineral potential.

The validity of the perception of mineral wealth in East Central Alaska is being demonstrated by new discoveries resulting from an improving geologic database and private sector investment in mineral exploration.

Gold is currently the commodity of greatest interest, but East Central Alaska has potential for copper, lead, zinc, nickel, tungsten, tin, and platinum group elements.

A full technical corridor assessment of the region through which the Alaska Railroad extension would pass is a logical and beneficial next step to guide the development of this international project.

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The validity of the perception of mineral wealth in East Central Alaska is being demonstrated by new discoveries resulting from an improving geologic database and private sector investment in mineral exploration.

Gold is currently the commodity of greatest interest, but East Central Alaska has potential for copper, lead, zinc, nickel, tungsten, tin, and platinum group elements.

A full technical corridor assessment of the region through which the Alaska Railroad extension would pass is a logical and beneficial next step to guide the development of this international project.

SECTION 6:

REPORT OF
TOM BRIGHAM,
Planning Director,
ALASKA DEPARTMENT
OF TRANSPORTATION

www.repjames.org

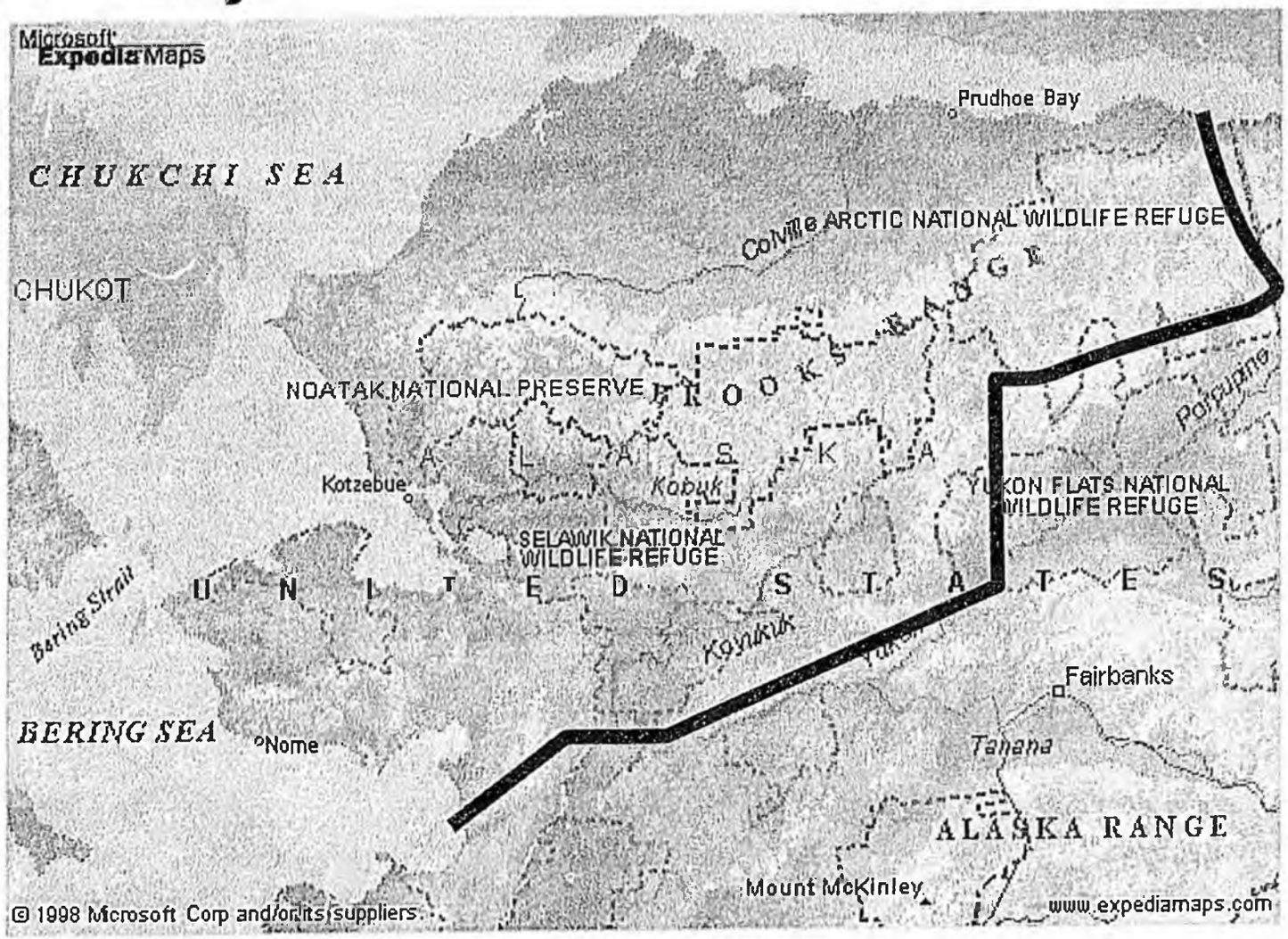
Northwest Alaska Transportation Plan

Tom Brigham
Planning Director
Alaska Department of Transportation

Vision Statement

- Multi-modal: air, land & water
- Community/resident needs, and
- Mineral/energy needs
- 20-year horizon
- Extensive public participation
- Tied to implementation plan

Plan Boundary



Two Related, but Different Efforts

- Part 1: Community and resident transportation
- Part 2: Resource Transportation

Community Transportation Analysis

- Conducted by DOT staff
- Focused on:
  - aviation
  - inter-community roads and trails
  - riverine and coastal freight



Community Transportation Analysis Update

- Public meetings in villages Nov 00-Feb 01 arranged and conducted through regional non-profit corporations
- Focused on:
  - local needs
  - local concerns with RTA



Resource Transportation Analysis

- Prepared by CH2M-Hill and subcontractors
- Focused on:
  - understanding of road/rail/marine options for accessing and transporting energy and mineral resources
  - how to make these commodities viable on world markets



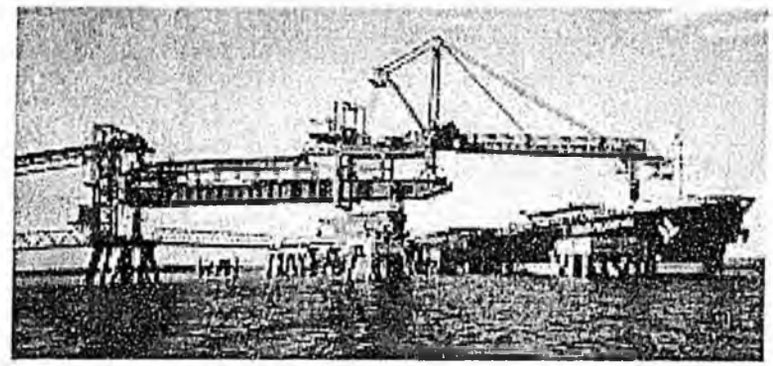
RTA Consultant Team

- CH2M-Hill - Project Consultant
  - Sandwell Inc. – international mineral/coal transport engineers
  - HDR Alaska – environmental and land status
  - Northern Economics – economics
  - Army COE and AIDEA are working closely on RTA

RTA Funding and Timelines

- Phase I - Data gathering and alternatives identfication - nearing completion
- Phase II-A Alternatives Review and Shortlisting - 12 months
- Phase II-B Select Final Alternative and prepare implementation plan - 6 months

RTA Timeline



Phase I
Sep. 2000

Data & develop
list of alternatives

Phase II-A
Mar. 2001

Detailed review
of alternatives

Phase II-B
Mar. 2002



Final alternative
refine implementation.

RTA Vision

- "Provide a long-term strategic assessment of the value of surface transportation access to concentrations of petroleum, natural gas, coal and mineral deposits in the Northwest and Arctic Region.
- Suggest a system design, routing, and partnered financing structure which would make such a system economically feasible for industry and the state, compatible with the social and environmental values of the people of Alaska."

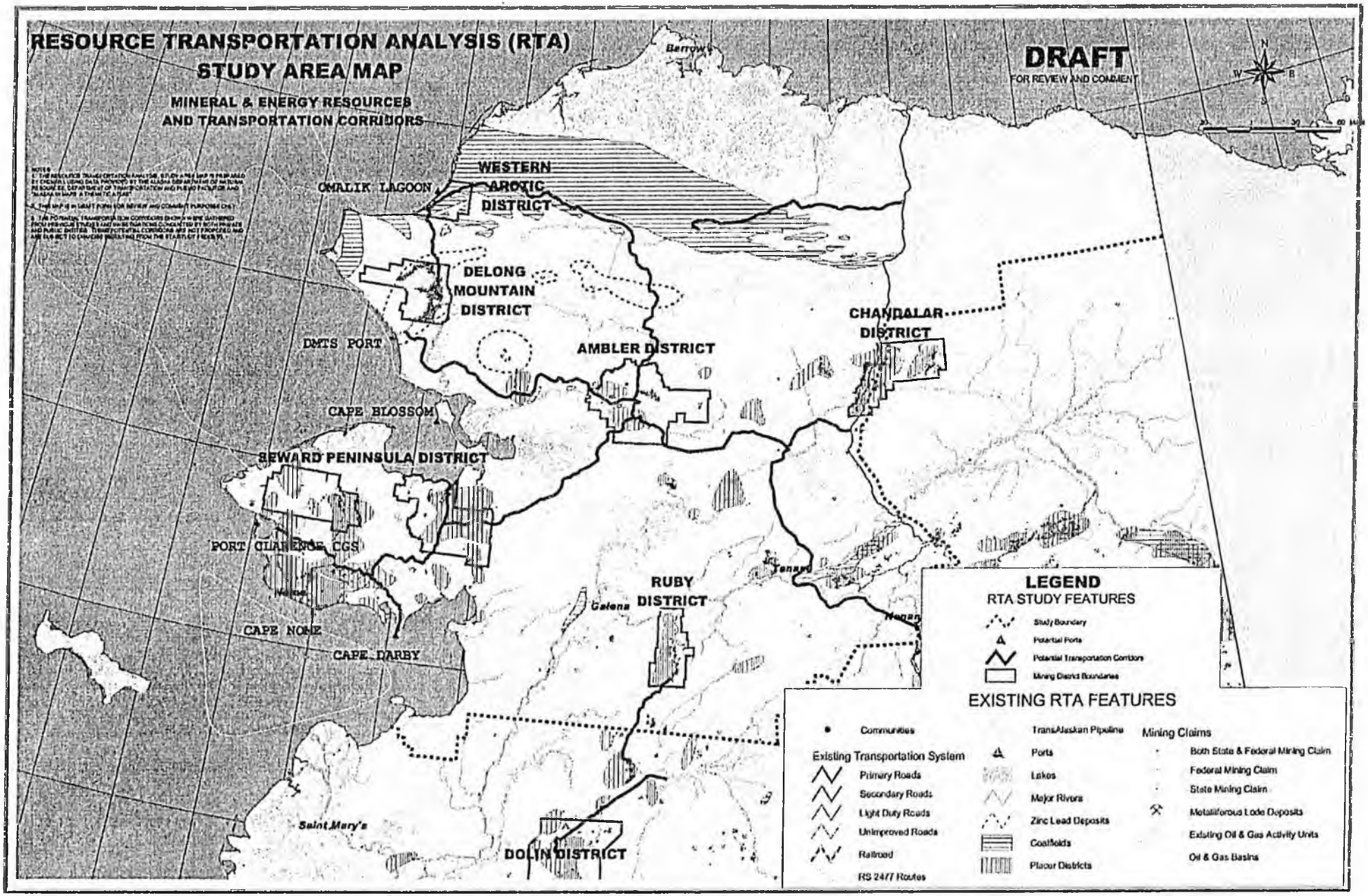
Resource Transportation Analysis Phase I-Program Definition

- Collect existing studies,
- interview industry representatives and local leaders,
- identify potential mineral/ energy resource sites,
- identify potential transport corridors and
- identify potential port sites

Resource Transportation Analysis Phase I (continued)

- Develop preliminary program requirements,
- identify a "long-list" of alternative solutions
- define regional transportation goals and objectives to assist in evaluating options and constraints

STUDY AREA AND CORRIDORS



Resource Transportation Analysis Phase I (continued)

- Produce a Phase I RTA Report
  - Executive Summary
  - 1. Introduction
  - 2. Existing & Potential Resource Developments
  - 3. Existing & Potential Tidewater Ports
  - 4. Overland Transportation
  - 5. Existing Links
  - 6. Mapping of Potential Corridors
  - 7. Initiatives for Resource Transportation

Resource Transportation Analysis Phase I (continued)

- Produce a Phase I RTA Report (continued)
  - 8. Marine Transportation
  - 9. Development Schedules
  - 10. Project Constraints
  - 11. Selection Process
  - 12. Information Gaps
  - 13. Conclusions
  - 14. Recommendations for Next Phase

Resource Transportation Analysis Phase IIA-Evaluation of Transportation Options

- Refine selected alternatives,
- develop preliminary cost estimates,
- identify project constraints ,
- develop a preliminary schedule,
- conduct a market evaluation and
- perform an economic feasibility analysis

Resource Transportation Analysis Phase IIB-Regional Transportation System Master Plan

- Develop regional transportation system master plan,
- estimate contribution to economic development,
- develop a financial plan ,
- define public and private sector tasks and
- produce the Resource Transportation Analysis component of the Northwest Alaska Transportation Plan

Project Funding-I

- DOT&PF will select and prioritize project needs for which it has direct responsibility.
- While all DOT&PF related projects will be identified it is important to realize that not all projects will move quickly to construction.
- Highest priority projects in each category will be constructed first.
- DOT&PF will favor joint funding opportunities for any projects identified in the plan.

Project Funding-II

- Some identified projects will not be eligible for DOT&PF funds.
- This plan will help bring them to the attention of agencies or organizations that can fund them.

How to Reach Us

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- Toll Free Fax 1-888-Plan FAX
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SECTION 7:

NEWS COVERAGE



Representative Jeannette James

Working to establish an Alaska-Canada rail link

By Vanessa Orr



Photo by Vanessa Orr

As a child growing up in Oregon, North Pole Representative Jeannette James was fascinated by the railroad. When the trains went by her home, she used to run outside to count the traveling cars and listen to the water running through the steam engine. Her lifelong love of the industry has since become the basis for one of her dreams as an Alaskan representative; the establishment of an Alaska-Canada rail link that would provide economic benefits to both the U.S. and Canada. "I've been working on this project for eight years, and while a lot of people have been interested, sometimes it takes a long time to get things going," said James. "Now that we're getting the word out, people are starting to realize that the project is viable."

CCW: How did you become involved in the Alaska Canada rail connection issue?

Jeannette James: It's been one of my dreams since I was elected in 1992. I've always been a big supporter of the railroad, and when I came down here in 1993, the issue of continuing the railroad through Canada to Russia as an international railroad system was raised. I became a supporter, but of course, it was such a huge project at that time that when you told people about it, they would just roll their eyes. It was a real dream.

CCW: What's happened to make it more of a reality since then?

JJ: We've begun to focus on a smaller part of it; the Alaska-Canada connection. It's more doable, more understandable and has stand alone benefits. And if the railroad does go on to Russia someday, it can't do it without this connection.

CCW: You've been working with Senator Murkowski on this?

JJ: Last year, Senator Murkowski became interested in the issue of railroad access because of its ability to help us access more resources in our state. During the 1999 session I talked to him, and things have really rushed on since then. He is drafting legislation in Washington, D.C. to authorize a bilateral commission of U.S. and Canadian citizens to do a study on the feasibility of the Alaska-Canada connection.

CCW: It seems to be attracting a number of supporters.

JJ: In January of this year, I put together a meeting of business and industry leaders, chambers of commerce and government organizations from British Columbia to the Yukon to talk about the railroad issue. We met in Vancouver, BC, and it was a very successful meeting; over 120 people passed a resolution to support Senator Murkowski's efforts.

CCW: What are the advantages of having an Alaska-Canada connection?

JJ: First, look at the number of resources that would be made available that we can't utilize now because of a lack of access. It will effect the economy, especially imports and exports; think about the effect it could have on the Lower 48 and the whole of Canada when we open up a trade route with a lower cost of transportation. You also need to look at the tourist industry; the cruise industry is already very interested in building dome cars that could run on this route. It would open up winter tourism opportunities that we can't use now because it's too dangerous to use the roads, and it would open up other areas of the country that aren't currently open.

CCW: Where will the railroad run?

JJ: Phase One would connect the Alaska Railroad, which currently ends at Eielson Air Force Base outside of Fairbanks, to the Canadian rail system at either Fort Nelson or Fort St. James. The Alaska Railroad currently ends about 270 miles from the Canadian border; the Canadian system ends at about 900 miles from the Alaskan border.

CCW: What's the estimated cost on a project this size?

JJ: It's estimated that it will cost $2 million to $3 million per mile. Phase One will be about 1,200 miles long.

CCW: Who will pay for it?

JJ: Well, we expect to use U.S. and Canadian federal money for the survey, but the construction of the line itself might be done by private folks; possibly a consortium of different railroad companies. We've had interest from as far away as Australia and the U.K.; the money folks from a lot of different communities are interested in the real opportunity to increase economic activity in this region.

"Think about the effect it could have on the Lower 48 and the whole of Canada when we open up a trade route with a lower cost of transportation."
—Representative Jeannette James

CCW: Will Alaska and Canada split the cost as well as the benefits?

JJ: We'll have to work together on the project; 270 miles go through Alaska, and 900 go through Canada. But though the lion's share of the project goes through Canada, the lion's share of the benefits will actually be to Alaskans, since the population served in B.C. and the Yukon is a small percent of the total population that would be served in Alaska. I expect that the U.S. government would be a bigger money supporter than the Canadians.

CCW: But you don't think the final project will be government owned?

JJ: No, different train companies run on different ownership of rails, and I could see a consortium like Canadian National, who just merged with Burlington Northern, to possibly take charge of this rail. Alaska and Canada would keep their right-of-ways, but I don't see them keeping up the actual rail itself.

CCW: Where does the project stand now?

JJ: Well, we've got to get the approval to do the study, but most of that information is already available, so it should be able to move quickly. Canada's already documented the resources that would be made available, as has Alaska; the information's there, but it just has to be gathered and put together in some form. We need to be able to show the potential amount of money over time that would be gained to show why we should pay for the project.

CCW: Does an Alaskan-Canadian rail compete with other transportation projects, for example, the road out of juneau?

JJ: No; it doesn't compete with Juneau access; and like the saying goes, 'a rising tide lifts all boats.' I think building the Alaska-Canada connection will help all other industries; it will take some of the detrimental traffic off of other roads, it'll increase safety and reduce costs. Just think, the White Pass Railroad would be connected to the Lower 48, and it's likely that it wouldn't just be a passenger train but could take out and bring in freight as well.

CCW: What's the next step?

JJ: I'm going next week to the Yukon Territory; I'll be having several meetings with economic development specialists, mineral specialists and narrow gauge railway specialists. It's very important to build awareness of this project, and to get people asking questions. We need people to be aware of what this project can do, and what opportunities it can provide.

CCW: Why is that so important?

JJ: We need to build excitement because when Senator Murkowski tries to get his bill passed through the Legislature, he needs our support. I want communities and businesses to put together resolutions in support of his efforts; if you know anyone in another state, have them write to their congressman or senator as well and ask about the railroad line.

CCW: Have you been getting this kind of support already?

JJ: Yes, the Miner's Association has already done a resolution and so has the state Chamber of Commerce. I haven't asked the City and Borough for one yet.

CCW: What about the environmentalists?

JJ: Most of the conversations I've had with environmentalists show that they realize that there's going to be more access, and that the most environmentally sound way to do it is by rail. It's controlled; there are no cars getting into certain areas, no road crews; no people leaving trash behind.

CCW: This seems to have taken on a life of its own.

JJ: Before getting Senator Murkowski's ear, there were a lot of us interested in the idea, but without federal money, we couldn't do a thing. The Canadians liked the idea, but again, it has to be done by the federal governments of both nations.

CCW: Do you think this will happen in your lifetime?

JJ: Yes, I do. I don't believe the connection to the Bering Straits or to Russia will happen in my lifetime, but I do believe that in six to ten years, the Alaska-Canada rail will be completed.

CCW: Do you plan to be on that first train trip?

JJ: I'd sure love to be.

Ed. Note: For more information about the Alaska-Canada rail project, contact Richard Schmitz at 465-3743 or see Rep. James' webpage at www.repjames.org.

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New railroads key to development

March 20, 2000

By SEN. FRANK MURKOWSKI

Back in April 1915, President Woodrow Wilson decided that construction of a railroad to Alaska's Interior was the single greatest step he could take to unlock the then-territory's great promise and to get the region's economy on track.

Some 85 years later times have not changed.

Alaska and the neighboring Yukon Territory in Canada are still North America's last untapped storehouse of mineral and natural resource wealth. We now know where much of that treasure lies--economic transportation to get the materials to market remains the chief impediment to its development.

Over the years one thing has changed: We now know how to develop our mineral, energy and timber resources in an environmentally sensitive manner, so we can protect the beauty and the wildlife of the North, while producing jobs to sustain the region's human inhabitants.

We know there is a mineral zone that extends throughout the Yukon-Tanana uplands near Faro, Yukon Territory, north to Fairbanks. The zone, home already to the Fort Knox gold mine and the future home of mines working the huge Pogo gold deposit, contains large amounts of silver, tungsten, copper, lead, zinc, and other ores. On the Alaska side of the border there are already more than 14 major hard rock deposits identified, while in the Yukon there are more than 10 major mineral deposits known. This does not include the Alaska coal deposits a line could move to Lower 48 or East Asian markets.

The same zone is also filled with timber. Within just 15 miles of a likely 1,200-mile railroad corridor through Canada into Alaska, there are 1.4 billion board feet of hardwood pole timber and almost 1.7 billion board feet of mixed pole timber.

Further to the North lies a second developmental target that another railroad could help get on track. That is the huge low-pollution, high-quality coal deposits at Point Lay and also the vast minerals of the Amber mining district farther to the southeast.



It would take just a 90-mile line to carry the coal from Point Lay to the Red Dog mine where a 60-mile line along the existing mine haul road would carry it to tidewater. Such a railroad could bring energy, in the form of coal, to the mine where it could be used to power a new electro-refining technology that would add tremendous value to the zinc-lead ore being shipped from Alaska, and most importantly provide additional jobs to the region. It also would finally allow some of the North Slope's 6 trillion tons of coal to be exported.

It would take just a 150-mile line to access the vast hard-rock resources of the Ambler Mining District and bring them to the coast, or about a 350-mile line to tie into the Alaska Railroad heading south.

Some would say talk of railroad extension is nothing more than "pie-in-the-sky" rhetoric. But railroads offer a host of benefits. They are the most energy efficient form of transportation. More importantly, they are one of the most environmentally sensitive forms of transportation. Railroads offer controlled access that removes the environmental threat of uncontrolled development. They emit the lowest levels of air pollution and usually cause the least disruption to the land.

And a rail corridor would encourage the co-location of all pipelines and power transmission lines--a process that makes especially good environmental sense.

Last year, after talks with Canadian Parliamentarians during the Canada-U.S. Interparliamentary Conference, I held discussions with Canadian Ambassador Raymond Chretien and Canadian Minister of Transport David Collinette, and later with the Canadian-American Border Trade Alliance. In January I was further encouraged by estimates that there might be 120 million tons of freight a year from new mines and timber development along the Alaska-Canada rail corridor that would utilize such a new railroad link.

Thus I am introducing legislation in Congress to advance consideration of that railroad project. My bill will create an impartial bilateral commission to study the economic, environmental, and engineering feasibility of completing the transcontinental railroad linking Canada with Alaska.

A joint commission should have the funding--I'm proposing $6 million--and the authority to oversee a comprehensive feasibility study of a line from where the Canadian rail system ends at either Fort Nelson or near Fort St. James, about 900 miles from the Alaska border, northward to link up with the Alaska Railroad, 270 miles from the border near Fairbanks.

My bill would create an 18-member commission, half being appointed by each country. The commission would be fully representative of the



residents of the area and also include scientific expertise to make sure that the difficult issues surrounding a railroad will be thoughtfully considered.

Quick action to set up the commission is particularly timely since a decision is likely within the next year on whether the United States should proceed with construction of an anti-missile defense system. And perhaps the best site for an initial 100-missile interceptor base is at Delta Junction. That decision must justify extending the railroad to Fort Greely, 80 miles closer to the border than Eielson Air Force Base--reducing the amount of additional track needed in Alaska to about 190 miles.

We should not be afraid to think seriously about big projects. Just because they're daunting, doesn't make them impossible. In this day and age of great concern for the environment: if one assumes--as I do--that the resources of the Yukon and Alaska inevitably will be developed, then rail looks like a very healthy way to make that possible.

All the commission will do is bring about debate. It will consider and explore new ideas. If a railroad connection is economically, environmentally and socially sound, then we should move ahead with it. If it is not, then it should be dropped. But at the very least, let's give the idea an honest hearing, now before any more decades pass.

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From AEDC and the Editors of
Expansion Management Magazine

American Economic Development Council

A Penton Publication

Inside E.D.

Volume 6 • Number 8 • June 2000

Riding the Rails 'Back to the Future'

Looking for an engine to drive your local economic development efforts? Another partner for your economic development team? You may not need to look any further than the nearest rail line.

Few industry developments have been more synonymous with the territorial and economic development of our country in the latter 19th and early 20th centuries, than the U.S. railroad.

From the completion of the 13-mile Baltimore & Ohio in 1830, the nation's first railroad, to the megasystems created by mergers of major lines in the last 20 years, the U.S. freight railroad industry has undergone significant changes over its 170-year history. And there may be no better time than now to assess the role of the railroad in your development program.

"Think about marketing this rail network as one of the attributes you've got in your state or in your city the same way you market the fact that you've got low energy rates, that you've got a trained work force and you've got a community college system to update the skills of the [work force]," advises Randy Evans, vice president for real estate and industrial development, CSX Transportation Inc., Jacksonville, Fla.

"[To] everything else that's on your list, you need to add this rail network as something that can help the industries lower their costs, and lowering the costs of doing business is always a significant part of the economic development business."

So why is the railroad important now? Where has it been? What does it hold for the future?

While many of the more than 146,000 route-miles of track owned and maintained by U.S. railroads in 1998 have been around for some time, they have not always had the economic impact felt during the nearly half-century "Golden Age of Railroading" beginning in the late 1860s.

But the deterioration of the railroads while under federal control during World War I, followed by growing competition from other transportation modes supported by government subsidies, as well as stringent federal regulation, almost caused the collapse of the industry.

> *"[To] everything else that's on your list, you need to add this rail network as something that can help the industries lower their costs..."*
>
> – Randy Evans, vice president for real estate and industrial development, CSX Transportation

Not until the Staggers Rail Act of 1980 essentially deregulated the industry did the railroad return from the brink.

"Yes, there was a low point, and we are definitely on a resurgence, an upswing of rail development and rail usage by companies," said Michele "Mike" Keller, CED, regional manager of industrial development for Burlington Northern Santa Fe Railway Co., Minneapolis, Minn.

"State departments of economic development ... over the years [have] become much more open to rail, because they're actually getting more requests for rail-served properties."

Charlie Penner, director of industrial development for the Union Pacific Railroad Co., Omaha, Neb., agrees.

"There's a definite trend for need for more rail-served sites. I think a lot of people recognize that the economics of rail can be a big advantage to them, and some of the communities and some of the economic development groups, in an effort to reduce truck traffic, also, in some degree, try to push rail business."

Since it bottomed out in 1978, the freight railroad

(See "Riding the Rails" on page 2)

At a glance

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A Penton Publication
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Riding the Rails

(continued from page 1)

industry has begun to re-establish its importance as an efficient, environmentally friendly, cost-effective transportation mode.

As a result of an expanding economy and a rejuvenated business climate among the nation's railroads, industry productivity is up and rail freight rates are down.

And the upward trends aren't solely affecting the big railroads.

"The other relationship you see that has changed a lot in the last couple years is the rise of short lines because another thing that's happened with the big guys ... is that some of their less profitable lines have been abandoned but some of them they've sold, so that's created a whole different situation as well," remarked Tracy Allen, key projects manager for the Ohio Department of Development.

"We'll use short lines to expand our market reach," said Kay Bryant, director of U.S. business development for the Canadian National-Illinois Central Railway Co., Chicago, Ill. "If we don't have the site that we think best meets the customer's needs we don't hesitate to market a short line's properties for them."

What does this all mean to your development program? Partners and allies. Service. Incentives. Opportunities.

"We've got industrial development representatives in each of the states that really are part of the economic development team for each of the states in their effort to attract industry and to help existing industry expand," said Evans, whose comments are echoed by rail industrial developers up and down the lines.

" We're by no means the leader in the states or the counties but we clearly can be an important part of the team. And the reason we can be ... is that one of the things we bring to them is this rail network that we own and operate ..."

Railroads, like their partners in state, regional, local, utility and real estate economic development organizations, bring a range of services to the table, including site selection and engineering design.

And while companies would expect economic incentives from those other partners, what the railroads might offer may come as more of a surprise.

"... In some of the cases, we'll also be part of the incentive package in the way that we either price the traffic or some of our willingness to provide rebates for capital investment that the company may make, and that may be part of the inducement," said Evans.

> *As a result of an expanding economy and a rejuvenated business climate among the nation's railroads, industry productivity is up and rail freight rates are down.*

"One of our publicly funded programs is the Rail Industrial Access Program where we actually spend state dollars to contribute to offset the cost of a rail facility going into an industrial site," noted Kevin Page, senior rail transportation engineer for the Virginia Department of Rail and Public Transportation.

Whatever the industry expanding or relocating, rail may offer new development opportunities.

"Many of the state and local developers do aggressively market rail because that tends to be the bigger clients that need rail service and so it may mean more jobs or more investment, so they're very aware of it ...," said Richard Parker, vice president of real estate, Norfolk Southern Corp., Norfolk, Va.

And the future? It may be found in the lessons of the past, riding the rails of the 21st century iron horses.



— Les Gramkow is the research editor of *Expansion Management Magazine*. You can contact him at lgramkow@newhope. com.

American Economic Development Council

The American Economic Development Council is a high-participation organization for people committed to economic development. The largest and oldest economic development society, AEDC serves over 2,500 members and has been a home base for the profession since 1926. AEDC helps members create sustainable local economic development capabilities which are globally competitive; gives leadership in building knowledge, forming alliances and managing key issues; and serves as a career anchor for economic developers who are — or wish to become — leaders in the profession. You can contact the AEDC at 1030 Higgins Road, Suite 301, Park Ridge, IL 60068; phone (847) 692-9944; fax (847) 696-2990; Web site address: http://www.aedc.org

Fairbanks Daily News-Miner

Alameda Times-Star
The Argus
The Daily Review
The Eureka Times-Standard

Money for rail extension study not finalized

June 21, 2000

By SAM BISHOP
News-Miner Washington Bureau

WASHINGTON--The long-discussed proposal to connect Alaska's railroad system to Canada and the Lower 48 could soon get more scrutiny than ever.

The Senate version of the annual federal transportation bill provides $2 million to study the railroad connection. The money was added through a floor amendment by Sen. Frank Murkowski, R-Alaska.

The Senate passed the bill a week ago. The House passed its version, without the railroad study money, on May 19. A conference committee will decide later this summer whether the money stays in the budget.

The money would pay for a joint U.S.-Canada study of the 1,150-mile rail connection's feasibility. Promoters hope a railroad would spur mining and other resource development.

Murkowski already has filed a separate bill asking the administration to form a commission with Canada to conduct the study.

"While we still have a long way to go, the feasibility study is moving forward and has enough steam to command attention by those who hold the government's purse strings," Murkowski said in a statement released after the Senate approved the money.

The Alaska Railroad's most easterly track ends at Eielson Air Force Base. Canada's system comes closest in two equally distant points--Fort Nelson and Fort St. James, both in British Columbia.

In Alaska, the railroad extension has been promoted in recent years by state Rep. Jeannette James, R-North Pole.

The state identified a railroad route from Eielson to the border in the late 1970s and early 1980s, James said. In the mid-1990s she had the state estimate the expense of buying private land on that route. The purchases could cost a few million dollars, she said.



But the route is not set in stone yet. The bulk of the study needs to be done on Canada's side, James said. She said Murkowski hopes Canada will pay some of the study's cost since about 900 miles of the corridor crosses that country.

"There will be three considerations," James said of the route selection process. "One is the geology. Second of course is the environmental and people impact. And the third one is where are the resources we're going to access, because there are just lots of them."

Scott Banks, Alaska Railroad spokesman in Anchorage, said the state-owned company appreciates the interest. "If someone doesn't look out far ahead it'll never get done," he said.

Building rail in Alaska costs between $1 million and $2 million a mile, Banks said, which would put the total project cost at between $1.15 billion and $2.3 billion.

"It sounds like a lot of money, but you've got to think about the efficiencies you get with rail," Banks said. The rail not only could carry raw resources such as gravel, coal and petroleum but also could compete with ships and trucks, he said.

James doesn't worry about the expense of building the railroad itself. Over the course of 50 to 100 years, the development unleashed by the rail will justify the expense, she said. The general route passes by deposits of coal, iron ore, gold, zinc and lead, she said.

Murkowski also said this is a good time to review a railroad extension because, if built, it would pass through Delta Junction, where the U.S. government may build an interceptor base as part of a national missile defense system.

In January James organized, at Murkowski's request, a meeting of about 120 government officials, private industry representatives and environmental groups in Vancouver, British Columbia, to discuss the railroad idea. And this next week a Murkowski aide will speak to a Pacific Northwest business group about it.

"What we're trying to do is create a buzz," James said.

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The St. Petersburg Times

Friday, Jan. 12, 2001. Page 1

Building Bridges to Billion-Dollar Dreams

By Natasha Shanetskaya
Staff Writer



Photo by Igor Tabakov / MT
Razbegin would like to build a tunnel to connect the Far East with Alaska. He also wants to bridge Sakhalin to Japan.

Viktor Razbegin has a $50 billion building project that makes the Chunnel between England and France look like a high school science project.

He wants to build a tunnel under the Bering Strait, connecting Chukotka to Alaska, and says it is not only technically possible, but promises to be economically rewarding.

"Russia is a bridge between Asia and America," says Razbegin, director of the government Center for Regional Transport Projects, as he leans back in a stylish leather armchair in his Moscow office.

"But, frankly, we have not been doing a good job," he adds. "We need to use this chance to unite civilization."

A loud train toot interrupts his thought. He turns to a toy train on his desk and picks up its upper half — the train turns into a phone. As he calmly talks into the hybrid handset, an enormous map of Russia's railway system stares at him from the wall.

Trains and maps have been the main ingredients of Razbegin's life for the past 25 years. As a permafrost specialist, he studied the tundra and headed various transportation projects in the far northern regions during the Soviet era.

He also is behind a $20 billion scheme to build a 40-kilometer bridge between Japan and the Russian mainland via Sakhalin Island. The Railways Ministry appears to back the project.

The ministry is less committal on the tunnel to Alaska, if only because the U.S. and Russian governments have not shaken hands on the project. But ministry spokeswoman Yelena Kulakova says it would be "very profitable for the Russian railway industry because it would allow us to compete with a sea-based transportation system."

Razbegin got involved with reviving the idea of building a link to Alaska in 1992 as a spirit of entrepreneurship was sweeping the country. The idea was originally contrived by Russian merchants at the end of the 19th century, shortly after Russia sold the territory to the United States. The venture in its modern form includes building a 6,000-kilometer railway system to connect the Russian and U.S. rail systems.

The project's critics argue that even if this utopian idea were to be executed, the tunnel would link two of the world's most remote, desolate and economically undeveloped areas, where the most common modes of transportation are snowmobiles and dogsleds. A spokesman for Alaska Governor Tony Knowles said the main problem with digging the tunnel is that "there is nothing on either end," The Wall Street Journal reported.

Razbegin's bearded face melts in a smile as he hears the argument — it is the one he has to rebut most often.

"The crucial thing everyone misses is that this venture is not about a tunnel. It is about developing adjacent territories and creating new jobs," he says. "It can be done through building infrastructure to connect Asia with North America via Russia."

That infrastructure would include a railroad, a joint electricity system and a set of telecommunication lines, including fiber-optic cables.

The first step would be to lay 3,200 kilometers of railroad to connect Chukotka with BAM, the Baikal-Amur Railroad. More than 2,000 kilometers of track would also have to be laid on the North American side to line the tunnel to the main U.S. railway system.

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The tunnel itself would run much longer than the 37-kilometer Bering Strait. Razbegin's research team proposes a tunnel as long as 103 kilometers to bypass the rough terrain along the coasts.

According to Razbegin, the project has received the go-ahead from the Economic Development and Trade and Railways ministries and the Academy of Science. His interdepartmental center is affiliated with all three.

Opponents of the Chukotka-Alaska link argue it would be a financial fiasco.

"I cannot imagine, given the extreme expenses, even with China and the rest of Asia connected, that a railroad linking Siberia and North America could be economically viable for a long time to come," says Ilya Vinkovetsky, who is doing doctoral research at the University of California on Russian migration and the history of Alaska and Chukotka.

He says the history of failed expectations for the Trans-Siberian Railroad and BAM suggest that skepticism is justified. "It is difficult to imagine a proposed railway across the Bering Strait being competitive with shipping across the Pacific," Vinkovetsky says in an e-mail interview.

Razbegin objects, insisting the project has numerous potential revenue streams and a high likelihood of profitability.

For instance, he says, the railroad would shorten the shipping route across the Pacific by 10 to 14 days and could quickly become the preferred way of shipping goods between Asia and North America.



Photo by Igor Tabakov / MT

Razbegin showing the path across the Bering Strait

Razbegin estimates the Chukotka-Alaska railroad could carry 30 billion to 40 billion tons of cargo annually.

In addition, he says, building a joint Asia-Russia-North America electricity line could ring in savings of about $15 billion a year. The United States imports electricity from Russia.

Once the U.S.-Russia railroad was complete, export transit would bring Russia about $20 billion annually, Deputy Railways Minister Sergei -Grishin said in September at the Baikal Economic Forum held in Irkutsk, according to the web site of a transportation sector newspaper called Gudok.

But even if Razbegin succeeds in shattering his skeptics' fears about the economic unfeasibility of the project, he still has to find $50 billion to $60 billion in financing.

"This is not a lot of money," he says. "For example, it would be possible in a framework of a joint government project between Russia, the United States, Canada, and possibly Japan and China."

According to Razbegin, many potential investors have already expressed an interest in the project, which he boasts will turn a profit for first-tier investors within the first five to seven years of operation.

He admits this is not the easiest undertaking. Ten-month-long winters feature temperatures below minus 50 degrees Celsius, while short summers bestow overflowing rivers and unrelenting insects. Yet Razbegin is confident the project is technically viable.

"First of all, [thousands of years ago] Alaska and Chukotka were connected, so there are actually some technical advantages," he says, "Secondly, mankind by now has a lot of experience in building large, complex projects."

Razbegin himself is experienced in such projects, or at least in launching them. His second much-criticized brainchild is the scheme to build a 40-kilometer bridge between the Japanese island of Hokkaido and the Russian mainland via Sakhalin.

Both projects, he says, are part of the same goal — creating an enormous intercontinental railway system.

Despite the criticism, Razbegin and his team were able to secure the government's permission to start work on the Sakhalin bridge, which he says will cost roughly $20 billion and take about 15 years to complete.

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The Railways Ministry spokeswoman confirmed that the project is going ahead.
Railways Minister Nikolai Aksyoneko was quoted by Interfax this week as saying that by the end of next year, his ministry "really will start construction of the tunnel under the Tatarsky Strait, which will connect the mainland with Sakhalin."
Razbegin is sure the same fait awaits the Bering Strait scheme. Now that he has sent the results of a "successful" feasibility study to the U.S. and Russian governments and developed a draft of investor proposal, all Razbegin says he needs is "a decision on the highest level."
In 1995, the two governments almost signed an agreement that would give the green light to the undertaking, but the Russian government officials in charge were changed so frequently that the Americans backed down.
"I know this project will be realized," Razbegin says. "If tomorrow the two presidents signed the deal, you could start buying tickets for the train that will be ready to depart in 20 years."

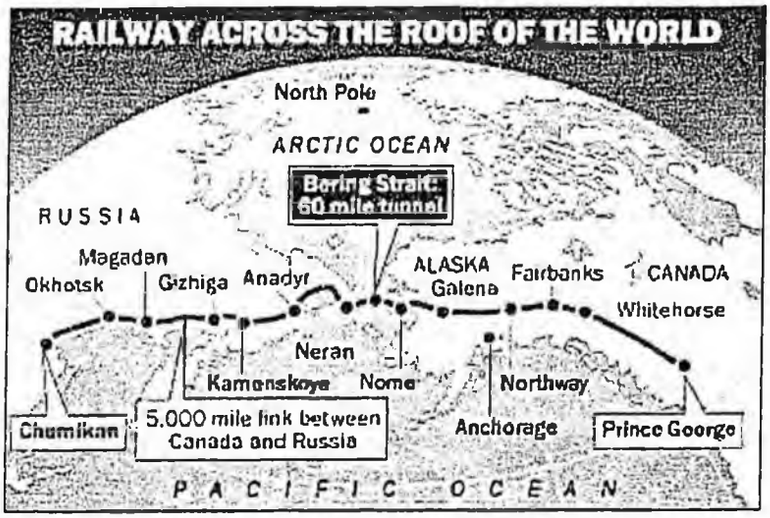
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TUESDAY JANUARY 02 2001

Russia ready to build £40bn tunnel link to America

FROM GILES WHITTELL IN MOSCOW

IT would cost £40 billion, take 20 years to complete and even then would link only two of the world's most remote places. Yet a tunnel between Russia and America under the Bering Strait can and will be built, according to a senior Moscow official.

Emboldened by the new millennium, the man in charge of modernising Russia's vast but creaking infrastructure has said that the construction of a 60-mile tunnel under the international dateline from eastern Chukotka to western Alaska is only a matter of time. The money, he insists, is available.

The tunnel would be the biggest project of its kind. At the windswept point where they appear on most maps to kiss, the Russian and American mainlands are separated by only 23 miles of water and their furthest outposts, the Diomede Islands, by three. An international feasibility study concluded, however, that to be safe a tunnel joining them would have to be more than twice as long.

REPRESENTATIVE
JEANNETTE JAMES
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The study is ready to go before the World Bank and the US and Russian Governments with a draft agreement on how to take the project forward, Viktor Razbegin, director of Moscow's Centre for Regional Transport Projects, said.

Mr Razbegin has been Russia's chief promoter of a Bering tunnel for the past six years, during which the economic crisis has ruled out the super-projects for which the Soviet Union was famous. There was also a little local difficulty: the nearest road to the Russian side of the Strait is 1,000 miles away at Magadan, a former transit point for prisoners en route to Stalin's harshest labour camps.

On the American side a road would have to be built from Fairbanks in the face of objections from environmentalists. For a rail tunnel, the nearest North American mainline station is at Prince George, British Columbia, 1,200 miles away. After a year of healthy oil and gas exports, however, Russia has record hard currency reserves and is keen to open up its frontiers for more mineral extraction.

Similar factors have attracted initial funding, much of it from Japan, for a shorter but still ambitious tunnel linking Hokkaido and the Russian mainland via Sakhalin. Construction of the Sakhalin tunnel is due to begin this year.

Russians have been obsessed with finding their own land routes to the New World, however long and arduous, ever since Peter the Great sent Captain Vitus Bering of the Imperial Russian Navy to discover what lay at the easternmost reaches of his continent in 1725.

From 1917 to 1991 the Diomede Islands were home only to birds of passage and nervous frontier troops. Since then Alaskan businessmen have tried to establish links with destitute Chukotka, but have largely failed. Maybe all they need is a tunnel.

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Railway issue not raised yet

A **Whitehorse Star** Archive story originally published February 2, 2001

The federal government has not been contacted by the U.S. about building a railway through the Yukon to link northern B.C. with Alaska, says Premier Pat Duncan.

The premier said Tuesday the issue of a northern railway was among the many she discussed during last week's trip to Ottawa to meet with Prime Minister Jean Chretien and several federal cabinet ministers, including Transport Minister David Collenette.

"The federal government in the United States has not said anything to Canada," Duncan said during a press conference to discuss her trip.

Former U.S. president Bill Clinton signed a bill Dec. 27, on the eve of his departure, that formerly calls for the creation of a joint Canada-U.S. commission to study the railway proposal over three years. Included in the bill is $6 million US to finance the initiative.

The bill proposes to create a 24-member commission, with 12 members from each country who are to be chosen based on technical experience and past involvement with the railway industry.

Shortly after the bill was signed, it was suggested by an aide to Alaskan Senator Frank Murkowski that international discussions surrounding the joint commission wouldn't get under way until after President George Bush had settled into office. Murkowski proposed the bill.

"They have not said anything yet," the premier said.

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REPORT FROM ALASKA



Charlie Ess

Shipping to Alaska: Will it be rail versus water?

No sooner had Alaska Railbelt Marine left Seattle with a bargeload of steel pipe bound for Whittier, when President Clinton passed legislation to study the possibility of building a rail link south from Fairbanks to southern British Columbia.

The bill, sponsored earlier last year by U.S. Sen. Frank Murkowski (R-Alaska), was signed into law in December and will set up a bilateral commission of 24 members with equal representation by the United States and Canada.

With a total U.S. budget of $6 million – $2 million of which has been appropriated this year – the commission, during the next three years, will determine if adding a 1,200-mile railroad link between Fairbanks, Alaska and British Columbia pencils out in terms of dollars and cents. A large part of the study includes: proposing a route, environmental assessments and permitting.

"There's some hope that the study might be done sooner than that," said Chuck Kleeschulte, a spokesman for Sen. Frank Murkowski in Washington, D.C.

The push to build a natural gas pipeline from Alaska to the Lower 48 may quicken the pace of the study, especially since one option among routes calls for a pipeline that would connect production facilities on the North Slope to Fairbanks, then south through Canada along the Alaska Highway.

The new railroad would take a similar path from a site near Fairbanks and run approximately 270 miles to the Canadian Border, where it would extend another 900 miles through the Yukon to tie in with spurs at Fort Nelson or Fort St. James, British Columbia.

"The need to move large equipment and material for the pipeline could help to accelerate a rail project," according to statements from Murkowski.

The extent by which a railroad connecting Alaska to the Lower 48 would absorb volumes of pipeline supplies shipped north on waterborne carriers remains to be seen.

"I think there are some fundamental physics that give marine transportation economic advantage over rail transportation to Alaska – fuel efficiency, for one," said Jon Burdick, president of Alaska Railbelt Marine, in Seattle. "Rail also requires high volumes to pay back its huge capital infrastructure. Current railcar volumes certainly do not justify these types of expenditures."

Presently, the Alaska Railroad terminal at Whittier serves as the link with rail marine barges hauling pipe from Seattle (Canadian National's AquaTrain also sails from Prince Rupert; Foss Maritime does the towing.)

In December, Alaska Railbelt Marine, in a special contract with the Alaska Railroad, made the first of three trips north to deliver 110 cars loaded with steel pipe. The pipe was bound for a North Slope oil-drilling project.

The reality of a rail link, should it come to fruition, could be years off.

In recent years rail-marine arrangements have been the avenue of choice when it comes to shipping pipe to Alaska. While the majority of pipe used in the construction of the 800-mile, $8 billion trans-Alaska Pipeline came from Japan and was landed at Valdez and Seward aboard break bulk carriers, an anti-trust suit in the early 90s found that pipe sourced from Japan had been priced unfairly because of government subsidies. As an outcome of the investigation, the United States raised tariffs on Japanese pipe supplies by 44 percent. Since then, pipe shipments procured from Houston, Texas and other sources in the contiguous United States have been coming north via rail-marine barges.

Beyond construction of a new pipeline, proposed uses for the new railroad include supplying a missile defense site near Delta Junction, about 80 miles southeast of Fairbanks, and providing new transportation avenues to timber and precious metals in the Yukon and the northern interior of Alaska. According to Murkowski's studies, the new link would allow for the access and subsequent development of 10 major mineral deposits in the Yukon.

Some estimates at a Murkowski-sponsored railroad conference held in Vancouver, B.C. last January suggested that annual volumes of the new line could reach 120 million tons. Many of the other applications, however, would require the construction and maintenance of additional spurs.

The cost of the new railroad section, meanwhile, has been estimated loosely at between $1 million and $2 million per mile, which would put the total cost of the project between $1.2 billion and $2.4 billion.

As such, the freight volumes would have to be sufficient to recoup the costs. Prime concerns among waterborne breakbulk and containership companies during the course of the study will be the degree by which government subsidies play a part in determining feasibility, moreover the rates.

The reality of a rail link, should it come to fruition, could be years off, cautions Leonard Shapiro, vice president of pricing with Totem Ocean Trailer Express in Seattle. Though some have hypothesized that the magnitude of the project would be enough to scare away interest from the private sector, others have theorized that a conglomeration of Alaska's Native corporations may buy both the Alaska Railroad and CN. In either case, the creation of another carrier is never a good sign.

"The effect, obviously, would not be good for us," he said. "It would generate a new competitor, and the probability is that the new competitor would be heavily subsidized."

Kleeschulte, on the other hand, says the construction of a connecting railroad would be predicated on the amount of additional freight that would need to be hauled north.

"It would certainly not be economically feasible," Kleeschulte said, "unless there is more freight to Alaska than what is moving by the existing freight and barge lines."

Indeed, waterborne transport may emerge the winner when it comes to moving containerized freight from Seattle to Anchorage, given that the proposed railroad route would likely stretch close to 2,400 miles in comparison to the seagoing distance of 1,400 miles.

The argument favors the rail link, however, when it comes to moving equipment from the U.S. Midwest, according to Laurie Gray, a sales agent with

Canadian National in Anchorage.

"Pipe and machinery would be better shipped by rail," said Gray. "You can get goods from Chicago to Anchorage in seven days," she said.

In the next several months, the newly-forming panel will begin dialogue with Canadian officials. On the American side, the commission will consist of community members, a governor-appointed representative for the State of Alaska; a representative for Alaska Natives; scholars with Alaska education institutes; an engineer with sub-Arctic expertise; representatives from environmental groups, and four representatives of commercial activities which will include the Alaska Railroad. ⚓

This article appeared in **MARINE DIGEST / FEBRUARY 2001,** pages 21.

U.S. presses ahead with Arctic railway

by Jason Small

A **Whitehorse Star** Archive story originally published January 4, 2001

The Arctic railway is now in Ottawa's court.

The Canadian federal government has been waiting to see what the United States does with a proposed law to start a commission to look at a railway linking Alaska with the continental states – via the Yukon.

But legislation giving rise to the commission passed last week, meaning it is now up to Ottawa.

"It passed, and President Clinton signed it into law on (Dec.) 27th," Bill Woolf, the legislative assistant for Alaskan Senator Frank Murkowski, said this morning from his office in Washington, D.C.

Murkowski proposed the bill, which sets aside $6 million US over three years for a Canada-U.S. commission to study the feasibility of a rail link starting in Alaska, passing through the Yukon and down to the lower 48 states.

Woolf said the next step, once the new presidential administration gets settled, is for the staff of president-elect George W. Bush to start work on negotiations with the Canadian government to join the commission.

"(They'll) be seeking an agreement to establish a bilateral commission," Woolf said.

The new law calls on the president to strike an agreement with Canada on the 24-person commission.

According to the law, the commission is supposed to be split evenly with 12 members from each country.

In past interviews with the Star, Transport Canada has indicated it was following the issue in the U.S. but wouldn't indicate whether the federal government is interested in participating in the commission.

Transport Canada officials did not comment on the issue this morning.

In the past, the territorial government has shown its support of a possible rail link. However, Premier Pat Duncan refused comment this morning, and no other government officials were available either.

Woolf said that while $2 million of the $6 million is already available, that money won't be spent until the commission is struck and begins its work.

If Canada participates, it will be up to Ottawa to decide the make up of its 12 delegates on the commission.

The new law sets out the qualifications of the 12 American representatives to the commission.

Those members include: representatives of local, community and first nation governments in Alaska; one representative of the Alaskan state government; three from Alaskan businesses including, one from the Alaskan railway Corporation; one representing large U.S. rail companies; one on behalf of rail labour unions; and three others with relevant expertise, including an engineer.

Bob King, spokesman for Alaskan Governor Tony Knowles, said the next step for the state is to see what the commission's report says.

"I think we want to see what the outcome of the commission report is," King said this morning from his office in Juneau.

"We'll wait to see what they come up with."

King said the governor isn't planning to lobby the Yukon and Canadian governments to ensure this country joins the commission.

He said it would be premature to suggest lobbying, which he said would be unnecessary unless Canada chooses not to take part.
King thinks the Canadian government will participate in the commission.
Woolf said there is also the possibility of looking at working on the railway and the proposed natural gas pipeline together.
Both the pipeline and the railway could run in the vicinity of the Alaska Highway, according one of several proposals that picture a railway through the North.
"To me, personally, it makes sense to try to combine these projects," Woolf said.
"The construction of a gas line could encourage the construction of the rail line."
Both the Yukon and Alaskan governments are pushing for a natural gas pipeline to be built along the Alaska Highway. Gas companies are interested in somehow connecting Alaska to the Lower 48.
The other proposed route would go under the Beaufort Sea to the Northwest Territories and down through the Mackenzie Valley.
But King said the two projects should be decided on a separate basis.
"I would hate for a gas line project hinged on the economic viability of a railroad project, or vice-versa."
There has also been talk of a rail link between Alaska and Russia via a tunnel beneath the Bering Strait.
King doesn't think that link is in the commission's purview.
He said there are concerns that at least 800 kilometres of track must be laid between Fairbanks and Nome, where the tunnel would probably start.
King added even greater problems would lie on the other side of the Bering Strait in Russia, where there isn't much infrastructure.
Woolf said there may be some consideration about a Bering Strait project, but that is further down the road.
"I can't say there's no consideration but that's a much longer (term project)," he said. "I will say the Russians are moving in that direction."
Woolf said Russia has started to build a railway spur north from near it's Chinese border.
According to Woolf, most of railway from there to the strait is an area that can be easily built on. He indicated the last stretch may not be as easy.
However, Woolf maintains that the Arctic railway would be built first.
"I think a North American plan would probably come first."

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James: Railroad would be link to prosperity

Representative pushing for rail line running through Canada to Lower 48

By BILL McALLISTER
THE JUNEAU EMPIRE

Rep. Jeannette James wants to railroad a long-range fiscal plan.

No, the House majority leader from North Pole doesn't intend to overlook public opinion in figuring out new revenue sources for state government.

But the key to lasting economic prosperity and government stability in Alaska could be a rail connection through Canada to the Lower 48, James told the Alaska and Juneau chambers of commerce Thursday.

"We lack infrastructure, so much of the state's wealth is off the table," she said. "Is it just coincidence that Alaska's economic heartland is called the Railbelt?"

James has spent years touting the rail connection, which would extend 270 miles from the Alaska Railroad terminus at Eielson Air Force Base, near Fairbanks, to the Canadian border, where would it meet an extension of Canadian track up 900 miles from British Columbia.

Although once facing widespread skepticism, the project is getting increased attention.

U.S. Sen. Frank Murkowski of Alaska reminded state lawmakers this week that he has secured $6 million for a U.S.-Canadian commission to study the project's feasibility. Diplomatic formalities in getting the commission's work under way have been delayed due to the transition in the U.S. administration, but members should be appointed soon, an aide said.

And Murkowski also noted that his fellow Alaska Republican, Congressman Don Young, now chairs the House Transportation and Infrastructure Committee, a key spot for rail issues.

A roundtable discussion at the Alaska Capitol on Tuesday concerned prospects for tying in a rail extension with a natural gas pipeline from the North Slope.

Three state House committees, along with Canadian officials and outside experts, talked about the prospect of a 500-foot utility corridor paralleling the Alaska Highway that could accommodate the railroad, the pipeline, energy transmission lines and even fiber optic cable. In addition, such a development could result in extensive mineral development along the route, speakers said.

Under this scenario, the environmental review process for all the projects might be consolidated and there would be an economy of scale, as well, James said.

"We believe the railroad feasibility study will be the first step for a transportation infrastructure that could benefit oil and gas, tourism, forestry and mining," said Scott Kent, an aide to Yukon Premier Pat Duncan.

"Alaska has this continent's richest deposits of coal and copper and other minerals, and getting those to market ... may be among the most significant things these legislatures will ever do," said Alaska Rep. Fred Dyson, an Eagle River Republican.

Once that economic activity is realized, Alaska won't be vulnerable to the boom and bust of oil prices or dependent upon a powerful congressional delegation that won't be in office forever, James said.

"To put it simply, if no wealth is created, there is no way to pay for services. ... You cannot tax your way to prosperity," she said.

But with a stable economy, "a broad-based tax where everybody pays a little" - and use of the Alaska Permanent Fund earnings reserve - would resolve the imbalance between revenue and expenditures in the state general fund, James said.

Bill McAllister can be reached at billm@juneauempire.com.

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James hopeful of rail link

February 21, 2001

By SEAN COCKERHAM
News-Miner Juneau Bureau

JUNEAU--North Pole Rep. Jeannette James has long pushed for a railroad linking Alaska to the Lower 48. Now she needs the Canadian government to join the dream.

James, who serves as House majority leader, helped engineer a legislative hearing Tuesday to discuss the proposed 1,200-mile track extension from Eielson Air Force Base into Canada's railroad system.

The idea received a boost in December when President Clinton signed legislation by U.S. Sen. Frank Murkowski authorizing $6 million over three years for a U.S.-Canada commission to study the idea.

The Canadians, however, have not signed off on the commission or the study. Over three times more track would have to be laid in Canada than Alaska to make the linkage work.

"The government of Canada doesn't have a position on this," said Larry Bagnell, who represents the Yukon Territory in the Canadian parliament. "They are waiting for (an) official approach."

Murkowski representative Bill Woolf told legislators that the senator has sent a letter to Secretary of State Colin Powell and that he hopes to discuss the matter after Powell returns from the Middle East.

Canada would be asked to appoint half of the 24-member railroad commission. Murkowski's legislation does not require the Canadians to match the $6 million U.S. appropriation, Murkowski spokesman Chuck Kleeschulte said, but "we would certainly welcome that."

"There would undoubtedly be discussions about that at the time we start discussions with the Canadians," Kleeschulte said.

Bagnell and a representative of the Yukon premier told the Alaska legislators that they strongly favor the railroad idea.

But Bagnell warned that there are four layers of government in the



Yukon--the First Nations, the municipal governments, the territorial government, and the federal government. Getting everyone on board a project could be a challenge, he said.

James, the North Pole Republican, said after the hearing that she has heard a favorable reaction in Canada to the railroad idea. "I believe they are pretty jazzed about it," she said. "I think that they will (back it), that's my gut feeling."

A railroad linkage would not be cheap. An Alaska Railroad representative testified that a recent study of extending the railroad to Fort Greely--about 80 miles southeast of Eielson--pegged that project at about $250 million, or $3 million per mile.

It could be 10 to 20 years before freight profits could pay for a rail extension toward the Lower 48, said Alaska Railroad lands specialist Jim Kubitz.

But combining the track with a proposed natural gas pipeline and fiber optic corridor could make the project feasible, he said.

Two geologists, one from the University of Alaska Fairbanks and the other from the Department of Natural Resources, testified that the proposed rail would run through an area of high mineral potential.

UAF geologist Paul Metz, who is hoping to secure grant funds for better geologic mapping of the area, said the envisioned combination of rail access and cheap energy from a natural gas pipeline would make the area quite attractive for mineral exploration and development.

James maintains that a railroad would reduce freight costs, improve visitor access, encourage mineral development and reduce vehicle emissions.

"There's almost no state economic activity that wouldn't benefit from a railroad link," she said.

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says it won't take that long. (James) "The feasibility study, I think, can be done pretty quickly because it's a matter of just accumulating all of the material that's already extensively worked on by both Canadians and Alaskans both and also I think from the Lower 48." The Americans are still waiting on Canada to name its representatives to an international panel that's doing the study. James says the discussion at the trade show with the politicians should stir public interest in the project. She says it will proceed on economics but will also be attracted to those who like options in travel.

8. (6:30 a.m.) A proposed rail link through the Yukon is up for discussion today in Alaska. Politicians from the state and the Yukon will be talking about it at a big industrial trade show in Anchorage. (Leonard Linklater) Jeanette James is the state representative for North Pole. She says they're still waiting for the federal government to name Canadian representatives to a feasibility panel studying the rail link. The tracks would go through Yukon and BC connecting Alaska to the North American rail system. James says a panel discussion involving Alaska and Yukon politicians should get lots of media attention. (James) "It's going to really put the issue out there and more and more people are going to hear about it and get excited about and wonder why we aren't over there doing that." James says the rail link is strictly based on economics. She says it will allow Alaska to import more materials for things like the oil and gas industry but James has been selling it as a travel option as well. (James) "Well, in fact as I've been telling folks, you know, that you could get on the train in Fairbanks and go to New York, stopping in Edmonton to spend a few days and see the biggest mall in the world, you know, and the trip would be the destination." James says they've been given three years for the feasibility study but she doubts they'll need that. She says they've already gathered a lot of information and it will just be a matter of putting it together, however, she won't say how long it could be before we see trains going through the territory.

9. In Yukon Quest news, Yukon musher William Kleedehn continues to lead the sled dog race and Carcross musher says he'll continue to push the pace. ...

CHON-FM 7:30 A.M. NEWS TUESDAY, FEBRUARY 13, 2001

1. Daniel Hummel told the court yesterday that the reason he fled from the RCMP when they questioned him about the death of Regina Thyrone was that he didn't want to lose his bottles and was afraid he'd be shot. (Mark Johnston) Yesterday the court continued its detailed look at the flight of Daniel Hummel from police on the 19 of April. At the time there was only a missing person investigation and there was no murder involved. RCMP had learned that Daniel Hummel had been seen with Regina Thyrone and they went to ask him what he knew. When three officers met Hummel he was drinking and during the interview asked to put his bottles back in the house. The officers agreed and Hummel subsequently ran. Eventually Constable Eric Hendricks confronted Hummel in the woods near the go cart track and made the arrest. Hendricks was on the stand yesterday and said Hummel offered no resistence and simply went down on one knee saying, "I give up." Later Hendricks said he asked Hummel if he knew why he was being arrested and Hummel said, "I don't need a lawyer, I just don't want to lose my bottles." He still had two bottles of Private Stock with him and Constable Paul Taulhoffer(?) who seized the bottles also asked Hummel why he ran. This time Hummel answered that he had been told previously by police that if he was ever arrested again he would be shot. The court is expected to be looking at DNA evidence today.

2. We need to come up with 5000 volunteers and 250 French-speaking translators and then the Canada Winter Games came be ours in the year 2007. Tom O'Hara, bid manager for the games, says draft bids have to be turned into him within the next ten days to be translated into French before the April deadline. Whitehorse could be the first community north of 60 to host the Canada Winter

HJR 51 would show State's support to study rail connection

Representative Jeannette James (R-North Pole) has introduced HJR 51, which would give the support of the Alaska Legislature to a feasibility study on connecting Alaska to the rest of North America by railroad.

HJR 51 has been assigned to the World Trade and State/Federal Relations and Transportation Committees.

The wording of HJR 51 closely follows that of a resolution adopted at the Alaska-Canada Rail Link Conference January 20 in Vancouver, British Columbia. The day-long conference was organized by Representative James, at the request of Alaska Senator Frank Murkowski, and drew 118 participants from as far as Michigan and Alberta.

Voting members of the conference unanimously approved a resolution in support of Senator Murkowski's effort to authorize a feasibility study.

"This approval shows there is strong grass roots support for the rail connection feasibility study in British Columbia and Yukon, as well as Alaska," said James.

Bill Woolf, transportation committee staff to Senator Murkowski, and former federal railroad chief Gil Carmichael of Meridian, Mississippi, addressed the conference. Both speakers presented a clear vision of the economic benefits a rail connection would bring to Alaska and its Canadian neighbors as well as to the Lower 48 states.

Conference participants included resource development and transportation industry officials, legislators, government officials, academics, and Chamber of Commerce heads from close to a dozen communities.

Also addressing the conference were geologists from the University of Alaska and State Department of Natural Resources, the Yukon government's mining advisor, and rail development entrepreneurs from British Columbia. The conference also heard from transportation consultant Hal Cooper of Kirkland, Washington -- currently advising the national railroad of China -- and tourism expert Steve Hites of Skagway, long connected with the White Pass and Yukon Route Railroad.

"Senator Murkowski has told me he's committed to passing legislation to establish a bilateral commission to conduct a feasibility study," said Representative James. "This resolution is important because it will put the Alaska Legislature on record as backing this effort."

Geologist Milt Wiltse described extensive mineral-rich regions within 25 miles of a proposed rail corridor southeast from Eielson Air Force Base to the Yukon-Alaska border. In addition to gold, nickel, lead and zinc deposits, there are areas rich in platinum. According to Yukon mining facilitator Jesse Duke, similar geologic formations exist on the Yukon side of the border, along designated transportation corridors.

"At present, lack of a transportation infrastructure prevents these reserves from being developed. It's just not economical to move equipment in and concentrates out by air or road -- which are the only options now," said James. "The advantage of rail is that you can move bulk goods further, cheaper. Railroads are also a more environmentally-friendly transportation. They present a much smaller footprint than roads while allowing for more restricted access to unpopulated areas."

Approximately 1,000 miles separate the northeasternmost extension of the Alaska Railroad at Eielson from the northwesternmost reaches of the British Columbia Railroad at Fort Nelson, on the Alaska Highway, or Chipmunk, which is a little north of Fort St. James.

The conference was told it would take approximately three years to complete environmental studies on any proposed route. Geologist Paul Metz told the conference the route from Eielson to the Canadian Border was well-suited for railroad construction, with few avalanche chutes or unstable land surfaces.

Construction costs would be part of a feasibility study, but rough estimates have placed these costs at between $1 million and $3 million per mile.

"The ultimate goal is to connect North America with Asia and Europe by way of a rail tunnel under the Bering Sea."

ALASKA STATE REP. JEANNETTE JAMES

1/24/00
Traffic World

Today Alaska, Tomorrow the World

BY LINDA REID

Alaskans, Canadians push railroad linking area with south, then Asia-Europe via Bering Strait

The icy wilderness on the Alaska-Yukon border could be called "the forgotten trade route" — not much used since the last Gold Rush and without much traffic except for the occasional sled dog team. But some Alaskans and Canadians want to change that by building an arctic railway linking Alaska and Canada's Yukon Territory with southern markets.

Sound like a pipe dream? So did Alaska's oil pipeline. And the proposed rail link has gained significant support. The state House of Representatives unanimously voted to establish a right of way for the rail route last year.

Proponents of the north-south link met in Vancouver Jan. 20 to drum up support for their plans. The meeting, sponsored by Alaska State Rep. Jeannette James, a Republican from North Pole, U.S. Sen. Frank H. Murkowski, R-Alaska, and the British Columbia Chamber of Commerce, attracted interested groups from both sides of the border. Murkowski is seeking support for a resolution in Congress that would establish a bilateral commission to study the concept.

If the arctic railway were to go ahead, it would link two of North America's northernmost constituencies with rail networks covering the United States and Canada, providing an outlet for northern resources, reducing the costs of goods and products in the north and forming the basis for a burgeoning tourism industry, its proponents claim.

The primary driving force behind the idea is James, who has championed the idea of an Alaska rail link throughout her eight years in the state legislature.

Murkowski, head of the Senate Energy and Resources Committee, also pushed the concept of an arctic railway at the Sept. 14, 1999, meeting of the Canada-U.S. Interparliamentary Group in Quebec City. At that meeting Murkowski said future growth in the Alaska and Yukon must be aided by a major transportation corridor for pipelines, railways and transmission lines. And he recommended that work should begin to find a route for such a corridor.

The proposed railway would cover a distance of approximately 1,200 miles from Eielson Air Force Base in Alaska to the northern community of St. James, British Columbia.

If there is sufficient interest in the idea, Murkowski said a joint commission would be created to study costs, potential routes, engineering and to undertake an environmental impact study.

James has estimated the cost of surveying and building the railway at $3 million a mile and hopes construction can begin within six years.

She bases these hopes on the fact that the U.S. government plans to site an antiballistic missile base near Fairbanks and a rail line would facilitate this effort. Also, she says mining companies in Alaska are backing her plan.

Finally, a route on the Canadian side of the Alaskan border already has been mapped out by Canadian Arctic Railway, a startup British Columbia company owned by David Broadbent, son of the former general manager of the Pacific Great Eastern Railway, which is now crown-owned B.C. Rail.

However, plans for an arctic railway are only part of James' grander scheme. The other part of her plan would see the construction of a Bering Strait Tunnel linking Russia to the United States and Canada.

"The ultimate goal is to connect North America with Asia and Europe by way of a rail tunnel under the Bering Sea," she said in a letter from the state legislature. "There is growing international interest in this project, first suggested in the late 1890s."

And you thought Canadian National's plans for Burlington Northern Santa Fe were ambitious.

— Reid is a freelance writer in Vancouver, British Columbia.

01/19/00 Fairbanks Daily News Miner

Rails from trails—the dream continues

Trans-Alaska route still inspires visionaries



William R. Wood

The recent Alaska Railroad status report before the Fairbanks Chamber of Commerce drew sustained applause. The presentation was timely, informative, concise, and upbeat, a positive contribution to understanding the mission of the railroad, its current usage, its successes and limitations.

Of particular interest was the presentation of planning for the future improvement of equipment, and services, elimination of hazards, and possible extension of the rail line itself.

Planning is under way to reroute the extension from Fairbanks to the North Pole Refinery and Eielson Air Force Base. The intent is to eliminate the hazards of the existing 14 rail crossings in 22 miles or so, probably using overpasses for highway traffic at key points.

A second thrust, it was announced, will be to extend the railroad from Eielson AFB to Fort Greely/Delta Junction should the pending national missile defense site be authorized for that area.

All members of our Alaska congressional delegation have indicated this to be a likely prospect. Word released from Washington this week suggests that the president now considers the national missile defense project to be in the urgent necessity category.

Also mentioned by Johne Binkley, a railroad board member, was the long-held hope to extend the railway to Whitehorse and beyond ultimately to link with the Canadian rail system.

For me this triggered open the gate to a train of memories. I recalled the time in the early '60s when Charles Sargent, dean of engineering at the University of Alaska, showed me a copy of a U.S. Corps of Engineers report on the Defense of Alaska: Trans-Canada and Alaska Western Railroad Survey 1942. Sargent, a professional civil engineer, and Lee Linck, well-known Fairbanks architect, both participated in doing the field work on that report. A copy is on file at the Rasmuson Library complex, according to one of its able and helpful archivists, Gretchen Lake.

When I talked by phone with Dean Sargent, now retired in Coeur d'Alene, Idaho, he told me of working on field studies for four segments of the proposed trans-Canada/trans-Alaska route: (A) Wood River to Delta; (8) Mouth of the White River to Whitehorse; (C) Stikine Pass area, British Columbia; (D) the Seward Peninsula.

The survey covered a proposed rail route from Teller, Alaska, on the Bering Sea coast to Prince George, British Columbia, and a Pacific ocean port, at Prince Rupert.

But the survey was only a part of the big dream of linking continents together by highway and rail as well as by sea and air.

I recalled Gov. Walter Hickel's North Commission (Northern Operation: Rail Transportation and Highway) created to study Alaska's transportation needs in the mid-'60s.

I have a great recollection of coming from Anchorage to Fairbanks by train with the commission at the beginning of the Great Flood of '67. By chance my seat partner was Bill Lear, inventor and builder of the Lear Jet aircraft, main plant at Reno, Nev. Lear was a visionary with a very practical down-to-earth twist. He could dream, dare, and do. He got the good things done. I found him a most stimulating, thought-provoking conversationalist.

Gov. Hickel brought along to show the commission the silver punch bowl commemorating the Harriman Expedition to Alaska, 1899. I was told by the governor the famous memento is now in the state museum at Juneau.

While there is no mention of trans-Alaska in the expedition's report, the originator and host of the expedition, one of the turn-of-the-century world's wealthiest people, owner of some 20,000 miles the U.S. transcontinental rail system, was an early and strong advocate of the big dream of joining continents together by rail to promote development of resources and bringing diverse peoples together in peace.

The concept of a trans-continental USA system joined to a trans-Canada, including the trans-Yukon-Territory and trans-Alaska, segments to join with the trans-Siberian and on to the trans-Eurasian segment, the Orient Express route was the big dream.

Donald MacDonald of Fairbanks, head of the Alaska Road Commission and called by many "the father of the Alaska Highway," was a strong voice in advocacy of the big dream. A splendid account of this is Kay Kennedy's article in Alaska Life, volume I, No. 7, August 1938. So also was the czar of Russia.

But the vision did not begin with Harriman, the czar of Russia, Donald MacDonald, Dean Sargent or Lee Linck. Its origin is credited to William Gilpin, first territorial governor of Colorado. The concept was featured in his book published in 1891, "The Cosmopolitan Railway, Compacting and Fusing Together All The Worlds Continents."

John Gilpin was not only a visionary, but at thinker with an extraordinary range of experience, a strong executive and innovator in handling public affairs. He was insightful, personable, courteous, and effective.

Terrence Cole, head of the UAF History Department and noted author, tells much more of the story of William Gilpin and his dream of an around-the-world rail system in a well illustrated article, "Bridging the Strait," appearing in the Nov. 19, 1989, issue of Heartland, the magazine section of the Fairbanks Daily News-Miner. "The vision William Gilpin and others, that somehow bridging the Bering Strait can be a sign and even a cause of world peace, is still alive today."

And now you have a bit of the rest of the story of a dream that does not die but runs on and on generation after generation. Bringing people and their products together not only by sea and by air but also by land.

The proposed extension of the Alaska Railroad to the east and to the west is a small but real part of a dream that persists.

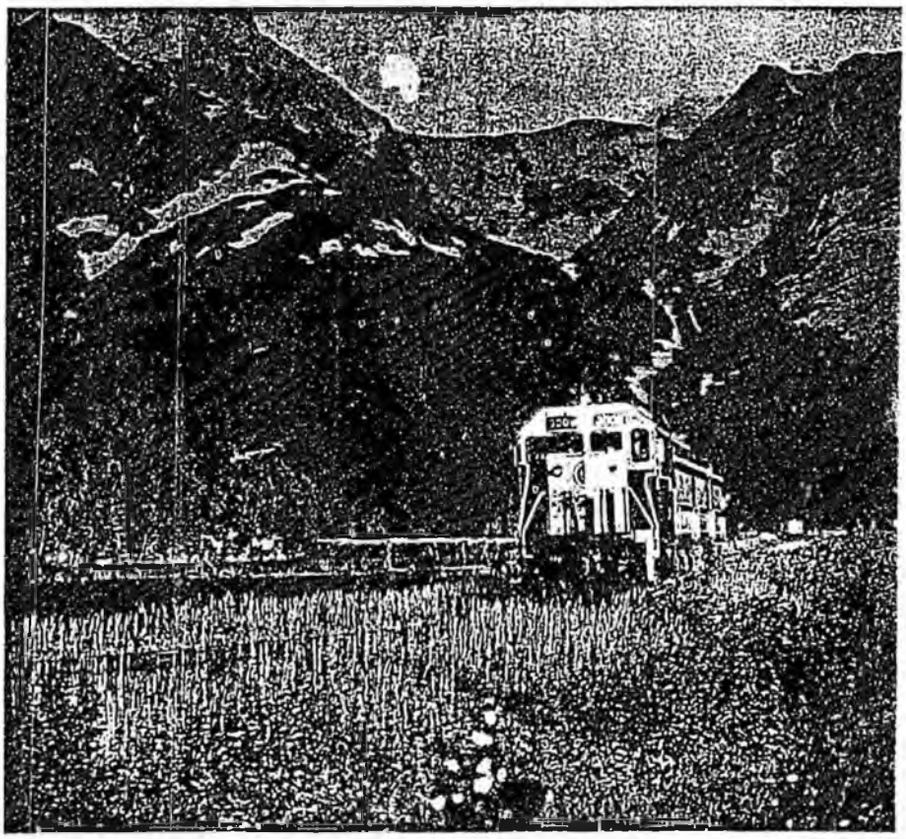
William R. Wood is a retired president of the University of Alaska now volunteering his time as executive director of Festival Fairbanks. His columns appear every other Wednesday on the Opinion page.

12/99

A Rail Connection Across Canada

Building a railroad that links Alaska to the Lower 48 is a dream that just may become a reality.

BY RICHARD F. SCHMITZ



Clark James Mishler

Less than a two day's drive separates the Alaska Railroad, at its easternmost, from the British Columbia railroad, at its northwesternmost, and closing that gap has, in the past year or so, caught the attention of a number of entrepreneurs, legislators and just plain dreamers in Alaska, Yukon and British Columbia.

Foremost among supporters of connecting Alaska with the Lower 48 by rail is North Pole Republican Representative Jeannette James. During the past legislative session James introduced and passed HB 12, which allows for delineation of a rail corridor from existing Alaska Railroad tracks to the Canadian border. Last summer James worked to pass resolutions of support by the state Chamber of Commerce, as well as chambers in Fairbanks, Delta Junction and Dease Lake, B.C.

James has long backed rail development in Alaska, and sees connecting the Alaska Railroad with the rest of the North American rail network as a huge key to insuring a bright–and diverse–future for the state's economy in the new millennium.

"The very first benefit to having surface transportation from the Lower 48 to Alaska will be a reduction in the cost of living. A railroad will allow us to open up resource development that's not possible now because of the high cost of transportation," James said. "A railroad will lead to value-added industries and increased cooperation between Alaska and the northern part of Canada."

HOW?

Another Transportation Option

The Alaska Railroad estimates construction cost for new track in Alaska at $2.5 million to $3 million per mile. With 270 miles separating Eielson Air Force Base from the border, the cost of building that part of the railroad is about $675 million to $810 million. An additional 900 miles of track would be needed to connect existing tracks in Canada to new track in Alaska.

James said tourism, agriculture and mining would get an immediate lift from a rail connection to the Lower 48. Using Delta Junction's agricultural area as an example, James said fertilizer and other supplies could be brought in to farmers while produce could be shipped directly to market–in and out of Alaska.

"I think the critical thing is that a railroad will allow Alaskan growers to supply Alaskan consumers. Alaska's economic future depends on our ability to have value-added industries, such as a freezing plant for produce," James continued. "The financial benefit a state gets from value-added industry is close to five times greater than what it gets from exporting a raw material."

One person who's convinced James is on the right track is U.S. Sen. Frank Murkowski, who's taking an active stand

in support of the issue. "We think it's well worth exploring," said Murkowski aide Bill Woolf.

The first step Murkowski's office is taking is to seat an informal committee, which James will chair, to identify potential users of a railroad to the Lower 48. "A project such as this is of tremendous magnitude. We need to do, what attorneys would call, 'due diligence,'" Woolf said. "We need to look at possible users; we need to look at resources; we need to look at engineering, possible routes and environmental factors."

The goal of this panel, James explained, is to write and pass a resolution and then present it to Murkowski at a meeting with British Columbia and Yukon officials and legislators in late January in Vancouver, B.C. If there is public support for this railroad project, Sen. Murkowski said he will introduce legislation to create a bilateral commission to further study the issue, Woolf said.

Not a New Idea

Opening a rail connection to Alaska has been considered since the first ties of the Alaska Railroad were laid. "Back in the 1970s there was a cursory review," said Alaska Railroad Vice President Jim Blasingame. "It was about a 15- to 20-page report. The province of British Columbia was quite supportive of the idea.

"Rail is still the best way to move bulk matter from point A to point B. It's a basic premise," Blasingame said.

About 270 miles separates the Alaska Railroad at Eielson from the Alaska-Canada border. The British Columbia railroad has a rail bed in place as far north as Dease Lake, less than 100 miles from the southern Yukon community of Watson Lake, although it has been abandoned a little north of Fort Saint James since the 1980s.

Reopening that line is a top priority for Canadian entrepreneur David Broadbent, CEO of the Canadian Arctic Railway. The Canadian Arctic Railway has no locomotives or rolling stock now–but it is betting it will in two or three years, Broadbent said.

"The grade and bridges are there. They're just sitting out there growing weeds," Broadbent said of the 172-mile stretch into Northern B.C. "Our



Sen. Frank Murkowski

If there is public support for this railroad project, Sen. Frank Murkowski said he will introduce legislation to create a bilateral commission to further study the issue.

intention is to open it up and possibly run it as a short line, and then extend it to Whitehorse in six years."

Broadbent gained his railroad experience working 29 years for the British Columbia Railroad. He began as a laborer and worked his way up to engineer of standards and project manager. Later, he founded the North American Rail and Steel Tie Corp., which supplies parts and equipment to railroads, including the Alaska Railroad. Broadbent said he recently sold the company in order to devote his energies full time to the Canadian Arctic Railway.

Broadbent said he has seen a surge of interest in building a railroad to Alaska. "Too many people see railroads as a thing of the past. But that's only true in North America. Elsewhere in the world railroads are expanding. China is committed to building 1,000 kilometers (620 miles) of new track a year.

"When I talk to business people, I get a 'what, are you crazy?' look–at first. But when I explain the good economic sense railroads make, I see a quick change in their attitude," Broadbent continued. "Highways will never open up Northern Canada or Alaska. The Alaska Highway was built 57 years ago, and very little has developed along it since."

Railroads, on the other hand, can attract development. "Traditionally, in the West, railroads would find entrepreneurs and help finance them because that development meant revenue for the railroad as raw materials were brought in and finished products shipped out," Broadbent explained.

Broadbent said two factors must be addressed before any rail connection can be made to Alaska: aboriginal land claims and environmental issues. "Native councils and corporations must be brought in as full partners from the start. I don't mean offering Natives a few jobs–I mean offering them a full and equal partnership," Broadbent said. "As for environmental concerns, railroads have a big advantage over other forms of development because access to sensitive areas can be tightly controlled."

Taking rivers as another example, Broadbent said piers and modular or pre-fab bridge spans can be put in place without ever touching the water flowing below. Railroad construction is relatively low impact, he added. "You could build the railroad to Alaska with 300 to 400 men. You won't need camps every few miles or access roads. That keeps costs down–and it also keeps the environmental impact low."

Expanding Alaska's Reach

Rep. James conceded barge and trucking firms might be less than enthusiastic about bringing a major competitor on board. But James said, "business generates business." Having a rail connection to the rest of North America will be good for all Alaska transportation sectors.

"Goods could come to Alaska by rail and be shipped to Asia from Seward or Anchorage. Having a railroad connection to the Lower 48 will provide an excellent opportunity for Alaska to become a shipping hub to Asian nations. There's tremendous potential there."

James points out that any railroad to the Lower 48 will particularly improve Alaska's connection with Midwest and East Coast states.

"But the overall goal is to develop our own resources. The way I see it, rail is way

ahead of roads or air on this issue. There's less cost; it's more environmentally sound; and rail is just a lot more dependable in bad weather," James said. "Snow, wind, sleet just doesn't affect a train the way it does an airplane or a truck.

"Transportation costs are basically front-loaded," James said. "The more something is handled, the more it costs to ship. That's why, over the long haul, railroad has a big advantage."

"The very first benefit to having surface transportation from the Lower 48 to Alaska will be a reduction in the cost of living. A railroad will allow us to open up resource development that's not possible now because of the high cost of transportation."

Jeannette James
North Pole Republican Representative

James said the Red Dog Mine is a good example of an Alaska enterprise that could benefit from a railroad. At present, ore must be taken from the mine site to the coast where it is put on a lighter and then transferred to a freighter anchored offshore. "Sixty percent of that ore is refined in Alberta. Imagine how much easier–and more cost-effective–it would be to take that ore by rail directly to the refiner."

"If it proves out ... if we someday have that rail connection, Alaska's economy will benefit in a very different way than it did from the pipeline," said Woolf of Murkowski's office. "It will be more than construction. A rail system can go through parts of Alaska where there is no transportation option, and that could give the state a big economic boost. A mine that wasn't feasible will suddenly become feasible."

Rep. James said railroads pay for their own maintenance, while roads and airports are maintained by taxpayers. "With rail, the cost of maintenance is borne by rail users. In comparison, the public pays for maintenance for roads and airports. Rail takes care of its own."

James also points to great potential for growth in tourism that a rail connection will bring. "A railroad will open up Alaska to a whole new group of folks, and it could also greatly increase winter tourism. It certainly will help the tourism industry in Alaska."

The military is yet another sector that could benefit from a rail connection. Of immediate interest is the new missile defense system, which if eventually approved, could be set up at Clear Air Force Station, near Healy, or at Fort Greely, near Delta Junction. "Certainly if Alaska is chosen (as a missile site), rail transportation is one of the options for moving material. Since such construction would require a great deal of material, obviously a rail component will be looked at," Woolf said.

The last time a new rail line was opened in Alaska was the 1950s when a 180-mile spur was completed from Fairbanks to Eielson. Today that spur carries out products of the North Pole refinery. If Rep. James sees her vision fulfilled, the trains rumbling past her North Pole home will be headed for points much further south than an Air Force base a few miles away. ❑

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WEDNESDAY, JUNE 9, 1999

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USA

LAYING A SPUR TO THE LOWER 48

Alaska's monster railroad: bane or boon?

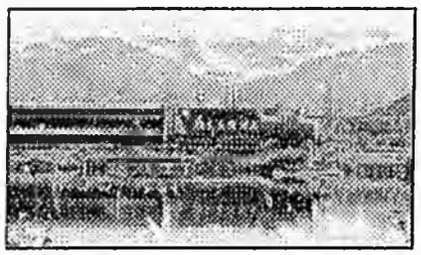
Abraham McLaughlin (mclaughlina@csps.com)
Staff writer of
The Christian Science Monitor

ANCHORAGE

There's a big idea floating around up here in Alaska - and it could forever change the face and feel of America's last great frontier.

It's something people have been dreaming about for decades. Now it's rumbling toward reality.

The plan is to build a railroad from Fairbanks - through 850 miles of icy wilderness - down to the Lower 48.



RAIL RUMBLES: Proposals are afloat for a railroad linking Alaska to the Lower 48. In Fairbanks it could meet up with the Alaska Railroad, helping to transport visitors and commercial goods. But not all Alaskans want people to have easy access to the isolated paradise.
MELANIE STETSON FREEMAN - STAFF/FILE

Today just one highway connects Alaska to its southern siblings, so this $3-billion-or-more project would be a big new avenue for trade and tourism.

But more than just a new set of rails, it symbolizes the think-big, can-do spirit thriving in Alaska today.

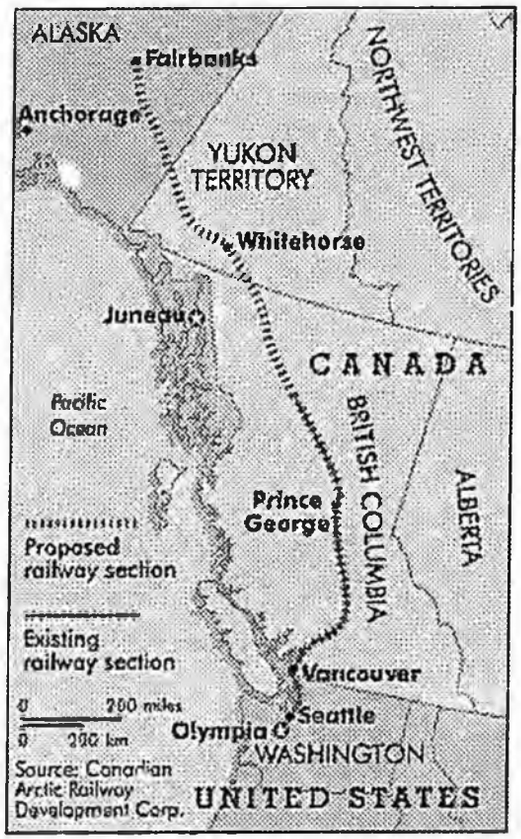
This is the state that built an 800-mile oil pipeline. It's the state that considered building a massive aquaduct to transport water from melting glaciers to thirsty California.

Yet there's another spirit that runs strong here, too. It revels in the state's natural beauty - and isolation. Minnesota may have 10,000 lakes, but Alaska has 3 million. There are more caribou here than people.

Yes, it's environmentalism. But many people came to Alaska to escape congestion. They like being disconnected from the nation - and want to keep it that way.

It's these two attitudes that largely define the state -and that any big project will have to reconcile to become reality.

And the tension between them won't end with the Lower-48 rail link.



DAVE HERRING - STAFF

To connect or not to connect

There's a plan to carve out a 55-mile rail tunnel under the Bering Strait to Russia - at a cost of at least $15 billion. It's still a pipe dream, but with global trade growing, it's gaining momentum. Indeed, the tunnel would link much of the world by rail: Trains could run from New York to Beijing and Moscow and London.

But first things first. Last month, the state House of Representatives gave its unanimous consent to establish a right of way for the rail route down south.

Soon proponents will gather to plot the next steps.

"It's pretty revved up now," says Jeannette James, the state representative who's spearheading the idea. "We in the legislature are moving ahead. And there's lots of private money itching to do something."

She hopes construction will start within six years. Several things make that time frame seem realistic.

First, the US government is moving toward putting an antiballistic missile defense - or "star wars" -base near Fairbanks. A rail link would help in building the facility.

Second, many mining companies back the plan -and would use trains to get their products to market more efficiently.

Third, the Canadian Arctic Railway, a start-up company in British Columbia, has mapped out a route for the Canadian section. President David Broadbent says he already has several New York investors interested in funding the project.

Tourism taking off

Fourth, tourism is growing fast. The number of annual tourist visits to Alaska has doubled to more than 1 million in the past decade.

People come to see melting glaciers or bald eagles, which, in some places up here, seem as common as sparrows.

Take the waterfront town of Valdez, home of one of the nation's busiest oil-loading ports. Like the rest of Alaska, its dependence on oil is fading. Revenues from the port aren't as high as in the past.

But tourism is speeding ahead. Visitors come to fish for halibut and salmon. Or they take sea kayaks out to Prince William Sound, their paddles plying the waters once sullied by the Exxon Valdez's spilled black goo. It's a sign of the times for this town. Oil is still king, but tourism is challenging.

Unlike oil, "tourism is a renewable resource," says Joe Leahy, a kayak guide in Valdez. "The more tourists the better."

Compared with a road ...

Yet supporters of the rail-link plan are mindful of getting skeptics on board. One selling point is that with a railway - as opposed to a road - access is "controlled," meaning not just anyone with a car can jump on.

"The fewer roads we build, the better off we are," says Ms. James. Some environmentalists have given their backing to the plan.

But other Alaskans will be harder to convince. They say more links to the Lower 48 will further compromise Alaska's independence.

"We've already got highways and barges and boats and airplanes" - and too many tourists in their Winnebagos, says Paul Converse, a longtime resident.

There's an old native word, still in use today, that means "newcomer." Cheechakos is what Alaskans call the tourists - when they're being polite.

Yet, this struggle between old and new, between connection and isolation, is an age-old one in this vast, enticing wilderness. And with the idea of a rail link gaining steam Alaskans have another chance to strike a balance between them.

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Senator feels gas line could spark rail extension to Canada



November 07, 2000

By SEAN COCKERHAM
Staff Writer

The construction of a natural gas pipeline could help spur the development of a railroad linking Alaska to Canada and the Lower 48, U.S. Sen. Frank Murkowski said Monday in Fairbanks.

Murkowski, who met with the media and spoke at the University of Alaska Fairbanks Monday evening, also addressed the possible opening of the Arctic National Wildlife Refuge coastal plain to oil drilling.

The senator said that, should the North Slope natural gas deposits be commercialized, petrochemicals for uses such as plastics could be developed from gas liquids in Alaska and shipped out on the railroad. Fairbanks could be the location for such a petrochemical plant, he said.

"That potentially could affect dramatically the tonnage anticipated for a rail connection to the Canadian system," Murkowski said. "It's another consideration as you look at the economics."

The rail connection to Canada would require 1,150 miles of new track, from Eielson Air Force Base to either Fort St. John or Fort Nelson in Canada. Murkowski said a railroad would tap Alaska and Canada mineral and timber resources.

Alaska Railroad representatives have estimated the cost of building the railroad extension at $1 million to $2 million per mile, which could put the price tag of the project at between $1.15 billion and $2.3 billion.

Murkowski is pushing legislation through Congress that would set up a joint U.S.-Canada commission to study the feasibility of the rail line to Canada.

The senator also envisions future rail tracks to Northwest Alaska, which could provide access to the extremely high quality coal of Point Lay on the Bering Sea.

State Rep. Jeannette James, R-North Pole, has been working on a rail connection to Canada for several years. She spoke with Murkowski at UAF Monday in a forum sponsored by the student chapter of the American Society of Civil Engineers and the Associated General Contractors.

"A railroad is environmentally friendly, it leaves a smaller footprint (than a road)," James said. "That is the way, I believe, we should access our resources in Alaska."

Murkowski said at least one gas company is enthusiastic over the shipment of petrochemical products if the North Slope natural gas is commercialized.

The senator added that he believes North Slope natural gas will be brought to market, given high prices and growing demand in the Lower 48.

He noted that nuclear power plants are out of favor and permits have not been forthcoming in recent years for coal-fired plants. "The utility industry has no place to go but natural gas," he said.

He also spoke to the student engineers at UAF about the controversial proposed opening of a portion of ANWR to oil drilling.

That proposal could move a step closer to reality should Republican George W. Bush win the presidential election today. "We don't hear much from the engineers," Murkowski said. "We hear a lot from the environmentalists on what we can and cannot do safely.

Murkowski mentioned the recent letter signed by nearly 250 scientists, including numerous biologists from Fairbanks, urging President Clinton to prohibit development on ANWR's coastal plain.

"You folks are the engineers," Murkowski told those assembled at UAF. "You tell us if it can be done safely."

Murkowski, who said the U.S. imports 58 percent of its oil, argued that other nations are often not as sensitive to minimizing the environmental impacts of energy development.



APPENDIX A:

STATEMENTS OF GIL CARMICHAEL, STEVE HITES, HAL COOPER

to Vancouver, B.C.
Rail-Link Conference, Jan. 2000

URL: www.repjames.org

Gil Carmichael

INTERMODAL
Transportation Institute

People

Meet the Members of the ITI Board of Directors



Gilbert E. Carmichael
Chairman of the ITI Board

Vice Chairman
MotivePower Industries
Meridian, Mississippi

Chairman
Amtrak Reform Council

Gilbert E. (Gil) Carmichael is a leading international authority on railroad and intermodal transportation policy and is committed to a seamless, safe and secure, efficient and economical, freight and passenger transportation system for the 21st century. Carmichael served as the US Department of Transportation Federal Railroad Administrator (FRA) in the administration of President George Bush from 1989 to 1993 and is currently on the Amtrak Reform Council. He is vice chairman of the Board of MotivePower Industries, the leading independent manufacturer of after-market locomotive component parts and the leading independent locomotive remanufacturer in North America.

In addition to managing the nation's rail safety and research programs as FRA Administrator, Carmichael supervised international railway technical assistance programs and sponsored the first World Railways Congress in 1991, which brought together senior government and railway officials from 60 nations. He also helped develop the national transportation policy to permit intermodal transportation initiatives and to formulate new federal policy toward the rail mode and Amtrak, the United States rail passenger system. He chaired the three-year, $29 million, National Maglev Initiative and was one of many contributors to the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), proposing a network of regional high-speed rail passenger corridors, now under development.

A graduate of Texas A&M University and a former Fellow in the Kennedy School of Government at Harvard University, he presents and publishes papers on the transportation industry, promoting the need for a North American and global intermodal freight and passenger system, utilizing the world's rail network. He is a contributing editor to *Progressive Railroading*. On 20 May 1999 Carmichael delivered a speech before the Road Gang, Washington DC's highway transportation fraternity. His address is entitled "The Case for Interstate II"

This paper especially prepared for

ALASKA / CANADA RAIL LINK CONFERENCE

January 20, 2000
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GIL CARMICHAEL
ADDRESS TO THE ALASKA/CANADA
RAIL LINK CONFERENCE
VANCOUVER, B.C., JANUARY 20, 2000

I welcome this opportunity. On several occasions I have accepted invitations to address audiences in Alaska concerning future options and opportunities as that state considers its 21st Century transportation needs. Strategies and intentions on the part of the people of British Columbia and the Yukon always have been important to any plans that Alaska might undertake, and I am pleased to know that opinion leaders in Canada have begun to consider what steps are appropriate for them.

As an outsider, it is not proper for me to come here and lecture you about what you should do. But I do have experiences which I believe is worth sharing.

A North American Rail System Has Evolved

One of the developments that stimulated this meeting is the growing recognition that remarkable changes in recent years have transformed the main-line railroads of North America into a unified operating network. This North American rail system carries profound...and positive implications for the economies, societies, environmental concerns, and mobility needs of the people who live in Canada, Mexico and the United States.

There actually is a lengthy history of cross-border operations involving our railroad companies. For many decades tracks of the Canadian-owned Soo Line ranged throughout the United States midwest to destinations as far away as Cincinnati and Kansas City. The Grand Trunk, a long-time subsidiary of Canadian National, operated to Detroit and Chicago. United States railroads controlled routes in southern Ontario. Burlington Northern has served Vancouver and Winnipeg for many years. Amtrak operates to Montreal, Toronto and Vancouver. In the early decades of the 20th Century United States rail companies controlled affiliates within Mexico, and later Mexico's national railway system held interests in a key route in Texas.

One important legacy of cross-border ownership and operation is a continental rail system with common and standardized track, equipment, and operating practices. Locomotives, freight cars and passenger equipment can operate freely over routes in all three nations.

The basic pattern of a North American rail system has been in place for a century. Unfortunately, it suffered along with the fortunes of the rail industry in the post-World War II era,

when public policy in the United States favored transportation solutions involving highways and commercial aviation, and was content to allow rail transportation to languish. That finally changed in 1980 when Congress adopted the Staggers Act and conferred a greater degree of economic deregulation upon the industry.

The result of Staggers was "staggering." A sick industry was restored to health. During the past 20 years more than 60 billion dollars of private capital investment has flowed to new equipment, better track, and innovative technology. United States railroads are profitable again. Light-density lines have been spun off to hundreds of local and regional carriers who have preserved and improved freight service. Policy in Canada meanwhile allowed the nation's federally-chartered company, Canadian National, to divest itself of uneconomic lines and dramatically improve its balance sheet. Mexico restructured its rail system through a privatization plan that now stands as a world model. Private companies with joint Mexican-US ownership now operate routes throughout that nation and have developed improved high-performance corridors which link the interior of Mexico with freight customers as far away as Montreal and Vancouver.

Today, the North American Rail System serves 90 states and provinces--almost 400 million people--with 240,000 miles of routes. Main-line routes connecting major cities utilize heavy-duty welded rail and are in better operating condition than at any time in the industry's history.

A Global Intermodal Network Is in Place

Meanwhile, another innovation has taken place over the past 20 years, and it has profoundly altered transportation. Intermodal transportation has become the global standard for moving freight---using a system which is sharply focused on speed, safety, reliable scheduling, and economic efficiency. "Intermodal" is to transportation what the "internet" is to communications.

Today, the intermodal network emphasizes moving freight in North America and passengers in Europe and Asia. It is beginning to include passenger service in the United States.

The global high-speed intermodal freight system builds on the strengths of each mode--who have become partners in offering service. Key to its success is the versatility of the cargo container. Cargo ships and airplanes span the oceans. The freight railroad is the high-speed, long-distance, transportation artery for container movement on the land. The truck provides local feeder service at origins and destinations. Cargo airplanes deliver high-value and specialized freight. This

system works--but it urgently needs dramatic improvements to its land component in order to handle growing volumes of containers delivered by ship and airplane.

Modern, strategically located, high-efficiency, high-capacity intermodal terminals are key to the system, providing almost "seamless" interchange of containers. Secondary rail and highway routes support the intermodal system and connect cities, rural regions, and individual freight customers to the main-line corridors.

Today, a doublestack train leaving a coastal port like Vancouver can replace 280 trucks, run at speeds up to 90 miles an hour on the western railroads, and afford as much as nine times the fuel efficiency of an 18-wheel trailer rig on the highway. Overall, the operational and economic efficiency of freight's intermodal network conserves fuel, reduces other environmental impacts, and is significantly safer. It represents the most economically and environmentally "sustainable" approach to transportation services. These are especially critical elements for the pristine nature of Northwest Canada and Alaska.

A Rail Corridor Offers Many Advantages

The time has come, it seems to me, for the people of northwestern Canada and the state of Alaska to consider the benefits of being connected to the huge North American Rail System and the global intermodal network--whose long-distance land component is the railroad. Experience elsewhere demonstrates that efficient transportation service brings down the cost of transporting goods and passengers. The people of Alaska, British Columbia and the Yukon are consumers of goods and are far removed from the sources of manufacture.

Other important trends are in place which suggest to me the advantages of a British Columbia-to-Alaska rail linkage. I recognize that some people would argue that vast sections of this region be preserved in pristine condition. However, construction of the Alaskan Highway more than a half-century ago opened northwest Canada and Alaska to development. In retrospect, we would have been better off if a railroad line had been built instead. But that is a bit of history that we cannot erase.

During the post-World War II era, Alaska's population has grown by roughly 100,000 each decade. That trend is firmly in place. Northern British Columbia and the southern Yukon have been opened to mineral extraction. At the same time the entire area is attracting the interest of tourists. They are coming. They will continue to do so.

I am convinced that a policy of "selective expansion" of transportation connections, based upon the railroad, will be

preferable to annual invasions of sport utility vehicles rambling willy-nilly over environmentally-sensitive land--such as Alaska's Denali National Park.

The Unique Benefits of Railroads

For this part of the North American continent, rail service offers several advantages over highways.

The railroad operates over a narrower right-of-way, and leaves a smaller footprint upon the land. Construction activity is less disruptive of natural surroundings. Research undertaken in Russia suggests that a rail corridor has far less impact in regions of permanent frost because track ballast absorbs much less radiant heat from the sun than a highway surface. Research conducted by Alaska's Department of Transportation found that it actually raised the freeze line.

Railroad design allows heavier weights to be transported with little effect upon the land surface. This takes on special importance in regions of unstable soil conditions, and those climates subject to frequent freezing and thawing. By contrast, even the best-designed interstate highways built over stable terrain are being repaved at nearly twice the rate originally projected, because heavy trucks cause so much damage.

Railroad operations are more environmentally benign as well. Trains are more fuel efficient and emit lower levels of pollution. Pollution levels can be reduced even further through the use of locomotives powered by natural gas--or ultimately by electrification at some point in the future. The "occasional train" is less intrusive than a constant procession of highway vehicles. They also afford all-weather capabilities. I am told that one railroad track has capacity equal to eight lanes of highway.

Rail transportation offers a particular benefit in accommodating tourism business. Train travel by itself can be part of the tourism experience, and moving tourists by train permits controlled access to scenic areas, as the Alaska Railroad has proved for years. When people leave the train, they can move in groups via shuttle buses, which cause fewer problems than a herd of private vehicles operating independently. No matter how carefully we plan roadways to minimize environmental concerns, when people visit your scenic wonders by SUV, they will be inclined to roam wherever their personal fancies impel them.

I already have noted the lower-cost transportation that railroads can provide versus truck or air cargo. But a rail-based tourism system also will allow for the expansion of a jobs-producing tourist economy in an environmentally sustainable way.

It Is Time to be Visionary

I have presented my case for connecting northwest Canada and Alaska to the North American Rail System and the global intermodal transportation network. It is not my intent to recommend a particular route alignment, and I am aware that preliminary studies already have taken place. Obviously, a rail line through northwest Canada logically would connect with the Alaska Railroad. I also believe that consideration should be given to "multi-modal" rail corridors. It is an easy matter to establish a buried fiber optics cable in the process of building a railroad line. This would connect remote regions to the continent's main-line telecommunications system. Portions of the corridor may make sense for energy pipelines as well. Rail corridors can easily move freight, passengers, fuel and information.

The specific route--its components and capabilities--rightfully belongs as a decision to be made by the people of British Columbia, Alaska and the Yukon. Part of the decision process should include the feasibility of private investment to defray a portion of the costs. By working with its congressional delegation and the U.S. Department of Transportation, I believe that Alaska can make a strong case that segments of this rail project to be built in that state should qualify for funding under the recent surface transportation reauthorization law.

I recognize that Alaska, British Columbia and the Yukon represent special places whose priorities sometimes are different from those considered elsewhere. Distance. Remoteness. Climate. Environment. The status of native inhabitants. Natural resources. Scenery. Wilderness.

Growth is taking place, and will continue. Alaska's rate of population increase during the past 50 years is exceeded only by that of Arizona, Florida and Nevada. Tourists arrive in greater numbers each year to Alaska and northwest Canada. In the "lower 48" states, the 20th Century was a period in which we accomplished much in transportation, but the landscape is littered with the debris of our mistakes. We became over-reliant upon the highway and the airport. We allowed our railroads to founder for 80 years until the choices were stark ones--deregulation or nationalization. Many local and intercity rail passenger services were left to die. Our transportation policies led to the withering of small towns and the crowding of new suburbs. We brought smog and highway gridlock to our large cities.

You people have the opportunity to capture the benefits of the 21st Century's transportation system without repeating our mistakes of a century that has just passed into history. You have the freedom to design a system for your use that qualifies as "ethical." Ethics may seem to be a strange word to apply to

something as commonplace as transportation, but it is a concept that I have argued for more than a quarter-century. When I speak of an ethical transportation system, I mean one that is economically-efficient, safe, environmentally-benign, and energy-conserving, but also meets the mobility needs of the people who live here--or come to visit.

We now know that highways and airways cannot solve the transportation problems facing us. They cannot meet the freight and passenger growth that we confront. I encourage you be visionary. If you plan carefully, you can maintain the best possible quality of life for your citizens.

Thank you.

Steve Hites

SKAGWAY STREET CAR COMPANY, INC.

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Steve Hites has been in the entertainment business in the North since 1972, when he left his home in Colorado and came to Skagway, Alaska, seeking a job with the White Pass & Yukon Route narrow gauge railroad. While working his way through the company as a brakeman, conductor, train dispatcher, and passenger agent, he performed in local theaters and saloons, and wrote dozens of songs about the Klondike Gold Rush and the history of Alaska and the Yukon. These songs formed the basis of his first album, **"Yukon Legacy"**, which was recorded live at the Red Dog Saloon in Juneau, Alaska, and released in 1978. It was the first record album ever produced in Southeast Alaska.

Hites has toured throughout the North over the last 27 years, and in addition to hundreds of stage, television, film, and radio performances, he has released two more albums: **"Inside Passage"** (1992, 1996), and **"Life on the Railroad"** (1993). His original songs have appeared on several albums by other northern artists. He has also produced three professional multi-media programs, a stage play, and written and published a book on the White Pass & Yukon Railroad, "Scenic Railway of the World."

During his railroad career in Alaska, Hites worked as Director of Rail Operations for Tour Alaska, Inc., pioneering the use of privately-owned vista dome passenger cars on the Alaska Railroad. He was Manager of Passenger Operations for the successful reopening of the White Pass & Yukon Route as a summer-only passenger excursion railroad. This line passes through the Klondike Gold Rush National Historical Park as well as the Tongass National Forest, and carried over 285,000 people in 1999. Hites continues to work in a consulting capacity for Tri-White Corporation, the Toronto owner of the White Pass & Yukon.

With the rapid growth of the Alaska cruise industry, Hites and his wife, Gayla, concentrated their efforts on recreating the **Skagway Street Car Company**, a sightseeing operation in Skagway which uses a fleet of eleven antique automobiles

from the 1920's and '30's to show visitors around the historic community and all its points of interest. Hites calls the tour "theater without walls", and dresses up in a 1890's- style black three- piece suit with gold watch and derby hat. "We get to tell old Skagway stories on every tour," he says. "It's great fun."

The company also operates a fleet of modern 27-passenger minibuses, providing short sightseeing tours up to the US/Canadian border, and longer day trips into the Yukon Territory. The majority of the company's tours are sold on cruise ships.

In 1996 the company opened a new entertainment complex in Skagway. The three-story building houses the 160-seat **Club House Theater**, the 2,000 square foot **Skagway Mercantile** specialty retail store, and the **Excelsior Cafe & Bakery**, as well as providing the company with offices, storage, and staff apartments. The building was inspired by the 1899 architect's drawings of the original Club House of the Arctic Brotherhood, a Klondike Gold Rush social organization. The new building, which was built in the Skagway Historic District in the Klondike Gold Rush National Historical Park, incorporates all of the period elements of a structure which would have been built in Skagway in 1899. It is Skagway's largest historic-styled building.

Steve Hites's stories, songs, and original music can be heard daily each summer when he performs at the Club House Theater, or at some 300 special concert performances which he contracts to do aboard the cruise ships which call in at Skagway throughout the season.

Hites has a degree in History and Education from Whitworth College. He served on the Skagway City Museum Board for ten years, and was elected to a seat on the Skagway City Council from 1991 through 1994. During his term the Council voted the Guidelines for the Skagway Historic District into law. These guidelines, which are part of the Skagway City Code, are used to direct development in the Skagway Historic District, where architecture and signage must reflect the period of the Alaska - Yukon Gold Rush of 1896 - 1910. Most of this district in downtown Skagway is also part of the Klondike Gold Rush National Historical Park's Skagway Unit.

Steve Hites and his wife Gayla have one grown son, Ryan.

Tourism & Recreational Railroads:
A Northern Glimpse into the 21st Century

The first railroad in the Far North, the White Pass & Yukon Route, was built one hundred years ago with British financing, American engineering, and Canadian contracting. I wrote a song to honor Micheal J. Heney, the energetic young Canadian contractor who helped to build the WP&YR.

"Big Mike Heney"

Copyright 1980 by Steve Hites, Skagway, Alaska USA.

I was born one cold gray morning on the Overland Express;
the brakeman was the midwife, the conductor was impressed.
They knew I was a railroad man from the chew tucked in my cheek;
I shrieked like a locomotive, had a spike between my teeth.
(He shrieked like a locomotive, had a spike between his teeth.)

Before I was old enough to walk they had me layin' track
crawlin' along, ties under my arm, a rail across my back
I warmed my bottle on the firebox, I helped to shovel coal
While the engineer would take his nap, I made the engine roll
(While the engineer would take his nap, he made the engine roll)

Drillin' tunnels through the Rockies, drinkin' whiskey during the day
I grew up on the CPR, Van Horn a leadin' the way
We laid track so fast we never looked up ' til a fish swam by to say
"you've laid the railroad over a cliff into Vancouver Bay"
(Yes, you've laid the railroad over a cliff into Vancouver Bay)

As I was there treadin' water, another fish passed by to say
"They've found gold up in the Klondike two thousand miles away"
So I hitched a ride on a humpback whale right up to Skagway town
The gold rush needed a railroad, I started breakin' ground

RECEIVED BY
FEB - 9 2000
Rep. Jeannette James

(The gold rush needed a railroad., he started breakin' ground)

With picks and shovels and powder, and a wild-eyed gang of men
we blasted into the mountains and blasted them down again
I used spiderwebs for trestles, fought with grizzly bears as well
"Give me dynamite and snooze, I'll build a railway straight to Hell."
(Give him dynamite and snooze he'll build a railway straight to hell.)

I went on to other exploits, built a railroad to the Pole
a railroad to Hawaii, trains to Singa por and Seoul
but a man like me just can't sit back as I gaze up at the stars
I'll build a railroad up to Jupiter, a shortline on to Mars
("He'll build a railroad up to Jupiter, a shortline on to Mars.")

All that talk about the last century has got me going. Let's build a Time Machine, get in it together, set the old "Way Back Dial" (remember the Way Back Machine from the "Rocky and Bullwinkle Show", with Sherman and Mr. Peabody?), and hang on!

It is the late 1960's. Trains Magazine editor David P. Morgan writes a cover story which asks, "Who Killed the Passenger Train?" Privately operated North American passenger trains are dying off, victims of the interstate, the automobile and the airplane.

Let's go on forward a bit. It is the mid 1970's. The lives of quasi-government corporations Amtrak and Via Rail hang in the balance as government committees drag these skeletal rail services through the hot coals of debate on "public need" vs. "public dollars" spent on passenger trains.

Whoa. That's enough of that. Let's jump forward again.

It is the mid 1980's. Union Stations in major cities are turned into shopping malls, hotels, and restaurants. The last American private passenger train, the Rio Grande Zephyr, is allowed to suspend service. The passenger train has finally reached the end of the line.

Not good scenery here. Seems the farther ahead we go, the worse it gets. But being optimists (and everyone in this room is an optimist, or you wouldn't be here talking about construction of the last link in the transcontinental railroad), we want to see where all this ends up.

Now, it is the year 2000. It is now thirty-five years after the "official death" in the press of the passenger train. And we look out across a very different landscape.

Rail travel is booming. It is not traditional rail travel by any means. It is a new type of experience: recreational rail travel, leisure rail travel, maybe, even, perhaps, rail cruising. The phenomena is still new enough that workable labels have yet to be attached. But whatever you want to call it, the recent popularity of recreational rail travel begs comparison with the rise in popularity experienced in the cruise industry. And with tourism predicted to become the largest industry in the world during this century, business and industry leaders should look closely at these parallels to better understand present and future opportunities.

Into our Time Machine again! Back again to the ' 60's.

The Jet Age arrives. The remaining transatlantic ocean liners are doomed. Some survive by trying to transform themselves into warm-water party vessels, offering leisurely cruises around the Caribbean. They don't really go much of anywhere, there isn't much to do on board (shuffle board and gambling), and even the entertainment is sophomoric. But it keeps several companies afloat. Entrepreneurs like Miami's Ted Arison charter laid-up ships on the cheap from the likes of Canadian Pacific, fill them with discount cruisers, bring them home happy, and do it again. Wanting to find a name that tells potential customers what he is selling, Arison chooses ""Carnival" for the atmosphere on board, and tags his vessels "The Fun Ships". (Carnival's "Fun Ships" now comprise the largest and most profitable cruise line in the world.) Stan McDonald charters the CPR's "Princess Patricia", and starts Princess Cruises. Chuck West starts Westours, a cruise and land package operator to Alaska. (For a detailed study of this fascinating transition period, read Carnival Cruise Line's President's Bob Dickenson's 1997 book, "Selling the Seas: The Creation of the Modern

Cruise Industry").

Wow! What's happened here? An outdated transportation mode whose fleets are ready for the scrapper is repackaged and becomes a leisure mode. The ship becomes the vacation. The means becomes the end, and the journey becomes the vacation.

Let's pop back to the present, because this is exactly what has happened with the passenger train.

Successful examples of this change are all around us.

Excursion railroads like the White Pass & Yukon Route, and the Durango & Silverton;

"Day trains" like The Rocky Mountaineer, and the Sierra Madre Express in Mexico's Copper Canyon, who overnight their passengers in hotels along the rail route;

"Cruise trains" like the American Orient Express

Private car "trains" like the Princess' Tour's Midnight Sun Express, and Holland America Line Westours' McKinley Explorer;

Dinner trains like the "Spirit of Washington" running in the Seattle metropolitan area, and BC Rails' dinner train to Squammish;

Combinations of the above like the Napa Valley Wine Train;

Excursion trains used as substitutes for automobiles like the Grand Canyon Railway:

Ski trains like the one out of Denver, Colorado to Winter Park on the old D&RGW;

Steam excursion trains operating over regular roads, like BC Rail's popular "Royal Hudson".

There are many others, but these show the diversity of products available to the 21st Century recreational railroad passenger in North America.

These new products all have several things in common:

--They do not primarily serve the public as a means of getting from A to B
(This is even true with the Denver Ski Train. The customer is buying the skiing experience packaged with the train, not the transportation service.)

--They provide what the customer wants (as to a variety of services)

--They do it at a price which is acceptable to the market

--They make money, or they aren't around anymore. Not one of these operations is subsidized by a government. My personal rule of thumb: railroad operations should pay their own way.

Recreational rail travel needs to be looked at as a for-profit enterprise. For most common carriers, passenger revenues have never been more than incremental, an "add on" to freight revenues. And, in the Far North, with it's light population density, local passengers have never been a major part of a railroad's revenue. So, these revenues need to be generated from elsewhere.

The first revenue train operated by the first railroad in Alaska was a July 21st, 1898 passenger excursion train from Skagway to the end-of-track on the White Pass and Yukon Route. Four flat cars were jammed with local politicians, businessmen, writers from Seattle, and from the towns three newspapers. Shortly after the road's completion in 1900, the White Pass rolled out it's timeless slogan, "Scenic Railway of the World," which it carries to this day.

WP&YR maintained a Passenger Office in Chicago, Illinois. White Pass salesmen like Herman Weig carried their bulky "magic lantern" show out on the road. The marvelous hand-tinted photo transparencies held audiences in awe, and Weig lectured throughout the country to church groups and service clubs on the glories of leisure travel in the mysterious Land of the Midnight Sun.

Canadian Pacific put together complete vacation packages to Alaska and the Yukon early on, using their fleet of coastwise steamships. Northern Pacific followed, partnering with the Alaska Steamship Company. With the opening of the Copper River & Northwestern, circle tours could be booked all the way through to Fairbanks, with rail from Cordova to Chitna, thence overland to the Chena River, and connecting

with river steamers back up the Yukon itself and back out at Skagway. The completion of the U.S. Government Railroad in 1923 created yet another circle tour loop, from Seward to Anchorage, and on to Fairbanks, now entirely by train.

Seventy- six years after U.S. President Warren G. Harding drove the ceremonial last spike at Nenana, two railroads in the Far North survive. Passenger revenues are essential to both, but they are generated by tourism to Alaska. Neither survives on ticket sales generated along the route of its line.

The Alaska Railroad is a full service common carrier running over the same route opened by President Harding. It operates year-round passenger service on its own trains. During the busy summer tourist season, the ARR express trains between Anchorage and Fairbanks offer private car haulage rates to Princess Tours and Holland America Line Westours, whose private fleets now total over two dozen full-dome railcars. These luxurious vista domes are carried on the tail end of the trains behind the regular Alaska Railroad coaches. In addition, the ARR has recently purchased a new full-domed trainset which can be used for service on the popular scenic run from Anchorage to Seward, Alaska.

The White Pass & Yukon Route, which suspended operations for five and a half years between 1982 and 1988 due to the closure of its principle shipper, the Cyprus Anvil lead-zinc mine, reopened in May 1988 as a passenger-only summer excursion railroad. Cashing in on the rapid growth of the cruise market, the WP&YR carried 36,000 riders its first season back in business, hit 100,000 by the fourth season, and carried an astounding 278,000 revenue passengers in 1999. With its 40-mile round-trip ride sold as a Shore Excursion on every cruise ship calling on Skagway, operating up to nine trains per day, many to sold-out crowds, it is one of the most profitable of all excursion railroads, commanding one of the highest rates per passenger mile operated anywhere in the world. Its Toronto owner, Tri-White Corporation, plans to grow an even larger leisure services company from within the WP&YR. They have no plans to change the profitable 100 year old narrow gauge railroad, but President Fred McCorriston has repeatedly said that White Pass will look at any reasonable business proposal that can make money for his company.

So much for the present. What will the future of rail cruising look like? How will it look in the Far North? We do have several clues.

One of the least heralded and most dramatic changes which has come about has been the complete redesign and re-engineering of the passenger car.

Tom Rader, founder of Colorado Railcar Manufacturing in Ft. Lupton, Colorado, began the re-invention of the vista dome in 1988 with the introduction of the "Ultradome" on the Midnight Sun Express between Anchorage and Fairbanks. Rader continued engineering the concept with the "Ultradome II" series, and now builds completely new "from the ground up" full-dome railcars, in both a double-decked (bi- level) and single level version (new sills, new trucks, brand new everything). Customers for the Rader domes include Princess Tours, Peter Armstrong's Rocky Mountain Rail Tours, and the British Columbia Railway. The Alaska Railroad purchased a full trainset of Rader-built equipment from First American Railways defunct "Florida Fun Train". (For answers as to why that failed, see me after the conference: we'll have a drink and talk about where not to locate one's terminals, and how you really need to have a solid market your product before you start running it.)

Rader threw the old Pullman Standard-type construction concepts out the window, and literally built a new window. Using modern materials and techniques, he created the largest viewing areas ever built into rail equipment. With their rooftops made entirely out of specially strengthened, tinted, bowed glass, these versatile and lightweight cars offer passengers unprecedented scenic viewing opportunities.

Many railroads run through spectacular scenery, but without a platform from which to view that scenery, the ability to experience that beauty is diminished, or even lost. If what the railroad has to sell is its scenery, it must find the best way to serve that product up for the viewing customer. The new dome design has provided one way.

And they are just a box, waiting to be made into something.

Just like aboard the cruise ships, the interior spaces of the new rail cars are being re-shaped by the customer as well. To rise like a Phoenix from the ashes, the concept of the ocean liner h. . to re-invent itself. On Royal Caribbean International's new Voyager of the Seas, old-time shuffleboard has been replaced by ice skating rinks, golf courses, in-line skating arenas, rock climbing walls, and multiple themed restaurants. Similarly, the tired railroad day coach has become the interactive video arcade car, a bi-level atriumed dance lounge, a two- tiered themed dining room, or a solarium car with retractable roof fully equipped with weight room, saunas, and multiple hot tubs.

Sleeping accommodations no longer need to be crammed into dark narrow spaces with the bathroom down the hall, or perhaps under the seat of your tiny roomette. Guests on the cruise train of the 21st Century will lie down in comfortable double beds under their section of the full dome, reaching from one side of the car to the other, falling asleep under a canopy of stars, and in the morning awake - not to an Amtrak Deluxe Bedroom commode/shower all-in-one combination plastic molds- but to their own full-sized washroom with separate in-room shower bath. When not enjoying the on-train activities (lectures in the library, a piano concert or dance band in the Showroom), they can watch television or videos in their suite, or let the countryside roll by outside while they listen to the music of their choice on their state-of-the-art in-room stereo sound system.

To be fair, some of this is already being done on the beautifully refurbished 1950's era equipment of the American Orient Express. But no matter how you clean it up, the platform being used by the AOE still dates from the 1950's: tiny rooms, bathrooms down the hall or retrofitted, and a high price tag for the pleasure (between $500 and $1,000 per person per day).

With no real competition in the luxury end of the market, the AOE has done well. But any train which utilizes the new car tec'nology will provide more of the creature comforts the customer wants, and will cap.ure the market in short order.

The cruise trains of the 21st Century will be what the market demands. Any railroad wanting passenger revenues will need to use the most modern platforms available to get a piece of that market. They will present new and different itineraries to lure more people to try the cruise train product: ski cruises, Civil War theme cruises, The American Southwest cruises, "the best Capital cities of America" cruises, and "National Parks of the West". The possibilities are endless. And the proposed transcontinental link between Canada and Alaska, with its scenery and sweep, is a natural for the new trains.

Cruise lines, tour companies, and travel wholesalers could offer packages with a cruise ship one way, and a rail return on the "cruise train" back again in the opposite direction. Stopping along the way for historical, cultural, or natural points of interest, the cruise train itinerary, like that of a cruise ship, would allow passengers the opportunity to get out and experience the areas along the route first hand. Off-train excursions into the countryside, like Shore Excursions on ships, would allow for more in depth exploration.

Pretty cool stuff. But as we enter this new era, for businesses that really want to be a part of it and participate, the sky literally has to be the limit. The market demographics tell us that the leisure traveler of 2000 is younger, more educated, more sophisticated, more well-traveled, more active, and more financially secure than ever before. They are far more demanding, but they will pay the fare for a perceived value. They like nice things.

I recall the middle-aged Texan who was riding with his family and a small group of escorted tour passengers on the original Midnight Sun Express back in 1984. He was wearing a leisure suit with an open-necked shirt, and several gold chains hung around his neck. As we glided into the Nenana River Canyon southbound, we decided to treat the small group to something special, and served brunch up topside in the dome. Sipping his fresh Bloody Mary, savoring the perfect unbroken hollandaise sauce on his Eggs Benedict, listening to the tastefully muted classical music floating over the sound system, he leaned back. looked at me and said, "Ya' know, son, I like nice things. This is a nice thing."

The passenger trains which will be placed into service on the proposed last great transcontinental link between Canada and Alaska will have to be cut of that kind of cloth.

The cruise trains of the next century must be "nice things". If they are, long distance rail travel will most certainly "make its own way", finding a comfortable niche in the leisure market of the future.

One last element to consider. Beyond the statistics and market information, beyond the geography and the engineering, there is the adventure of what is being proposed here today. The doing of something never before done, of participating in something important, something great. No one put that feeling into words in a better way than Gordon Lightfoot did in 1967 with his wonderful song about the very first Canadian Transcontinental railroad, the "Canadian Railroad Trilogy".

(CANADIAN RR TRILOGY).



Note: The above paper was presented by Steve Hites at the Alaska Canada Rail Link Conference, January 20, 2000, Vancouver, B.C.

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MARKET DEVELOPMENT POTENTIAL

for the

COMMODITY CARGO TRANSPORT

between

ALASKA, CANADA AND THE NORTHERN TIER

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Sponsored by:

The Alaska State Chamber of Commerce
and the
Vancouver Board of Trade

January 20, 2000

EXISTING AND PROPOSED RAILROAD LINES IN ALASKA AND CANADA AND NORTHERN TIER

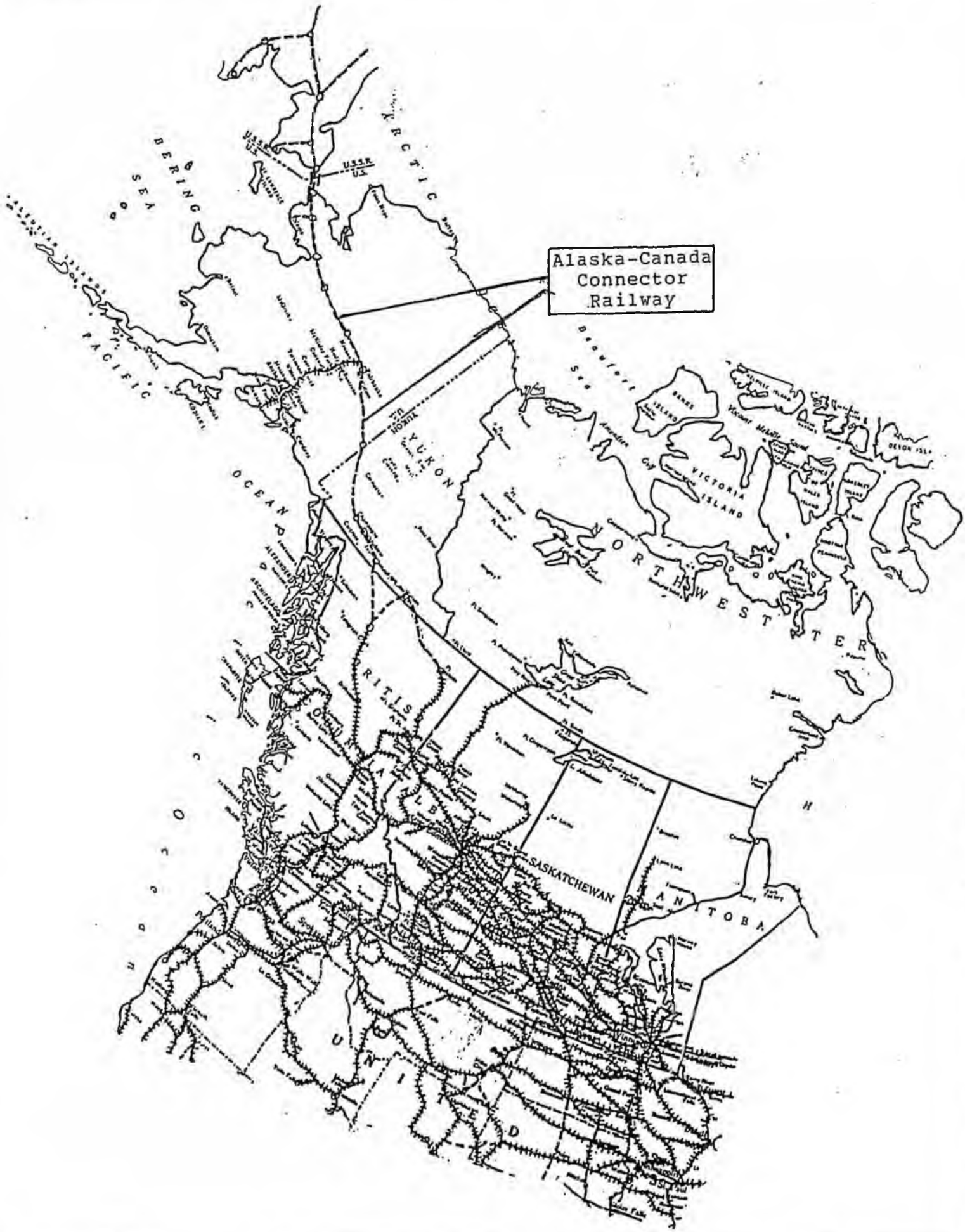


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INTRODUCTION

There is renewed interest in the connection of the Alaska Railroad with the rest of the North American rail network (Ref. 1). The economy of Alaska is becoming increasingly intertwined with the rest of the United States as a north-south orientation. In addition, the Canadian provinces are becoming more interconnected to their southern neighbors in the United States and Mexico as north-south interlinkages become greater. The completion of the railway link between Alaska and British Columbia is the one major element in the completion of the North American rail network, as shown in Figure 1.

There are several reasons why the completion of the railway from Canada to Alaska would be beneficial for all of the affected regions. The completion of the railway line from Canada to Alaska would reduce the transportation costs of goods hauled to Alaska. The result would be a reduction in the cost of living to Alaska residents. It would then become easier and cheaper to export raw materials from Alaska to Canada and the Lower 48 States of the United States. Fuel and mineral resources produced in Alaska would then become more competitive from a price standpoint in the lower 48 states as compared to alternative sources.

The completion of the construction of the railway from Canada to Alaska can also influence trade patterns in North America and throughout the World. The recent passage of the North American Free Trade Agreement (NAFTA) between Mexico and the United States in 1993 has led to a major expansion in north-south trade between the three countries. It has been estimated that the volume of north-south trade in North America has increased by 5.0 percent per year from 1993 to 1999. The total volume of the east-west trade in North America during the same period has only increased by 1.5 to 2.0 percent per year.

There is the potential for extending the North American railway network to the south from Mexico to South America by way of Central America (Ref. 2). There have been proposals advanced to develop a unified rail, road, air and marine transportation system among all of the nations of North and South America. The Western Hemisphere Transportation Ministers' conference held in New Orleans in December 1998 agreed to begin the planning for such a unified transportation system as a part of a future trade area of the Americas (Ref. 3). The route layout for a proposed Western Hemisphere rail network is illustrated in Figure 2.

There is also the possibility of increases in east-west trade by way of Alaska to Asia and Europe. A recent article by Gillespie (Ref. 4) in 1998 in the Alaska Business Journal described the possibility of completing an underground railroad tunnel beneath the Bering Strait. There have been a number of proposals made to build a railroad tunnel under the Bering Strait, but have so far been unrealized (Refs. 5,6,7,8). The construction of a railroad tunnel under the Bering Strait would allow a Worldwide railroad network to be developed as shown in Figure 3. Alaska and neighbor Chukotka would then become the American and Asian World trade centers for a future Worldwide rail network connecting all continents.

Figure 1

CONNECTING RAILROAD ROUTE NETWORK TO THE BERING STRAIT RAILROAD TUNNEL

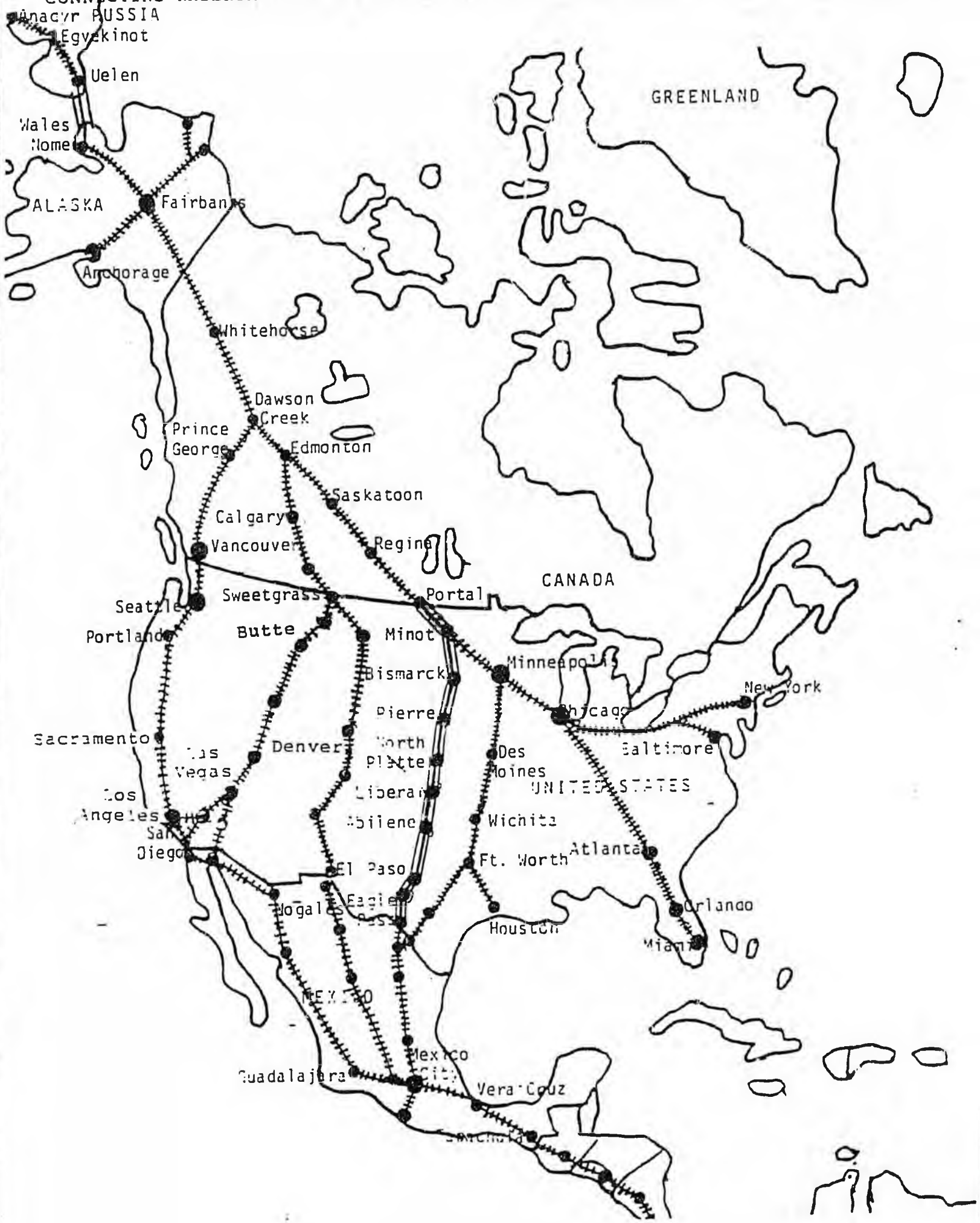


Figure 2

PROPOSED INTERAMERICAN RAILROAD LINE BETWEEN NORTH AND SOUTH AMERICA

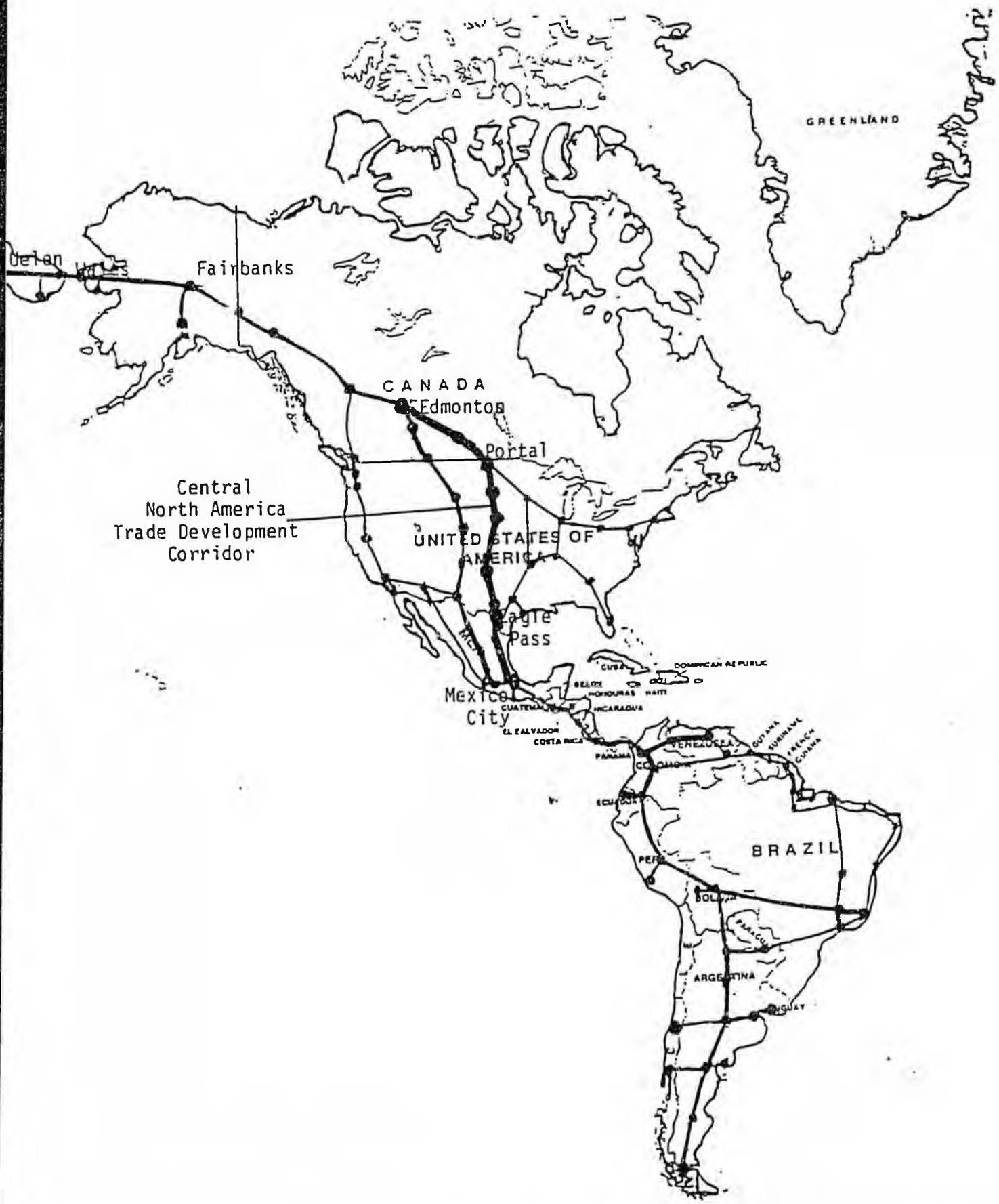
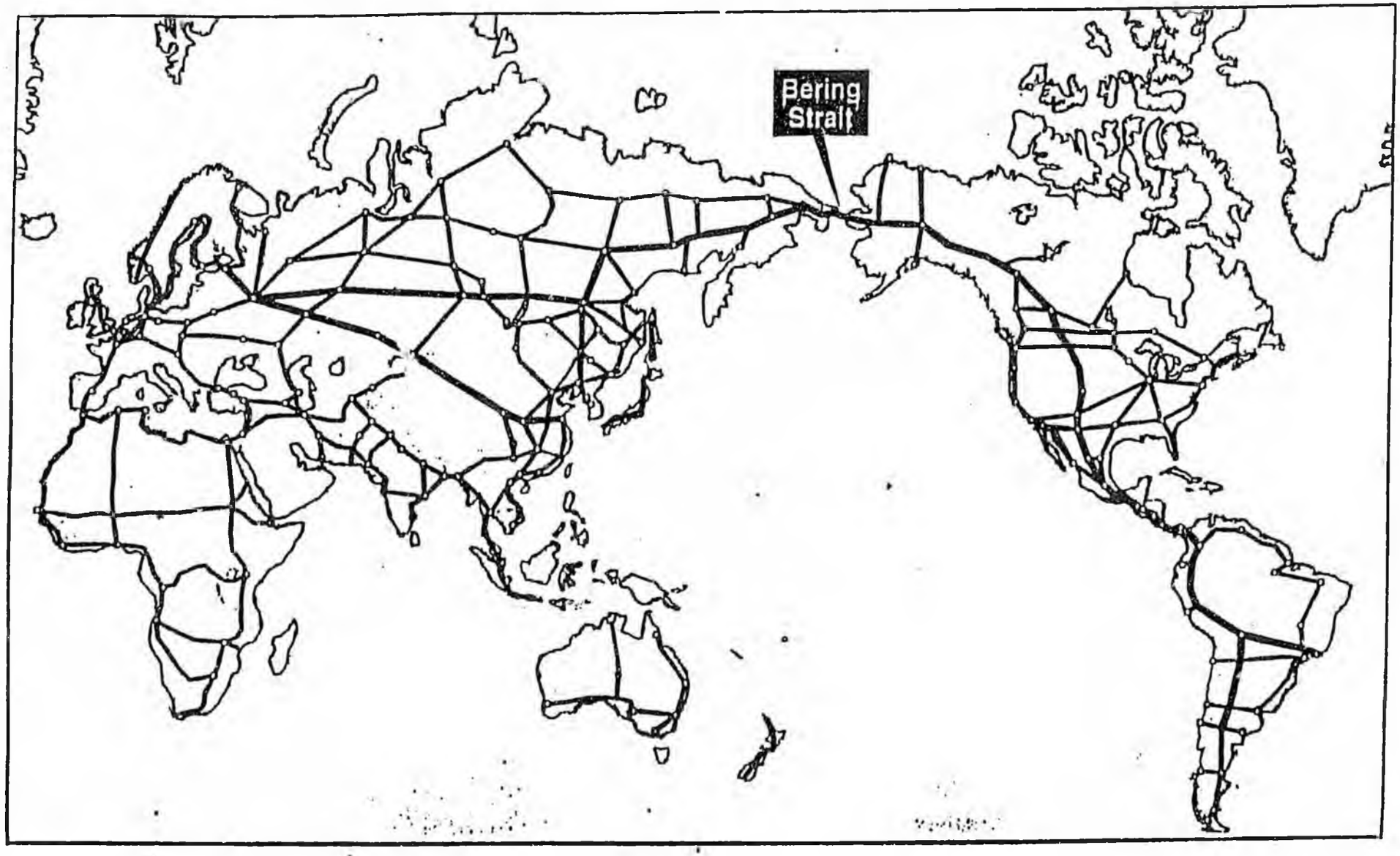


Figure 3

ROUTE LAYOUT OF THE PROPOSED WORLDWIDE RAILROAD NETWORK TO ALL CONTINENTS(Ref.9).



BACKGROUND

The earliest efforts to develop a railway line between Alaska and Canada with the Lower 48 States were actually a part of early proposals to develop a Worldwide railroad network. There were reported but unsubstantiated reports of a proposed as early as the late 1860's after the Civil War to build a railway line from Denver to Paris by way of Alaska and Russia (Ref. 9). This railway project was to be a part of the efforts to construct the Trans-Siberian Railway being constructed under the direction of Count Sergei Witte (Ref. 10). However, these efforts never came to fruition because other railroads needed to be built in more populated areas.

The completion of the Trans-Siberian Railway from Moscow to Port Arthur in 1903 and to Vladivostok in 1908 led to the formation of a company in the State of New Jersey in 1906 (Ref. 6). The purpose of this railway was to connect Paris and Moscow with New York plus Fort Nelson and Edmonton in Canada to Chicago and New York. This company was incorporated with $6 million U.S. in equity capital with French, Russian and American investors with the purpose of operating both freight and passenger service. This project was halted by the onset of World War I (Ref. 11) and was not restarted.

After World War II, there were extensive surveys of railway line development under the direction of Joseph Stalin in Russia. These efforts led to the surveying and grading of the entire Northern Arctic railway along the Arctic Ocean from Vorkuta to Egvekinot over 4,000 miles. In addition, route surveys and engineering designs were conducted of the 2,500 mile long rail corridor from Yakutsk in the Sakha Republic to the Bering Strait (Ref. 12). These efforts were suspended upon Stalin's death but reappeared in a book by Chersakov in Russia in 1993 to build a railway from Moscow to New York, as shown in Figure 4 (Ref. 13). In the United States there were also efforts made by the Czech engineer George Koumal, who proposed building a tunnel under the Bering Strait (Ref. 5).

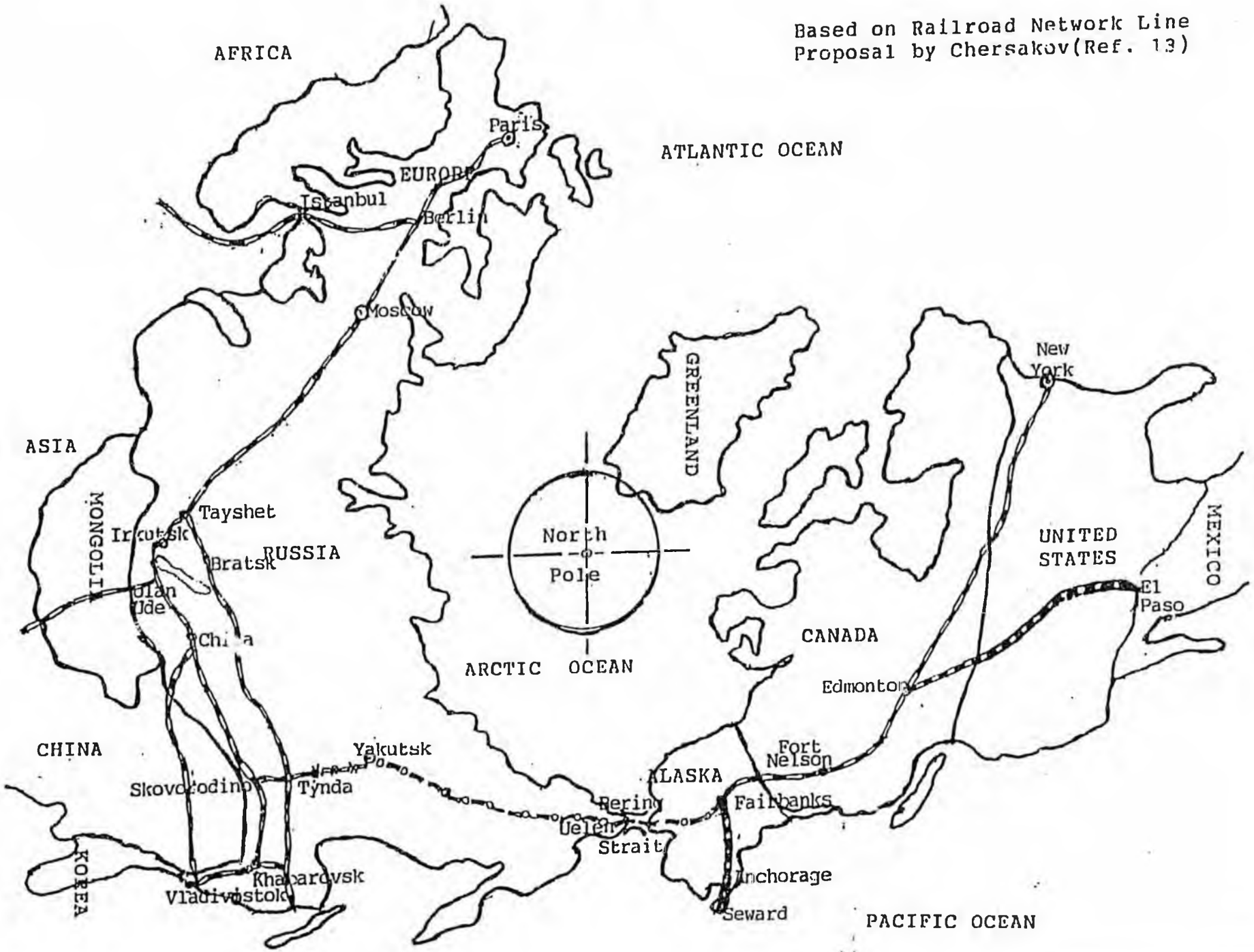
The concern about the possibility of constructing a railway line to Alaska began with the purchase of Alaska and the Aleutian Islands from Russia in 1867. Russia at that time sold Alaska to the United States in part because it lacked the transport infrastructure to maintain these remote regions. The initial development of Alaska began in the 1890's with the discovery of gold, but did not become significant until the onset of World War II in 1941.

A number of military facilities were built in Alaska during World War II to begin the development of its infrastructure. One of the major projects was to connect Alaska with Canada by either a highway or rail line. The roadway was built as an alternative to the railway because of its lower initial cost and shorter construction time. In addition, the initial street shortage during World War II resulted in a greater priority being given to tanks and artillery than a railway at that time (Ref. 34).

The Alaska Railroad was originally chartered as an initial part of this infrastructure by the United States Congress in 1912 through the establishment of the Alaska Railroad Commission. The authorization of $35 million U.S. for railroad construction by the U.S. Congress in 1912 was approved by President Wilson in 1914 to make it possible to begin layout, design and construction. The legislation approved called for the construction of 1,000 miles (1,600 km) of

Figure 4

PROPOSED RAILROAD NETWORK LINKAGE BETWEEN THE EURASIAN AND NORTH AMERICAN CONTINENTS



railroad lines in Alaska from the interior to an ice-free port along the Pacific Ocean at the Southern end of the Kenai Peninsula.

It was originally decided to build the Alaska Railroad from the ice-free Port of Seward at the South of the Kenai Peninsula to the Fairbanks area via Anchorage with a total length of 515 miles (825 km). This original section of the Alaska Railroad was finally completed in 1923 at a cost of $60 million and was dedicated by then President Warren Harding. The Alaska Railroad was extended for an additional 20 miles (38 km) in Eielson during the 1950's as a part of its rebuilding and expansion to serve Eielson Air Force Base as a new facility with a total length of 535 miles (860 km). As a result, there are 465 miles (745 km) of railroad line, which remain unbuilt by the Federal Government in Alaska under the terms of this originating legislation passed in 1912 (Ref. 14), which could be constructed in the future.

The Alaska Railroad as an operating railroad line was owned by the Federal Government, but had relatively little traffic upon its initial completion so that it required an annual Congressional appropriation until 1938. The line's traffic greatly increased during World War II and thereafter so as to never again require an operating subsidy. The line was rebuilt during the early 1950's at a cost of $100 million U.S. so as to be able to handle the increasing traffic demands associated with the Korean War and then the Cold War. The Alaska Railroad was finally sold by the Federal Government to the State of Alaska in 1984 for $23 million U.S. and continues to be under the present ownership by the State of Alaska under profitable operation today.

One of the main reasons for the development of the military infrastructure in Alaska was to allow for supplies to be transported to Russia to assist in its war effort with Germany during World War II. The development of the civilian infrastructure of Alaska began in earnest after the end of World War II. The economic growth of Alaska greatly accelerated following the development of the Prudhoe Bay oil field on the North Slope after 1975 with the construction of the pipeline to Valdez to facilitate crude oil shipments to the West Coast of the United States.

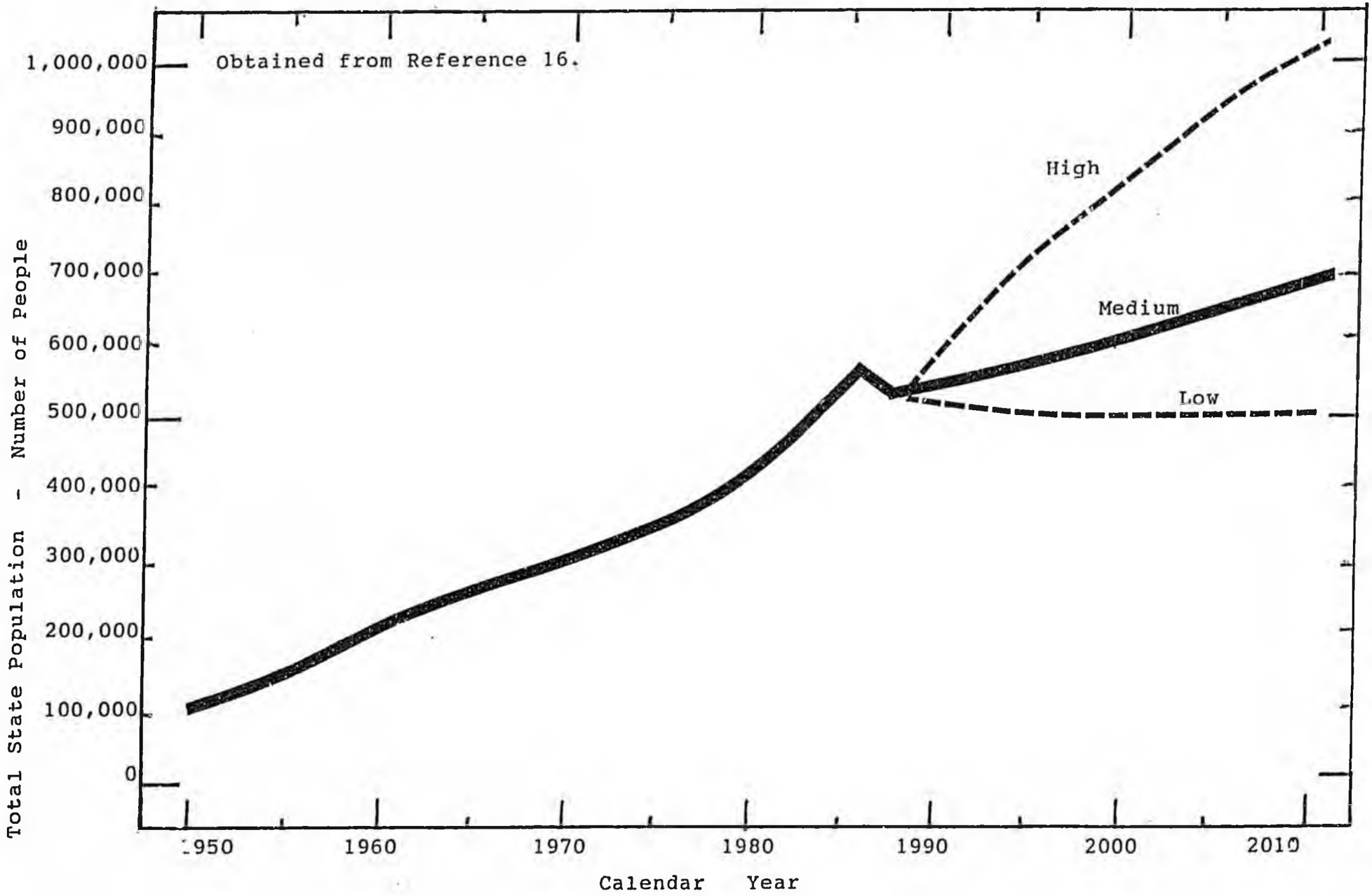
As a result, the population of Alaska has grown from 100,000 in 1950 to 500,000 in 1990 and to an estimated 600,000 in 2000. The population of Alaska could reach 700,000 to 1,000,000 by 2010, as shown in Figure 5 (Ref. 15). The population growth of Alaska appears to be closely following the medium scenario for development at an estimated rate of increase of 1.4 to 1.5 percent per year. In excess of 70 percent of the total population of Alaska lies within the so-called "Rail Belt" between Seward, Anchorage, Denali and Fairbanks.

INFRASTRUCTURE

There is a parallel need to develop the railroad infrastructure of the Northwestern part of North America in order to provide a suitable degree of economic integration with the railroad systems of Canada, the United States and Mexico and eventually to Asia. Railroads generally provide the most suitable means for land-based transportation of large quantities of freight and even passengers in the far Northern climates of Canada and Alaska. These superior characteristics of railroads over highways occur because of their relative ease of maintenance with respect to frost heaves in permafrost, their greater resistance of materials to extremely cold temperatures, and their inherently greater energy efficiencies and lower land use requirements.

Figure 5

PAST, PRESENT AND FUTURE TRENDS IN POPULATION FOR THE STATE OF ALASKA



The railroad network in Alaska is relatively minimal at the present time with only a single North-South corridor in the South-Central part of the state known as the "Rail Belt". There is a 535 mile long railroad line from Seward at the Southern end of the Kenai Peninsula through Anchorage on the Cook Inlet to the North as far as Fairbanks in the central interior of Alaska and then East to Eielson Air Force Base, as shown in Figure 6. There is also a branch line from Portage to Whittier, which allows access to boat traffic to Southeastern Alaska. A rail-barge service connects from Whittier to Prince Rupert in British Columbia and to Seattle, Washington in the Northwest corner of the Lower 48 States to and from the Port of Whittier. There are also several small branch lines to specific industries and mining operations on the route to the coal mine at Healy, the gravel mine at Palmer and others.

These railroad operations in Alaska are all owned and operated by the Alaska Railroad Corporation. The Alaska Railroad Corporation is owned by the State of Alaska with its headquarters in Anchorage. The Alaska Railroad hauls considerable amounts of petroleum products, coals, gravel, wood, chemicals and intermodal freight. The overall freight traffic level on the Alaska Railroad was 5.1 million short toms (4.6 million metric tons) hauled in 1991, as shown in Table 1. This level of railroad freight traffic is expected to grow significantly in the future, as illustrated in Figure 7 (Ref. 16).

The total revenue produced from the hauling of this 5.1 million short tons of freight in 1991 was $48.0 million U.S. The Alaska Railroad also hauled 471,217 passengers in 1991, which has divided between the regular coach and tour business, to produce a revenue of $16.4 million. The total revenue on the Alaska Railroad in 1991 from the combined freight and passenger services was $68.3 million U.S. as compared to expenses of $63.9 million U.S. to result in a net profit of $4.4 million U.S. as shown in Table 2 (Refs. 17,18,19).

The total freight traffic on the Alaska Railroad was estimated as approximately 9.5 million short tons (8.6 million metric tons) in 1998 and 11.5 million short tons in 1999(10.4 million metric tons) based on data reported in the Alaska Business Journal (Ref. 20). Railroad passenger traffic was estimated as 550,000 per year in 1998 and 600,000 per year in 1999 with the continuing growth of Alaska's tourist trade. The total revenues for the Alaska Railroad were expected to have exceeded $95 million U.S. in 1999 with $75 million U.S. from freight and $20 million from passengers with a net income of $8 million U.S.

The other railroad is the White Pass and Yukon Railroad in the extreme Southeastern corner of Alaska from Skagway to Whitehorse in the Yukon Territory of Canada. This railroad is a 111-mile long narrow gauge line as compared to the standard gauge Alaska Railroad. This railroad formerly hauled copper, lead and ore concentrates from mines in the interior to the coast for shipment by boat to smelters located elsewhere. This rail line now operates exclusively as a primarily Summer passenger tourist operation with little if any freight service (Ref. 21).

There are also railroad lines in the adjacent provinces of Alberta and British Columbia, which would be important as the connecting links to the proposed Alaska-Canada connector railroad project. In British Columbia, the British Columbia Railway presently operates a 460-mile (740-km) line from Vancouver in the Lower Mainland to Prince George in the interior. Branch lines

Figure 6

LOCATIONS OF THE EXISTING AND PROPOSED ALASKA RAILROAD LINES IN THE RAILBELT

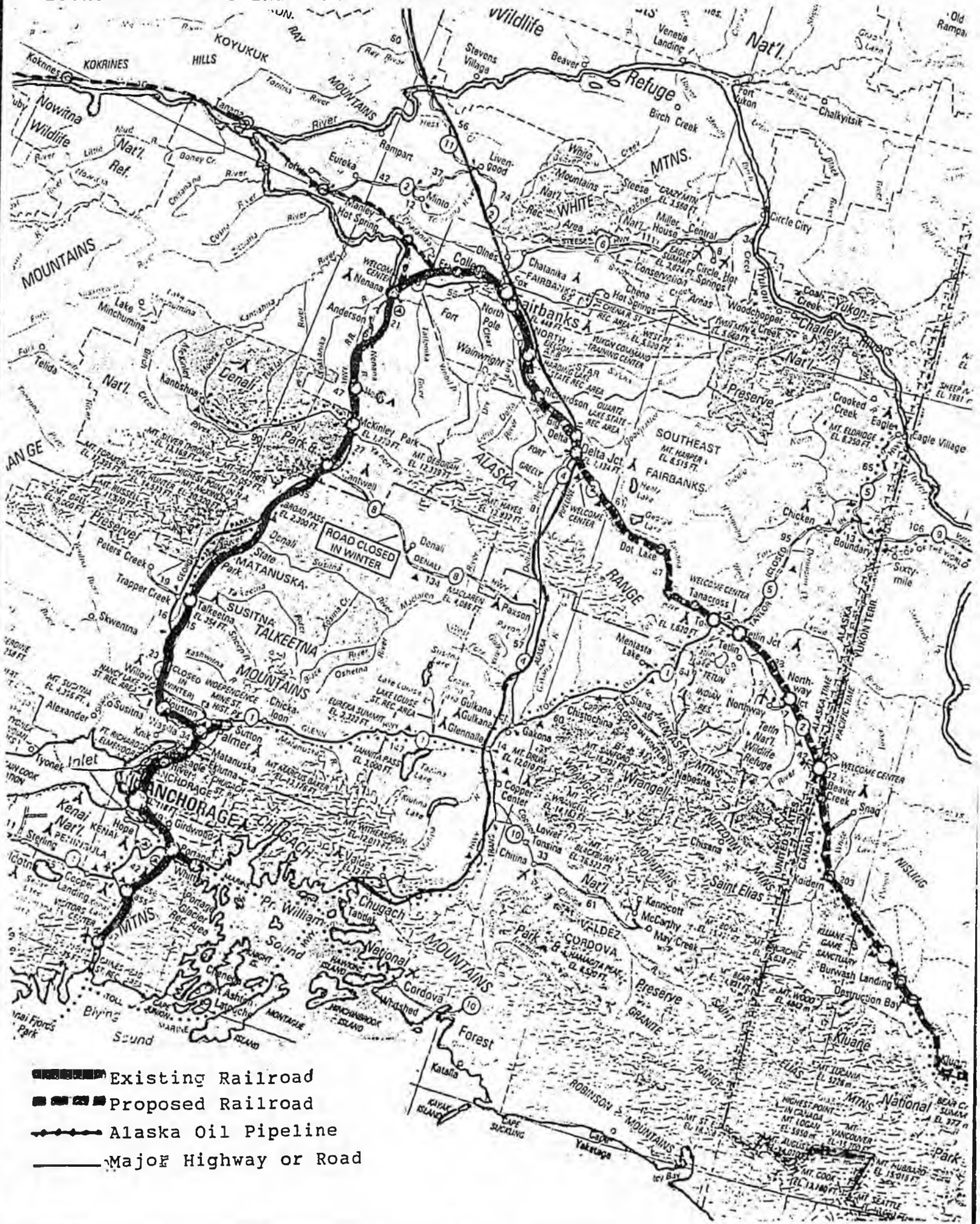


Table 1

OBSERVED FREIGHT TRAFFIC LEVEL TRENDS ON THE ALASKA RAILROAD (REFS. 17, 18)

Specific Commodity	Freight Traffic Level-Million Net Short Tons/Year		
	1980	1985	1991
Gravel	1.00	1.00	1.80
Coal	0.60	1.50	1.60
Petroleum	0.15	0.20	1.40
Intermodal	0.10	0.20	0.20
Other	0.25	0.40	0.10
Total	**2.10**	**3.30**	**5.10**

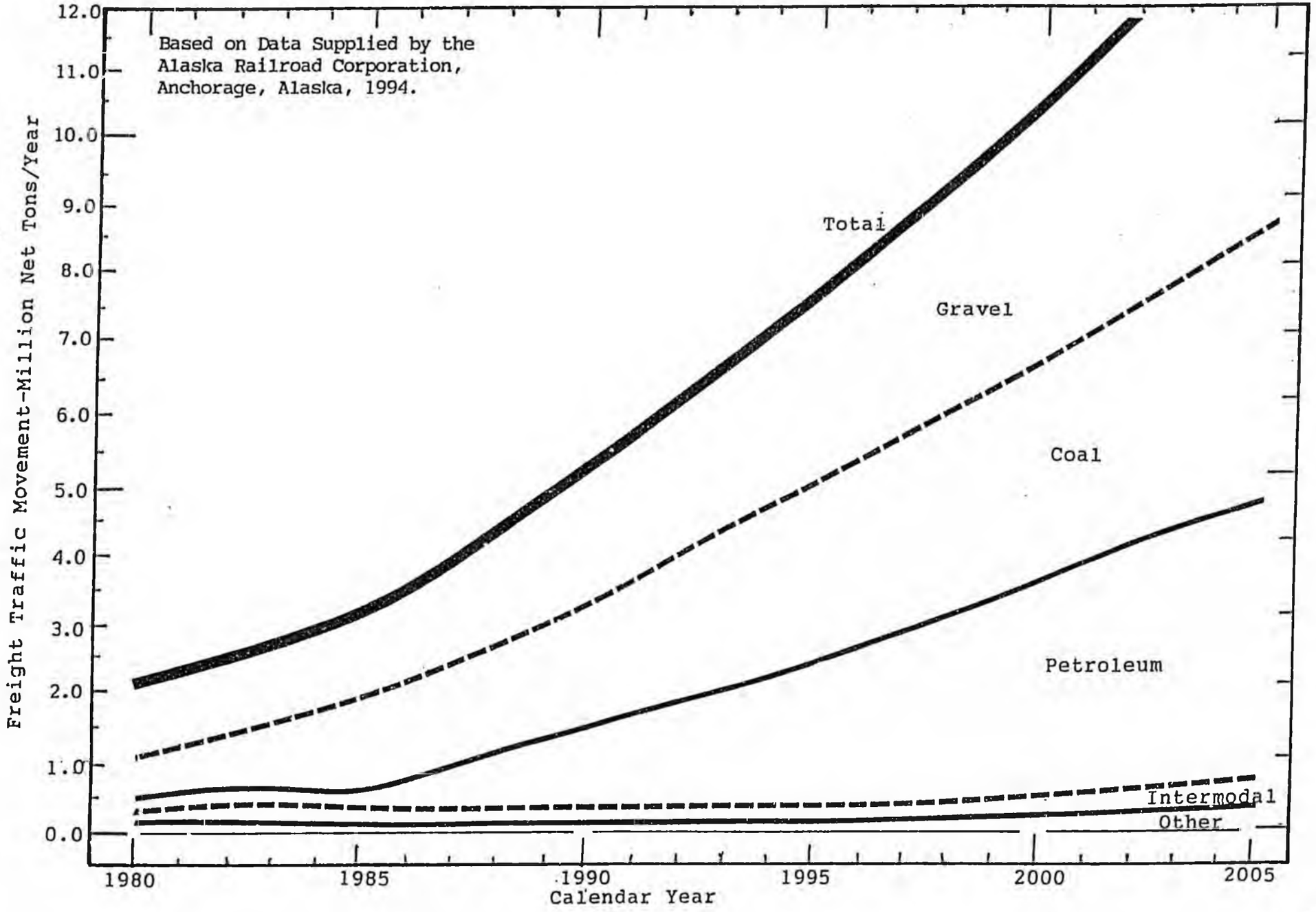
Table 2

TRAFFIC LEVELS AND REVENUE LEVELS FOR THE ALASKA RAILROAD IN 1991 (REFS. 18, 19)

Specific Commodity	Freight Traffic Level-Million Net Short Tons/Year		
	Haul Distance Miles	Quantity Tons/Year	Revenue $/Year
Petroleum	356	1,400,000	$19,000,000
Coal	358	1,600,000	$12,000,000
Intermodal	356	200,000	$6,500,000
Gravel	35	1,800,000	$3,000,000
Other	356	100,000	$7,500,000
SubTotal	-	**5,100,000**	**$48,000,000**
Passenger	515	471,217	$16,400,000
Leases	-	-	$4,000,000
SubTotal	-	**471,217**	**$20,600,000**
Total	-	-	**$68,600,000**

Figure 7

OBSERVED TRENDS IN FREIGHT TRAFFIC MOVEMENT BY COMMODITY ALONG THE ALASKA RAILROAD (Refs. 17,18).



extend from Prince George to the North to Fort Nelson and to the Northwest at Jackson near Dease Lake, as shown in Figure 8. There is also a branch line to the coal mine at Tumbler Ridge, British Columbia which is electrified, and handles 5 million tons per year of coal.

There is a connection from the British Columbia Railway to the Canadian National Railway at Prince George with a line to Prince Rupert. There are also connections to both the Canadian Pacific and Canadian National Railways at Edmonton in Alberta from which connections to the Midwestern and North Central United States can be made by way of Montana, North Dakota and Minnesota. There is a recently privatized branch line from Peace River in northern Alberta to Fort Resolution in the Northwest Territories and from Edmonton to McMurray in the Athabasca tar sands region from north of Edmonton.

The British Columbia Railway carried 17.9 million net short tons (16.2 million metric tons of cargo in 1997, a 6.15 percent increase over 1996 with an average haul of 300 miles (480 km). The total revenues of the British Columbia Railway were approximately $275 million U.S. in 1997, a 1.91 percent increase over 1996. The net income of the British Columbia Railway was $50 million U.S. in 1997, a 10.7 percent increase over 1996 (Ref. 22).

The British Columbia Railway operates two lines, which may serve as useful interconnections to the Alaska Railroad. The 450-mile (720-km) long single-track line from Chetwynd to near Dawson Creek to Fort Nelson would serve as the access line to Edmonton and the Midwestern and Eastern United States. The 500-mile line (800-km) from Prince George to Summit Lake and Fort St. James along Takla Lake has a single track for 300 miles (480 km) to Chipmunk. The rail line has only bridges and grades with no tracks for the final 200 miles (320-km) to Dease Lake.

The Fort Nelson branch line through the Peace River Valley presently hauls grain, wood, oil, other minerals and foods and equipment with 2 to 4 trains per day. The Dease Lake line typically has one to two trains per day and handles almost exclusively logs for the pulp and paper mills at Prince George. The Fort Nelson line handles an estimated annual traffic flow of 3.5 to 7.5 million short tons (3.2 to 6.8 million metric tons) per year while the Dease Lake line handles 1.5 to 2.5 million short tons (1.35 to 2.25 million metric tons) per year of freight. The total freight traffic flow on the two lines is between 5.0 and 10.0 million short tons (4.5 to 9.0 million metric tons) per year, which approximates that of the Alaska Railroad.

The connection of the Alaska Railroad and the British Columbia Railway will require the construction of 880 miles (1,410 km) from Eielson to Dease Lake at a minimum. The connection of the two railroads between Eielson and Fort Nelson will require the construction of a total of 1,180 miles (1,895 km) of trackage. The connection of the Alaska Railroad at Eielson with the British Columbia Railway at both Dease Lake and Fort Nelson will require the construction of 1,360 miles (2,185 km) of track. The total estimated capital cost of constructing the entire railway connections is between $6.9 and $4.7 billion U.S. (Ref. 23).

The estimated route distances for the various railway line segments to connect the Alaskan and Canadian railway systems are listed in Table 3. The illustrations of the individual route distances for the interconnection of the Alaskan, Canadian and American railway networks is illustrated in Figure 9. It will then be possible to have trains running between Alaska and the United States

Figure 8

NETWORK CONFIGURATION OF EXISTING RAILROAD LINES IN ALBERTA AND BRITISH COLUMBIA (Ref. 16).

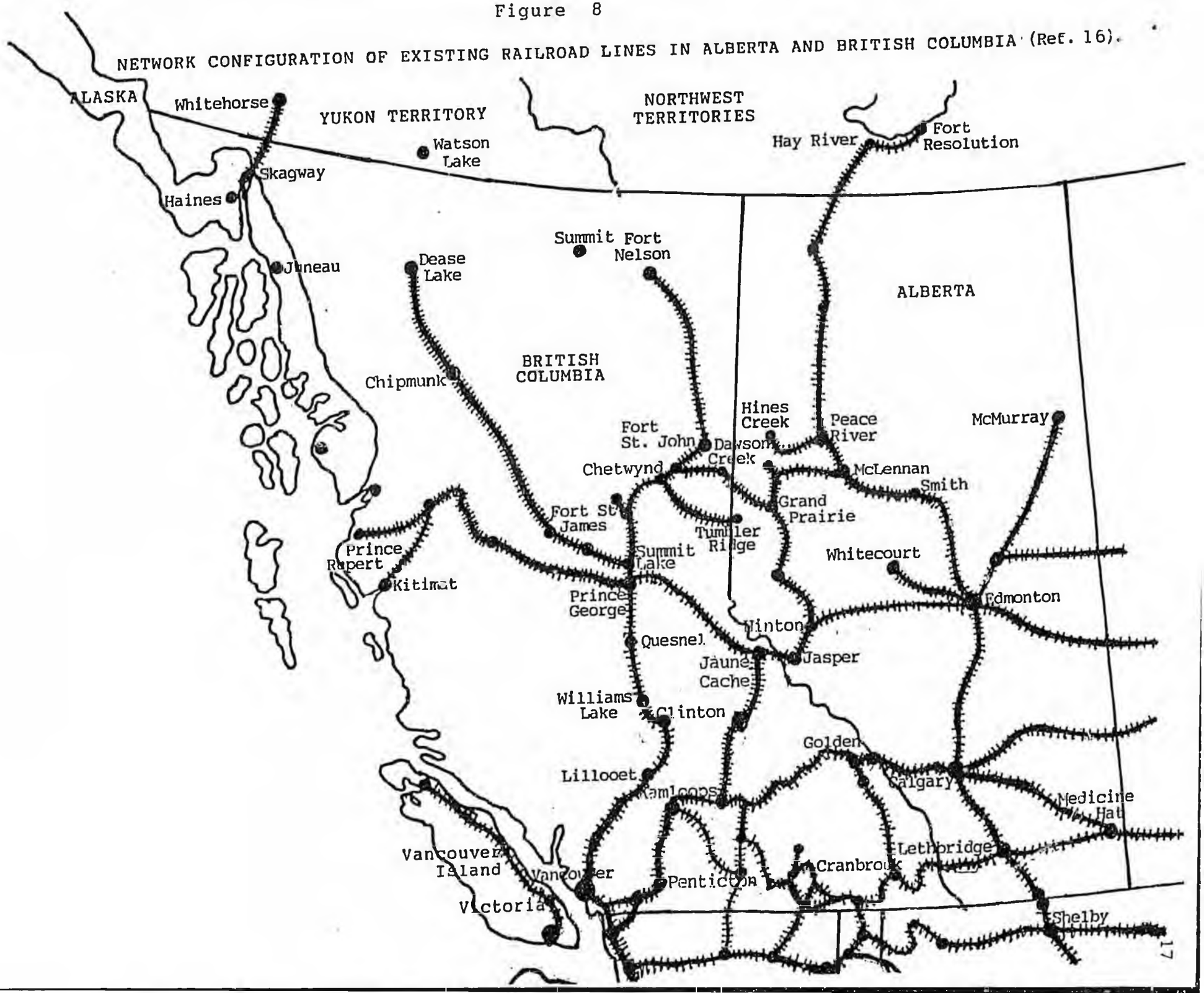


TABLE 3

ESTIMATED ROUTE DISTANCES FOR RAILWAY CONSTRUCTION IN THE STATE OF ALASKA, THE YUKON TERRITORY AND THE PROVINCE OF BRITISH COLUMBIA (REF. 24)

Segment Category	Route Segment By City Pair	Route Distance		Affected Railroad	Present Status
		Miles	Kilometers		
Alaska-Canada	Fairbanks to Eielson	20	32	ARR	Existing
	Eielson to Delta Junction	70	113	ARR	Proposed
	Delta Junction to Alcon	200	320	ARR	Proposed
	Alcon to Whitehouse	300	480	TBD	Proposed
	Whitehouse to Teslin	130	210	TBD	Proposed
Dease Lake Connector	Teslin to Dease Lake	180	290	TBD	Proposed
	Dease Lake to Chipmunk	200	320	BCR	Graded
	Chipmunk to Summit Lake	270	435	BCR	Existing
	Summit Lake to Prince George	30	48	BCR	Existing
Fort Nelson Connector	Teslin to Watson Lake	180	290	TBD	Proposed
	Watson Lake to Dease Lake	150	240	TBD	Proposed
	Watson Lake to Fort Nelson	300	480	TBD	Proposed
	Fort Nelson to Chetwynd	300	480	BCR	Existing
	Chetwynd to Summit Lake	150	240	BCR	Existing
	Summit Lake to Prince George	30	48	BCR	Existing
Washington Connector	Prince George to Prince Rupert	480	770	CNR	Existing
	Prince George to Vancouver	460	740	BCR	Existing
	Vancouver to Blaine	30	48	BNSF	Existing
Montana Connector	Chetwynd to Edmonton	525	845	CNR	Existing
	Edmonton to Sweetgrass	340	545	CPR	Existing
	Prince George to Edmonton	350	560	CNR	Existing
North Dakota Connector	Edmonton to Saskatoon	250	400	CPR	Existing
	Saskatoon to Regina	130	210	CPR	Existing
	Regina to Portal	150	240	CPR	Existing
Alaska Railroad	Seward to Anchorage	120	195	ARR	Existing
	Anchorage to Fairbanks	415	665	ARR	Existing
	Fairbanks to Eielson	20	32	ARR	Existing

Abbreviations: ARR – Alaska Railroad; BCR – British Columbia Railway; CNR – Canadian National Railway; CPR – Canadian Pacific Railroad; BNSF – Burlington Northern Sante Fe Railroad; TBD – To be Determined.

Figure 9

ROUTE DISTANCES BETWEEN CITIES FOR THE ALASKA CANADA CONNECTOR RAILWAY

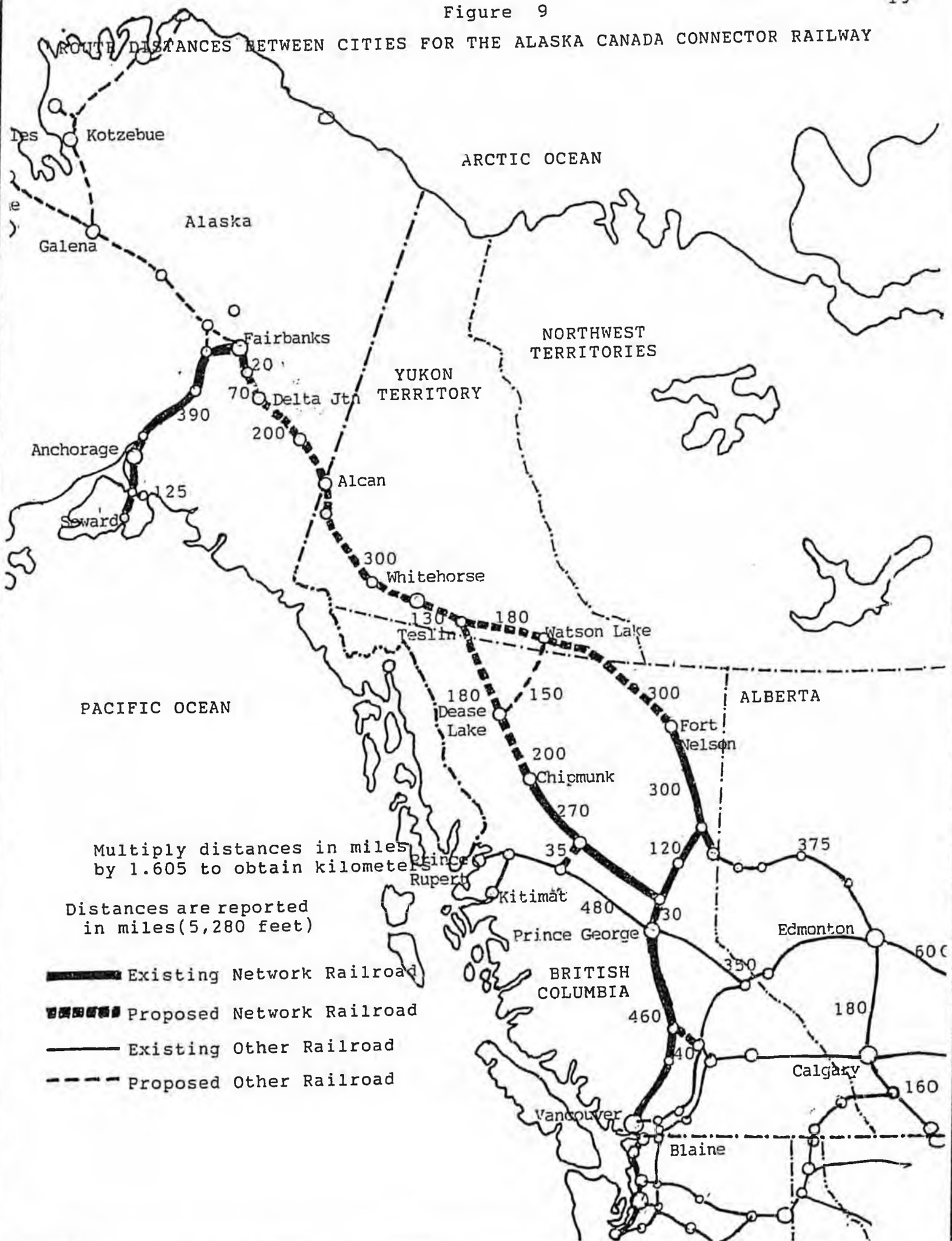


TABLE 3

ESTIMATED ROUTE DISTANCES FOR RAILWAY CONSTRUCTION IN THE STATE OF ALASKA, THE YUKON TERRITORY AND THE PROVINCE OF BRITISH COLUMBIA (REF. 24)

Segment Category	Route Segment By City Pair	Route Distance		Affected Railroad	Present Status
		Miles	Kilometers		
Alaska-Canada	Fairbanks to Eielson	20	32	ARR	Existing
	Eielson to Delta Junction	70	113	ARR	Proposed
	Delta Junction to Alcon	200	320	ARR	Proposed
	Alcon to Whitehouse	300	480	TBD	Proposed
	Whitehouse to Teslin	130	210	TBD	Proposed
Dease Lake Connector	Teslin to Dease Lake	180	290	TBD	Proposed
	Dease Lake to Chipmunk	200	320	BCR	Graded
	Chipmunk to Summit Lake	270	435	BCR	Existing
	Summit Lake to Prince George	30	48	BCR	Existing
Fort Nelson Connector	Teslin to Watson Lake	180	290	TBD	Proposed
	Watson Lake to Dease Lake	150	240	TBD	Proposed
	Watson Lake to Fort Nelson	300	480	TBD	Proposed
	Fort Nelson to Chetwynd	300	480	BCR	Existing
	Chetwynd to Summit Lake	150	240	BCR	Existing
	Summit Lake to Prince George	30	48	BCR	Existing
Washington Connector	Prince George to Prince Rupert	480	770	CNR	Existing
	Prince George to Vancouver	460	740	BCR	Existing
	Vancouver to Blaine	30	48	BNSF	Existing
Montana Connector	Chetwynd to Edmonton	525	845	CNR	Existing
	Edmonton to Sweetgrass	340	545	CPR	Existing
	Prince George to Edmonton	350	560	CNR	Existing
North Dakota Connector	Edmonton to Saskatoon	250	400	CPR	Existing
	Saskatoon to Regina	130	210	CPR	Existing
	Regina to Portal	150	240	CPR	Existing
Alaska Railroad	Seward to Anchorage	120	195	ARR	Existing
	Anchorage to Fairbanks	415	665	ARR	Existing
	Fairbanks to Eielson	20	32	ARR	Existing

Abbreviations: ARR – Alaska Railroad; BCR – British Columbia Railway; CNR – Canadian National Railway; CPR – Canadian Pacific Railroad; BNSF – Burlington Northern Sante Fe Railroad; TBD – To be Determined.

through Canada in an uninterrupted way. The commodities which could be hauled on this extension of the North American railway network, is the subject of the remainder of this paper.

ENERGY

Energy is a matter of critical concern with regard to the construction of the proposed railroad between Alaska, Canada and the Lower 48 States for several reasons. The United States is the World's largest consumer of energy, where Alaska has the Nation's largest untapped reserves of energy. The hauling of crude oil, petroleum products, natural gas or gas liquids and coal can be done either by the railroad itself or by parallel gas or oil pipelines. The future development of energy resources in either Alaska or northwestern Canada will require the transport of large amounts of equipment and materials for the energy production facilities and the required pipelines plus the provisions for workers at the production sites.

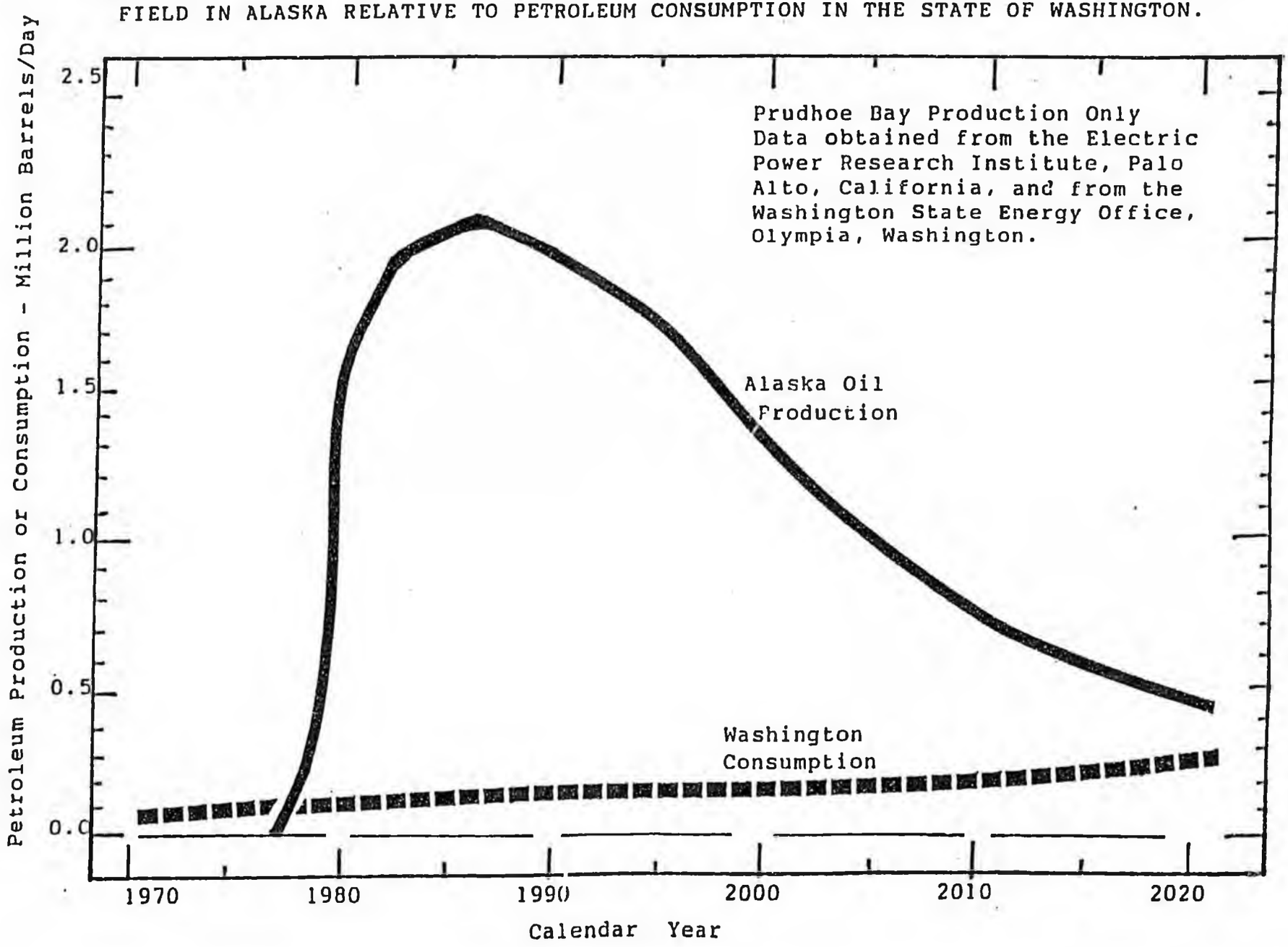
One of the main products being shipped by railroad in Alaska at the present time over the Alaska Railroad is either crude oil or petroleum products. The North Slop oil field at Prudhoe Bay has been the major oil producing field in Alaska since the late 1970's, which has taken up the slack in oil production in Texas by increasing oil production in Alaska, at least until recently. However, even the large Prudhoe Bay field in Alaska is now beginning to decline as well, as shown in Figure 10. The production out of the Prudhoe Bay field has declined from 2.1 million barrels per day (111 million metric tons per year) at its peak to 1.9 million barrels per day (101 million metric tons per year) in 1990 to 1.8 million barrels per day (95 million metric tons per year) in 1993.

There is also approximately 100,000 barrels per day produced from other oil fields in Alaska as well, which are located on the Kenai Peninsula of far southern Alaska for approximately 5.3 million metric tons per year. There is a large oil field adjacent to the Southwest of the existing Prudhoe Bay field of approximately equivalent size in the National Strategic Petroleum Reserve. There is also a large oil field within the Arctic National Wildlife Refuge (ANWR) to the East of the existing Prudhoe Bay field. The field to the Southwest of Prudhoe Bay could be developed under present conditions. However, it would probably be very difficult to develop the ANWR field to the East of Prudhoe because of environmental restrictions in a wildlife refuge area. The total untapped oil reserves in Alaska are in the range of 10 to 20 billion barrels or more or between 1.3 and 2.5 billion metric tons per year.

The limiting constraint to the future development of both petroleum and natural gas from the Prudhoe Bay area of the North Slope of Alaska may well be transportation in addition to environmental restrictions. The existing crude oil pipeline from Prudhoe Bay to Valdez is beginning to suffer from increasing maintenance problems because of electrolysis requiring greater cathodic protection. The Alyeska crude oil pipeline is also suffering increasing maintenance problems resulting from greater pump and pipe wear. The result is the necessity to periodically curtail oil throughout or to build bypasses in certain sections to correct these problems. There has also been a large oil spill on Prince William Sound in 1989 as well as smaller oil spills in recent years. These problems are expected to continue into the foreseeable future to at least some extent.

Figure 10

OBSERVED AND EXPECTED TRENDS IN TOTAL CRUDE OIL PRODUCTION FROM THE PRUDHOE BAY FIELD IN ALASKA RELATIVE TO PETROLEUM CONSUMPTION IN THE STATE OF WASHINGTON.



The result is that the existing Prudhoe Bay pipeline may not be able to handle the future crude oil flow requirements if the other field is developed from the area. As a result, there may be a need to develop additional transportation facilities for bringing crude oil out of the Prudhoe Bay field. The construction of a railroad line from Prudhoe Bay to Fairbanks to connect with the proposed Bering Straits connecting railroad would make it possible to transport crude oil to Washington, Montana and Minnesota over land without any pipeline maintenance problems. The needs for crude oil by refineries in the Midwestern and Eastern United States could then be readily met without any possibility of the reoccurrence of marine oil spills at Valdez on Prince William Sound, at Ferndale or Anacortes on Puget Sound or elsewhere.

There is also the need to build a natural gas pipeline out of the Prudhoe Bay area. The previous idea was to build the pipeline to Valdez and load liquefied natural gas onto ships for transport to major use points. However, the loading and unloading of liquefied natural gas may present some added safety risks and certainly adds some increased costs. A better alternative may be to build a natural gas pipeline from Prudhoe Bay to Fairbanks and then parallel to the proposed connecting railroad from Alaska through Canada to the Lower 48 States, as has been previously discussed.

The need for developing natural gas resources in Alaska and transporting them to the Lower 48 States is made especially great because of the expected growth in its use. Natural gas has been designated as the "environmental fuel of choice" by the Clinton Administration, and as a result its use is expected to grow by at least five percent per year over the next few years. Natural gas consumption has increased from 20 trillion cubic feet per year (565 billion cubic meters per year) in 1990 to 23 trillion cubic feet per year (650 billion cubic meters per year) in 1993 and is expected to reach 30 trillion cubic feet in 2000 as shown in Figure 11.

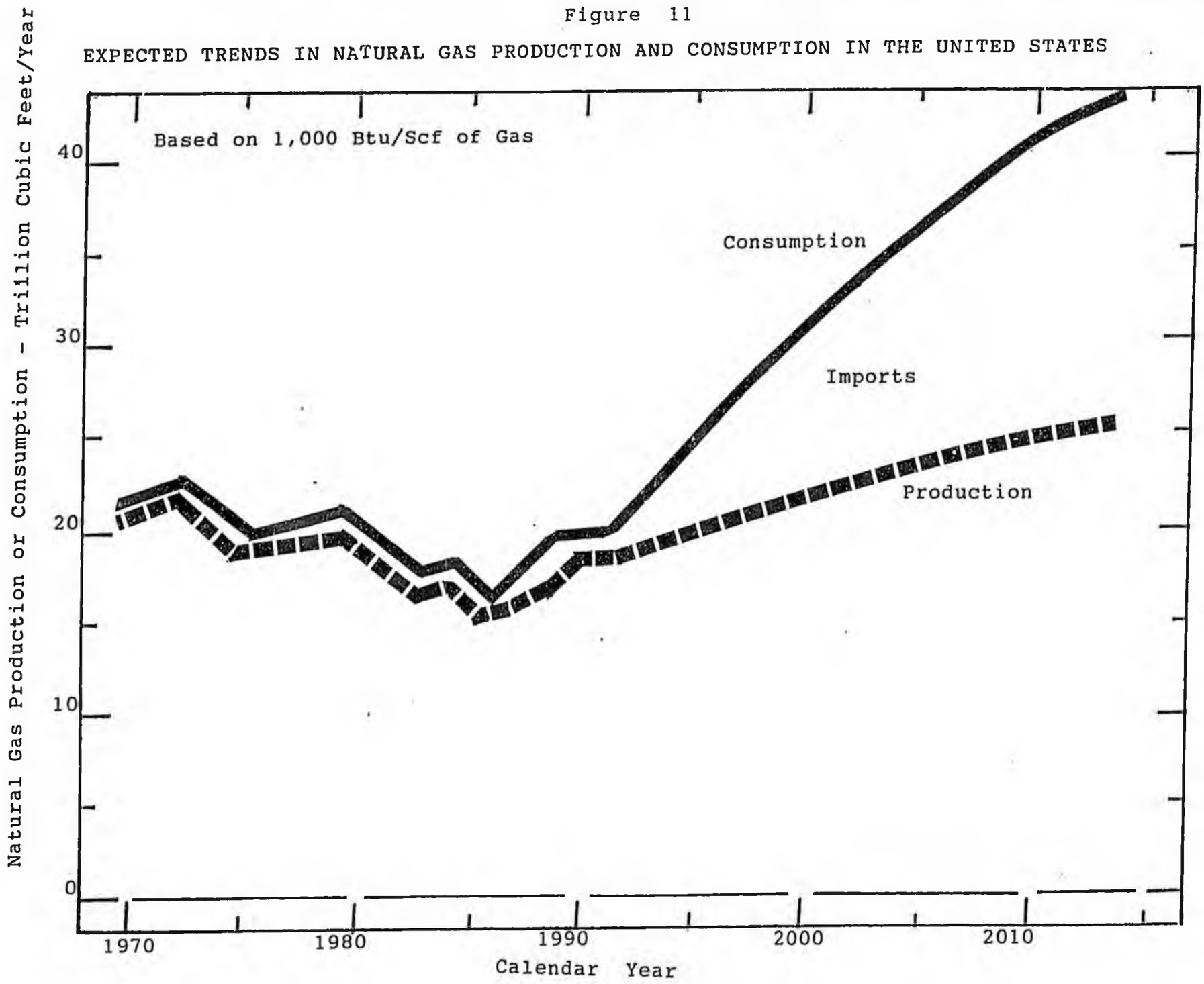
Natural gas consumption is expected to increase to 32 trillion cubic feet per year (905 billion cubic meters per year) by 2000 and 41 trillion cubic feet per year (1,160 billion cubic meters per year) in 2010 if present trends continue. Unfortunately, domestic natural gas production from the Lower 48 States is estimated to only increase from 18 trillion cubic feet per year (510 billion cubic meters per year) in 1990 to 25 trillion cubic feet per year in 2010. The result is that the amount of natural gas, which will need to be imported from outside of the Lower 48 States or from new fields is expected to increase from one trillion cubic feet per year (28 billion cubic meters per year) in 2000 to 20 trillion cubic feet per year (565 billion cubic meters per year) in 2010.

The potential sources for importing natural gas from other countries are more limited than for crude oil because of the need for cryogenic cooling, the safety concerns of storing and transporting liquefied natural gas, and the additional expense involved. As a result, the practical options for large-scale importation of natural gas are limited to pipeline transport from Mexico or Canada at the present time. The location of a natural gas pipeline parallel to the proposed Alaska connecting railroad would make it possible to transport natural gas from Alaska to the Lower 48 States or even from Canada on an enhanced economical basis.

The United States is the World's greatest energy consumer and is also the World's greatest energy importer. The United States consumes large amounts of petroleum, which is primarily used for transportation. The United States imported more than half of its total petroleum consumed this past year. The petroleum production in the United States is expected to continue

Figure 11

EXPECTED TRENDS IN NATURAL GAS PRODUCTION AND CONSUMPTION IN THE UNITED STATES



to decline while its consumption is expected to continue to increase, as shown in Figure 12 (Refs. 26, 27). Alaska has the greatest known reserves of untapped domestic petroleum in the United States, which reason and logic say need to be developed in order to reduce imports.

The United States has very limited amounts of oil and gas resources, but very large reserves of coal, as listed in Table 4 (Ref. 26) and illustrated in Figure 13 (Ref. 27) There are very large coal reserves located in Alaska, as shown in Table 5 (Ref. 28). There is a large coal field at Beluga on the Kenai Peninsula in Southern Alaska, which could be utilized, plus the Nenana field near Fairbanks in Central Alaska. There is another large coal field in the Colville Valley of Northwestern Alaska with a high heating value, which could also be developed in the future. The Arctic Slope low sulfur coal reserves of 20 billion metric tons or more are one of the World's largest deposits, but is limited in terms of development by transportation (Ref. 28). The coal reserves in Alaska constitute 20 to 25 percent of the total for the entire Nation and are between 500 billion and one trillion metric tons in magnitude (Ref. 29).

The Alaska coals tend to be of the bituminous and subbituminous grades with some lignites. The coal in Alaska tends to be very low in sulfur content with a minimal air pollution potential. The coal in the Colville Valley is high in heating value to make it desirable as either a utility or industrial fuel. Some of this coal has properties, which make it suitable for metallurgical coking as well as for utility steam coal. The coals from Alaska would have a particularly suitable market in Japan and Korea for steelmaking, as well as those from British Columbia, where these countries tend to have very little coal reserves of their own.

The expected coal use in Japan, Korea and Taiwan alone is expected to increase from 80 million metric tons per year in 1990 to 200 million tons per year by 2010. Some of this coal could be provided from Alaska and Siberia in the future. However, a considerable amount would still be expected to come from Australia, as it is generally the price leader for the Pacific region in terms of the present export market. There are presently about 700,000 short tons (600,000 metric tons) of coal shipped from the Usibelli mine near Healy to Seward over the Alaska Railroad and then by ship to Korea for use in electric power generation. There is also approximately 4.3 million short tons (3.9 million metric tons) of high grade bituminous coal shipped from the Tumbler Ridge mine in northeastern British Columbia by the British Columbia Railway to Vancouver for export to Japan and elsewhere in Asia.

One solid bulk energy fuel, which could be hauled on the connecting Alaska-Canada railroad is coal. As previously noted, Alaska has very large available resources of both utility steam coal and metallurgical coking coal. The State of Alaska is presently exporting approximately 0.75 million short tons per year of low sulfur coal to Korea to the Korean Electric Power Company. This coal is mined at the Usibelli mine near Healy to the South of Fairbanks and then transported on the Alaska Railroad to Seward. The coal is then loaded onto ships and taken to Korea for electric power generation. There is also another 0.75 million short tons per year hauled on the Alaska Railroad to local power plants in Alaska , which operated by local electric utilities, private industries, native corporations, and by the U.S. military bases.

The present coal hauling on the British Columbia Railway is 5.3 million short tons per year (4.8 million metric tons) from the Tumbler Ridge mine near Dawson Creek to Vancouver for export to

Table 4

COMPARISON OF TOTAL ENERGY RESERVES AND CONSUMPTION PATTERNS IN THE UNITED STATES IN 1991 (REF. 26)

Energy Resource	Total Energy Resources		Annual Energy Consumption	
	10^{15} Btu	% of total	10^{15} Btu/Year	% of total
Coal	75,000	61.7%	18.9	23.4%
Nuclear	46,000	37.8%	6.2	7.7%
Oil	350	0.3%	33.5	41.4%
Gas	300	0.2%	19.3	23.8%
Hydro	-	-	2.9	3.6%
Renewable	-	-	0.1	0.1%
Total	**121,650**	**100.0%**	**80.9**	**100.0%**

Table 5

ESTIMATES OF POTENTIAL COAL RESOURCES IN ALASKA (Ref. 28)

Coal Field	Measured Million Tons	Identified Million Tons	Potential Million Tons
Beluga	500	10,000	30,000
Nenana	175	6,200	9,500
Bering River	60	110	3,500
Wishbone Hill	40	120	350
Chickaloon	3	25	100
Anthracite Ridge	1	5	50

Figure 12

PAST, PRESENT AND FUTURE TRENDS IN PETROLEUM CONSUMPTION AND PRODUCTION IN THE UNITED STATES

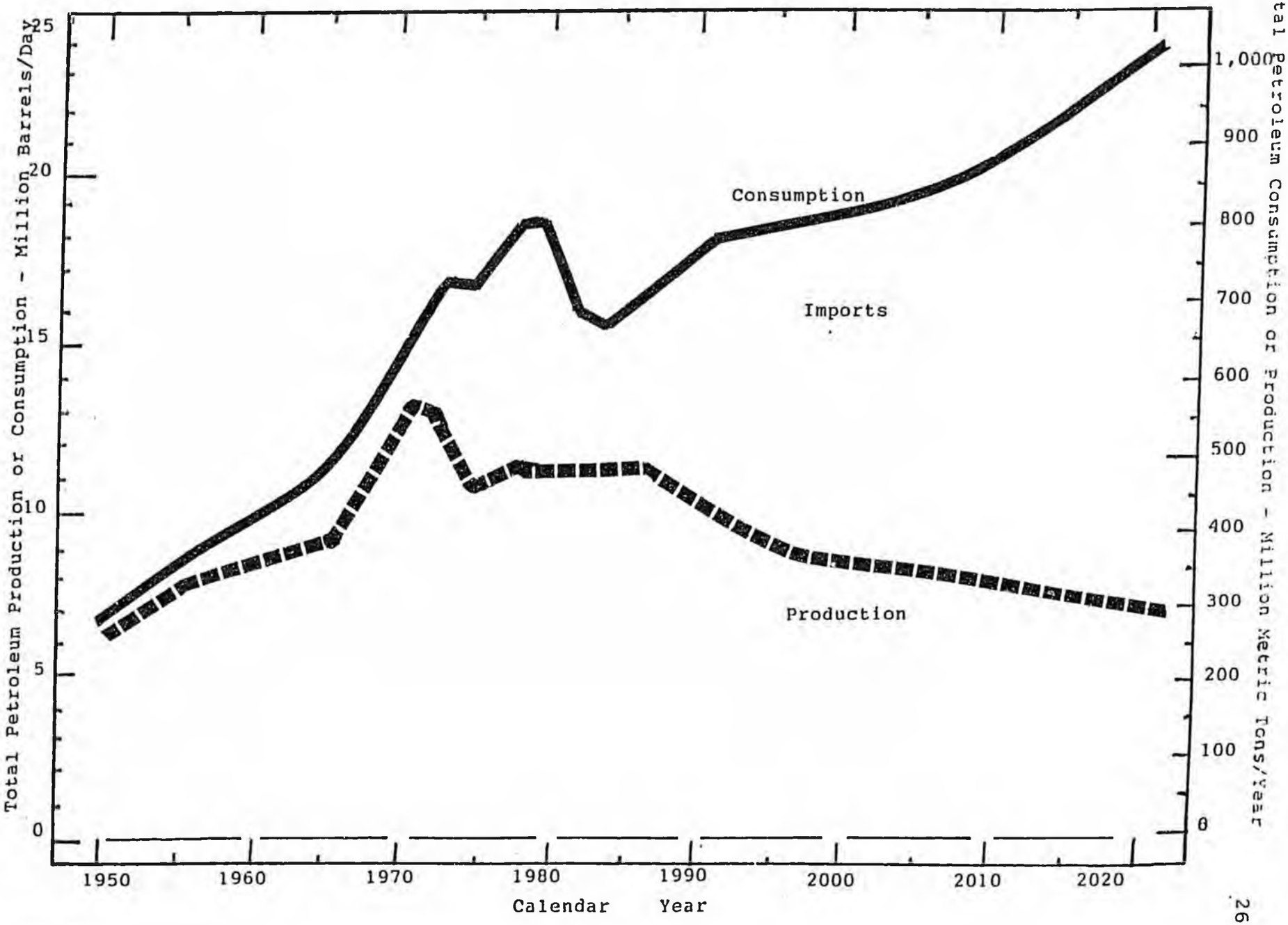
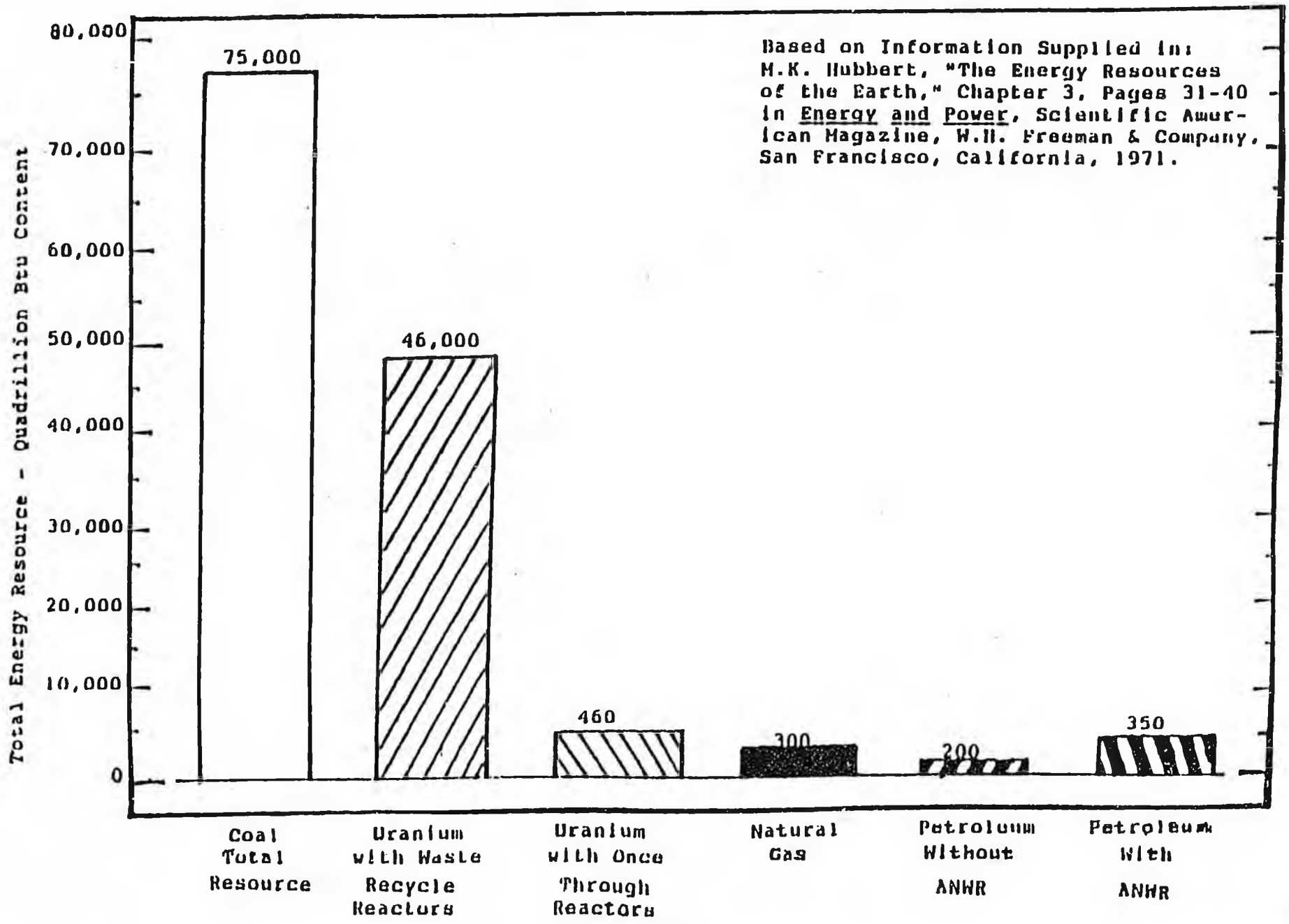


Figure 13

KNOWN TOTAL ENERGY RESERVES BY FUEL TYPE IN THE UNITED STATES IN QUADRILLION BTU.



Japan, Taiwan and Korea. This amount of coal hauled is expected to decrease to 3.3 million short tons per year in 2000 (3.0 million metric tons) with a reduction in purchases for metallurgical coking coal for steel production in Asia. Other uses need to be found for this coal.

There is a good possibility that coal exports from Alaska could significantly increase in the future, as shown in Table 6 (Ref. 29). Coal exports from Alaska were projected to increase from 0.8 million tons in 1990 to 2.0 million tons after 1995 and to 5.5 million tons after 2000. This coal could be transported by means of the Alaskan and Canadian rail lines to Asia for use in Japan, Korea, Taiwan and elsewhere in Asia. It is possible that coal could be shipped by rail from Alaska or Northwest Canada to the Lower 48 States, but it is unlikely in the near term because of the large coal reserves available in the Rocky Mountain States. The amount of coal which could be shipped over the connecting Alaska-Canada railroad lines is estimated as 5 to 15 million tons per year which represents approximately 5 to 15 percent of the present U.S. coal exports to other countries, as shown in Table 7.

Crude oil is another bulk commodity that could be shipped in large quantities from Alaska or Canada via the connecting Alaska-Canada railroad project to the Lower 48 States of the United States for processing. The development of the new oil fields adjacent to the existing Prudhoe Bay field could yield a production of at least 1.5 million barrels per day (80 million metric tons per year) of crude oil. At least some of this crude oil could be hauled by rail to the Lower 48 States of the United States from Alaska by way of the new railroad line from Prudhoe Bay to Fairbanks.

The shipments of crude oil could be made by means of tanker unit trains from the producing fields to the refining centers. The development of oil fields near Prudhoe Bay and in the Peace River Basin and elsewhere in Alberta could lend themselves to long distance shipments of crude oil by tank car to the Lower 48 States if the United States. It might also be possible to ship refined products in the reverse direction or even petroleum products from the refineries in Alaska to online communities along the railroad line. Oil shales and tar sands could even be shipped by rail from deposits to refineries in Alberta, but are generally processed at the local mine sites.

The present level of petroleum-related shipments along the British Columbia Railway and the Alaska Railroad is approximately 4 to 5 million short tons per year for both crude oil and petroleum products in combination. It is estimated that the potential market for petroleum shipments is 5 to 10 million short tons per year using conservative growth projections. It is possible that as much as 10 to 15 million short tons per year of crude oil and petroleum products could be shipped over the connecting Alaska Canada railroad upon its completion if a higher growth rate assumption is employed as the basis for making estimates.

Another commodity which could be shipped by rail along the Alaska-Canada connecting rail line is natural gas. The natural gas could be liquefied at elevated pressures and very low temperatures and placed in tank cars for long distance shipment while avoiding the need for additional pipeline construction. There is a potential safety hazard in passing through the tunnel because of the possibility, however remote, of a leak and explosion. An alternative form of natural gas transport would be as a methane-hydrate complex where water and methane have been found to produce solid snow-like matrices at supercooled temperatures and very high pressures such as occurs in permafrost zones (Ref. 30). Pipelines are the more likely means of natural gas transport.

Table 6

EXPECTED COAL EXPORT TRENDS IN ALASKA (REF. 29)

Calendar Year	Freight Traffic Level - Million Net Short Tons/Year		
	Minimum	Medium	Maximum
1980	-	0.00	-
1984	-	0.15	-
1990	-	0.75	-
1992	-	0.65	-
1995	0.80	1.00	2.00
2000	0.00	5.00	5.50
2005	0.00	7.00	10.00
2010	0.00	11.00	15.00
2020	0.00	20.00	30.00
2030	0.00	30.00	30.00

Table 7

EXPECTED MARKETS FOR FUTURE ALASKAN COAL EXPORTS (REF. 29)

Coal Importer	Total Coal Exports - Millions Tons/Year				
	1990	1995	2000	2005	2010
Japan	-	1.00	1.60	2.10	2.60
Korea	0.80	0.80	1.20	1.70	2.20
Europe	-	0.20	0.50	1.00	1.50
Mexico	-	-	-	0.50	1.50
Lower 48	-	-	-	0.50	1.00
Synthetic Oil	-	-	2.00	4.00	6.00
Other	-	-	0.20	0.20	0.20
Total	**0.80**	**2.00**	**5.50**	**10.00**	**15.00**

There have been no estimates made of natural gas shipments along the proposed Alaska-Canada connecting railroad line. However, it is possible that the magnitude of these natural gas shipments could become equivalent to those of petroleum if it were to become economical to ship methane-hydrate supercooled solid materials in the future. Once a more realistic basis, the need for equipment for natural gas gathering systems with processing plants at the wellheads plus pipeline transmission could be substantially benefited by having access to transport by the proposed Alaska-Canada connecting railroad with parallel pipelines. The recovery of seam gas from coal fields is a logical part of coal development.

COMMODITIES

There are a large number of commodities which are or can be moved over the Alaska Railroad and the British Columbia Railway. The previous Alaska Transportation Systems Planning Study (Ref. 31) by the University of Alaska divided rail cargo movements into the six categories of bulk liquids, bulk solids, machinery and metal products, forest products, food products and general cargo. The major commodities moved over the Alaska Railroad were reported to be rock, sand and gravel plus coal and petroleum products, intermodal trailers and containers, and others. The major commodities moved over the British Columbia Railway include forest products, grain, petroleum products, food and machinery to provide a frame of reference.

The ultimate economic viability of the proposed Alaska connecting railroad project will be determined by its ability to move goods between Alaska and Canada and the Lower 48 States in a cost competitive and time efficient manner. The traffic levels for cargo movements into and our of the various marine ports in Alaska have been presented in Table 8 (Ref. 32). The movement of these commodities through these ports gives an indication of the types of movements of materials, which could be expected to be hauled on the Alaska to Canada connecting railroad line. The major commodities noted include petroleum, metals, fish, chemicals and forest products. The commodities, which can be moved, are separately categorized as bulk commodities and specialty materials.

The major commodities moved by the Alaska Railroad include petroleum, coal, gravel and intermodal freight. A study was previously conducted in 1979 by the University of Alaska to determine commodity movements if a railroad link were constructed from Alaska through Canada to the Lower 48 States (Ref. 30). The major commodities identified which could be transported included petroleum, coal, machinery, forest products, food products and general cargo, as shown in Table 9. The amounts of material, which could be hauled by means of this railroad link, were listed as being only on the order of one million tons per year, which alone would mot be able to justify the cost of construction. However, the cargo traffic volumes reported in this study of approximately 1.2 million short tons per year (1.1 million metric tons) were well below the 5.1 million short tons per year in 1991 (4.6 Million metric tons per year).

This study also made a determination of the impact of building a railroad link from Alaska to the Lower 48 States upon road and rail traffic in Alaska upon its existing infrastructure. Without a rail link to the Lower 48 States, the rail traffic would increase from 435 million met ton-miles per year to 483 million net ton miles per year between 1992 and 2000, as shown in Table 10. The

Table 8

CARGO TRAFFIC LEVELS FOR THE ALASKAN PORTS (Ref. 32).

REGION	PORT	MILLION TONS/YEAR	MAJOR COMMODITIES
SOUTHWEST	Skagway	1.200	Copper, Lead, Zinc, Oil
	Ketchikan	2.200	Forest Products, Chemicals, Oil
WESTERN	Kodiak	0.600	Petroleum, Fish
	Unalaska	0.300	Petroleum, Fish
	Bethel	0.100	Petroleum, Fish
	Nome	0.075	Petroleum, Fish
SOUTH CENTRAL	Valdez	60.000	Petroleum
	Kenai	10.000	Petroleum, Chemicals
	Anchorage	2.000	Petroleum, General
	Whittier	0.300	Petroleum, Military
	Seward	0.150	Forest Products, Fish

Table 9

1979 ESTIMATES OF COMMODITY MOVEMENTS BY RAIL BETWEEN ALASKA AND THE LOWER 48 STATES (Ref. 31).

COMMODITY MOVED	TOTAL MOVEMENT - TONS/YEAR	
	1992	2000
BULK LIQUIDS (OIL)	110,000	152,000
BULK SOLIDS (COAL)	120,000	137,000
MACHINERY - METALS	159,000	213,000
FOREST PRODUCTS	52,000	59,000
FOOD PRODUCTS	221,000	315,000
GENERAL CARGO	293,000	401,000
TOTAL MOVED	955,000	1,277,000

Table 10

EXPECTED IMPACTS OF A RAIL LINK CONSTRUCTION

FROM ALASKA TO THE LOWER 48 STATES

ON ALASKA FREIGHT TRAFFIC AND POPULATION (Ref. 31).

CALENDAR YEAR	TRANSPORT MODE	NO RAIL LINK MILLION NTM/YEAR	WITH RAIL LINK MILLION NTM/YEAR
1992	Rail	435	877
	Highway	406	406
	Total	841	1,273
2000	Rail	483	974
	Highway	451	451
	Total	934	1,425
1992	Population	450,000	600,000
2000	Population	500,000	830,000

highway traffic would increase from 406 million net ton miles per year to 451 million net ton miles per year between 1992 and 2000 without this rail link. If the rail link were constructed the rail traffic would greatly increase from 877 to 974 million net ton miles per year between 1992 while the highway traffic would remain the same.

These results are based on information developed in 1979. In the meantime, the growth in traffic has raised the total shipments on the Alaska Railroad to above one billion met ton-miles per year in 1991. These values are well above the projected traffic figures even without a rail link o the Lower 48 States being completed. A major reason for this increase in traffic has been the growth in population of Alaska since the completion of the Alaska crude oil pipeline from Prudhoe Bay to Valdez. This population growth has resulted in an increase in economic activity with a resultant increase in freight traffic on the Alaska Railroad. There has also been a considerable growth in freight traffic on the British Columbia Railway over the past 10 years.

Forest products are one bulk commodity, which could be hauled by rail to the Lower 48 States from Alaska or Canada as either wood, pulp or paper. The amount of timber harvested in Alaska has been presented in Table 12, with values ranging from 5 to 22 million board feet per year (Ref. 33). The amount of timber harvested in Alaska could increase in the future to between 25 and 144 million board feet per year, as shown in Table 13. There has been a need for timber by lumber mills in Japan and Korea for many years because of their lack of available domestic resources. In addition, the decline of forest resources in the Pacific Northwest of the United States has given impetus to the need for importing outside timber from both Alaska and Canada by ship or rail to the Lower 48 States of the United States, especially to California and Texas.

The amount of forest products which could be shipped at least some segments of the connecting Alaskan and Canadian railroad system is estimated as much as 5 to 15 million tons per year. Alaskan or Canadian timber and partially finished lumber could be shipped to either the Lower 48 States by an all rail haul or to Japan and Korea in Asia from Seward or Prince Rupert. Timber or partially finished lumber from Alaska and Canada could be shipped to Japan, Korea, China and other countries in Asia and perhaps in limited quantities to the United States. There will also be large quantities of chips and wood wastes generated, which could be processed into pulp or used as fuel. The use of waste wood or even municipal refuse as fuel with rail shipments is also feasible, including burning in combination with coal in rural areas to provide electricity for local residences, businesses, and industries.

The problem with forest products in Alaska is that the proposed rail line would go through the northern interior while the main forests are located near the southeastern coast. The inland forests tend to be more slow growing and sparse in the colder drier climate, which could be readily harvested near the railroad. In British Columbia, the entire rail network is near forests, which tend to be faster growing in the more moist warmer climate. It is therefore suggested that the main emphasis on hauling forest products with the proposed new connecting railway line would be in Canada and not Alaska.

Mineral mining activities are a major concern for the construction of the proposed railway line between Alaska, Canada and the Lower 48 States. Gold mining is a matter of immediate interest, especially in the Pogo mining region near Delta Junction in Alaska. The amount of gold to be

TABLE 11

ESTIMATED FREIGHT AND PASSENGER TRAFFIC FLOWS ON THE ALASKA RAILROAD AND THE BRITISH COLUMBIA RAILWAY IN 1999

Transport Type	Commodity Hauled	British Columbia Railway		Alaska Railroad Company	
		Million Short Tons/Year	Percent of Total Use	Million Short Tons/Year	Percent of Total Use
Freight	Coal	5	25.0	2	18.0
	Petroleum	1	5.0	3	28.0
	Aggregate Rock	1	5.0	2	18.0
	Food Products	1	5.0	1	9.0
	Grain (Wheat)	2	10.0	0	0.0
	Metal & Machinery	1	5.0	0	0.0
	Forest Products	6	30.0	1	9.0
	Intermodal	2	10.0	1	9.0
	Other	1	5.0	1	9.0
	Total	20	100.0	11	100.0
Passenger	Passengers/Year	600,000	-----	160,000	-----
Distance	Haul Distance	305 Miles	----	205 Miles	---

Notes: 1. Data based on information from Reference 22.
2. Data based on information from Reference 19.

Table 12

ALASKA TIMBER HARVEST TRENDS IN THE NORTHERN AND SOUTHEASTERN REGIONS (Ref. 33).

CALENDAR YEAR	TOTAL HARVESTED - MILLION BOARD FEET/YEAR[1]		
	NORTHERN[2]	SOUTHEASTERN[3]	TOTAL
1980	3.6	1.9	5.5
1984	10.9	11.6	22.5
1985	9.8	1.7	11.5
1986	5.0	5.4	10.4
1987	8.7	2.2	10.9
1988	8.9	1.5	10.4
1989	12.5	1.9	14.4
1990	10.6	0.5	11.1
POTENTIAL	320	240	560

* Notes: 1. 4.0 Board Feet = 1.0 cubic foot
2. Includes the Fairbanks, Delta and Toll areas
3. Includes the Southern and Panhandle areas

Table 13

PROJECTED TRENDS IN ALASKA TIMBER HARVESTING FROM 1990 TO 2030

CALENDAR YEAR	TOTAL HARVEST - MILLION BOARD FEET/YEAR		
	MINIMUM	MEDIUM	MAXIMUM
1990	--	11.1	--
1995	6.0	25.2	51.0
2000	33.7	79.5	127.2
2010	45.3	85.0	144.0
2020	44.0	82.9	140.7
2030	45.9	78.0	123.2

* Note: 1. Assume ratio of 1/3rd row logs and 2/3rds wood chips
2. Assume a development ratio of 60% Northern and 40% Southern

transported is not large, but chemicals are required for processing, equipment and materials are required for mining, and provisions of food and other items are required for mining. It is also possible that gold mined from deposits adjacent to the proposed railway line could be used as a form of security collaterization for project financing of its construction. The estimated amounts of materials, which could be hauled along the railway line for gold mining, are between one and three million short tons per year.

Other mineral ores and products can be shipped along at least portions of the proposed Alaska Canada connecting rail route. Cements can be shipped as a construction material along with sand, rock and gravel and limestone, although generally only for short distances. There will be a need for hauling a number of metal and mineral ores from mines to processing plants as these resources become developed in the future. The magnitude of this market is estimated as being from 2 to 6 million short tons per year for bulk mineral ore transport.

One specific mineral, which might have considerable interest along the proposed Alaska Canada connecting railroad line, is that large iron ore deposits exist in the Yukon Territory and the Northwest Territories. The iron ore could be mined and taken to a future small steel mill to be located along the railway line. The coal required for coking and the limestone for fluxing could also be transported by the railroad from mine to mill, and the steel products transported, also by rail to customers. One possible application for such a steel mill could be to produce railroad rails and construction beams to support future economic development along the railroad line corridor in Alaska and Canada (Ref. 23). The expected total iron and steel traffic on the railway would be one to three million short tons per year.

The hauling of metals on the Bering Strait railroad line is another specialty material, which can be transported. Fabricated steel products and steel products can be shipped in both directions from Seward to Alaska or from the Lower 48 to States to Canada as the needs develop. Construction steel can be shipped over intermediate distances or over the entire route depending on the specific need. Metallic ores can also be shipped along the railroad line over shorter distances for processing in smelting plants and others such as the Red Dog zinc mine. It is expected that much of this traffic will originate in the mineral-rich zones of the Yukon and Northwest Territories.

It is estimated that the shipment of metal products and ores will comprise 2 to 5 million tons per year. Equipment and materials will need to be hauled along the railroad line in order to foster mineral mining and other economic development. The possibility that new oil and gas development could occur within a reasonable time frame would necessitate the movement of large amounts of piping, pumps, compressors and other machinery. The possible development of natural gas production with coal bed gas recovery could occur separately from oil development would require large amounts of piping and equipment. The equipment and machinery hauling could generate 2 to 5 million short tons per year of rail traffic for the Alaska-Canada connecting railroad.

Grain is a bulk commodity, which can be shipped, in large quantities from the United States and Canada to China, India, Russia and other countries in Asia. The grains, which could be shipped, include corn, barley and wheat, depending upon the use desired. The grain could be shipped from the Peace River area of northeastern British Columbia or from Alberta to the west through Prince

Rupert or Seward and then to the points of use. Existing markets and cars could be utilized in an extension of existing services to primarily interior market locations. The amount of grain which would be expected to be shipped via the Alaska-Canada connecting railroad is 3 to 8 million tons per year. This amount represents 3 to 8 percent of the present U.S. grain exports of almost 100 million short tons per year, and could be greatly increased if the Bering Strait tunnel were to be built.

Other agricultural crops could be shipped by rail such as potatoes or hydroponically grown vegetables or farm fish. Such facilities could be located at periodic intervals along the line with greenhouses and used for enhanced crop growing with carbon dioxide enrichment. The hauling of these specialty crops could add one to two million tons per year to the railroad traffic on the Alaska Canada connector line in both directions, and would be useful for small villages.

Food products can be shipped in both directions along the Alaska-Canada connecting railroad route. A particular market in at least the immediate term is from the Lower 48 States of the United States to Alaska, where much of it must be refrigerated due to perishability concerns. Fruits and vegetables and meats can be shipped by means of these refrigerated cars to Alaska or Canada from the United States. Dried food products can also be shipped by means of the Alaska-Canada connector railroad line from the United States to Alaska, Alberta, British Columbia and elsewhere in northwest Canada. This market is estimated as being from 2 to 6 million tons per year in magnitude for food products shipments in a northbound direction.

One specific type of agricultural operation, which may become increasingly common in Alaska and Northwestern Canada in the future are hog farms for pork production. The States of Colorado and South Dakota have recently passed ballot initiatives to restrict hog farm operations in their states because of nitrate water pollution and odorous air pollution. The location of these hog farms in remote areas of the Far North would act to minimize adverse environmental impacts as as to create employment opportunities in depressed regions.

Hog farms need to have extensive grain feed shipments plus chemical supplies. They also have the need to process and remove wastes as well as to ship the pork product to distant markets. It is estimated that 10 to 15 hog farms could be located in these remote communities along the Alaska-Canada connector railway line. These hog farms could create as much as 3 to 7 million short tons per year of freight traffic, and would generate large amounts of wastes for recovery.

A number of chemicals can be hauled along the Alaska-Canada connecting railroad line. These chemicals include basic industrial inorganics such as sulfuric acid, nitric acid and caustic soda in the liquid form as well as dry bulk chemicals such as sodium carbonate, limestone and titanium oxide pigments. There are a number of organic chemicals which could be hauled along the Alaska-Canada connecting railroad line in either direction which include ethylene from the plant in Red Deer, Alberta. There will be a need for these chemicals to be shipped to support the mining and mineral processing industries plus other industries to be located in Northwest Canada and to a lesser extent elsewhere in Alaska. The estimated magnitude of this market is 2 to 5 million tons per year for chemical shipments of organic and inorganic materials.

A related material to chemicals is fertilizers, which are needed to assist agriculture in East Asia and elsewhere. Potash is one fertilizer material, which can be shipped in bulk from Saskatchewan along with potassium sulfate and potassium nitrate. The economics of shipping these materials depends on the haul distance involved and their value at the point of use. It is expected that these fertilizers shipments would be primary from America to Asia, and that the magnitude of the materials shipped would be from 1 to 5 million tons per year for fertilizer shipments. A particular route would be potash shipments from Saskatoon, Saskatchewan to Edmonton, Alberta and Prince George to Prince Rupert British Columbia by rail for export to Asia by ship.

Intermodal freight traffic has been a major component of the growth in railroad freight traffic over the past few years in the United States. Intermodal freight traffic includes truck trailers as well as single stack or double stack containers. Intermodal freight traffic is bi-directional in nature as it can move from the Lower 48 States to Alaska or from Alaska and Canada to the Lower 48. There is no specific description of the contents of intermodal freight except that it is material, which is time-sensitive in terms of equipment or goods where speed of shipment is a necessity. The Alaska-Canada connector railway route may make it possible to ship cargoes between the various inland destinations entirely by land routing without having to offload or onload containers at the marine ports or Seward or Prince Rupert or Haines to reduce overall transport costs.

The rail intermodal shipments in the United States now exceed 10 million trailer and container units per year for a net weight exceeding 200 million tons and is increasing at more than 5.0 percent per year. The level of cargo shipments at the various ports on the West Coast of the United States now exceeds 200 million tons per year exclusive of crude oil, and is increasing at a rate of greater than 3.0 percent per year. The Pacific Rim trade is now the most rapidly growing in the World. Intermodal freight traffic could go between the United States, Canada, Mexico and Latin America in the Western Hemisphere to Japan, Korea, Taiwan, China, Southeast Asia, Russia, the Newly Independent States plus Western and Eastern Europe in the Eastern Hemisphere. The growth of intermodal freight traffic along the proposed Alaska-Canada connector railway would become especially great if the Bering Strait, railroad tunnel between Alaska and Asia ever becomes a reality particularly. The development of large scale electronic commerce and internet shopping may greatly accelerate the need for this project.

The present total intermodal freight traffic on the combined Alaska Railroad and British Columbia Railway is estimated as 3 to 5 million short tons per year at the present time. This intermodal freight traffic could increase to between 5 and 10 million short tons per year with the completion of the Alaska-Canada connector railway from the Lower 48 States to Fairbanks without any significant impact of electronic commerce. This intermodal freight movement between Alaska and Canada and the Lower 48 States could increase to as much as 10 to 15 million short tons per year with extensive electronic commerce and internet shopping being utilized.

The final freight transport category for consideration with the proposed Alaska-Canada connector rail line are military cargoes as there are a number of Army, Air Force and Navy facilities located in Alaska. The starter cargo go justifying the entire construction of the 1,300 mile long (2,085 km) Alaska-Canada connector railroad line may be to develop a major missile base at Fort Greely near Delta Junction, Alaska. The initial rail line construction would be for 70 miles from Eielson Air Force Base to Fort Greely at Delta Junction and then for 200 miles to the Yukon border. The

expected military cargoes to be hauled over the Alaska-Canada connector railway are expected to range between 3 and 10 million short tons per year depending on construction.

CONCLUSIONS

The completion of the construction of the Alaska-Canada connector railroad line over the 1,300 mile distance from Eielson, Alaska to Dease Lake and Fort Nelson, British Columbia will make it possible to link the Alaska Railroad with the rest of the North American railroad network. It will then be possible to haul a wide variety of materials along this railroad line between Alaska, Canada and the Lower 48 States in both directions. In addition, it is also planned to have railroad passenger service along this rail line in order to serve the remote villages and communities.

There are a wide variety of commodities, which can be hauled along the Alaska-Canada connector railroad line, as listed in Table 14. The commodities identified, which can be hauled, include the categories of fuels, resources, metals, agriculture, chemicals, intermodal, military and other cargoes. It is estimated that between 45 and 120 million net short tons per year could hauled over the Alaska-Canada connector railroad line. The starter commodities to initiate the railway operation would most likely be the military related cargoes to the new missile base. The largest quantity of cargoes to be moved over the railway line would probably be fossil fuels, including coal, crude oil and petroleum products.

The expected increase in total cargo movements along the 1,300-mile long Alaska-Canada connector railroad line is illustrated in Figure 14. Approximately 65 percent of the total railway freight traffic increase in Northwestern Canada and Alaska will be in Canada, primarily on the British Columbia Railway. Approximately 35 percent of this total railroad freight traffic will be on the Alaska Railroad. The total freight traffic movements to be expected along the planned 1,300 mile Alaska-Canada connector railroad line is expected to constitute about one-third of the total freight traffic movements to be expected in Northwestern Canada and Alaska.

The estimated freight traffic flow on the planned Alaska-Canada connector railroad is expected to increase from 5 million net short tons per year in 2006 as the startup to 20 million short tons per year in 2010. The freight traffic flows are expected to increase to 30 million net short tons per year in 2020 to 48 million tons per year in 2030, as shown in Table 15. The freight traffic flows are expected to increase from 1.4 billion net ton-miles in 2006 to 17.8 billion net ton-miles in 2030. The freight traffic revenues are expected to reach 222 million dollars per year by 2010 and increase to $665 million per year by 2030.

The startup of the Alaska Canada connector railway in 2006 will result in a rapid initial increase in freight traffic revenues based on military cargoes. The expected freight traffic revenues are expected to reach $222 million in 2010 and $357 million per year in 2020 as shown in Figure 15. These expected freight traffic revenues are expected to be sufficient to allow the railroad to be operated on a profitable basis after the year 2010 within 5 years of beginning its service.

The above referenced railway freight traffic revenues are based on the cost, revenue and traffic data provided for the Alaska Railroad operation, as listed in Table 16. The total amount of freight moved in 1991 was 5.1 million net short tons to generate 1.05 billion net ton-miles of freight

TABLE 14

ESTIMATED INCREASES IN FREIGHT TRANSPORT BY COMMODITY FOR THE ALASKA CANADA CONNECTOR RAILROAD

Overall Category	Specific Commodity	Amount Tranported Million Tons/Year	Percent of Total	Freight Haul Direction
Fuels	Coal	5.1-15.0	11.1-11.3	Bidirectional
	Crude Oil	3.0-6.0	6.7-5.6	Southbound
	Petroleum Products	2.0-6.0	4.4—5.6	Southbound
	Subtotal	10.0-27.0	22.2-22.5	----
Resources	Forest Products	5.0-15.0	11.1-12.5	Southbound
	Gold Mining	1.0-3.0	2.3-2.5	Northbound
	Mineral Mining	2.0-6.0	4.4-5.0	Bidirectional
	Subtotal	8.0-24.0	17.8-20.0	----
Metals	Metallic Ores	1.0-3.0	2.2-2.6	Bidirectional
	Metal Products	2.0-5.0	4.3-4.2	Bidirectional
	Equipment and Machinery	2.0-5.0	4.3-4.3	Northbound
	Subtotal	5.0-13.0	10.8-11.1	----
Agriculture	Grain	3.0-8.0	6.6-6.8	Southbound
	Food Products	2.0-6.0	4.4-5.1	Northbound
	Hog and Pork	3.0-7.0	6.5-5.9	Bidirectional
	Subtotal	8.0-21.0	17.5-17.8	----
Chemical	Chemicals	2.0-5.0	----	Northbound
	Fertilizers	1.0-5.0	----	Bidirectional
	Subtotal	3.0-10.0	6.7-8.3	----
Intermodal	Intermodal Freight	5.0-10.0	----	Bidirectional
	Internet Shopping	3.0-5.0	----	Northbound
	Subtotal	8.0-15.0	12.5-17.5	----
Military	Military Cargoes	3.0-10.0	6.7-8.3	Bidirectional
Other	To be Determined	Unknown	Unknown	----
Total	Total Amount	45.0-120.0	100.0	----

Figure 14

ESTIMATED INCREASES IN TOTAL FREIGHT TRAFFIC VOLUMES ALONG THE ALASKA RAILROAD AND THE BRITISH COLUMBIA RAILWAY BETWEEN 1990 AND 2030 FOR THE ALASKA-CANADA CONNECTOR CORRIDOR

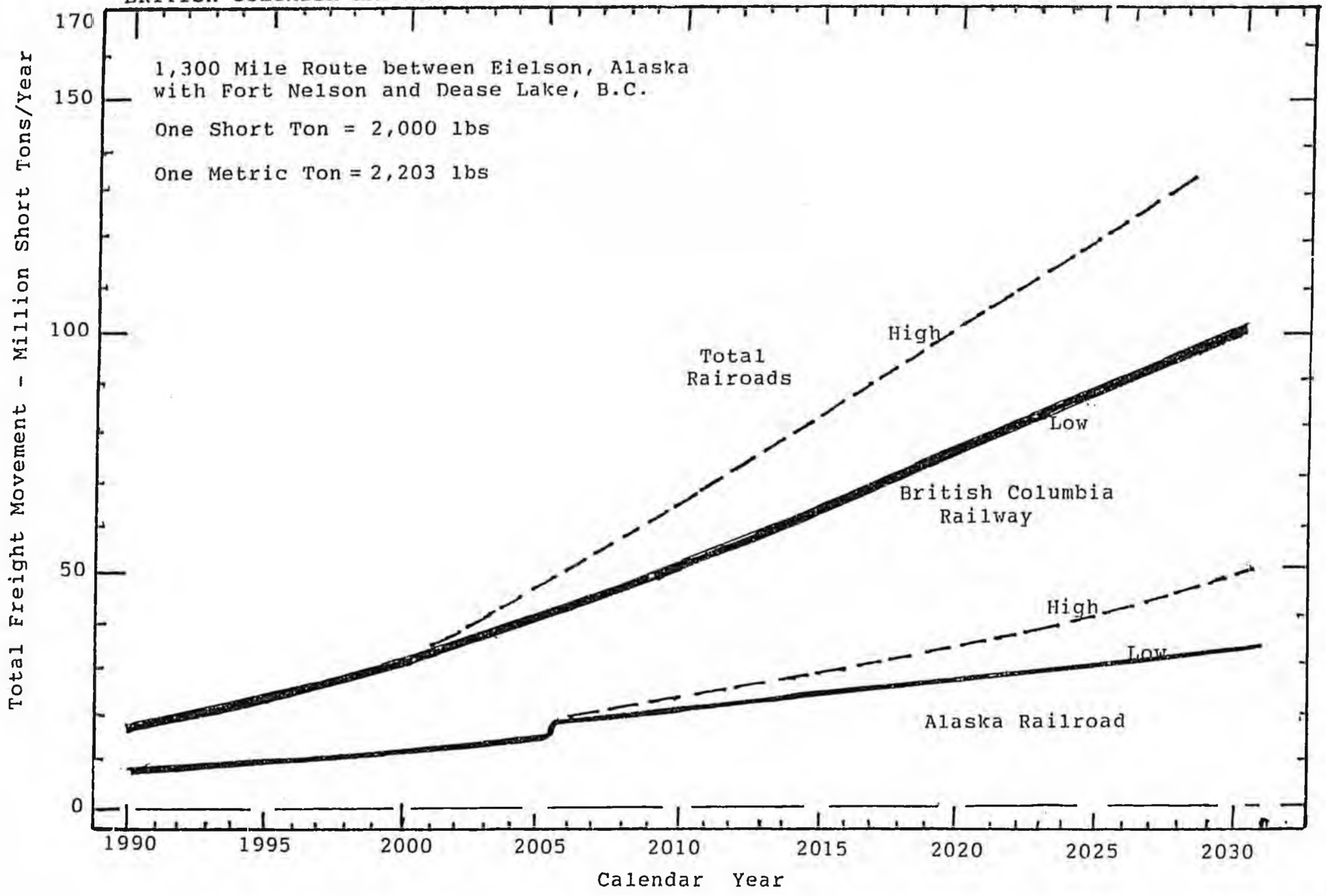


TABLE 15

ESTIMATED INCREASES IN FREIGHT TRAFFIC AND OPERATING REVENUES FOR THE ALASKA CANADA CONNECTOR RAILROAD LINE[3]

Calendar Year	Shipments Million Tons/Year	Haul Distance Miles	FreightTraffic Level[1] Million NTM/Year	Rate ¢/NTM	Annual Revenue Million$/Year
2000	0	----	0	4.05	0
2005	0	----	0	4.00	0
2006	5	275	1,375	3.95	55
2007	8	280	2,800	3.90	109
2008	13	285	4,275	3.85	165
2009	17	290	4,930	3.80	187
2010	20	300	6,000	3.70	222
2015	25	325	8,125	3.60	293
2020	30	335	10,050	3.55	357
2025	38	350	13,300	3.65	485
2030	48	370	17,760	3.75	665

Notes:
1. Reported in million net ton-miles per year.
2. Reported in cents per net ton-mile travelled.
3. Reported in 1999 constant dollars.
4. Tons are reported as short tons (2,000 lb/short ton)
5. Metric tons are calculated by multiplying short tons by 0.909.

Figure 15

ESTIMATED INCREASES IN FUTURE FREIGHT TRAFFIC REVENUES ALONG THE ALASKA-CANADA RAILROAD CONNECTOR ROUTE BETWEEN EIELSON, ALASKA AND FORT NELSON AND DEASE LAKE, BRITISH COLUMBIA

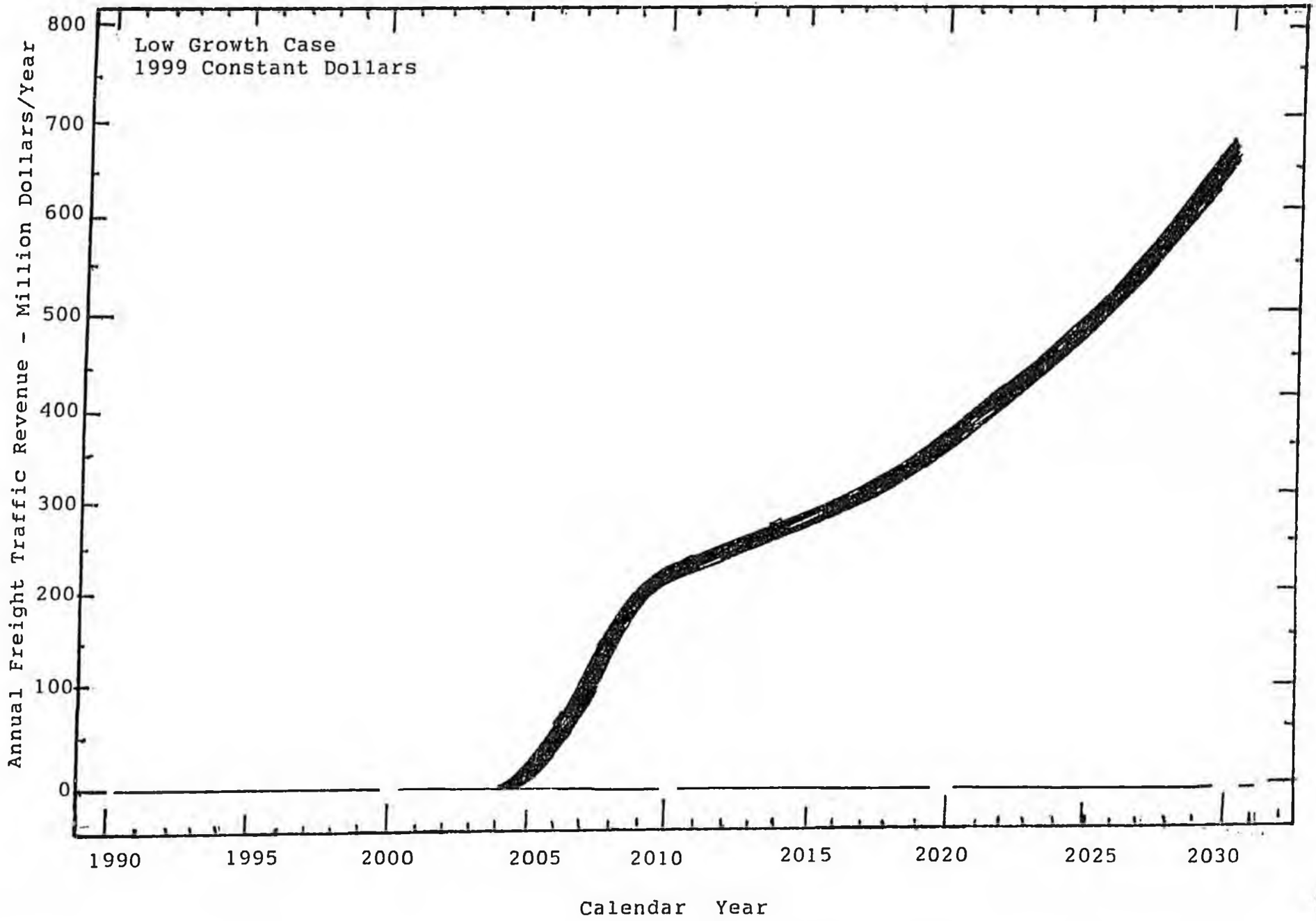


TABLE 16

REPORTED FREIGHT REVENUE HAUL RATES ON THE ALASKA RAILROADS IN 1991 (REFS. 18,19)

Commodity Transported	Distance Miles	Amt. Hauled Net Tons/Yr.	Traffic Level Net Ton Mi/Yr	Annual Rev. Million$/Year	Unit Rate ¢/Net Ton/Mi.
Petroleum Prod.	356	1,400,000	498,400,000	19,000,000	3.812
Coal-Local	120	800,000	96,000,000	3,000,000	3.125
Export	358	800,000	286,400	9,000,000	3.142
Coal Total	**478**	**1,600,000**	**382,400,000**	**12,000,000**	**3.138**
Gravel Total	35	1,800,000	63,000,000	3,000,000	4.762
Intermodal	356	200,000	71,200,000	6,500,000	9.129
Other Materials	356	100,000	35,600,000	,500,000	21.067
Freight	535	5,100,000	1,050,600,00	48,000	4.569/NTM
Passenger	515	471,217	167,753,250	16,400,000	9.776/PM
Total	**535.00**	----	----	**64,400,000**	----

TABLE 17

ESTIMATED PASSENGER SERVICE REVENUE ON THE ALASKA CANADA CONNECTOR RAILROAD LINE (REF. 16)

Passenger Travel Type	Unit Rail Fare ¢/Pass-Mile	Trip Distance Miles	Traffic Level Pass/Day	P. Movement Mil PM/Year	Annual Rev. Million $/Year
Tourist Travel	6.5-7.5	3.00-500	250-500	27-91	1.8-6.8
Occup. Travel	4.0-6.0	100-550	750-1,000	27-200	1.1-12.0
Tourist & Car	8.0-10.0	300-900	250-500	27-164	2.2-16.4
Auto Transport	$300-500/Veh	300-500	50-150	5-27	5.5-27.4
Organized Tours	10.0-15.0	2[illegible]0-900	500-750	46-246	4.6-36.9
Total Amount	**4.0-15.0**	**100-900**	**1,800-2,900**	**132-728**	**15.2-99.5**

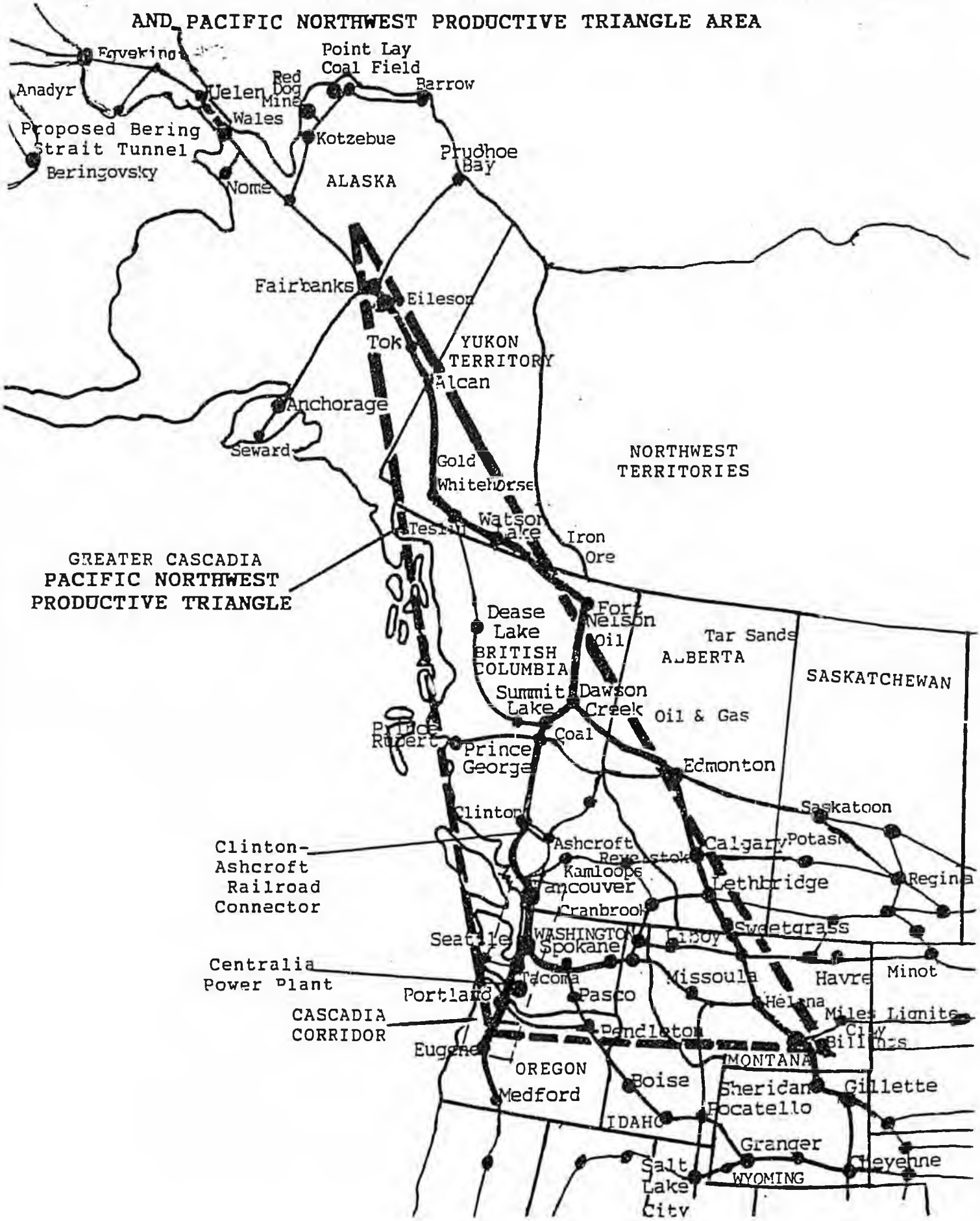
traffic with an average haul distance of 205 miles, as compared to 305 miles for the British Columbia Railway. The total revenue generated from freight traffic on the Alaska Railroad was $48 million in 1991, which was 75 percent of the total. The passenger traffic on the Alaska Railroad constituted 25 percent of the total system revenue with a total of $16.4 million with 471,217 passengers in 1991 with an average trip length of 355 miles.

The proposed passenger service on the Alaska Canada connector railroad would have 1,800 to 2,900 passengers per day or 651,000 to 1,085,000 passengers per year with an average trip length of 435 miles. The rail passenger service would have revenues ranging from $15 to $100 million per year, as shown in Table 17. These passenger revenues would constitute 10 to 15 percent of the total for the proposed Alaska Canada connector railroad line.

The proposed Alaska Canada connector railroad line of 1,300 (1,805 km) from Eielson, Alaska to Fort Nelson and Dease Lake, British Columbia would have sufficient freight traffic to be economically viable with coal and oil, mineral and forest resources, intermodal cargoes and agricultural products the main constituents if proper development policies are implemented. There would be considerable freight traffic flows in both directions to serve to connect Alaska with the Lower 48 States. In addition, the future construction of this railway would serve as the vehicle to promote economic growth and development throughout the entire Greater Pacific Northwest productive triangle, as illustrated in Figure 16. This railway line could first be extended to western Alaska and ultimately to Asia and Europe by way of the Bering Strait tunnel, especially with the advent of electronic commerce.

Figure 16

RAILROAD NETWORK SYSTEM DEVELOPMENT IN THE CASCADIA CORRIDOR REGION AND PACIFIC NORTHWEST PRODUCTIVE TRIANGLE AREA



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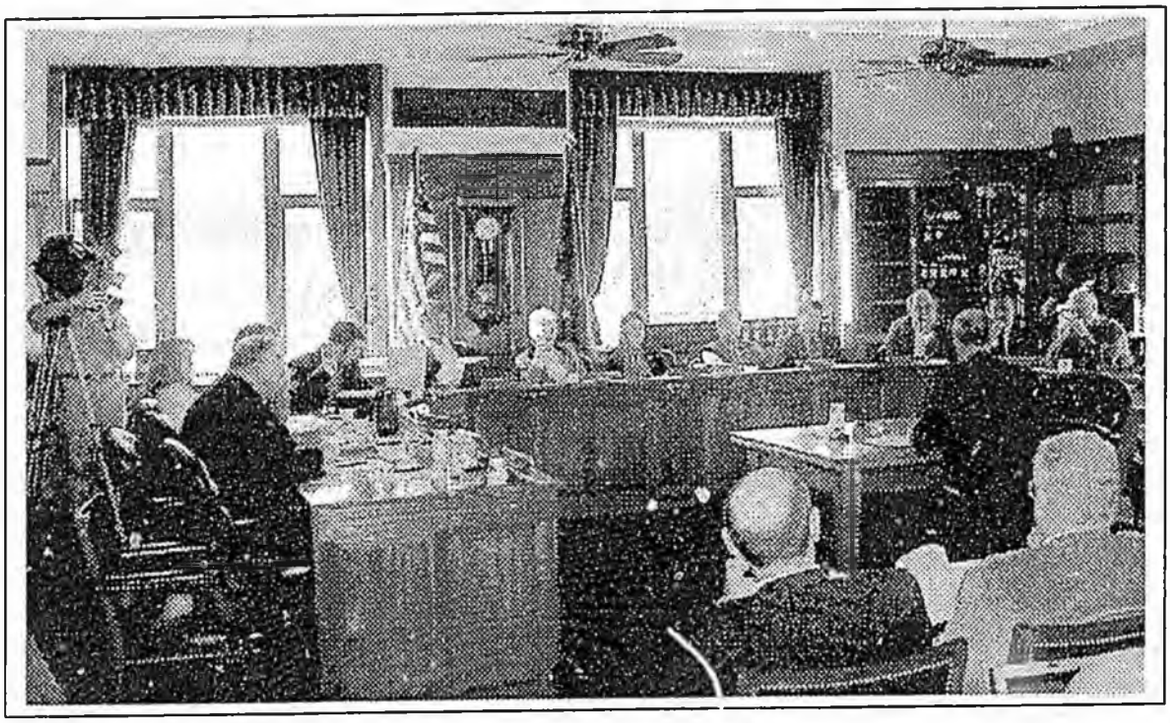
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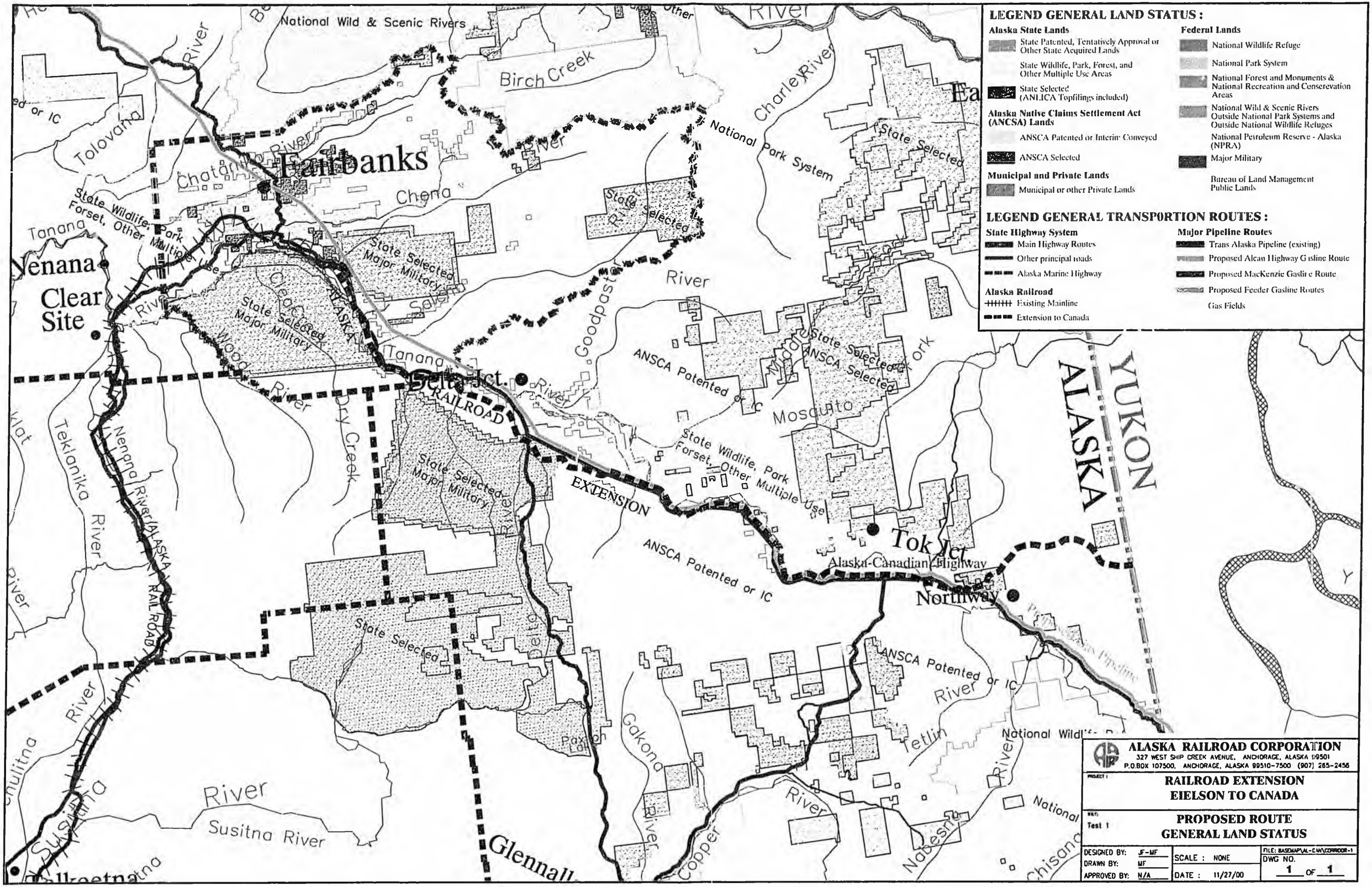
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LEGEND GENERAL LAND STATUS :

Alaska State Lands

- State Patented, Tentatively Approval or Other State Acquired Lands
- State Wildlife, Park, Forest, and Other Multiple Use Areas
- State Selected (ANILCA Topfilings included)

Alaska Native Claims Settlement Act (ANCSA) Lands

- ANSCA Patented or Interim Conveyed
- ANSCA Selected

Municipal and Private Lands

- Municipal or other Private Lands

Federal Lands

- National Wildlife Refuge
- National Park System
- National Forest and Monuments & National Recreation and Conserevation Areas
- National Wild & Scenic Rivers Outside National Park Systems and Outside National Wildlife Refuges
- National Petroleum Reserve - Alaska (NPRA)
- Major Military
- Bureau of Land Management Public Lands

LEGEND GENERAL TRANSPORTION ROUTES :

State Highway System

- Main Highway Routes
- Other principal roads
- Alaska Marine Highway

Alaska Railroad

- Existing Mainline
- Extension to Canada

Major Pipeline Routes

- Trans Alaska Pipeline (existing)
- Proposed Alcan Highway Gasline Route
- Proposed MacKenzie Gasline Route
- Proposed Feeder Gasline Routes
- Gas Fields

ALASKA RAILROAD CORPORATION
327 WEST SHIP CREEK AVENUE, ANCHORAGE, ALASKA 99501
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

PROJECT : **RAILROAD EXTENSION EIELSON TO CANADA**

REV: Test 1

PROPOSED ROUTE GENERAL LAND STATUS

DESIGNED BY: JF-MF	SCALE : NONE	FILE: BASEMAP\AL-CAN\CORRIDOR-1
DRAWN BY: MF		DWG NO. 1 OF 1
APPROVED BY: N/A	DATE : 11/27/00	

State of Alaska
Legislature

* please distribute * → Lou Caputo

Please enter my testimony into the record to the

HFIN Committee in regard to the
(Committee Name)

Transp. Corridor to No. Am. on 2-20-01.
(Bill/Subject) (date)

I AM VERY MUCH AGINST THE PROPOSE ROUTE OF THE RAILROAD EXTENSION WHERE IT LEAVES THE AK HWY CORRIDOR AND FOLLOWS THE LADUE RIVER. THAT INVADES SENSETIVE WILDLIFE, HABITAT THAT IS USED BY 2 CARRIBOU HERDS, MOOSE + OTHER WILDLIFE. IF YOU HAVE TO HAVE A RAILROAD, FOLLOW THE AK HWY ALL THE WAY THRU AK + CA

SIGNED AL KEECH
(PLEASE PRINT)

POB 362 TOK, AK 99780
ADDRESS AND PHONE NUMBER

I HAVE NOT HEARD ONE WORD SAID ABOUT WILDLIFE OR HABITAT SPOKEN. ???

ALASKA STATE LEGISLATURE

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Majority Leader
House of Representatives
House District 34

JOINT HOUSE COMMITTEE on CONSTRUCTION OF A TRANSPORTATION/UTILIY CORRIDOR TO CONNECT ALASKA WITH THE REST OF NORTH AMERICA

February 20, 2001
10:30 a.m.-12:30 p.m.
House Finance Committee Room

AGENDA

10:30 a.m.	Call to order; introduction of participants, other legislators present. 10:30 a.m. (Gavel in Joint House Committee, including Yukon legislators: MLAs Mike McLarnon, Scott Kent and Cynthia Tucker.)
10:30 a.m.	Bill Woolf, speaking for Senator Frank Murkowski from Washington , D.C.
10:45 a.m.	Jim Kubitz, Alaska Railroad
11:00 a.m.	Scott Kent, Yukon MLA, speaking for Premier Pat Duncan from Whitehorse, YT.
11:15 a.m.	Dr. Milt Wiltse, Power Point presentation: East Central Alaska Geologic Resources and Access Corridors
11:30 a.m.	Dr. Paul Metz, University of Alaska Fairbanks
11:45 a.m.	Larry Bagnell, Yukon MP, from Ottawa, Ont.
12 noon	Tom Brigham, speaking for (Alaska Department of Transportation and Public Facilities) Commissioner Joe Perkins
12:15 p.m.	Colin Chapman, for Congressman Don Young, from Washington, DC.
12:30 p.m.	Gavel out.

ALASKA STATE LEGISLATURE

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Majority Leader
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Scott Kent



Deputy Caucus Chair
Deputy House Leader
Deputy Chair of the Committee of the Whole House

MLA - Riverside
Yukon Liberal Party

Scott Kent was elected as the MLA for Riverside in the general election on April 17, 2000.

Mr. Kent has been a Whitehorse resident since 1973. He attended Selkirk Elementary School and F.H. Collins Secondary School as well as the University of Calgary.

He has been the president of the Yukon Broomball Association since 1997 and is the president of the Whitehorse Flag Football League. He is part owner of a local business and a holding company.

He was most recently the sales and purchasing manager for Whitehorse Distributors, where he worked for the past 10 years.

E-mail: scott.kent@gov.yk.ca

Mike McLarnon



Deputy Speaker
Chair of the Committee of the Whole House

MLA - Whitehorse Centre
Yukon Liberal Party

Mike McLarnon was elected as the MLA for Whitehorse Centre in the general election on April 17, 2000.

Mr. McLarnon is a life-long Yukon resident, born and raised in downtown Whitehorse. He is a former board member of the Yukon Sourdough Rendezvous Society, the Tourism Industry Association and Heritage North.

He is a winner of the Conference Board of Canada "Award of Excellence for Youth Employment" and was a host for the Yukon Pavilion at Expo '86.

He was most recently the owner and operator of the Whitehorse Airport Gift Shop and all visitor services at Parks Canada's S.S. Klondike.

He is married to Jeannette McLarnon.

E-mail: mike.mclarnon@gov.yk.ca

Cynthia Tucker



Government House Leader
Caucus Chair

MLA - Mount Lorne
Yukon Liberal Party

Cynthia Tucker was elected as the MLA for Mount Lorne in the general election on April 17, 2000.

Ms Tucker has been a property manager for commercial, residential and special-use facilities and a small business owner.

She has experience in mediation and negotiation, conflict resolution training, land use planning and zoning and urban land economics. She was a member of the Yukon Horseman's Association and the Yukon Agricultural Association, a Canadian Ranger and a founding member of the Carcross Ranger Patrol.

She was most recently the manager of the Whitehorse Housing Authority and the Chair of the Hamlet of Mount Lorne Council. She was a board member of the Association of Yukon Communities and the Community Training Trust Fund.

Ms Tucker, who is married to Harry Kern, lives in the Robinson subdivision outside of Whitehorse.

E-mail: cynthia.tucker@gov.yk.ca

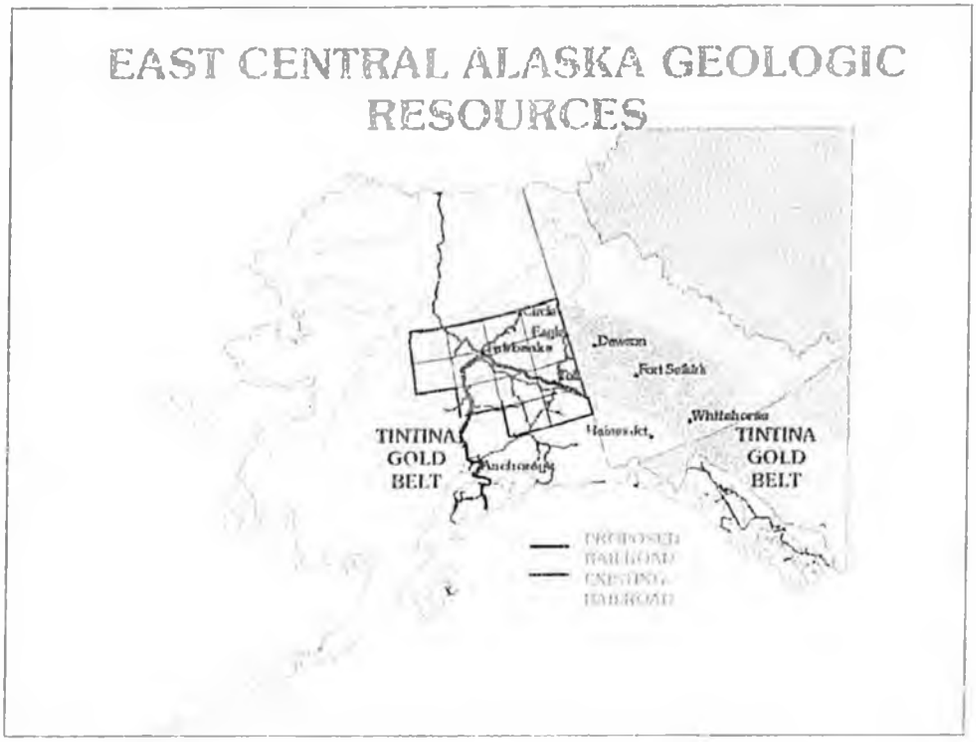
EAST CENTRAL ALASKA GEOLOGIC RESOURCES AND ACCESS CORRIDORS

ALASKA DIVISION OF GEOLOGICAL AND GEOPHYSICAL SURVEYS

JUNEAU, ALASKA

FEBRUARY 20, 2001

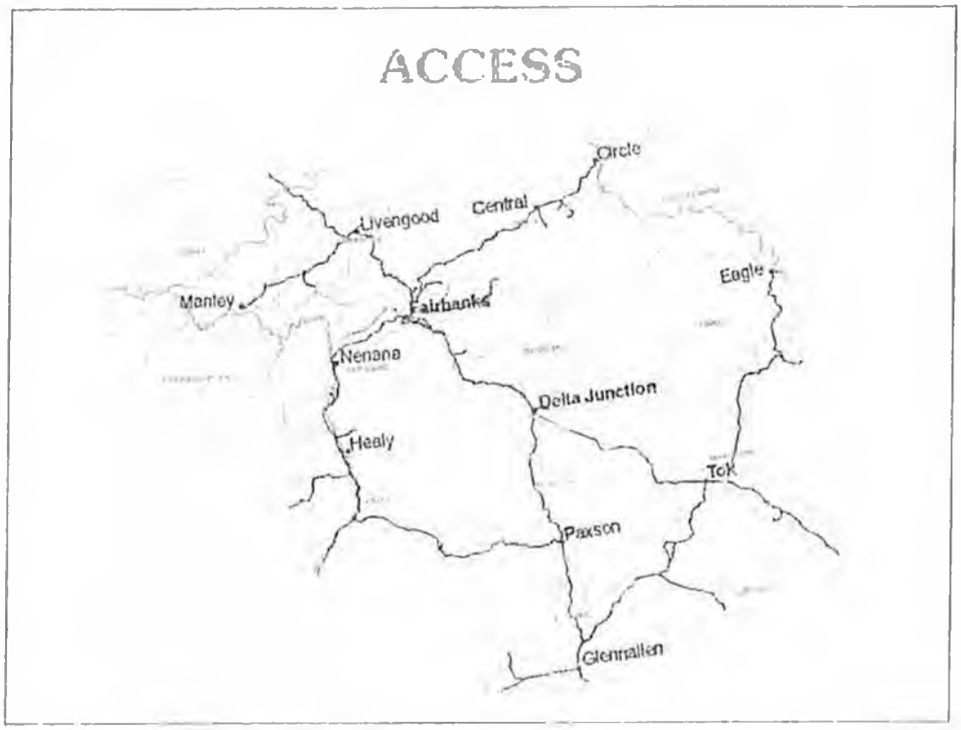
EAST CENTRAL ALASKA GEOLOGIC RESOURCES



East Central Alaska includes the central portion of a regional international United State - Canada mineral trend that informally has acquired the designation of "Tintina Gold Belt"

Gold is not the only mineral commodity within the "Gold Belt." This region also contains significant coal deposits, and copper, lead, zinc, nickel, and platinum group metal prospects.

The proposed extension of the Alaska Railroad is located within a highly mineralized portion of the Tintina Gold Belt.



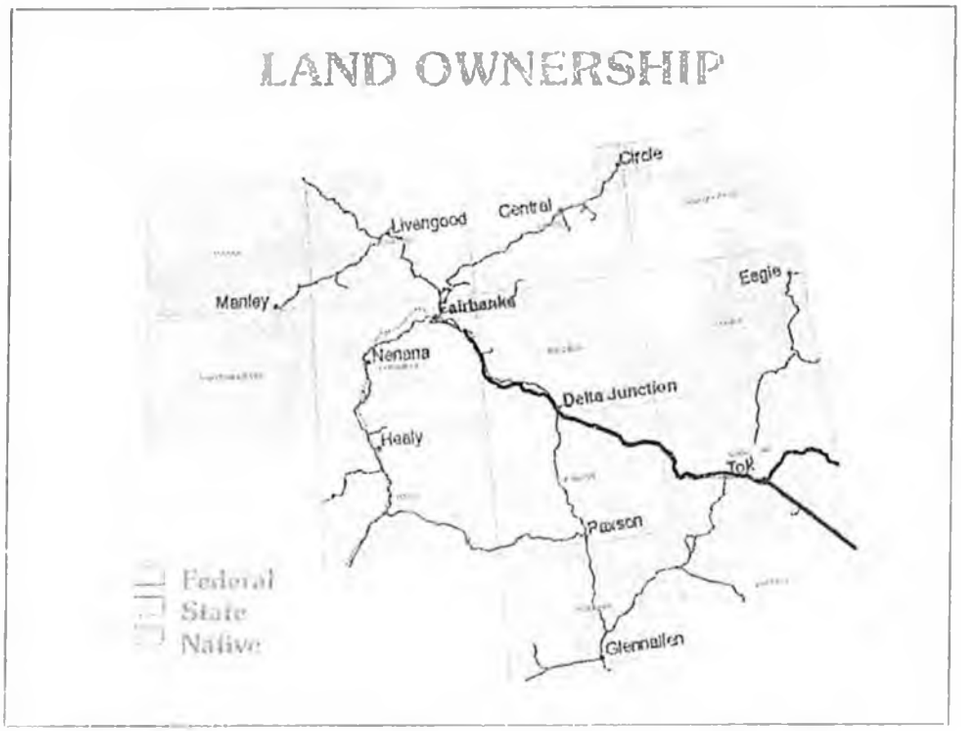
The area shown in the following graphics represents about 78,000 square miles. As an indication of scale, it is about 100 miles (165 km) between Fairbanks and Delta Junction.

The existence of a road and railroad transportation network has been a significant positive factor in fostering mineral exploration and development in East-Central Alaska.

The Fairbanks commercial center; serviced by the Alaska Railroad, the Parks Highway, and the Alaska Highway; disburses equipment, supplies, and services to regional towns and villages that serve as staging areas for mineral exploration and development ventures.

Fairbanks is a world-scale mining center. Delta Junction is the terminal supply point for developing the recently discovered Pogo gold deposit. Tok serves the Fortymile and Delta mineral districts. The town of Healy supports the states largest active coal mine and is a local supply center for mineral exploration in the Bonnifield and Chulitna district.

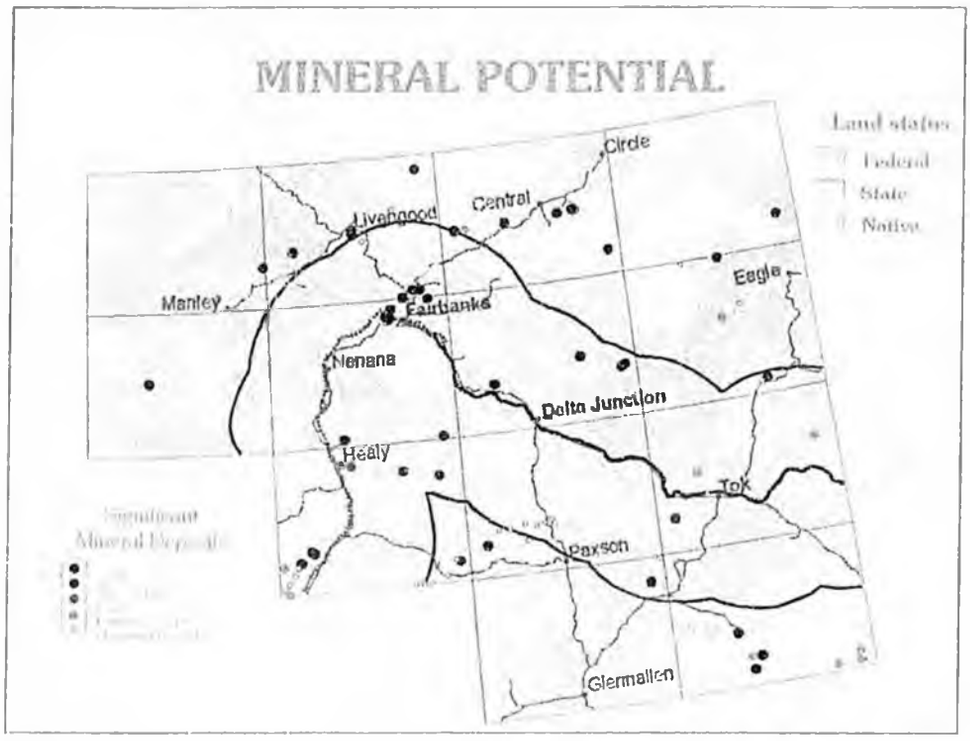
A large percentage of East Central Alaska lies within fifty miles of an existing road.



There are three major classes of land owners in Alaska: 1) the federal government; 2) the state of Alaska; and 3) Alaska Native Regional- and Village-Corporations. Other private land owners are a small minority when measured by acres in private fee-simple ownership.

The majority of known significant mineral deposits in East-Central Alaska are located on state or Native controlled land.

Much of the land selected by the state of Alaska and the Native Corporations was purposely chosen because of perceived high mineral potential. In spite of the existence of several known significant mineral deposits, these lands are under-explored. A fact amply demonstrated by the discovery of a gold deposit by sampling the road cuts of the Alaska Highway near Tetlin Junction last summer.



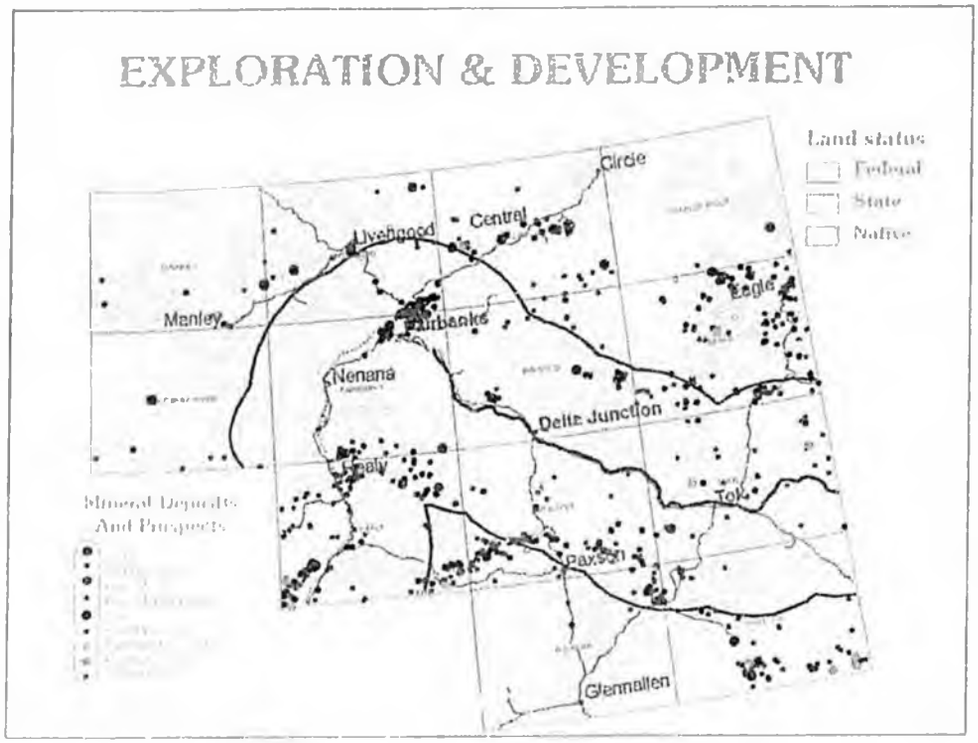
A majority of the most valuable known mineral deposits of East-Central Alaska are located within fifty miles of the proposed or existing Alaska Railroad, e.g., Usibelli Coal Mine (1.4 billion tons), Fort Knox Gold Mine (6 million ounces), Pogo Prospect (5.2 million + ounces), True North Prospect (1.3 million ounces), Ryan Lode (0.8 million ounces).

The region hosts several other significant prospects and mineral districts, e.g. the Bonnifield gold and massive sulfide copper-lead-zinc district east of Healy; the copper-lead-zinc Delta District southwest of Tok; the Richardson gold district northwest of Delta Junction.

There is growing interest in a series of nickel-copper-platinum group metal prospects north of Paxson.

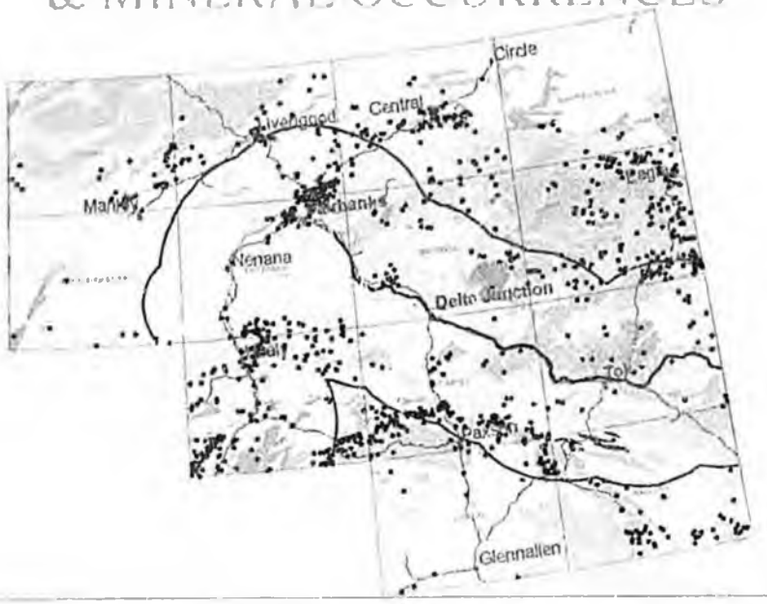
There are brief references for some of these deposits in the appendices of the *Alaska Mineral Industry – 1999* annual report published by the Alaska Division of Geological and Geophysical Surveys.

Using a non-quantitative definition of "significant," there are about thirty significant mineral deposits or prospects within the existing and proposed 100-mile wide rail-belt corridor.



In addition to these "significant" deposits, there are scores of lode gold, base metal massive sulfide, copper porphyry, and nickel-copper-PGM, tungsten, and tin prospects within the rail-belt corridor and many others surrounding the corridor.

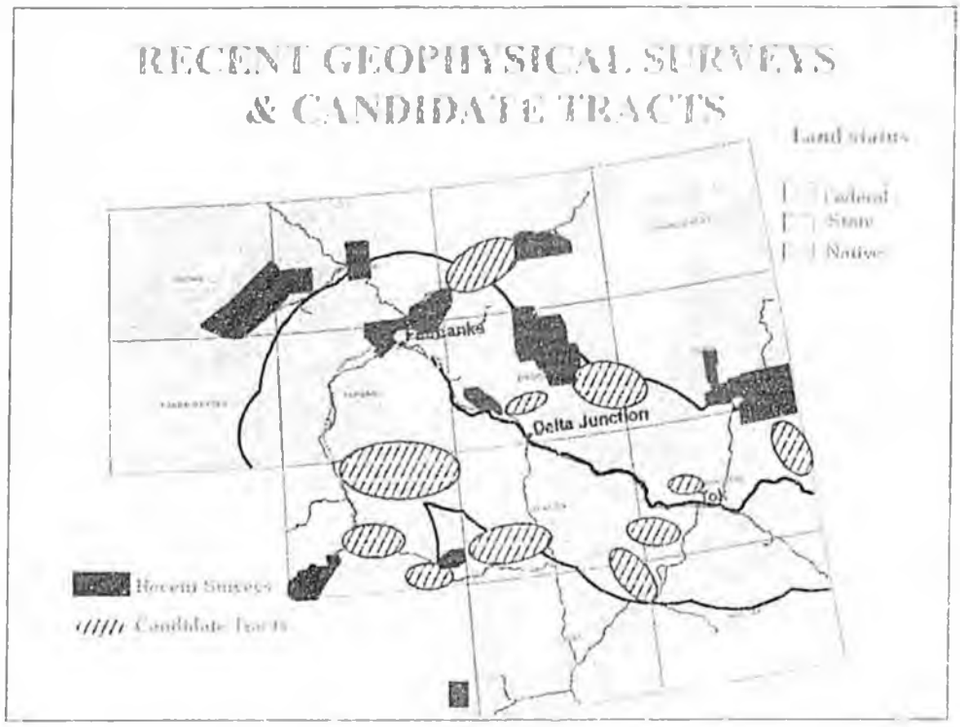
GEOLOGIC FRAMEWORK & MINERAL OCCURRENCES



Placer gold deposits and districts have proved effective in identifying areas hosting significant lode deposits of several mineral commodities. If placer gold occurrences are added to the lode occurrences already shown, one gets a feel for just how widespread indications of mineralization are within East-Central Alaska.

Both lode and placer occurrences exist within a framework of varied and complex geology. By world standards, this geology is very poorly understood. We really have only crude initial hypotheses for most of the East-Central Alaska area. Most of this country has not been geologically mapped at scales useful for detailed mineral exploration.

Much of the geologic mapping that does exist is derived from regional scale (4 mile to the inch) maps that were generated from field data collected between 1950 and 1975.



Beginning in 1993, the state of Alaska has sustained an annual airborne-geophysical/geological ground-truth geologic mapping program in an effort to improve the general knowledge of the geology and mineral resource potential of state lands.

The airborne-geophysical/geological mapping programs are centered on historical mining districts or on lands nominated by various members of the Alaska geological community because of their perceived high mineral potential.

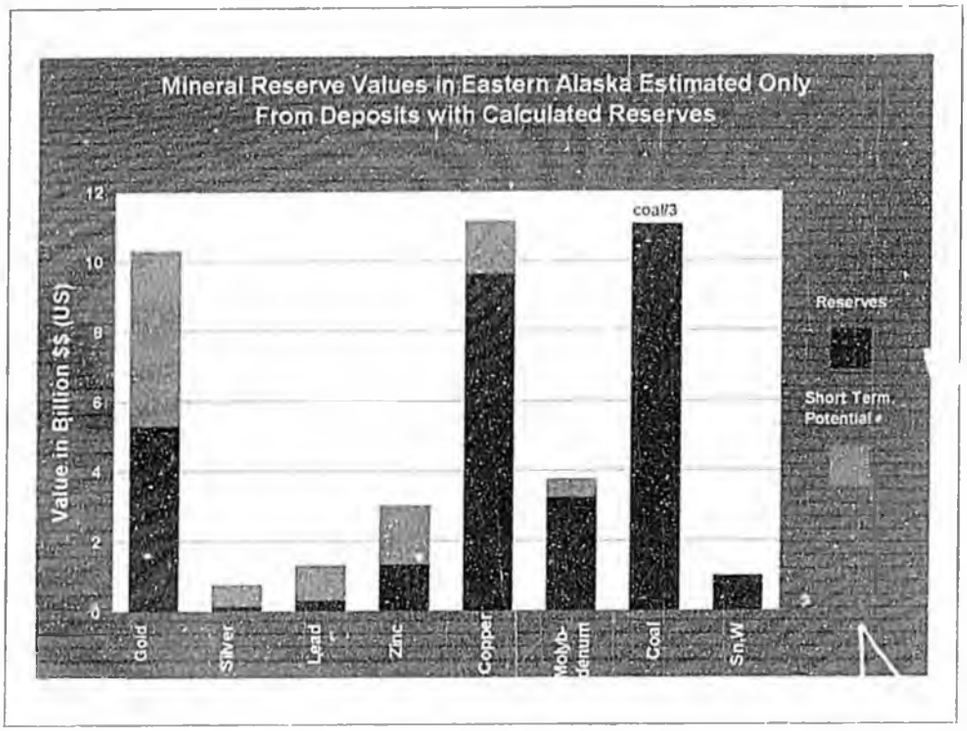
To date, nine tracts have been geophysically surveyed within East-Central Alaska. Modern ground-truth geologic maps at a scale of 1:63,360 (1 inch = 1 mile) are available for six of these tracts. The Fortymile mining district is currently being mapped.

There are 4441 square miles of airborne-geophysical surveys represented by the gray polygons shown in this figure.

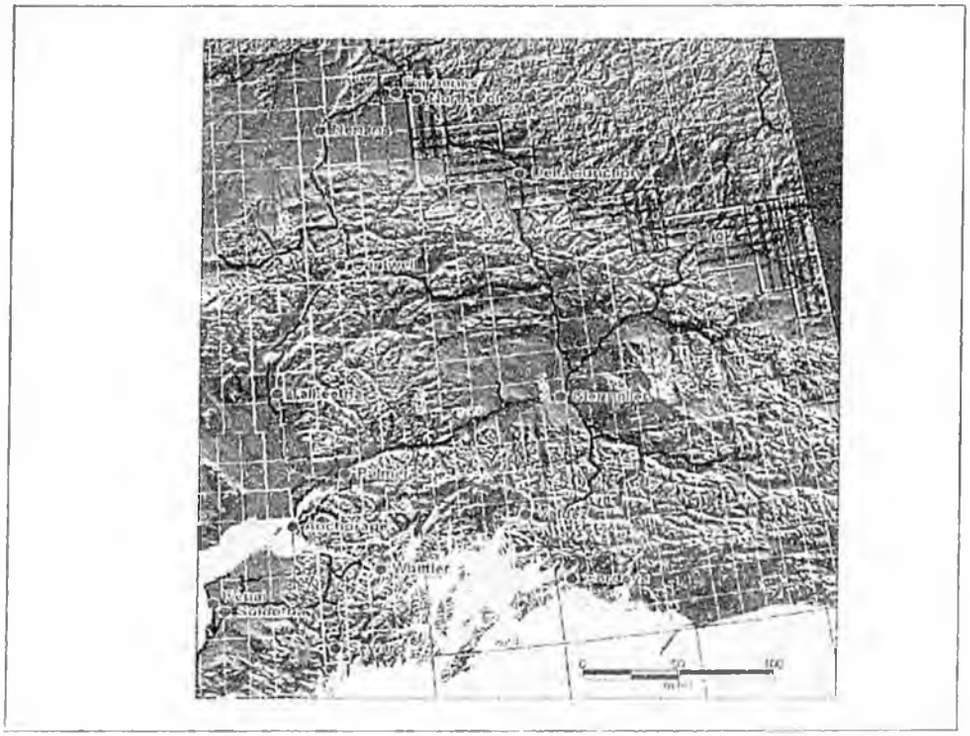
These new geophysical and geological data have catalyzed a tremendous private sector investment in mineral exploration and development within East-Central Alaska.

In addition to the nine tracts already surveyed, the proposed rail-belt corridor includes all or portions of eight additional candidate areas: Steese, Salcha, southeastern-Pogo, Sixty-mile Butte, Ladue River, Delta, Mentasta Pass, Broxson Gulch, and Bonnifield.

Completing the remaining surveys is contingent upon special annual appropriations.



From a global perspective, the Tintina Gold Belt has recently been recognized by the mineral industry as an "emergent district." That is, a region in which additions to reserves are expected to follow regularly with continued exploration. This is a young exploration region with a limited knowledge base. There is still a lot of room for success.



There is no doubt that the general corridor of the proposed extension of the Alaska Railroad passes within less than fifty miles of many significant mineral deposits. A useful and responsible next step in developing the railroad extension would be to conduct a full technical corridor analysis in order to optimize the alignment for the extension. Because the corridor for the railroad approximately coincides with the corridor for the proposed natural gas pipeline from Fairbanks to the Yukon border, one analysis could serve both projects for the Alaska portion of the railroad and pipeline.

DNR has submitted a proposed gas line supplemental project that includes some preliminary aspects of a true corridor analysis. DGGS has also worked with the NASA through the Alaska SAR Facility at the University of Alaska Geophysical Institute to acquire a detailed digital elevation terrain model for this corridor. That terrain model will probably be completed by next October. A true corridor analysis requires many layers of data beginning with corridor-wide engineering geology data at a scale of at least 1 inch=1 mile, definitive land status, geologic hazards assessment, and more information on construction materials and other geologic resources. Corridor analyses are routinely conducted for major construction projects in the Lower-48 to maximize project efficiency and minimize adverse impacts. We could benefit from following this strategy in Alaska.

Testimony of Paul Metz, Ph.D., DIC, P.G.
Before the Joint House Committee Hearing on the Status of the Alaska-Canada Rail Link
February 20, 2001

Introduction and Statement of Qualifications

I would like to thank Representative Jeannette James for the opportunity to testify before this joint committee hearing on the US-Canada Rail Link. I am testifying as an individual and my credentials are given in the attached Curriculum Vita. I have undergraduate and graduate degrees in engineering, economic and mining geology, and business administration with an emphasis on engineering economics and finance. I teach courses in geological engineering, mineral exploration, mineral valuation, and mineral economics at the University of Alaska Fairbanks. I have conducted research on the mineral deposits and mining geology of Alaska and on the evaluation of mineral resources in the state and elsewhere. I have worked as a consultant to the mineral industry and have testified as an expert witness in litigation related to the mineral industry including eminent domain proceedings in state and federal court.

Engineering Geology of the Transportation Corridor from Fairbanks to the Canadian Border

In 1996, a proposal was submitted to the Alaska Railroad and later the Alaska Department of Transportation & Public Facilities for the production of engineering geologic maps and derivative geologic hazards maps for the transportation corridor from Seward to Fairbanks. In the summer of 2000 the project was revised to place an emphasis on the transportation corridor from Fairbanks to the Canadian Border as Phase I of the proposal and the corridor from Seward to Fairbanks as Phases II & III. As proposed this was a joint project between the Geological Engineering Program at the University of Alaska and the Alaska Division of Geological and Geophysical Surveys. A precedent for such cooperation was set by a bedrock geologic mapping program initiated in 1981 for the mineral districts in interior Alaska and referred to as the "Interior Mining Project" A summary of the results of that program is attached.

The objectives of the Transportation Corridor Project and the use of multipurpose engineering geological maps are summarized in the follow two attachments. The utilization of the multipurpose engineering geological by design engineers in the public and private sector will result in minimizing the risk and cost of geologic hazards to engineering works constructed in the corridor. These costs include both the capital costs of construction as well as annual maintenance and repair costs associated with the entire spectrum of geologic processes that can degrade engineering works. And most importantly the utilization of such maps minimized the risk of loss of life associated with catastrophic structural or earth failures due to a major hazardous geologic event.

A summary of the project, project history, the project status as of December 2000, and a discussion of the significance of this project was outline in my letter to Dr. Wiltse dated December 4, 2000 and attached herein. The changing economics of an Alaska Natural Gas Pipeline to the contiguous states has resulted in a major change in the economic parameters of the construction of the Extension of the Alaska Railroad to the Canadian Border and the connection to the Canadian Railroad System.

Changes in Mineral Resource Economics within the Transportation Corridor as a Function of the Availability of Natural Gas

Major mineral deposit types found in Alaska within fifty miles of the proposed extension of the Alaska Railroad to the Canadian Border include but are not limited to:

1. Bulk mineable low grade intrusive hosted gold (Fort Knox Type Deposits)
2. High-grade gold quartz veins (Pogo Type Deposits)
3. Bulk mineable moderate grade gold occurrences (Donlin Creek Type Deposits)
4. Porphyry Copper Occurrences
5. Porphyry Copper-Molybdenum Occurrences

6. Coal Deposits (Jarvis Creek Coal Field)
7. High purity limestone deposits for lime and portland cement production
8. Platinum Group Elements and podiform chromite in Alpine Ultramafics (Clinton Creek Type)
9. Platinum Group Elements in Layer Gabbroic Complexes (Paxson Mt.)
10. Precious metal enriched volcanogenic massive sulfide occurrences (Wolverine Complex Type)
11. Antimony-gold vein occurrences (Scrafford Type)
12. Tungsten skarn occurrences (Can-Tung Type)
13. Placer gold and platinum occurrences (Goodnews Bay Type)

The future availability of natural gas as a source of energy could greatly decrease the cut-off grade and thus positively impact the feasibility of developing bulk mineable mineral deposits in the corridor. The economic feasibility of bulk mineable mineral deposits is extremely sensitive to tonnage and grade and energy costs since energy is the single largest operating cost for such deposits. The combination of lower cost energy for what are now stranded mineral resources and the availability of a bulk transportation system would greatly enhance mineral exploration and development in the corridor in East-Central Alaska (see attached maps).

Other Sources of Tonnage for the Alaska Railroad and the Impact of the Economic Feasibility of the Transportation System

The uncertainty of future mineral discoveries should be carefully considered in the economic analysis of the Extension of the Railroad into Canada. Few railroads constructed in the 19th Century had defined markets prior to construction. The Alaska Railroad was constructed in the 20th Century under the same constraint. The only significant certain mineral deposits along the route of the Alaska Railroad prior to construction were the coal deposits in the Matanuska and Nenana Coal Fields and the placer gold deposits in Fairbanks. The deep and low-grade placer deposits in Fairbanks required dredges for their economic feasibility and the railroad was needed to get that equipment into the region. The placer deposits only contained 8 million ounces of gold. Today as a result of numerous gold discoveries since the completion of the "Interior Mining Project" there are over 40 million ounces of proven and drill indicated reserves in interior Alaska. This is 10 million more than the historic gold production of the entire state. Similarly the reserves of both the Greens Creek Mine and the Red Dog Mine have more than tripled since the initial feasibility studies for these projects. The availability of energy and transportation will result in increased mineral reserves at known mineral deposits and new mineral discoveries that cannot even be projected at this time.

Other sources of freight such as value added products from a petrochemical plant in Fairbanks and processed forest products as well as probable passenger revenues must be added to the expected cash flows from the mineral industry. The economic feasibility of the railroad extension should not be limited to the tonnage requirements of the mineral industry.

Effect of Lower Risk of Geologic Hazards with the Extension of the Railroad to Canada versus the Route from Seward to Fairbanks

The transportation corridor from Seward to Fairbanks transects some of the most hazardous geologic terrains in the world. This is a function of the plate tectonic boundary between the Pacific Plate and the accreted terrains along the margin of the North American Plate. By contrast the extension of the railroad into the Yukon Territory and either northern British Columbia or Alberta will transect on older and more stable interior plateau. Thus the rail extension will provide a relatively low risk transportation system for interior and even south central Alaska during future major earthquakes comparable to the March 1964 event. This factor must be included in the final economic analysis of the feasibility of the Extension of the Alaska Railroad. The same must be considered in the analysis of the Alaska Natural Gas Pipeline system.

Summary of the Interior Mining Project

By
Paul A. Metz, Ph.D., P.G.

On February 29, 1980 a joint proposal entitled "Mineral Resource Appraisal of the Interior Alaska Mining Districts was completed by Paul Metz (Mineral Industry Research Laboratory, School of Mineral Engineering, University of Alaska Fairbanks) and Wyatt Gilbert (Alaska Division of Geological and Geophysical Surveys) and was submitted to the Fairbanks North Star Borough as a Capital Improvements Project for fiscal year 1981 (Proposal No. MIRL 80-24 total budget $948,000). The stated objective of the proposed project was "to conduct a mineral appraisal of the interior Alaska mining districts adjacent to or included in the Fairbanks North Star Borough, thus stimulating the establishment and the growth of the mineral industry in the region". The procedure for the appraisal included geological mapping of each district at a scale of 1 inch equals 1 mile, detailed mineral prospect mapping, geochemical sampling of outcrops, stream sediments and heavy mineral concentrates from stream gravel and mineral deposit modeling using trace element, stable isotope, fluid inclusion, and radiogenic isotopic geochemistry. All published geological, geochemical, and geophysical data for the four interior mining districts (Fairbanks, Livengood, Circle, and Richardson) was compiled prior to the field mapping and geochemical sampling.

Fieldwork began in the Fairbanks district in 1981 and the field maps, field notes, and geochemical data were released as public data files as field geologists and laboratory staff produced them. The geologic mapping defined favorable rock units for future mineral discoveries while the geochemical sampling defined specific areas of high potential for future mineral deposit discoveries. The data immediately stimulated individual prospectors, exploration geologists and exploration and mining firms to re-examine the Fairbanks mining district. Prospectors and explorationists began to relocate old placer mining claims and stake new lode mining claims at an unprecedented rate. The fieldwork and laboratory investigations in the Fairbanks District resulted in the definition of 14 new anomalous areas of potential gold mineralization. Joe Taylor and George Johnson, local prospectors, used this data to locate 34 lode claims adjacent to their 19 Fort Knox placer claims near Gilmore Dome. Today those claims have evolved into one of the largest gold mines in North America which employs 250 highly skilled workers, contains an estimated 7.5 million troy ounces of measured and inferred reserves, and produces 1000 troy ounces of gold per day for 365 days per year.

By 1984 the geologic mapping and geochemical sampling of the four districts was completed. Dozens of geologic maps, thousands of geochemical analyses and hundreds of pages of technical reports were published and/or presented at exploration and mining conferences (see Metz and Halls, 1981; Metz and Hawkins, 1981; Metz, 1982, Metz, 1983; Metz, 1984d). In addition to the Fort Knox geochemical anomaly, 62 other geochemically anomalous areas were discovered during the interior mining project investigation. These anomalous areas have been the subject of thousands of new mining claims being staked in the four mining districts.

The Fort Knox Gold Mine is a major producer of new wealth for the Fairbanks Community but more importantly it has demonstrated the economic feasibility of bulk mineable gold production in interior Alaska. This fact has resulted in the expenditure of tens of millions of dollars per year for mineral exploration and development not only in the Fairbanks mining district but in the entire area of interior Alaska from the North Flank of the Alaska Range to the South Flank of the Brooks Range. As a result of the Fort Knox Mine development, another 33 million troy ounces of gold have been discovered in interior Alaska (at $300 per troy ounce the gross value of these discoveries is approximately $ 12 billion). This has resulted in the interior mining districts developing into the single most important region of new gold discoveries in North America since 1980.

Since 1984 over a dozen Master of Science theses and one Doctor of Philosophy dissertation have been completed on the geology and mineral deposits of interior Alaska. Presentations of these works as well the results of exploration and development programs by mining companies at international mining conferences has continued to stimulate and guide private sector investment in mineral exploration in interior Alaska (see Metz and Hamil, 1986; Metz, 1987; Robinson, Smith and Metz, 1990; Metz, 1991). In the interior mining project proposal, the discovery of at least one world class mine was predicted. The Fort Knox Mine fulfilled that prediction however expectations have been greatly exceeded. The gold discoveries at the True North Project, the Golden Summit Project, and at the Pogo Project will result in at least three more major gold mines in interior Alaska in the near future.

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Engineering Geological Mapping Of the Alaska Transportation Corridors

Phase I

Fairbanks to the Canadian Border

Cooperative Investigation by

The Geological Engineering Program
School of Mineral Engineering
University of Alaska Fairbanks

And

The Alaska Division of Geological and Geophysical Surveys

Objectives:

1. Completion of airborne geophysical and engineering geological maps for the 20 quadrangles (15 minute) transected by the Alaska highway and the proposed route of the Alaska Natural Gas Pipeline and the extension of the Alaska Railroad from Fairbanks to the Canadian Border.

2. Assessment of the soil and rock mechanics of the geological materials in these quadrangles.

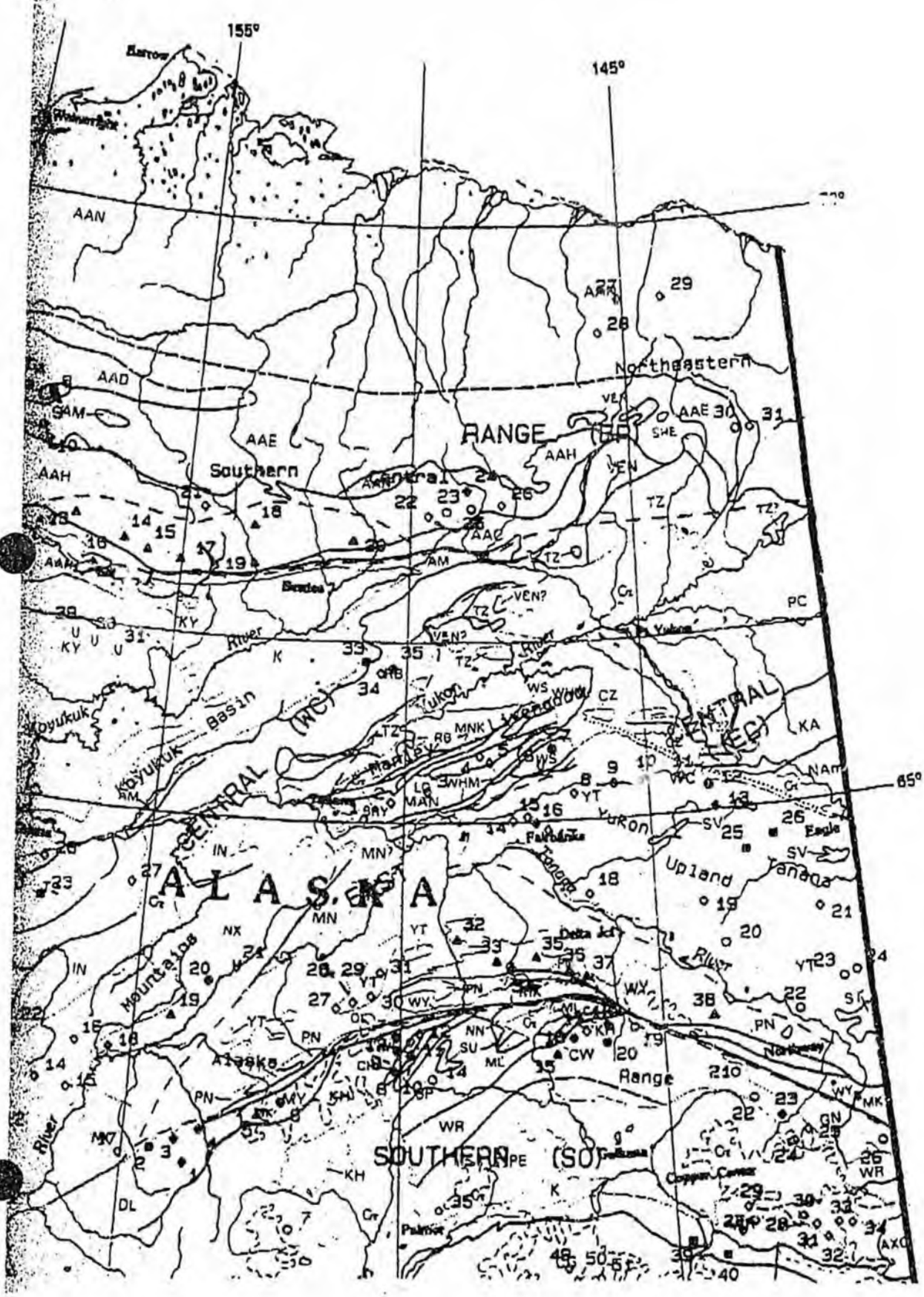
3. Completion of geologic hazards maps as derivatives of the engineering geological maps and geophysical maps.

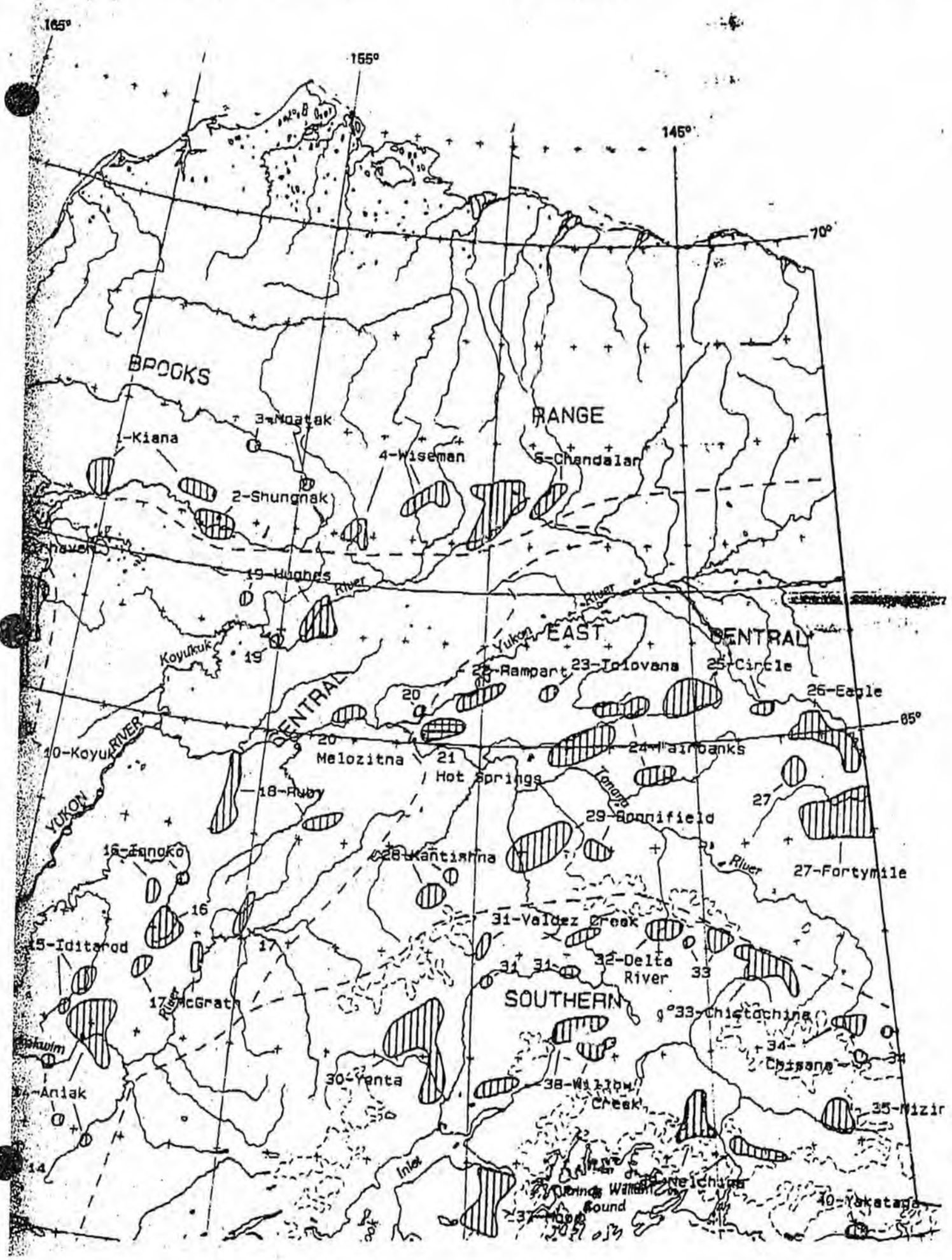
4. Development of a Geographic Information System for all the geotechnical data

5. Provide the regional geological database for the location, permitting, design, and construction, and maintenance of ALL engineering works in the transportation corridor.

Multipurpose Engineering Geological Maps

1. Location and engineering classification of bedrock units
2. Location and engineering classification of soil units
3. Location and orientation of geologic structures
4. Hydrogeological conditions
5. Geomorphological conditions
6. Geodynamic phenomena
   a. Erosion and deposition on floodplains
   b. Aeolian processes
   c. Slope processes
   d. Permafrost and related cryogenic processes
   e. Karstification
   f. Suffusion
   g. Soil liquefaction
   h. Expansive soils
   i. Seismicity and active fault zones
   j. Volcanism


155°
145°
65°
AAN
AAD
AAE
AAH
Northeastern
RANGE (UR)
Southern
Central
Koyukuk Basin
CENTRAL (NC)
CENTRAL (CR)
ALASKA
Yukon
Tanana
Upland
Alaska Range
SOUTHERN (SO)
Mountains
Yukon River
Koyukuk River
Tanana River
Fairbanks
Eagle
Delta Jct
Palmer
Copper Center


165°
155°
145°
70°
65°
BROOKS
RANGE
3-Noatak
1-Kiana
4-Wiseman
5-Chandalar
2-Shungnak
19-Hughes
River
Yukon
EAST
CENTRAL
Koyukuk
19
22-Rampart
23-Tolovana
25-Circle
26-Eagle
20
CENTRAL
10-Koyuk
RIVER
20
Melozitna
21
Hot Springs
24-Fairbanks
Tanana
18-Ruby
YUKON
27
29-Bonnifield
River
16-Tanoko
28-Kantishna
27-Fortymile
16
31-Valdez Creek
15-Iditarod
17
31
31
32-Delta
River
33
17-McGrath
SOUTHERN
33-Chistochina
Kuskokwim
34-
Chisana
30-Venta
38-Willow
Creek
35-Nizir
Aniak
14
Inlet
Prince William
Sound
37-Hoon
40-Yakataga

ALASKA RAILROAD EXTENSION

ROUTE SELECTION PROJECT X20089



EIELSON TO CANADIAN BORDER

STATE OF ALASKA
DEPT. OF TRANSPORTATION
& PUBLIC FACILITIES
JULY 1979

ALASKA RAILROAD EXTENSION

ROUTE SELECTION

PROJECT #X20089

EIELSON TO

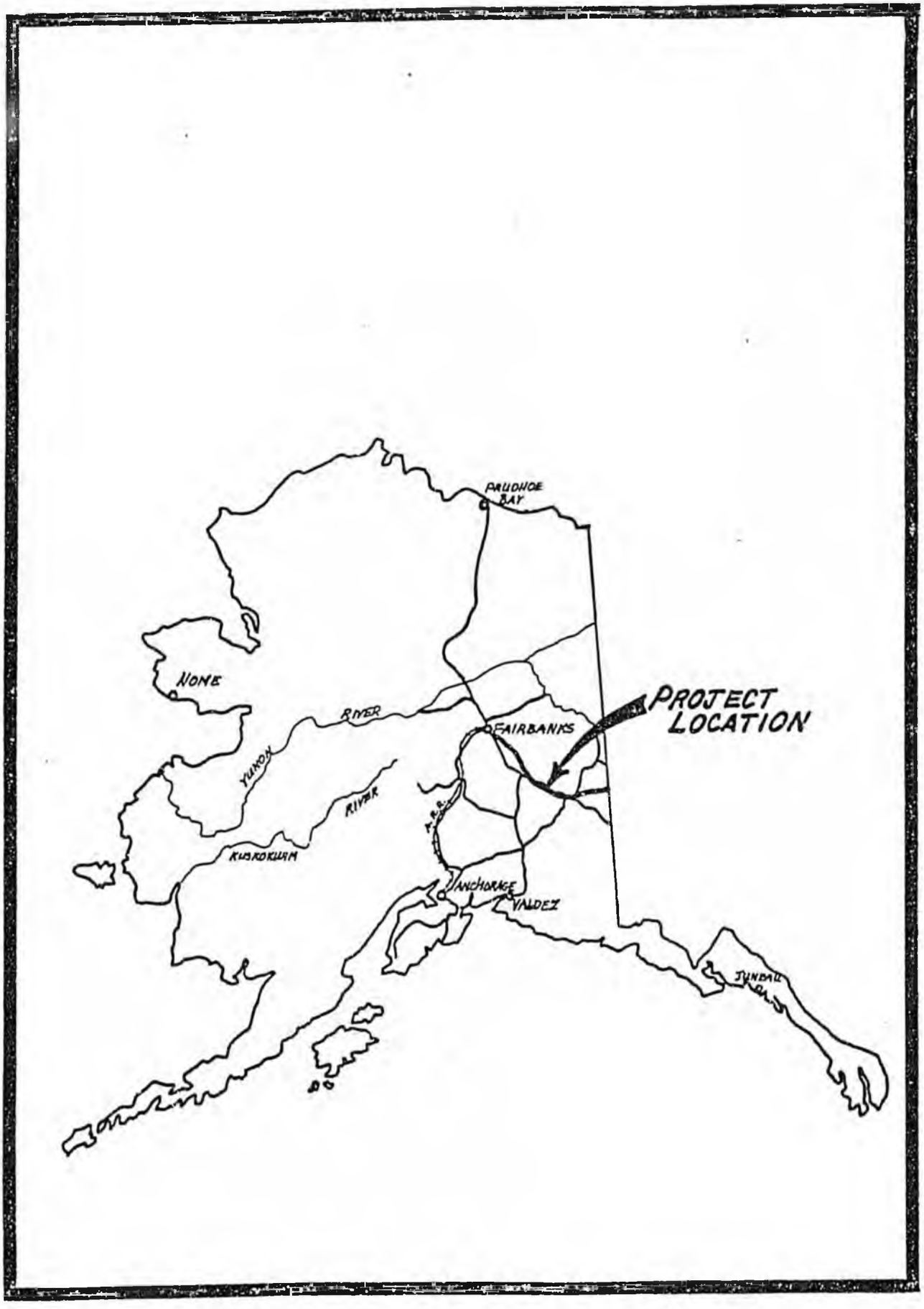
CANADIAN BORDER

STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION

& PUBLIC FACILITIES

JULY 1979


PRUDHOE BAY
NOME
YUKON RIVER
KUSKOKWIM RIVER
FAIRBANKS
PROJECT LOCATION
A.P.S.
ANCHORAGE
VALDEZ
JUNEAU

ALASKA RAILROAD EXTENSION
ROUTE SELECTION

Introduction---------- Page 1

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INTRODUCTION

In the spring of 1977 the first session of the tenth Alaska Legislature passed two bills (HB47 and HB48) which dealt with a proposed extension of the Alaska Railroad to the Canadian border. House Bill 47 charges the Interior Region of the Alaska Department of Transportation and Public Facilities with the responsibility to "delineate a proposed utility corridor for the extension of the Alaska Railroad to the Canadian border..." and further stated that the corridor "shall include a delineation of a proposed railroad right of way".

House Bill 48 appropriated $865,000 from the State's general fund to cover the cost of the work necessary to delineate the utility corridor and railroad right of way. In June of 1977, the governor's office authorized $150,000 of the HB48 appropriation to cover costs of the first phase of the railroad extension project.

The Department performed only a limited amount of route reconnaissance in 1977 since $150,000 would not go far toward accomplishing the project goals. However, in January of 1978, the second session of the Tenth Legislature restored the full $865,000 for use on the project. Time then became an important factor since a great amount of work remained to be done on the project before June 30, 1979, when funding was to expire.

In the early months of 1978 the Department completed the selection of a preliminary route which was described in a report issued in April of that year. The reconnaissance work leading to the preliminary route selection is summarized on the following pages.

CRITERIA FOR ROUTE SELECTION

The location of the railroad is really the key to defining the corridor required by HB47 and HB48. The grade and alignment constraints on a railroad location are much more restrictive than for any other transportation mode or utility installation. For this reason, the Department concentrated work on the selection of a railroad location. In effect, a utility corridor will be placed around the best available railroad alignment rather than trying to place a railroad within a pre-selected corridor.

In order to identify the best available railroad location, several factors were considered:

1. Design Standards The railroad should be located so that it can meet grade and alignment standards which are commensurate with the transcontinental rail system standards. The Engineering Department of the Alaska Railroad provided the following recommendations for design standards.

Grades

1%	desirable
1.7%	maximum

Curvature

3°	valley terrain	desirable maximum
6°	mountainous terrain	desirable maximum
10°	absolute maximum	

2. Foundations and Materials The railroad should be located on the best available foundations and in areas where construction materials are readily available. Good foundations are essential in keeping construction and operating costs to a minimum. Funding and time limitations did not allow a program of subsurface investigations and soils analysis. Materials investigations consisted primarily of aerial photo interpretation.

3. Safety Potentially hazardous situations such as highway grade crossings should be avoided whenever possible. The route described in this report crosses the Richardson Highway one time and the Alaska Highway three times.

4. Service to Communities The railroad should be placed such that it will serve local communities and enhance local development plans while still maintaining the "through" nature of the route. This constraint has been adequately met by holding discussions during the reconnaissance phase with Fort Wainwright, Eielson AFB, Fort Greeley, the Delta Junction Chamber of Commerce, Citizens of Tok, the Alaska Department of Fish and Game, and the State Division of Lands. The discussions yielded information that resulted in a location of maximum utility to the agencies and communities who would use the railroad.

5. Environmental Concerns The scope and funding of this route selection project did not provide for a full environmental assessment of railroad construction and operation. However, the Department's Environmental Section as well as other appropriate agencies were consulted in order to maintain an awareness of environmentally sensitive areas and issues which might affect the selection of a railroad route.

6. Right of Way The railroad alignment was placed on public lands wherever possible so as to minimize the costs of right of way acquisition. It is assumed that the railroad right of way will be 300 feet wide.

7. Costs Costs of rail construction were kept in mind and minimized where possible.. However, this study does not include an estimate of construction costs for the proposed rail project.

ROUTE RECONNAISSANCE

Previous developments (highways, pipelines, communications systems, airports) have established a general transportation corridor from the present terminus of the Alaska Railroad at Eielson Air Force Base southeast to the Canadian border. This corridor can be described in broad terms as the valley of the Tanana River or in more narrow terms, as the route of the Richardson and Alaska highways.

A study of topographic and land status maps of eastern Alaska readily shows that the terrain and the associated economic and environmental considerations effectively rule out any general corridor other than the Tanana River Valley. This route study is confined to the Tanana Valley except for the easternmost 50 miles which follow the Ladue River down to the Candian border.

The Ladue border crossing was first proposed in 1942 when the U S. Army Corps of Engineers surveyed a route for a rail connection to Alaska. Interest in that project faded after the end of World War II, but the route chosen at that time has been reaffirmed many times in subsequent years. The Ladue crossing directs the Yukon Territory segment of the railroad route into the broad valleys of the White, Yukon, Pelly, and Liard rivers. The valleys provide a fairly direct route to Watson Lake, Y.T., through which the connecting link to the existing transcontinental rail system will pass.

It should also be pointed out that the Ladue River border crossing allows the easiest and most direct route to Whitehorse, Y.T., should Canada decide to run the rail connection through that city. This study considers only the Ladue River border crossing.

The first step in selecting a railroad route was to study topographic maps and to identify on these the route possibilities that appeared to merit further study by means of aerial photography.

From the map study it was determined that the 108 mile section from Delta Junction to Tok was adequately covered by aerial photographs taken in September 1976 for the purpose of highway reconnaissance. Likewise, the 80 mile segment from Tok to the Canadian border via the Ladue River had previously been photographed in a 1973 rail study. This left only the 75 mile segment from Eielson to Delta Junction lacking in reconnaissance photo coverage. Photographs of this area were scheduled for the fall of 1977.

Map study of the Eielson to Delta Junction area revealed several possible routes including an alignment along the north bank of the Tanana River and several alternatives south of the river. In September 1977 these routes were investigated by a fixed-wing overflight involving the Regional Geologist, Hydrologist, and Reconnaissance Engineer. After this investigation, three routes were chosen as the most promising rail locations, one north of the Tanana River and two south of the river.

All three of these routes were subsequently photographed in color on October 1, 1977. All of the aerial photos mentioned above are at a scale of 1 inch = 1000 feet.

Through the winter of 1977-78 considerable time was spent studying the reconnaissance photographs in an effort to select a preliminary alignment. The route that was selected for further study was plotted on the maps which are included in the back of this report on pages 13 through 16. These are USGS maps with a scale of 1 inch = 4 miles. These maps provide a scale that is manageable for inclusion in the report, but do not show extensive detail in any given area.

The proposed line was also plotted on the larger scale quandrangle maps as well as the reconnaissance aerial photographs.

The route is marked off in miles beginning with Mile 0 at the recently completed railroad bridge over the Chena River floodway near Eielson AFB and ending with Mile 268 at the Canadian border.

METHODOLOGY

Photogrammetric mapping was chosen as the most effective means of selecting a precise route for the railroad. This method allowed a high degree of latitude in final route selection and was adaptable to the time and funding constraints which had been placed on the project. The mapping work was assigned to two consulting firms which were already under contract to provide mapping services to the State of Alaska.

In early April 1978 maps with flight lines drawn along the proposed route were submitted to the mapping consultants. These consultants reviewed the flight lines and laid out ground control schemes that met their mapping requirements. These control schemes were returned to the DOT/PF by the end of April.

Anticipating an early and intensive surveying season, the Department contacted all affected landowners along the route to secure permission to survey across the owners' lands. Permission was granted by all public agencies and private owners with the exception of the Village of Tanacross. While Tanacross did not deny the request for access to its lands, the decision was delayed to the point where the Department could no longer wait due to the need to have ground control panels in place and mapping photos taken before spring foliage obscured the ground.

The result is that the segment of the route passing through Tanacross lands has not been mapped and therefore has not been described in precise terms. The Tanacross lands form a gap in the mapping project from mile 162 near Cathedral Bluffs to mile 195 near the Coast Guard Loran Station east of Tok. The route selected through this 32 mile area is described in the general terms used in the preliminary route study.

During late April and the first part of May of 1978, Department personnel placed the required photo control panels on the ground along the remaining 236 miles of the route.

North Pacific Aerial Surveys photographed the route on May 9, 1978 at a scale of 1"=500' for mapping purposes.

Concurrently with designing the flight lines, the state entered into negotiations to select a ground control survey consultant. The State selected the firms of Stutzman Engineering and DOWL. These firms were contracted to do all of the ground control survey work in a joint venture.

Control survey work began in early June and continued through the summer of 1978. The field survey was primarily a method of controlling the aerial photographs with a secondary benefit of establishing a system of monumentation along the proposed route corridor which could later be used for additional right of way acquisition, construction lay-out, or other surveys as may be deemed essential to the project. The Alaska State Plane Coordinate system was used for horizontal control throughout the project and involves Alaska Zones 2 and 3.

Since the three segments of the route spanned such an extensive area, a great variety of terrain, ground cover, and accessability problems were

encountered. Each of the field conditions seemed to dictate how the survey should be conducted and what equipment should be utilized. In all cases, coordinate positions and azimuths were originated from existing Geodetic Survey, U.S. Geological Survey, U.S. Army Corps of Engineers, Bureau of Land Management, and two stations established by the International Boundary Commission. The control traverses or nets were also closed onto other stations of the same origin or previously established monuments which had been derived therefrom. After running a field data traverse through the network from geodetic station to station, a compass adjustment was made to position all intermediate points. The thus derived positions of each new traverse or control station were anticipated to be within 1:30,000 accuracy relative to existing control. Actual field determinations have proven this to have been accomplished.

All vertical control was derived from existing U.S.C.& G.S. or U.S.G.S. Bench Marks. A more detailed discussion of the control survey is presented in a report prepared by the consultants upon completion of the survey work. That report also contains a listing of the positions of all control points.

As the Department received control data from the survey consultants, it was sent to the mapping consultants and the production of contour maps began by mid summer 1978. This was accomplished at a scale of 1" = 100' with a 2' contour interval. The band of mapping varied from 500' to 800'. Over most of the length of the project a 500' wide strip centered on the preliminary route was mapped. In some areas of rough terrain a wider strip of mapping was requested to allow more flexibility in selecting a final railroad route.

As the mapping was received, the Department placed a railroad centerline on it. Occasionally the line is tightly controlled by topography. This is most obvious when climbing from the Tanana River to the Ladue Summit. A 1% "Grade Contour" was laid out on the mapping by starting at the Ladue summit and working down to the highway on the Tanana side. A railroad centerline was then drawn to get the best "fit" to this grade contour. The result is a railroad centerline with a sustained 1% grade and continuous curvature for a distance of about 10 miles.

As the alignment was placed on the mapping, the Regional Geologist and Hydrologist reviewed it and recommended needed changes. When the most desirable "fit" was achieved, the State Plane Coordinates of the tangent intersections were scaled off the contour maps and bearings and distances of the tangents were calculated, as well as all curve data. The line has been stationed from the Eielson toward the Canadian border. All of the alignment and coordinate data has been tabulated and is on file at the Interior Regional Office of the Department of Transportation and Public Facilities.

ROUTE DESCRIPTION

The new railroad bridge over the Chena River floodway near Moose Creek was selected as the starting point for the proposed railroad extension. This point was chosen rather than the end of the present line on Eielson AFB in order to avoid two crossings of the Richardson Highway which would eventually require overpasses, and to keep the main rail line out of the developed and congested area of Eielson. The Moose Creek starting point requires about 6 more miles of new track but makes the resulting main rail line about 2 miles shorter due to the more direct alignment through the Eielson area.

From Mile 0 the route proceeds southeast between the Tanana River and the Richardson Highway. This section is located on old river bars which offer favorable foundation conditions but require several slough crossings.

The route runs close to the Richardson Highway at Mile 19.5 and then turns up the Salcha River to a crossing about 1 mile below the highway bridge. After crossing the Salcha River, the route heads toward the west slope of Flag Hill and the Tanana River crossing at Mile 25.

After crossing the Tanana River, the route stays within one half mile of the river for the next 8 miles (to Mile 34). This is an area of alluvial gravels supporting stands of large white spruce.

From Mile 34, the route swings farther away from the Tanana toward a crossing of the Little Delta River at Mile 38.5. This crossing is about 2 miles above the mouth of the Little Delta near a low ridge. The stream bed at this point is about 2000 feet wide.

After crossing the Little Delta, the route swings back toward the Tanana River and stays close to the river from Mile 40 to Mile 44. Some bank protection will be necessary in this area. From Mile 44 to Mile 51, the route is located on old wooded river bars 0.5 to 1 mile south of the Tanana River. This is an area of unfrozen alluvial gravels with a thin covering of silt.

The route crosses Delta Creek about 2.5 miles upstream from its mouth and then skirts along the southern side of a 3.5 mile ridge which parallels Clear Creek - Clear Creek being on the northern side of the ridge.

From the east end of this ridge, the route follows along low terraces south of Clear Creek to the vicinity of Mile 67.

From Mile 67 to Mile 74, the route is within a mile of the west bank of the Delta River.

The crossing of the Delta River is in the area near Jack Warren Road. The crossing near Jack Warren Road will require bank protection along the east bank of the Delta River between Mile 75 and Mile 78. Bank protection in this area will be of great benefit to the community of Delta Junction since the river has been actively eroding this section of riverbank in recent years.

At Mile 77.5 the route turns east up Jarvis Creek. This general location through the Delta Junction area was chosen after meetings with the Delta Junction City Council and Planning Commission.

Delta Junction to Tok (Mile 78 to Mile 189)

Proceeding southeast from Delta Junction the route crosses the Richardson Highway just north of the Jarvis Creek bridge (Mile 78) and then follows the east bank of Jarvis Creek on Fort Greely lands for about 4 miles. At Mile 82, the route is near the developed area of Fort Greely although a bridge across Jarvis Creek will be necessary to provide access to the fort.

From Mile 82, the route turns easterly remaining on Fort Greely lands for the next 7 miles as a means of avoiding the private property along the Alaska Highway.

Between Mile 86 and Mile 88, the route winds through the broken terrain of a glacial moraine. The route then leaves Fort Greely near Mile 89 and heads southeast paralleling the Alaska Highway for the next 10 miles. Most of the land in this area has been selected by the State of Alaska under the statehood act.

The railroad route crosses the Alaska Highway near Mile 100, eight miles west of the Gerstle River. The route also crosses the proposed Northwest gas pipeline at this point. This crossing places the railroad on the opposite side of the highway from the Gerstle River Campground. After crossing the highway, the route parallels the highway on the north side until reaching the vicinity of the Little Gerstle River.

To avoid the steep, broken terrain of an old glacial moraine, the railraod route follows along the edge of the Tanana River from Mile 114 east of the Little Gerstle River to Mile 120 at the Johnson River. Department Geologists have some misgivings about the foundation conditions in this area and a detailed soils investigation might lead to a decision to shift a section of the alignment higher up the hill away from the Tanana River.

The route crosses the Johnson River near its mouth where the braided stream bed is about 0.5 miles wide. East of the Johnson River the route swings away from the Tanana River across an alluvial fan reaching the vicinity of the Alaska Highway near Dry Creek (Mile 123). For the next five miles the railroad route closely parallels the highway on the north while running along the edge of an alluvial gravel terrace.

At Mile 128 the route swings away from the highway to cross Berry Creek about 0.5 miles downstream from the highway bridge. The DOT/PF also proposes to shift the highway downstream on Berry Creek, however, there should be no conflict between the highway and the railroad.

At Mile 130, the railroad route runs north of a small lake following the same general location as the 1942 railroad survey. The route returns to the vicinity of the highway at Mile 132 and then swings 0.25 miles to the north to follow the edge of an alluvial gravel terrace for the next 4 miles.

Near Mile 137, the route enters Dot Lake Village lands and drops from the terrace to the Tanana floodplain. Over the next 3 miles the route will be partially located on the poor foundations west of Dot Lake.

After reaching Dot Lake (Mile 140) the route parallels the Alaska Highway for the next 8 miles over the flat terrain of an alluvial fan. At Mile 148 near Jan Lake, the railroad route swings away from the highway to the north in order to skirt the steep hills north of the Robertson River. The route reaches the Robertson River at Mile 154 and crosses that stream about 0.5 miles above its mouth. This crossing is about 3500 feet in length and poses some special problems because of the extensive buildups of ice that occur each winter in the Robertson River.

The route remains near the Tanana River for most of the distance between the Robertson River and Cathedral Rapids (Mile 154-164). East of Cathedral Rapids the railroad would contour around the large alluvial fan at the mouth of Yerrick Creek and again reach the vicinity of the Alaska Highway near Moon Lake (Mile 171). From Mile 171 to Mile 174, the route skirts the base of the hills below the highway and then parallels the highway from Mile 174 to Mile 176.

From Mile 176, the railroad route proceeds due east for 12 miles. This places the route south of the Tanacross airfield (Mile 178) and north of the Haines pipeline pump station (Mile 182). This also places the railroad well north of all the development between Tanacross and Tok. The route passes Tok Junction 2 miles to the north at Mile 189.

Tok to Canadian Border (Mile 189 to Mile 268)

From Mile 189 north of Tok Junction, the proposed railroad route runs southeasterly for about 10 miles in a straight line gradually converging with the Alaska Highway alignment. The route crosses the Tok River at Mile 193, passes north of the Coast Guard installation at Mile 194, and crosses the Alaska Highway at Mile 198.5 one mile west of the Tanana River bridge. The route then crosses the Tanana River just upstream from the highway bridge.

East of the Tanana River, the railroad route skirts along the base of the hills passing one quarter mile south of Tetlin Junction and remaining south of the Alaska Highway for the next 5 miles in order to avoid the steep, broken terrain on the hillsides above the highway. At Mile 206, the route crosses to the north side of the Alaska Highway and begins the climb to the Ladue Summit.

The location of the railroad for the next twenty miles is primarily controlled by grade requirements. The line must climb from an elevation of about 1800 feet at Mile 206 to about 2300 feet at the summit (Mile 216). This requires 10.5 miles of sustained 0.9% grade. This section will also have many maximum degree curves and will require many large cuts and fills.

The location of the crossing into the Ladue River Valley (Mile 216) is the same as that selected by the U.S. Army Corps of Engineers in 1943. This is the lowest available access point to the Ladue Valley.

On the Ladue River side of the summit, maximum grades and curves will not be necessary. The route reaches the valley floor at about Mile 220 at an elevation of 2100 feet. From this point on, the route will follow gentle grades and alignment down the Ladue Valley to the Canadian border.

The Ladue Valley is relatively narrow so that there is not a wide choice of route locations. For the most part, the railroad route will follow along the north side of the valley in order to gain the advantage of the southern exposure. The preliminary route reaches the Alaska-Yukon border at Mile 268.5.

CONCLUSIONS AND RECOMMENDATIONS

The work done on this project has resulted in a railroad alignment with essentially river grades and with curves that can be negotiated at 60 mph. The most notable exception is the section in the area of the Ladue summit where grades are still below 1% but where curvature and the length of sustained grade would reduce train speeds to 25 mph. There are a few curves in other locations with a 50 mph design speed.

The Department has attempted to select the best available railroad route while keeping within the limitations imposed by funding and time constraints. It would have been desirable to put more time and effort into several aspects of the route selection - particularly in the area of foundation investigations.

It should be expected that more detailed study in later phases of railroad development could result in recommendations for changes in the location of portions of the proposed alignment.

In spite of the shortcomings of this study, the Department feels that the route that has been selected is basically a sound and viable railroad route.

It is recommended that a 300 foot wide right of way centered on this route be withheld from the many demands being made on the public lands. It is further recommended that the State of Alaska should move to acquire that portion of the right of way that is within private lands as intended by HB47.

The Department now has on file:

* Aerial photos of the entire route
* Control survey data
* Photogrammatric contour maps of the route
* A tabulation of alignment data
* State Plane Coordinate positions of centerline points

The Alaska State Plane Coordinates of the centerline points constitute a precise legal description of the railroad route.

Through the photogrammetric process we also have the capability to produce design cross sections and earthwork quantities from the data already gathered and to make alignment shifts without field surveys. This should speed up the process if the decision is made to proceed to construction on any part of the railroad route.

Much of the data gathered for the railroad study will also be of use on highway projects which are planned for the Alaska Highway.

ALASKA RAILROAD EXTENSION

EIELSON TO

LITTLE DELTA RIVER

scale: 1" = 4miles

BEGINNING OF PROJECT

FAIRBANKS

FORT WAINWRIGHT

MILITARY RESERVATION

EIELSON AIR FORCE BASE

North Pole

Clear Creek Butte

Wood River Buttes

Blair Lakes

Birch Lake

Harding Lake

Hartman Lake

Spacha Bluff

Moose Creek Bluff

Chena River

Tanana River

Salcha River

Little Salcha River

Goldstream Creek

Crooked Creek

Willow Creek

McDonald Creek

Bear Creek

Dry Creek

Moose Creek

Beaver Creek

Uncle McCoy Creek

Richardson Highway

Alaska Railroad

Trans Alaska Pipeline

Military Trail

Bonnifield Trail

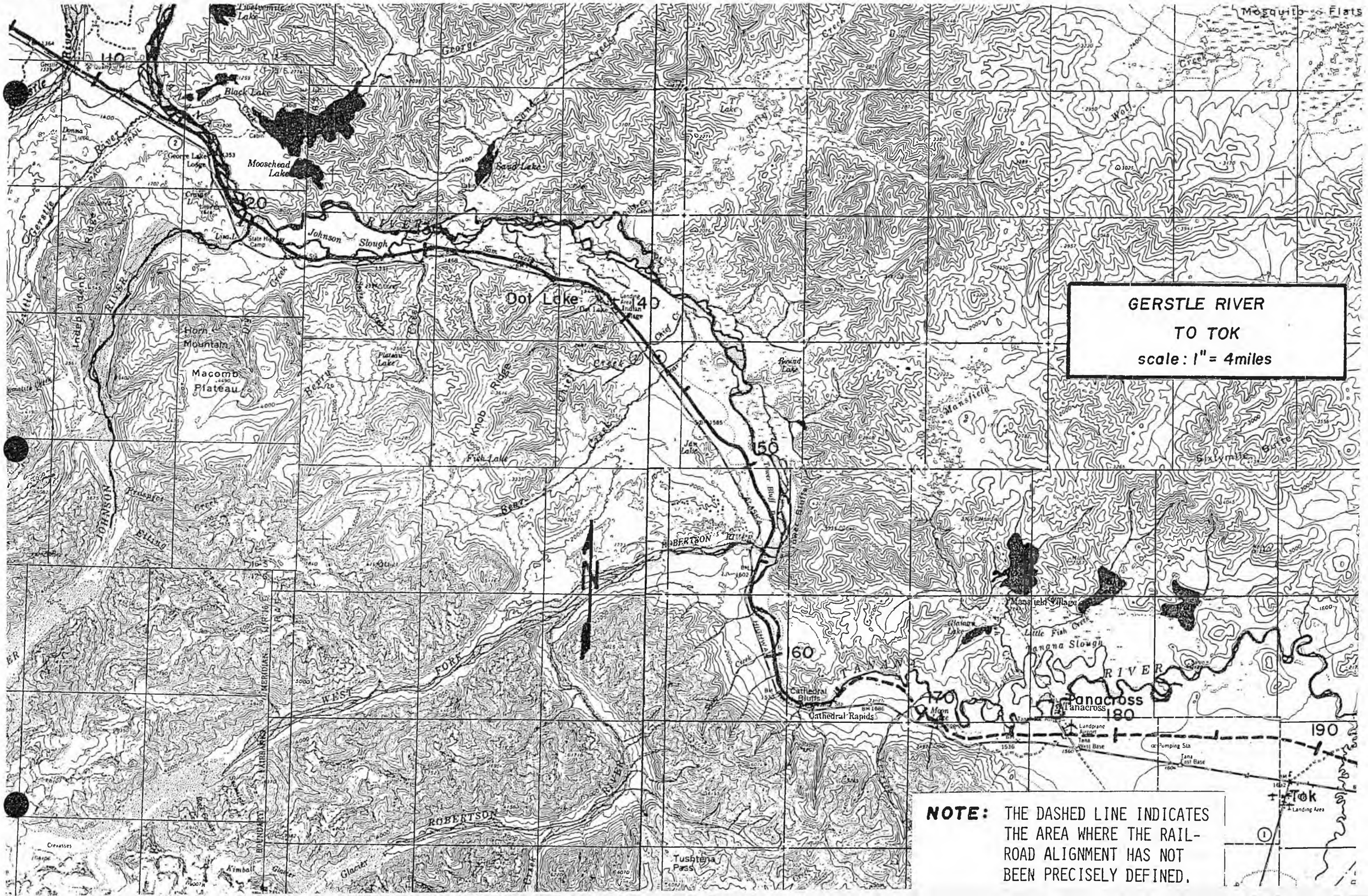
Sled Road

LITTLE DELTA RIVER

TO

GERSTLE RIVER

scale : 1" = 4 miles


GERSTLE RIVER
TO TOK
scale : 1" = 4miles
NOTE: THE DASHED LINE INDICATES THE AREA WHERE THE RAILROAD ALIGNMENT HAS NOT BEEN PRECISELY DEFINED.
Mosquito Flats
Tiklyumite Lake
George Lake
Black Lake
Moosehead Lake
Sand Lake
Gerstle River
Johnson Slough
Dot Lake
Horn Mountain
Macomb Plateau
Plateau Lake
Knob Ridge
Fish Lake
Bear Creek
Robertson River
Tushtena Pass
Cathedral Bluffs
Cathedral Rapids
Mansfield Village
Little Fish Creek
Tanana Slough
TANANA RIVER
Tanacross
Landplane Airport
Tana West Base
Tana East Base
Pumping Sta
Tok
Landing Area
Johnson River
Independence River
Gerstle River
Trail
Creek
Slough
Lake
Mountain
Plateau
Ridge
Bluff
Glacier
Pass
Crevasses
Cabin
Camp
Lodge
Village
Airport
Base
Sta
Area
110
120
130
140
150
160
170
180
190

TOK TO CANADIAN BORDER

scale: 1" = 4miles

END OF PROJECT

Alaska-Yukon Border

T. 21 N

T. 20

30'

T. 19 N

T. 18 N

15'

T. 17 N

T. 16

T. 15

690000m. N.

T. 14

63°

190

200

210

220

230

240

250

260

N

Tok

Landing Area

BM 1637

Tetlin Jct.

Tetlin Junction

Tetlin River

Tetlin

TANANA

Fork

Dead Tree Creek

Porcupine Creek

Ladine

Willow Lake

Big Lake

Grass Lake

Tetlin Hills

INDIAN RESERVATION

Chisana Mtn

Peripheral Creek Lake

Leal Lake

Swan Lake

Long Lake

Lake

Tlogogn Lake

Landing Area

Riverside Lake

Fish Camp Lake

Trilchin Lake

Titus Paul Hill

Long Reef Lake

Mundcha Lake

Tulkasmund Lake

Nuziamundcha Lake

Big John Hill

Big John Lake

Tetland Sand

Gasoline Lake

Dathlatmund Lake

Old Albert Lake

Tathtaedamund Lake

Nuziamund Lake

Chetmuna Lake

Fortlegmond Lake

Chindagmund Lake

Northway Junction

Damundtali Lake

Chisana

Mosquito Fork

Summit

Cabin

Grave

Ch

Creek

Gravel Pit

Grave Site

Landing Area

Airport

Trail

Pipeline

Power Line

Pond

Lakes

Swamp

Sand

Gravel

Rock

Timber

Cemetery

Church

Mine

Ruins

Dam

Bridge

Ford

Ferry

Boundary

Township

Section

Road

Trail

Pipeline

Power Line

Airport

Landing Area

Cabin

Grave

Church

Mine

Ruins

Dam

Bridge

Ford

Ferry

Boundary

Township

Section

APPENDIX

Introduced: 1/13/77
Referred: State Affairs and Finance

BY SWANSON, BRADLEY, CHATTERTON, HAYES, KELLY, MCKINNON, MEEKINS, MILES, PARR AND PHILLIPS.

IN THE HOUSE

HOUSE BILL NO. 47

IN THE LEGISLATURE OF THE STATE OF ALASKA

TENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act relating to creation of a utility corridor for extension of the Alaska Railroad; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. AS 19.05 is amended by adding a new section to read:

Sec. 19.05.122. UTILITY CORRIDOR FOR EXTENSION OF THE ALASKA RAILROAD. (a) The interior division of the department shall delineate a proposed utility corridor for the extension of the Alaska Railroad to the Canadian border. The proposed utility corridor shall include a delineation of a proposed railroad right-of-way.

(b) The commissioner shall, in conformity with the Administrative Procedure Act (AS 44.62), adopt a regulation approving, modifying, or rejecting the proposed utility corridor and railroad right-of-way.

(c) If the commissioner approves or modifies the proposed utility corridor and railroad right-of-way,

(1) the Department of Natural Resources shall classify, or reclassify, and reserve any state land within the utility corridor for use as a utility corridor and railroad right-of-way; and

(2) the department shall exercise its authority under sec. 40 of this chapter to acquire rights-of-way across land within the utility corridor which is subject to the state's power of condemnation.

(d) The requirements of the Alaska Land Act (AS 38.05) relating to classification and reclassification of land are inapplicable to actions taken under this section.

Introduced: 1/13/77
Referred: State Affairs and Finance

BY SWANSON, BRADLEY, CHATTERTON, HAYES, KELLY, MCKINNON, MEEKINS, PARR AND PHILLIPS

IN THE HOUSE

HOUSE BILL NO. 48 am

IN THE LEGISLATURE OF THE STATE OF ALASKA

TENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act making a special appropriation to the Department of Transportation and Public Facilities, interior division, for delineation of a utility corridor and railroad right-of-way for extension of the Alaska Railroad; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. The sum of $865,000 is appropriated from the general fund to the Department of Transportation and Public Facilities, interior division, for the purpose of reconnaissance photography and studies, field surveys, mapping, engineering work, cost comparisons, and office work to delineate a utility corridor and railroad right-of-way for extension of the Alaska Railroad to the Canadian border.

* Sec. 2. The unexpended and unobligated portion of this appropriation lapses into the general fund June 30, 1979.

* Sec. 3. This Act takes effect immediately in accordance with AS 01.10.-070(c).

RECEIVED
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The Alaska Railroad
Office of Chief Engineer

ALASKA RAILROAD EXTENSIC

Eielson to the Canadian Border



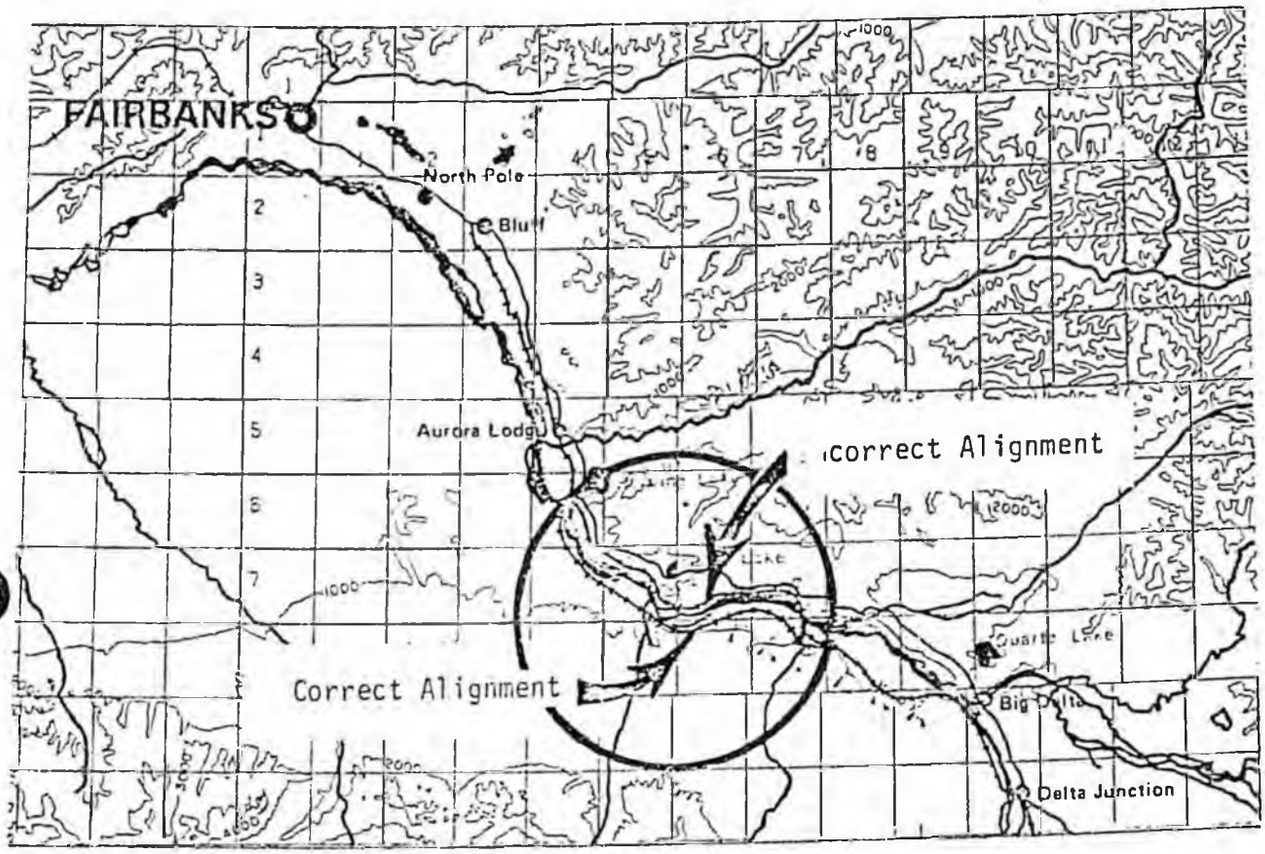
State of Alaska Department of Transportation and Public Facilities

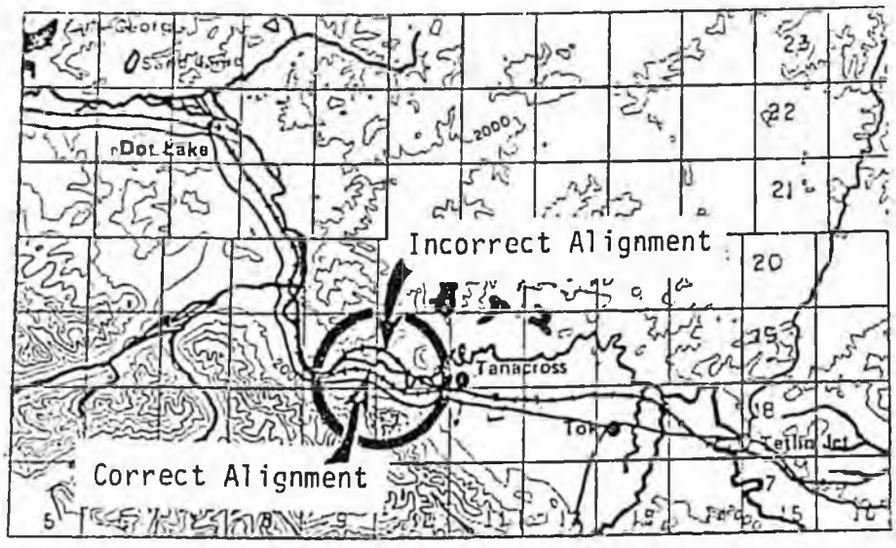
ENVIRONMENTAL ASSESSMENT

JULY 1983

ERRATA SHEET

Figure 4, Project Corridor (base map), and Figures 7 through 12 contain two segments of incorrect railroad alignment. The correct alignment segments are identified below.





ERRATA CONTINUED

The White Pass and Yukon Railroad route, traversing between Skagway AK and Whitehorse YT, is not shown on Figure 2, Existing Railroad Systems in Alaska and Northwestern Canada.

PROJECT R51033

ALASKA RAILROAD EXTENSION

Eielson to the Canadian Border

ENVIRONMENTAL ASSESSMENT

STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

NORTHERN REGION

Approved for Distribution:

Regional Environmental Coordinator

Concur:

Deputy Commissioner

July 1983

Questions or comments concerning this document may be directed to:

State of Alaska
Department of Transportation
and Public Facilities
2301 Peger Road
Fairbanks, Alaska 99701

Attn: Environmental Section

SUMMARY

At the direction of the Alaska Legislature, the Alaska Department of Transportation and Public Facilities proposes to extend the Alaska Railroad from its present terminus near Eielson Air Force Base to the Canadian border, a distance of approximately 271 miles. The project would provide diverse transportation service possibilities related to regional resource development and, if extended through Canada (by the Canadian Surface Transportation Administration), related to transcontinental shipment. A railroad extension would also afford greater energy efficiency over other transport modes and would connect all of Alaska's major military installations to the railroad system. Proposed project activities would include construction of a single track (mainline), numerous railroad bridges, passing sidings every seven to ten miles, industrial tracks to serve major users not located near terminals or yards, terminal facilities, and a yard or yards to accommodate locomotive and car maintenance shops and switching operations.

In addition to the above preferred project construction alternative, a no-action alternative is considered. Other alternatives are not reasonable.

Significant environmental impacts of the project construction alternative are the commitment of resources for construction, wildlife habitat loss, wetland and floodplain involvement, railroad operation noise and access for natural resource development. The no-action alternative would preclude the possibility of railroad system linkage leading to the contiguous United States. An energy savings, through rail shipment of freight rather than highway or air shipment, would not be realized.

Early project coordination, prior to the initiation of this environmental study, included several Department contacts with agencies and community groups. Identified environmental issues provided guidance for the route location. Further agency coordination during the study identified other areas of project concern. Agency identified areas of concern have included permit acquisitions, potential cultural resource impacts, subsistence pattern changes, and effects on wildlife. Project location and activity concerns will continue to be coordinated during the project development process.

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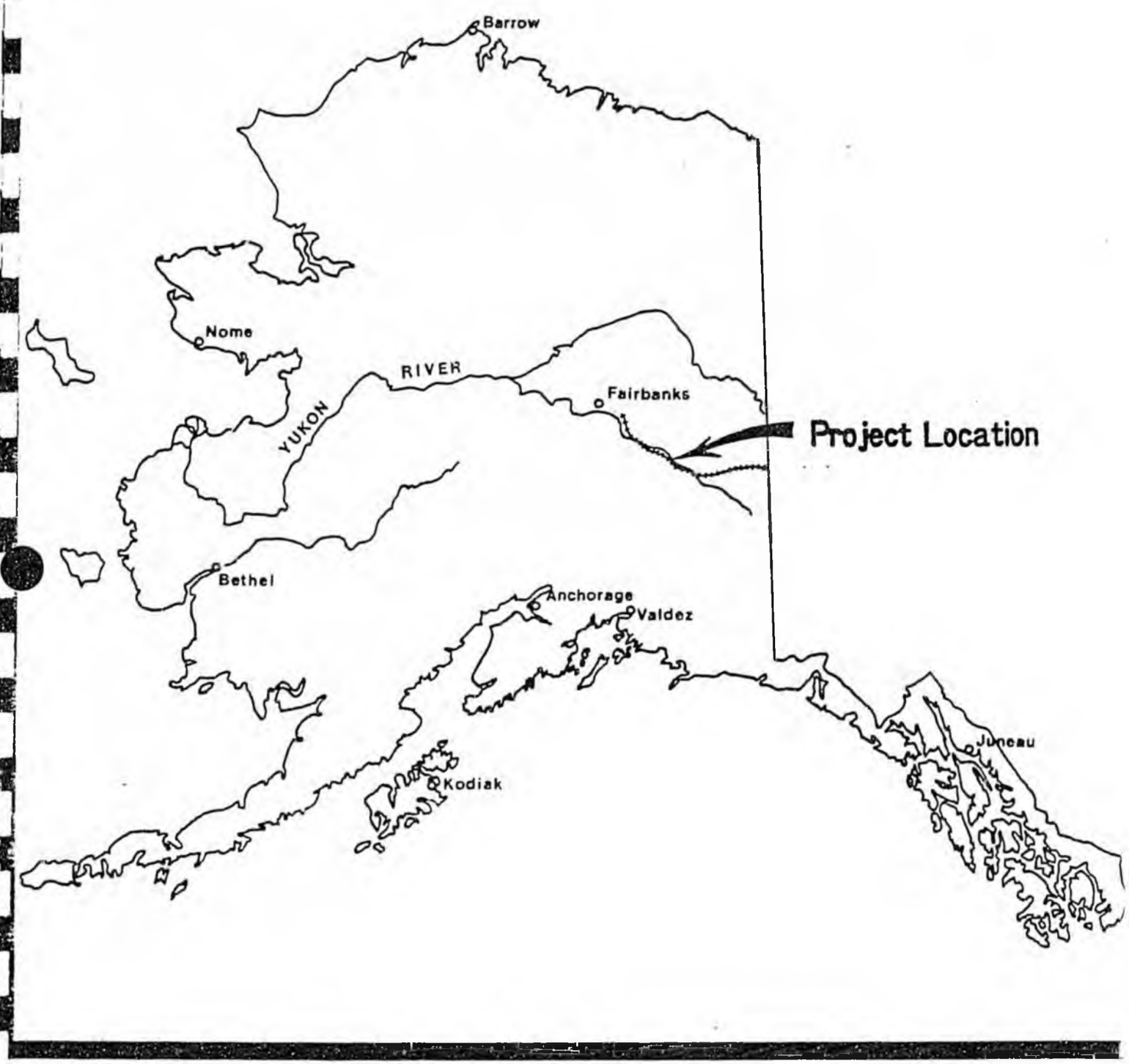


FIGURE 1 - Project Location

PROJECT HISTORY AND PURPOSE

HISTORY

In 1977, the Alaska Legislature passed House Bill 47 which dealt with a proposed extension of the Alaska Railroad. The bill mandated the Interior Region of the Alaska Department of Transportation and Public Facilities to delineate a proposed utility corridor for the extension of the Alaska Railroad to the Canadian border. A July 1981 amendment of House Bill 47 also directed the Department to prepare an environmental study, evaluating the impact of railroad construction.

The idea of an Alaska-Canada transcontinental rail connection to the contiguous United States had existed long before the above legislative intent surfaced. In 1942, the U.S. Army Corps of Engineers surveyed a route for a rail connection. Project interest faded however, after the end of World War II. The Bureau of Land Management, (BLM), Alaska State office, recommended a railroad linkage with Canada in a 1974 report, "Multimodal Transportation and Utility Corridor Systems In Alaska." In 1976, a State-sponsored conference was held to consider the connection of Alaska and Canada by an all rail land route leading to the midwestern and eastern manufacturing centers. The conference reached conclusions that: (1) Alaska was far behind the Yukon Territory and northern Canada in their research on the potential for a rail route and (2) the concept of rail connection between Alaska and Canada looked promising and should be pursued. The Legislature thereafter appropriated funding for preliminary economic studies in 1977, by the Department of Commerce and Economic Development and in 1980, by the Legislative Affairs Agency.

PURPOSE

A rail connection leading to the contiguous United States would provide system linkage and would present diverse transportation service possibilities.

Figure 2 identifies the existing railroad systems in Alaska and northwestern Canada. A feasible connecting route in terms of topographical relief and distance is first from Eielson Air Force Base

southeasterly up the Tanana and down the Ladue River valley to the Canadian border, then down the West Fork of the Ladue to the White River, down the White River valley to the Yukon and up the Yukon past the community of Carmacks, then easterly along the Little Salmon and Magundy River drainages to the Pelly River, then up the Pelly and down the Liard River valleys to Watson Lake, south to Dease Lake, and finally southward to the terminus of the existing tracks extending from Prince George.

Transportation service possibilities from a connecting route are dynamic and diverse. The reader is encouraged to consult the preliminary economic studies identified in Appendix A for a more detailed accounting. Basically, the rail connection is being considered as both a regional resource development tool and a transcontinental trunk route.

Historically, railroads have been important development tools in large undeveloped land areas. Railroad access to minerals in the Western United States in the late 19th Century is a typical example. In Alaska, it is probably significant that the largest movements on the existing Alaska Railroad include coal transported from Healy to power plants along the railbelt and gravel moved from Palmer to aggregate companies in Anchorage. Petroleum products and logs from Nenana are also important rail movements. A railroad connection to the contiguous United States might afford additional development opportunities for several energy and natural resource industries including oil, mining, agriculture, and forestry. With surface transportation development, the Alaska Miners Association estimates that hard rock mines in Alaska could produce 2,199,000 tons of minerals and 22,688,000 tons of coal annually. Perhaps 15 to 17 million acres of potential farmland exists in Alaska; over 3.3 million tillable acres are located in the Tanana valley alone. Timber resources of Interior Alaska are comparable to the forests of the Great Lake States and it has been estimated that there is enough timber in the Interior to support approximately ten pulp mills on a sustained yield basis.

The value of these resources alone may not sufficiently amortize the cost of a railroad connection however. Mineral deposits can eventually be worked out. Alaska's extreme climatic conditions can cause agricultural production failures. Timber resources are subject to fire and disease. A transcontinental trunk route though, would serve a wider variety of shippers of all types of consumer and industrial goods, including many shippers not even inside the region. A trunk route would not be seriously affected by changes in regional economy. The trunk line would connect ports like Tokyo, Anchorage and Skagway with other population centers like Fairbanks, Whitehorse, Edmonton, Duluth and Chicago. Transport of products from Japan bound for the midwest, midwest goods being shipped to Japan or Russia, or of eastern U.S. goods

for local markets might occur on a transcontinental trunk route. Illustrations in Appendix B indicate some of the products that could move along the route and how the different route segments might be utilized.

Additional merits of a rail connection deserve mention. Alaska has several important military installations. Significant amounts of military freights are shipped into and out of the State. A rail connection would afford more direct military transport and would also connect all of the major military installations, thereby possibly improving national defense. Furthermore, a rail connection would afford greater energy efficiency. With equal amounts of fuel, a railroad can transport more freight per mile than can be moved by either air or highway.

A rail connection entails project commitment by both the State of Alaska and the Canadian Surface Transportation Administration. At the present time the Canadian Government has no plans for construction of the Canadian portion of a rail connection. However, some of the above mentioned transportation service possibilities could still be realized even without Canadian railroad construction. An extension of the existing Alaska Railroad system toward the border would serve regional resource development (e.g., agricultural activity near Delta Junction). It would also connect all of Alaska's major military installations and provide improved energy efficiency over highway and air transport.

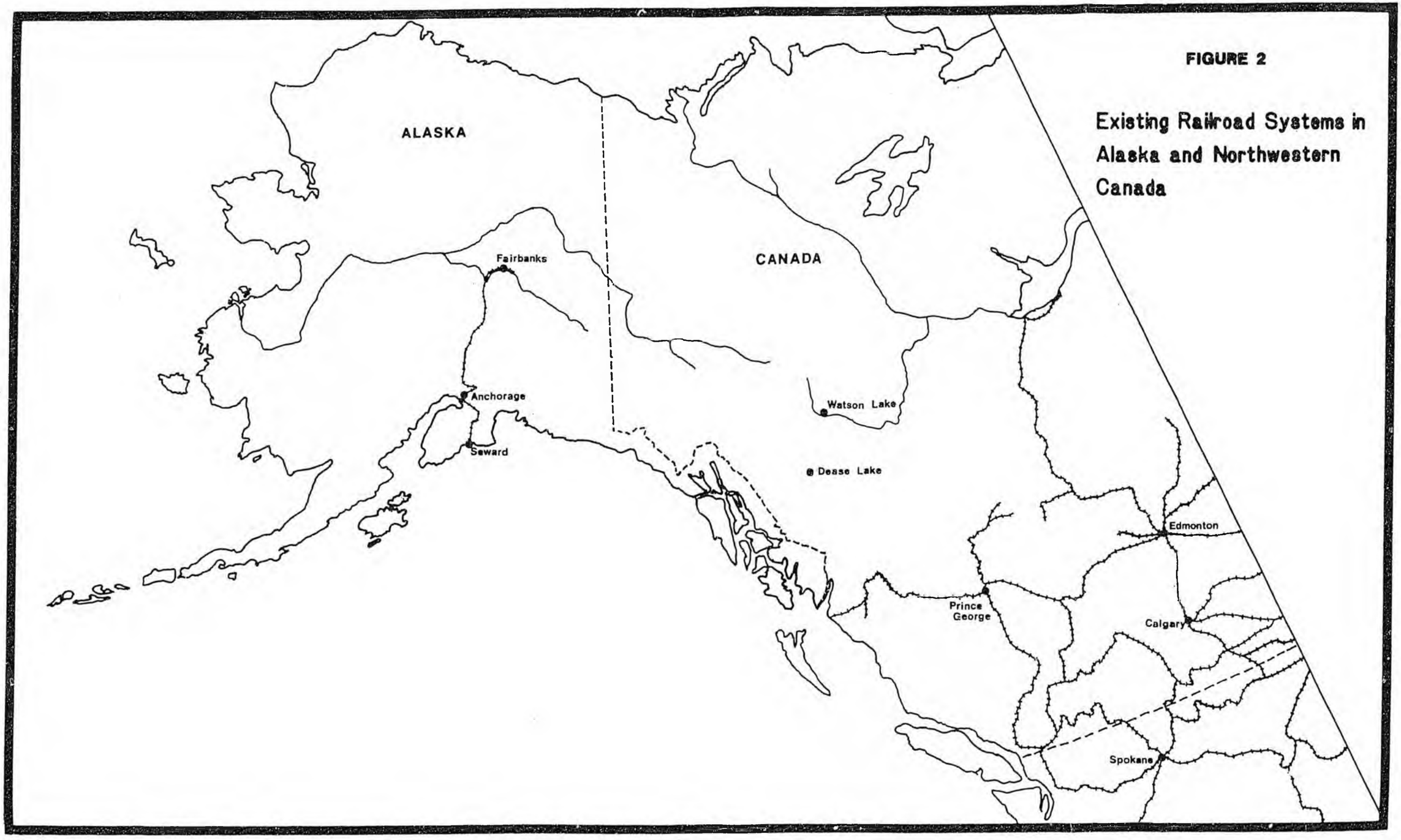


FIGURE 2

Existing Railroad Systems in Alaska and Northwestern Canada

ALTERNATIVE COURSES OF ACTION

Reasonable alternatives considered include a no-action alternative and a project construction alternative.

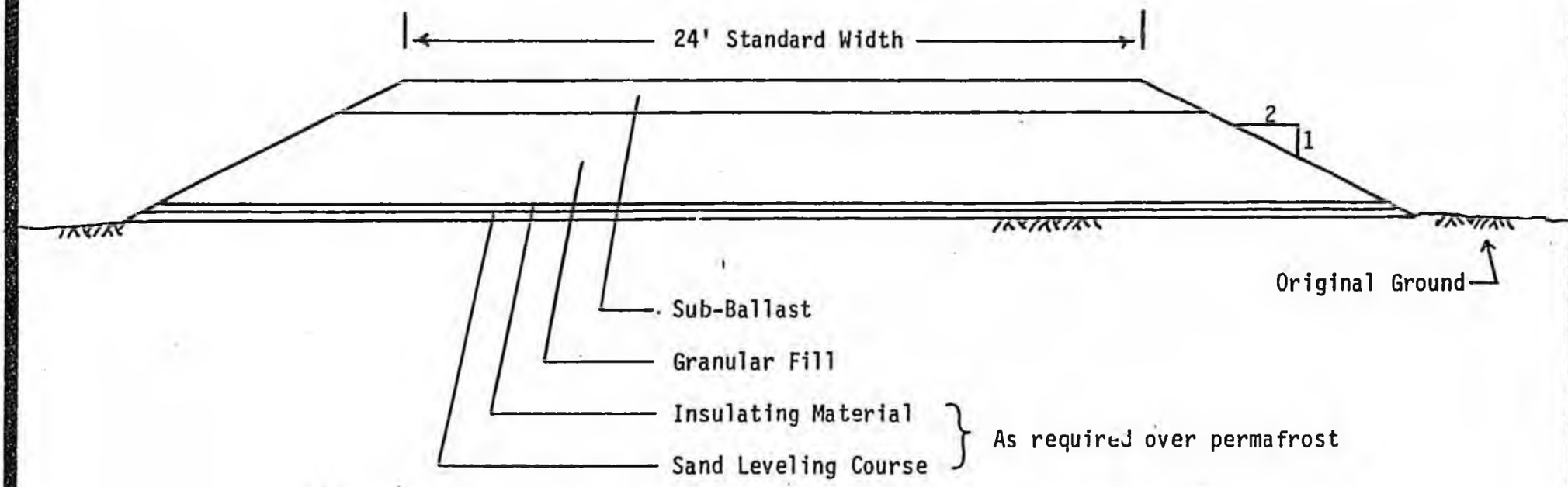
The no-action alternative would exclude any construction of a rail extension from Eielson Air Force Base to the Canadian border.

The alternative for project construction involves placing a single track (mainline) between Eielson Air Force Base and the Canadian border. It also includes necessary railroad bridges, passing sidings (spaced about every 7 to 10 miles so that trains may meet and pass), industrial tracks to serve any major users not located near terminals or yards, terminal facilities, and a yard or yards to accommodate locomotive and car maintenance shops and switching operations.

The proposed mainline track location is described below. It was identified through Department reconnaissance work that began in 1977. Appendix C defines the reconnaissance steps that lead to selection of the proposed route. General specifications for the track and embankment are given in Figure 3. Material source sites for embankment construction and maintenance have not been determined, pending further materials investigations. Right of way width for the mainline track, inclusive of passing sidings, would be 300 ft.

The specific locations for sidings, industrial tracks, and terminal and yard facilities have not been determined at this time. They would be identified during the project design phase. Right of way needs would likely be less than 300 ft. in width at industrial track locations, and greater than 300 ft. at terminal and yard locations.

Project construction would probably involve several construction seasons of work. Functional segments of the route could be placed in operation before construction of the entire route is accomplished. The Canadian border is a legislatively directed project study termini. A project construction alternative with termini of Eielson Air Force Base and an intermediate location (e.g., Delta Junction) is both feasible and probable. An initial intermediate termini may also be more prudent economically and politically.



NOTES

1. Track embankment and bridge structures will be constructed to accommodate cars carrying a load of up to 100 tons each.

2. Fill height will vary depending on foundation soils or floodplain involvement. A 4' minimum is typical over good foundation conditions.

3. Fill slopes will also vary. A 2:1 slope is typical over good foundation conditions.

4. Estimated average quantity of sub-ballast and granular fill: 67,000 cy/mile over good foundation conditions.

FIGURE 3 - General Specifications for Mainline Track and Embankment

ROUTE DESCRIPTION

An existing spur of the Alaska Railroad runs 30 miles southeast from Fairbanks to Eielson AFB. The proposed railroad extension takes off of this spur at the south end of the bridge spanning the floodway for the Chena River Flood Control Project. This beginning point (Mile 0), is five miles northwest of Eielson near Moose Creek Bluff.

From Mile 0 the proposed route runs southeast between the Richardson Highway and the Tanana River traversing old river bars and crossing numerous slough channels. Recent State-disposed agricultural lands surround the alignment from Mile 1.4 to Mile 5.3.

The route remains between the Richardson Highway and the Tanana River up to Mile 20. There are numerous private parcels and homes in this area. Several changes in the alignment have been made to reduce the impacts on these properties. These changes included the introduction of more curvature into the alignment and the shifting of the route across sloughs onto old river bars. At Mile 18.5, the railroad route has been relocated in order to avoid private homes. This location will require bank protection but will provide these homes with protection from erosion which has been severe at this site in recent years.

Near Mile 20, the proposed route turns up the Salcha River to a crossing one mile downstream from the highway bridge. From this point, the route heads toward the Tanana River crossing at the west slope of Flag Hill near Harding Lake.

The railroad route crosses the Tanana River at Mile 24.4. This crossing was chosen early in the route study as by far the best available Tanana crossing and was subsequently considered a fixed point in the route. At Flag Hill, the main river channel is fixed against the hillside and the total width of the active river channel is about ½ mile. In most other areas, the Tanana's braided channels are continually shifting over a channel width of one to 1½ miles.

After crossing the river, the route continues up the Tanana valley traversing the floodplain ½ to one mile away from the river. From Mile 25.2 to Mile 30.1, the route is located on military land (Fort Wainwright). After leaving Fort Wainwright, the route traverses State lands for the next 35 miles.

At Mile 36.5 the route turns south up the Little Delta River to reach a secure site for crossing that stream. The route then continues easterly paralleling the Tanana River for the next 12 miles. At Mile 50, the route again turns away from the Tanana in order to reach a favorable site for crossing Delta Creek. The route crosses Delta Creek at Mile 52.8 and then continues easterly passing south of a three mile long ridge. There is a Federal recreation withdrawal along Clear Creek which runs along the north side of this same ridge and the railroad route has been placed so as to avoid this withdrawal. From the east end of the ridge, (Mile 56.5), the route runs along low terraces about ½ mile south of Clear Creek to the headwaters of the creek near Mile 63.

Near Mile 67, the route passes through some private agricultural lands near the confluence of the Delta and Tanana rivers. The route then runs southeast through State lands along the Delta River.

The route turns across the Delta River at Mile 75 and then runs upstream along the east bank of the river for two miles through the Delta Junction area. The location of the railroad is intended to provide bank protection in an area where stream erosion has been a problem in recent years.

At Mile 77.5, the route turns away from the Delta River and runs along the east bank of Jarvis Creek. The route is situated on military lands from Mile 78 to Mile 88.5. At Mile 82, the route is near the developed area of Fort Greely although a bridge across Jarvis Creek would be necessary to provide direct access to the Fort. From Mile 82 the route turns easterly remaining on Fort Greely lands for the next 6.5 miles as a means of avoiding the private property along the Alaska Highway.

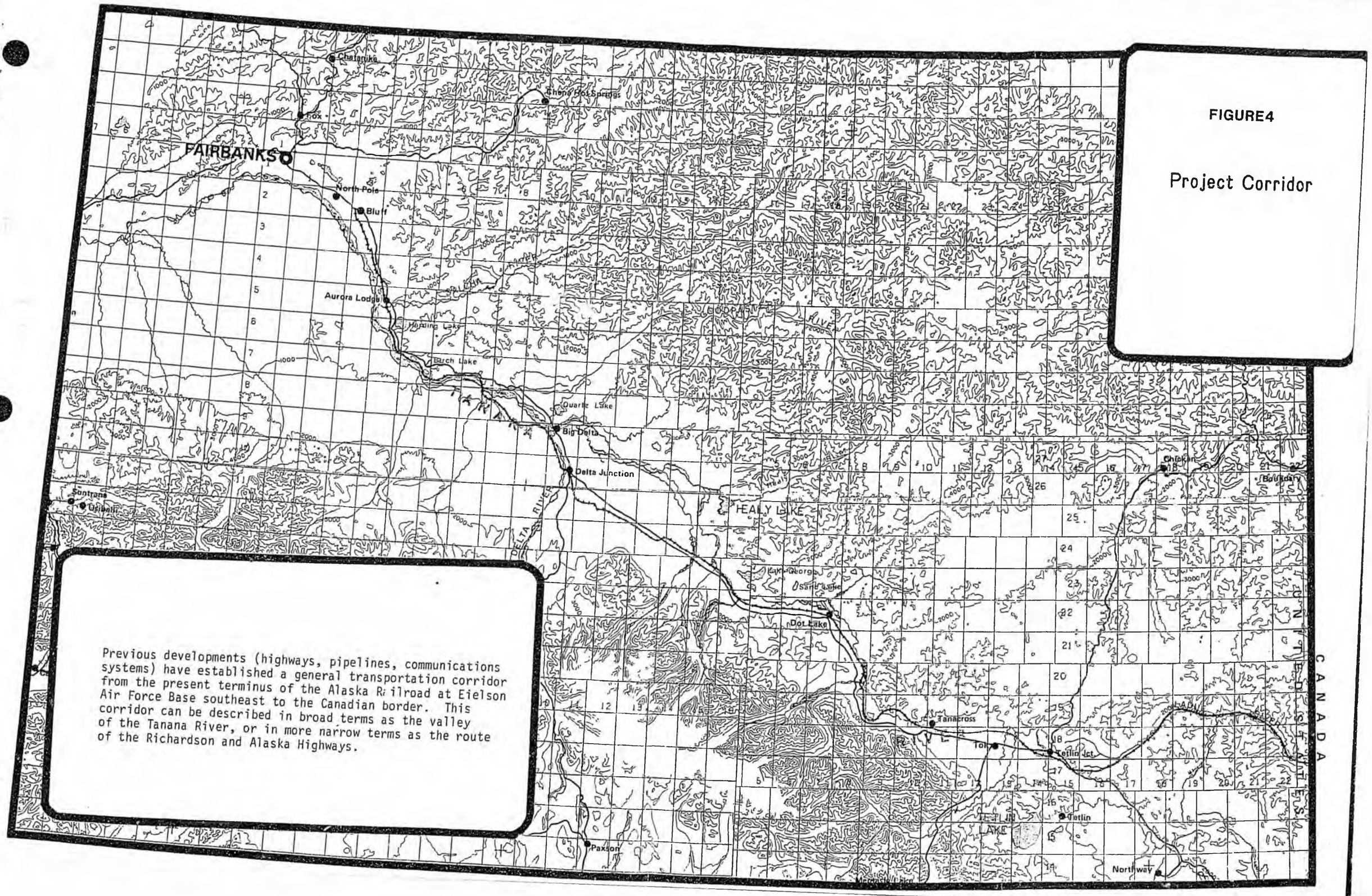
After leaving Fort Greely, the route runs east to the vicinity of the Alaska Highway and then closely parallels the highway for the next four miles. At Mile 99, the route makes an "S" curve in order to cross the highway at an acceptable angle. The route then parallels the highway on the north side for the next 11½ miles. The railroad route has been located so as to be compatible with the route for the proposed Northwest Alaska Natural Gas Pipeline which also parallels the highway through this area.

At Mile 111.5, the railroad route bends around a proposed gas line compressor site and then departs from the vicinity of the highway and runs along the bank of the Tanana River from Mile 114 to Mile 120 at Johnson River. A route higher on the hill was considered on the approach to Johnson River, but the route adjacent to the Tanana was determined to offer the best grades and foundations even though it will encroach on the river in a few places in order to avoid steep, unstable hillsides.

FIGURE4

Project Corridor

Previous developments (highways, pipelines, communications systems) have established a general transportation corridor from the present terminus of the Alaska Railroad at Eielson Air Force Base southeast to the Canadian border. This corridor can be described in broad terms as the valley of the Tanana River, or in more narrow terms as the route of the Richardson and Alaska Highways.



The railroad route crosses the Johnson River near its mouth and then returns to the vicinity of the Alaska Highway at Mile 123.5. The railroad remains north of and parallel to the highway from Mile 123.5 to Mile 128.3.

The railroad route swings away from the Alaska Highway at Mile 130 near Berry Creek and again at Mile 133 in order to maintain the required grades. In the vicinity of Mile 135, the alignment has been adjusted to accommodate a new State subdivision.

From Mile 135 to Mile 145, the railroad route closely parallels the highway. The highway and railroad rights of way actually overlap in the vicinity of Dot Lake in order to minimize the total right of way through the village area.

From Mile 145, the railroad route pulls away from the highway in order to avoid the rough terrain traversed by the highway just north of the Robertson River. The railroad route runs east of the rough terrain and then crosses the Robertson River just above its confluence with the Tanana River. The route remains close to the Tanana River for the next 12 miles in order to maintain acceptable grades through the Cathedral Bluffs area.

From Mile 165, the railroad turns away from the river and converges with the highway near Moon Lake (Mile 171). For the next six miles the route closely parallels the highway.

At Mile 177, the railroad departs from the vicinity of the Alaska Highway and proceeds in a nearly due east direction through the Tanacross and Tok areas. The route is located on section lines for seven miles to Mile 188.5, two miles north of Tok. From this point, the route turns southeast and gradually converges with the highway.

The route passes north of the Coast Guard installation at Mile 195 and enters Tetlin Village lands at Mile 195.5. The route is located on Tetlin lands for the next 21.5 miles.

At Mile 199.4, the railroad route crosses the Alaska Highway and then crosses the Tanana River just upstream from the highway bridge. The route passes ½ mile south of Tetlin Junction and remains south of the highway to Mile 207. At this point, the route again crosses the highway and begins the climb to the Ladue Summit. This section entails ten miles of sustained one percent grade and sharp curves. The Ladue Summit is the highest point on the proposed railroad route at 2300 ft. above sea level.

ENVIRONMENTAL SETTING AND ENVIRONMENTAL CONSEQUENCES

NO-ACTION ALTERNATIVE

Adoption of a no-action alternative would avoid impacts associated with project construction. No surface disturbance or vegetation loss from embankments, yard facilities, or material source sites would occur. There would be no loss of wildlife habitat; subsistence patterns would not be affected. No encroachment into waters, wetlands and floodplains necessary for bridge construction, would ensue. Air quality, noise, archaeologic and visual impacts of the project, though not significant, would none-the-less be precluded with the no-action alternative. No right of way acquisition would be required. Neither would construction materials, equipment, or labor be necessary. Funding would be available for other uses.

No railroad system linkage, leading to the contiguous United States, would be possible with adoption of the no-action alternative. (Even with extension to the Canadian border however, construction of the rail connection within Canada cannot be assured.) Many railroad generated transportation service possibilities would be diminished or eliminated without the system linkage. An energy savings, through rail shipment of freight rather than highway or air shipment, would not be realized as a result of the no-action alternative.

PROJECT CONSTRUCTION ALTERNATIVE

The environment to be affected by proposed railroad construction and operation and the general impacts that may result are identified under the topics that follow.

GEOLOGY AND HYDROLOGY

The majority of railroad corridor area falls within two land resources identified physiographically as the Interior Alaska Lowlands and the Interior Alaska Highlands (Figure 5). The designations are descriptive of the geologic and hydrologic settings.

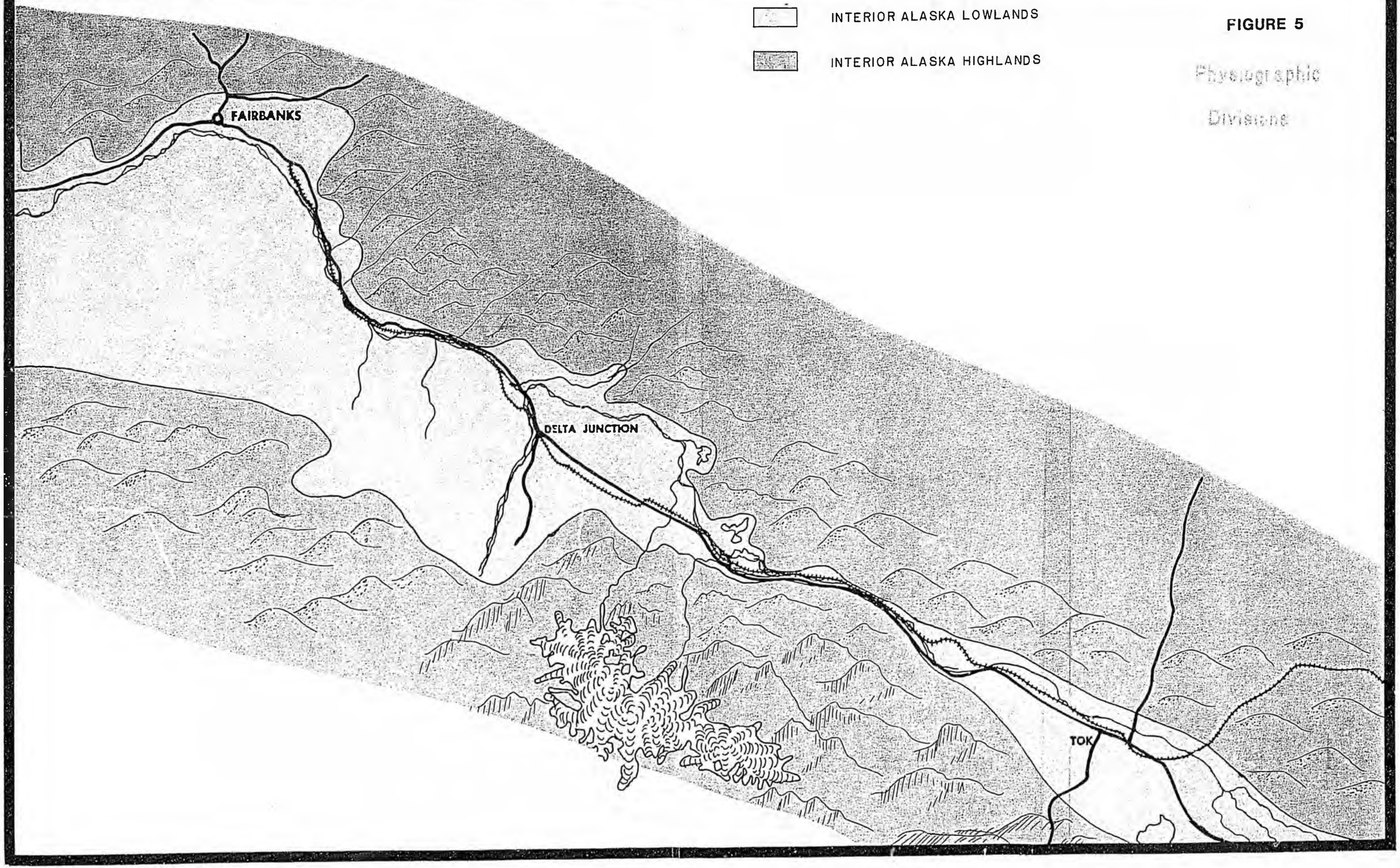


FIGURE 5

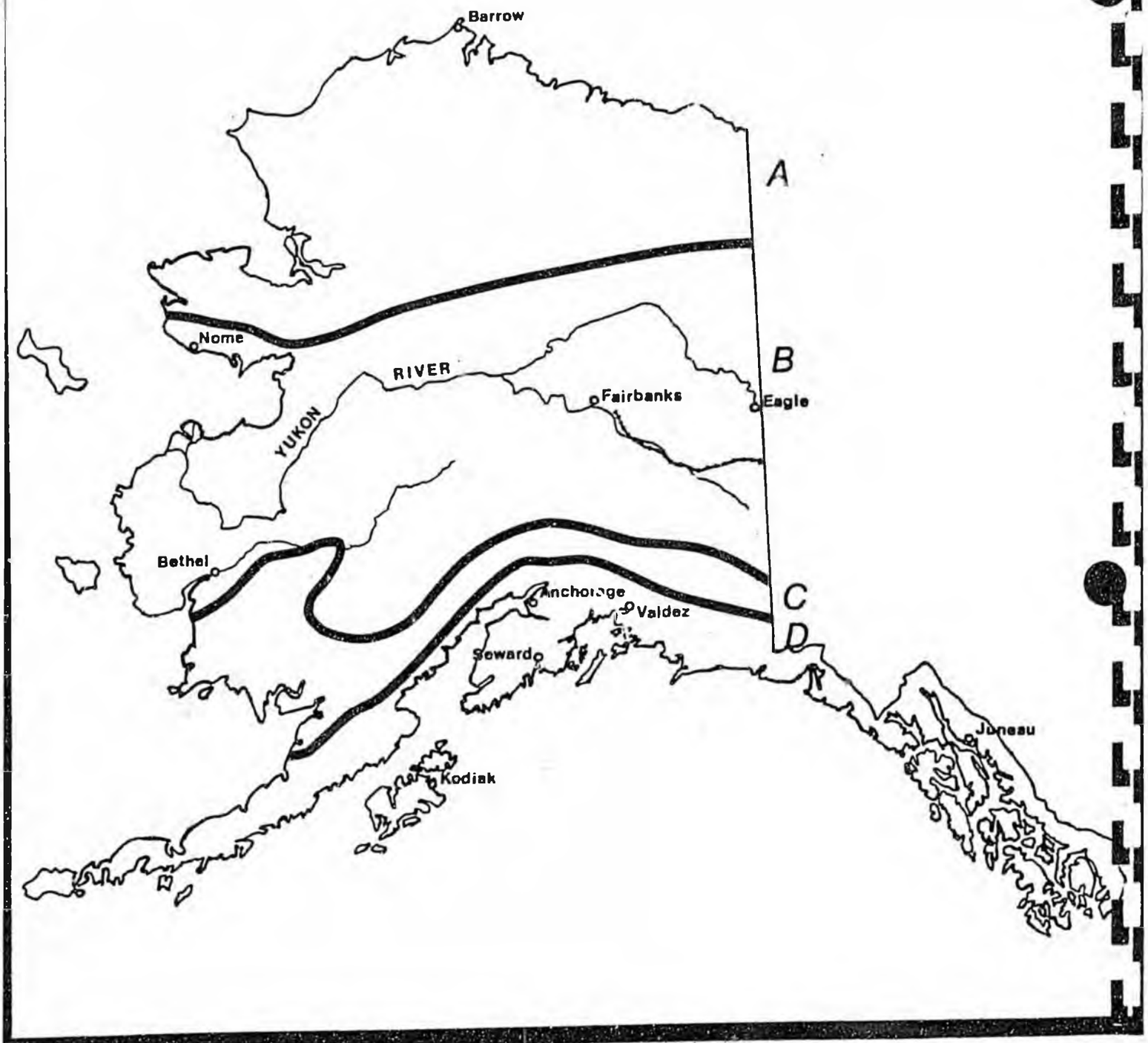
Physiographic Divisions

foundations and in areas where construction materials are readily available. Areas of poor foundations, such as sloughs, marshes, and wetlands, offer prohibitive construction and maintenance costs. Large quantities of gravel and rock would be required for the construction of nearly 270 miles of railroad. In addition, a continual supply of gravel and rock would be necessary for maintenance. Railroad roadbed maintenance, including gravel renewal, is critical in Alaska where the amount of moisture during spring breakup can, if not controlled, make track unusable within a single year. Further material demands could also result from flood or earthquake damages. The abundant alluvial gravels of the Tanana lowland should provide adequate gravel and rock sources for construction, operation and maintenance. Specific mining locations have not been determined, however, pending further materials investigations. Importing gravel materials from longer distances over newly constructed portions of railroad alignment might also prove feasible and cost effective. The Design and Construction Impacts section further addresses project materials needs.

The corridor is entirely within the discontinuous permafrost zone of Alaska (Figure 6). Although the permafrost or permanently frozen ground is discontinuous, the corridor traverses more frozen ground than unfrozen. Typically permafrost exists where there is a mean annual air temperature below freezing. Within similar temperature zones favorable for the formation or preservation of permafrost, other environmental factors such as subsurface drainage and surface insulation, affect the distribution of permafrost. Construction produced changes in the surface environment of frozen ground (e.g., clearing of vegetation, alignment construction) can result in thawing of the permafrost, followed by ground subsidence if the frozen material is unstable. Not all permafrost is thaw unstable; gravel and rock materials can remain stable when thawed. Due to the intensive maintenance required on alignments located over thaw unstable permafrost areas, avoidance of such locations is usually prioritized. Where avoidance is not possible, design measures can reduce, but will never eliminate, above-normal maintenance costs. Within the corridor area, the Ladue River valley, containing loamy alluvial sediments, presents the greatest potential for permafrost problems.

Other geological and hydrological hazards to a railroad alignment that occur in the corridor (Figure 7) include terminal moraine slopes of the Johnson and Robertson Rivers, steep slopes between the Tanana and Ladue River valleys and in the vicinity of Harding Lake, icing on the Johnson and Robertson Rivers, flooding in the Tanana River floodplain, flash flooding of Yerrick and Cathedral Creeks, glacier outburst flooding along several rivers and earthquake damage. Although no major faults associated with earthquake activity are found along the Tanana and Ladue River valleys, surrounding hills and mountains do contain faults and have greater earthquake potential.

The probability of project impact from certain hazards can be minimized by engineering practices when alignment avoidance is not possible; other



PERMAFROST ZONES

A Continuous

B Discontinuous

C Sporadic

D No Permafrost

FIGURE 6 - Permafrost Zones of Alaska

FIGURE 7

Geological and

Hydrological Hazards

KNOWN OR INFERRED RIVER FLOODING

GLACIER OUTBURST FLOODING

ICING

SLIDES

FAULTS (DOTTED WHERE INFERRED)

FAIRBANKS

North Pole

Bluff

Aurora Lodge

Harding Lake

Birch Lake

Quartz Lake

Big Delta

Delta Junction

Fox

Chena Hot Springs

Chatanika

Suntrana

Usibelli

HEALY LAKE

Lake George

Dot Lake

Paxson

Tok

Tetlin Jct.

TETLIN LAKE

Chicken

Boundary

Northway

CANADA

hazards are upredictable (e.g. earthquakes) and cost effective mitigation is impractical. Locating an alignment away from the base of steep slopes and constructing backslopes at stable angles will minimize the potential for slope failures. Elevation of tracks (on pile supported bents) or of roadbed across channels and within floodplains where facility overtopping would otherwise be anticipated to occur will minimize icing and flooding hazards.

VEGETATION

The corridor area contains several general plant communities including bottomland spruce-poplar forest, low brush and muskeg bog, lowland spruce-hardwood forest, upland spruce-hardwood forest, moist tundra and alpine tundra (Major Ecosystems of Alaska Map).

The floodplains and low terraces of the Tanana River support the dense white spruce stands occasionally mixed with balsam poplar that comprise the bottomland spruce-poplar community. Vegetative undergrowth is generally dense shrubs including American green alder, thinleaf alder, willow, rose, dogwood, Labrador tea, and berry bushes. Ground cover is usually ferns, bluejoint grass, fireweed, horsetails, lichens, herbs, and mosses.

Low brush and muskeg bog typifies the plant community of the low, wet slough or basin areas within the corridor, including the Salcha drainage and Shaw Creek Flats. Bog vegetation consists of varying amounts of sedges, sphagnum and other mosses, bog rosemary, rose, resin birch, dwarf Arctic birch, Labrador tea, willow, bog cranberry, soapberry, and blueberry.

The lowland spruce-hardwood forest community occurs on extensive areas of glacial outwash plains bordering the south side of the Tanana River. The vegetative community consists of black spruce and tamarack in wet areas and white spruce, black spruce, paper birch, aspen and balsam poplar on knolls. Undergrowth includes willows, dwarf birch, lingonberry, blueberry, rose, Labrador tea, crowberry, bearberry, cotton grass, ferns, horsetail, lichens, and sometimes a thick cover of sphagnum and other mosses.

Upland spruce-hardwood forest occurs on the lower hills and ridges surrounding the Tanana River Valley. This is a fairly dense white spruce, birch, aspen and balsam poplar forest community. Undergrowth consists of mosses and grasses on dry sites and brush on moist slopes. Typical plant species are willow, alder, ferns, rose, highbush cranberry, lingonberry, raspberry, currant, Labrador tea and horsetail.

Moist tundra occurs on the higher foothills of the Alaska Range. Moist

tundra is characterized by a wide variety of low growing shrubs, herbs, grasses, and sedges rooted in a mat of mosses and lichens. Species include polar grass, bluejoint, tufted hairgrass, sedges, mosses, alpine-azalea, wood rush, mountain-avens, bistort, horsetail, low-growing willows, dwarf birch, Labrador tea, American green alder, Lapland rosebay, blueberry, and lingonberry.

Alpine tundra is found on mountain slopes and ridges, typically above 3000 ft. in elevation within the corridor area. Vegetation is seldom more than a few inches high. Dominant species usually consist of mountain-avens and lichens and low-growing herbs, grasses and sedges. Associated species are resin birch, dwarf Arctic birch, cassiope, crowberry, alpine-azalea, Labrador tea, mountain heath, moss campion, black oxytrope, and Arctic sandwort.

The above general plant communities are abundantly represented in interior Alaska. Estimated acreages are shown below.

TABLE 1
ESTIMATED AREA IN INTERIOR ALASKA*

Community	Acres (Millions)	Percent of State Total
Bottomland spruce-poplar forest	12.0	67%
Lowbrush and muskeg bog	9.2	88%
Lowland spruce-hardwood forest	23.2	66%
Upland spruce-hardwood forest	43.4	68%
Moist tundra	7.0	11%
Alpine tundra	21.1	25%

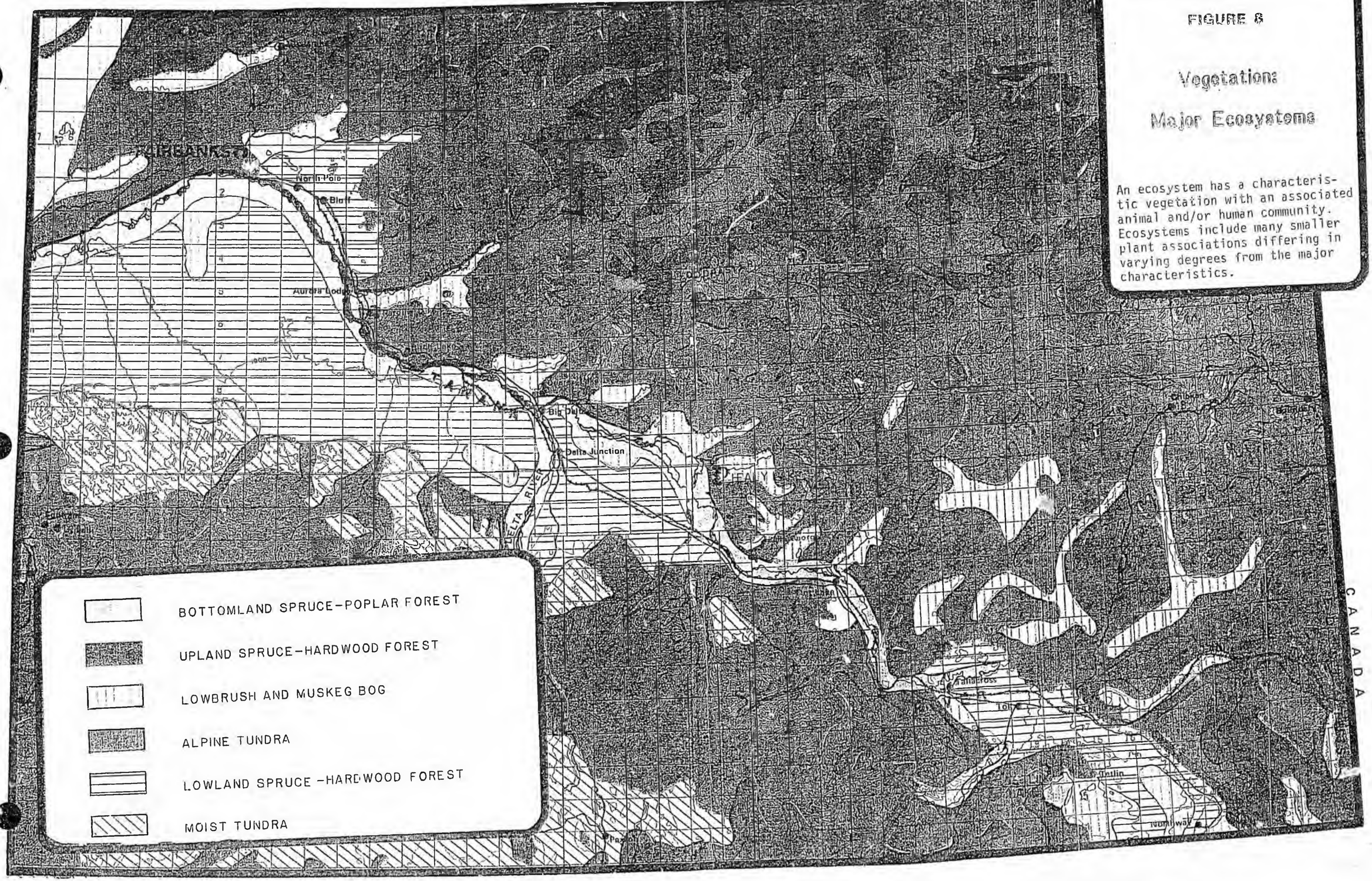
*Alaska Regional Profiles, Yukon Region

FIGURE 8

Vegetation

Major Ecosystems

An ecosystem has a characteristic vegetation with an associated animal and/or human community. Ecosystems include many smaller plant associations differing in varying degrees from the major characteristics.



Of the six identified general plant communities, a railroad alignment would primarily impact the bottomland spruce-poplar forest and the lowland spruce-hardwood forest. This is due, in part, to the relationship between the general plant communities (ecosystems) and project engineering constraints. A feasible railroad alignment would be precluded from the tundra communities of higher elevations where steeper gradients predominate. Likewise, poor soil drainage and inadequate foundation strength in the low brush and muskeg bog community would constrain extensive alignment there.

Construction of nearly 270 miles of railroad would require a significant loss of vegetation. Should construction activity and/or railroad right of way clearing standards necessitate removal of vegetation within the entire 300 ft. wide right of way (the most conservative estimate), a loss of 36 acres of vegetation per mile would result. Part of this loss would be temporary, as the area between the edge of right of way and the base of the railway embankment would revegetate by natural succession. However, due to safety and maintenance considerations (e.g., adequate sight distance at curves and road/railroad crossings, removal of trees that could fall and obstruct the tracks, reduced snow drifting and snow removal, etc.) cleared areas would be mechanically or chemically managed to keep vegetation at low growing heights. Impacted forest communities would be replaced, in part, by early successional stage vegetation communities. Additional vegetation loss at material source sites could also occur. The extent of this loss cannot be easily quantified; embankment material availability requires further investigation.

No known listed or proposed threatened or endangered plant species are present in the project area.

Several forested areas within the corridor (on State lands) have been proposed for legislative designation as State Forest Resource Management Areas and Experimental Forest and Watershed Areas (Figure 12). These and remaining corridor forests supply wood for commercial and personal use, and provide for a variety of non-timber uses. A railroad alignment could traverse through proposed State Forest Resource Management Areas. Except for the loss of timber within a 300 ft. wide right of way, no significant adverse impacts or benefits to the management areas have been identified.

AGRICULTURE

No prime or unique farmlands, as designated by the U.S. Department of Agriculture, Soil Conservation Service, occur within the project corridor.[1] The corridor does contain both developed agricultural lands and lands having a potential for agricultural development. Larger tracts of currently farmed agricultural lands can be found east and southeast of Fairbanks and east of Delta Junction. Figure 12 identifies general areas of current farming activity. Potential agricultural areas in the corridor, with soils suitable for farming activity, include most of the Tanana valley lowlands and some upland areas north of the Tanana River. Both regions have soils with 25-50% suitability for farming

[1] The Farmland Protection Policy Act of 1981 assures preservation of prime and unique farmlands. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides and labor and without intolerable soil erosion, as determined by the Secretary of Agriculture. Prime farmland includes land that possesses the above characteristics but is being used currently to produce livestock and timber. It does not include land already in or committed to urban development or water storage. Unique farmland is land other than prime farmland that is used for production of specific high-value food and fiber crops, as determined by the Secretary. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high levels of specific crops when treated and managed according to acceptable farming methods.

(Soils with Agricultural Potential, Alaska, U.S. Soil Conservation Service, 1973). Future agriculture development will be dependent on demands for producible crops and available means of transporting large volumes of foodstuffs to markets.

Established agricultural lands would probably be impacted by a railroad alignment. Physical separation from and loss of equipment access to isolated fields is a potential project impact. The provision of suitable track crossing sites should be accomplished, when practical, to help mitigate this impact.

WILDLIFE

Numerous wildlife species occur within the Tanana Valley. Principal big game species include moose, caribou, Dall sheep, bison, grizzly bear and black bear. Many furbearers, small game and non-game species are present. Waterfowl and raptors also comprise important species.

Rivers, streams and lakes within the Tanana Basin contain numerous fish species including chum, coho and chinook salmon, grayling, round whitefish, northern pike and burbot. Portions of Tanana Basin waters and associated slough areas provide habitat for spawning of anadromous and resident fish, for rearing locations and for overwintering areas.

Descriptions of specific corridor species and potential related project impacts follow. In general, the health of wildlife populations is partly dependent upon the viability of habitat areas utilized by those populations. Adverse habitat impacts produced by the project can result in wildlife population reductions. A railroad alignment within the corridor cannot preclude all wildlife and habitat impacts. A minimum of approximately 1,309 acres of terrestrial wildlife habitat would be permanently lost by construction of nearly 270 miles of railroad track and embankment.[2] Potential adverse impacts can be significantly lessened by alignment avoidance of sensitive wildlife areas and by special treatment during the design and construction of a railroad facility (see project design and construction impacts and mitigation). Enhancement of habitat for specific wildlife species may also result from the project due to the creation of ecotones, "edge areas" where different vegetation communities meet.

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[2] General assumptions for estimation: 4 ft. of embankment fill, 2:1 embankment slopes, 270 miles of length.

Cumulative wildlife impact would exist with the addition of a railroad facility into the Tanana Valley where an oil pipeline and highway already exist. However, proximity of the three facilities would preclude a significant new zone of impacts that would result should a railroad be introduced into a more remote and undeveloped corridor area.

The U.S. Fish and Wildlife Service has indicated that the American Peregrine Falcon is the only known listed or proposed threatened or endangered wildlife species present in the corridor area. Potential project effects on Peregrines are identified under the section entitled Raptors.

Moose

Moose can be found throughout the project corridor but populations are typically more concentrated in several key habitat areas. Those areas of seasonal or year round concentration include Fort Wainwright Military Reservation lands south of the Tanana River, the Salcha River, Shaw Creek Flats and adjacent lands southwesterly across the Tanana, Billy Creek and the Tanana River downstream from Tower Bluffs to the Billy Creek confluence, Mansfield Creek-Lake Mansfield-Little Tanana Slough, Sixtymile Butte, the northeast slopes of Mount Neuberger-Tok River, the lowlands surrounding the Tanana River south of Midway Lake, and the Ladue River from the upper drainage to the South Fork. Densities of moose in the above areas vary with seasonal use but can roughly be estimated at between 1-2 moose per square mile.

General seasonal movements are made by moose between calving grounds, summer feeding areas, breeding grounds, and winter feeding areas. Of the previously identified key habitat areas, Shaw Creek Flats and the lowlands surrounding the Tanana River near Midway Lake are utilized primarily for calving. Low areas are also utilized for winter feeding, principally stream side locations containing willow thickets. Timberline areas such as Sixtymile Butte and the slopes of Mount Neuberger characteristically provide summer feeding and breeding locations.

Project avoidance of moose habitat is not possible. An alignment anywhere within the Tanana River Valley would transect some key habitat areas (e.g., the Salcha River or Fort Wainwright lands, Shaw Creek Flats or adjacent lands to the southwest, the Ladue River habitat). In these locations, railroad construction would cause a displacement of moose. The railroad embankment and material source sites would directly reduce habitat. Stream crossings could encroach on willow thickets utilized as winter food. Construction activities could also result in a wider habitat area becoming unattractive for use. Railroad right of way clearing practices, however, during post construction railroad operation

would provide limited long-term feeding areas for moose by keeping vegetation in an early successional stage preferred by moose for food. The remaining significant habitat areas in the corridor could be largely avoided by a railroad alignment.

The Alaska Department of Fish and Game has expressed concern over the possibility of train/moose accidents in the Ladue River Valley, where overwintering moose could utilize railroad tracks for movement while avoiding travel through deep snow. Mean annual snowfall in the valley is approximately 40-50 inches. Actual peak ground depth of snow may be less than 1/3 of that amount. Studies have indicated that snow depths of up to 16.4 inches cause little or no hindrance to moose movement; movement becomes slightly restricted at snow depths of 16.4 to 28.7 inches; movement is definitely impeded at depths greater than 28.7 inches.[3] One can conclude, based on the study data, that snowfall would probably not contribute to a train/moose accident problem in the Ladue River valley.

Caribou

Caribou from three herds, Delta, Macomb and Fortymile, utilize habitats bordering on or within the project corridor. Approximately 6,000 Delta herd caribou occupy the north slopes of the Alaska Range between the Nenana and Delta Rivers; movements by Delta caribou have characteristically remained southwest of the Tanana River and Alaska Highway. An isolated group of about 700 caribou are located in the Macomb Plateau area adjacent to the Johnson River. Little, if any, movement patterns occur. Approximately 2,000 caribou use the lower Fortymile country, north of the Alaska Highway. Fortymile caribou comprising this group characteristically tend to migrate in an east-west direction, moving easterly (roughly between Mount Fairplay and Tetlin Junction) in the fall and westerly again in the spring. The Ladue River country appears to be consistently utilized as winter range. There are indications that during the winter of 1981-82, some Fortymile herd caribou crossed the Alaska Highway near Shaw Creek Flats into Delta herd range. This movement had not previously occurred and the consequences to either herd remains to be seen.

Delta herd caribou are not expected to be impacted significantly by the project. Caribou range is southwest of an anticipated Tanana Valley railroad alignment. Unless traditional movement patterns change

[3] Coady, John W. 1973. Interior Moose Studies. Vol. I, Project Progress Report, Federal Aid in Wildlife Restoration, Projects W-17-4 and W-17-5

radically, little or no effect on habitat or caribou migrations would occur. Macomb Plateau caribou habitat is also predominantly removed from a valley railroad alignment and no significant railroad project impacts to Macomb caribou are expected. Fortymile caribou would receive greater project impacts. A railroad alignment in the lower Fortymile country would result in habitat loss. Habitat is particularly important in the Ladue River country where caribou overwinter from October to March or April. A direct loss of forage plants from railroad embankment and material sources would be minor in comparison with the total Fortymile caribou range available. However, construction, operation and maintenance activities could result in a larger area of range becoming unattractive to caribou. Although studies have found caribou to become habituated to powerlines after a period of three to seven years, the effect of a railroad on long-term caribou behavior patterns is unknown. Likewise, no data is presently available to indicate whether train/caribou accidents may have occurred in other locations where caribou habitat has coincided with railroad alignments. As with moose, the depth of winter snowfall might be a determinate of the reluctance of caribou to move away from railroad tracks. Known Fortymile caribou calving grounds in the highlands at the heads of the Salcha and Charley Rivers would remain unaffected by the project.

Dall Sheep

Approximately 800 sheep occupy the "north face" area of the Alaska Range, immediately south of the Alaska Highway between the Robertson River and the Glenn Highway. Sheep habitat is primarily above the 3000 foot elevation, winter and summer range within the same general area. Natural mineral licks are present and utilized by the sheep.

No serious impact is anticipated to existing sheep populations in the "north face" area. Grade constraints preclude any railroad alignment from encroaching into the mountainous terrain utilized as sheep habitat. It is unknown whether noise from construction activity or from passing trains on an alignment in the Tanana Valley below the sheep range could have a disturbance effect on sheep. A railroad alignment on the north side of the Alaska Highway would be at least 2-4 miles removed from the nearest sheep habitat.

Bison

A herd of approximately 375 bison inhabit the Delta Junction area. The bison exhibit seasonal movements. A 90,000 acre State preserve southeast of Delta Junction and south of the Alaska Highway provides fall and winter range. Primary calving and early summer range occurs

along the banks of the Delta River between its confluence with the Tanana River and the Donnelly area nearly 35 miles upstream. The bison have occasionally wandered west of the Delta River and into agricultural areas northeast of the Alaska Highway.

Construction and operation of a railroad could result in a loss of seasonal bison habitat. An alignment through grassland meadows bordering the Delta River would cause a loss of summer pasturage. An alignment crossing the Delta Junction Bison Range would reduce winter forage. Use of Bison Range land is highly unlikely, however, as other alignment possibilities exist. The Alaska Department of Fish and Game has recommended that an alignment parallel the northern border of the Delta Junction Bison Range (1/4 mile from the Alaska Highway). The railroad embankment, combined with adjacent snow fencing, could then produce a barrier, inhibiting bison from leaving the refuge and crossing over into agricultural lands to the northeast.

Grizzly Bear

Two grizzly bear habitat areas border the Tanana Valley. One area coincides roughly with the southern portion of Fort Greely Military Reservation. The second bear habitat area is south of the Alaska Highway between the Robertson River and the Glenn Highway. Both are alpine or timberline habitats, although grizzly bears may occasionally be found at lower elevations.

Human presence is not well tolerated by grizzly bears and development activity in bear habitat areas can result in a reduction of bear numbers. As with sheep however, grade constraints preclude any railroad alignment from encroaching into the alpine terrain most utilized by bears. Therefore, the probability of any significant impact to grizzly bears is remote.

Black Bear

Black bears are found throughout the corridor area. They favor open forests and are relatively abundant along the Tanana River between Eielson and Big Delta and along several tributaries to the Tanana including the Chena River, the Salcha River, Shaw Creek and the Goodpastor River.

Project avoidance of black bear habitat is not possible. Although black bear tolerate human presence better than do grizzly bears, some black bear displacement would occur from a railroad alignment both due to direct habitat loss (i.e.,embankment, material source sites) and to

disturbance effects. Construction would probably cause greater displacement than operation; less disturbance from occasional passing trains would allow a return of bears to previous habitat areas. Long-term black bear habitat enhancement could occur from the project where ecotones of cleared right of way and adjacent forest communities are created. Little likelihood exists of black bears being hit by passing trains.

Furbearers

The following furbearers are known to occur within the project corridor area: wolf, wolverine, muskrat, marmot, mink, lynx, beaver, marten, coyote, weasels, red fox, land otter, red squirrel, flying squirrel and arctic ground squirrel. In general, river and stream bottoms provide most furbearer habitat. Corridor locations with significant furbearer populations include Fort Wainwright Military Reservation lands south of the Tanana River, the Salcha River, Shaw Creek Flats, the Goodpaster River, an area immediately north and east of Delta Junction, the lowlands north and east of Tetlin Lake and the Ladue River.

Railroad project impact upon furbearers is difficult to assess. Stream crossings could encroach on furbearer habitat (i.e., streamside vegetation). Most areas of significant furbearer populations (described above) would be avoided by a Tanana River Valley alignment. Habitat along the Delta River between Big Delta and Delta Junction would be affected with an alignment placed immediately adjacent to the Delta River. In the Ladue River Valley, an alignment could not avoid furbearer habitat and a reduction of furbearer numbers would result.

Small Game and Non-Game

Small game species found in the Tanana-Ladue River valleys include porcupine, snowshoe hare, ruffed grouse, spruce grouse, rock ptarmigan, willow ptarmigan and sharp-tailed grouse. Numerous non-game species such as passerine birds are also present. Both small game and non-game species are widely distributed. Small game populations in the corridor, as throughout the State, are characteristically cyclic, fluctuating in response to weather, food, predation and diseases.

Some habitat for small game and non-game species would be lost with a railroad alignment, probably resulting in an insignificant population reduction. Abundance and large reproductive potential of small game and non-game species would preclude any serious long-term impacts. More significantly however, ecotones created by the project would enhance most small game and non-game habitats.

Waterfowl

Numerous waterfowl species utilize corridor locations for breeding, nesting and rearing or as feeding and resting sites during migration. Significant waterfowl habitats within the corridor include wetland areas immediately west of Delta Junction, wetlands adjacent to Billy Creek and Mansfield Creek, the Lake Mansfield -Fish Lake-Wolf Lake area, and extensive wetland areas east of Tetlin Lake. During corridor seasonal use, May through June nesting and June and July rearing are probably the most critical or sensitive waterfowl times.

A railroad alignment would ideally avoid river, lake and wetland areas, typical waterfowl habitat, where existing foundation conditions usually present severe engineering and economic constraints. Significant waterfowl impacts are therefore not anticipated. Where the alignment traverses near small isolated waterfowl habitats (e.g., forest ponds, small creeks), project construction activity could result in some disturbance to nesting.

Raptors

At least nine species of raptors (birds of prey) utilize locations within the Tanana and Ladue River valleys during the breeding, nesting and rearing seasons. Raptors having been identified in the corridor area include peregrines, bald and golden eagles, goshawks, sharp shinned hawks, Harlans hawks, redtailed hawks, osprey and great horned owls. Numerous recently used nesting sites within the Tanana valley have been located through raptor survey work done for the proposed Northwest gas pipeline project. Although known nest locations, both historical and active, have been reviewed for this study, those nest locations and immediate habitat areas will not be disclosed for protection of the raptor species. Additionally, both the American Peregrine Falcon determined to be an "endangered species" (i.e., in danger of extinction throughout all or a significant portion of its range), and the bald eagle are protected by Federal policy and legislation (e.g., Endangered Species Act, Bald Eagle Protection Act).

The project would result in both adverse and beneficial impact to raptors. Construction, railroad maintenance and road haul operations are human "disturbance" activities incompatible with raptor nesting. Disturbances near nesting sites during critical stages of the nesting season (i.e., egg laying, incubation, and early brooding stages) could result in reproductive failure. Although avoidance of raptor nest sites, particularly peregrine and bald eagle nest sites, has been prioritized, several recently active raptor nests are less than one mile

away from the proposed alignment. They include one peregrine, one bald eagle, one osprey, two great horned owl, and three goshawk nests. Near both the peregrine and bald eagle nest sites, the alignment is restricted to its proposed location by constraints of topography, foundation suitability, and hydrological hazards. Other alignment possibilities are not practical. As adverse impact mitigation, construction activities generating high noise levels (e.g., material source mining, rock crushing, construction camps, etc.) within 1-2 miles of these or other raptor nesting sites could be prohibited from April 15 to August 31 (the nesting season). No practical mitigation is known, however, to preclude disturbance to the above eight raptor nest sites by railroad maintenance or operation. Beneficial project impact would occur from a (general) raptor "feeding habitat" enhancement. Raptors generally hunt in open areas. The cleared railroad right of way through forested areas would provide improved small game and non-game habitat, typical prey species for most raptors.

Anadromous Fish

Three species of salmon spawn in the Tanana River, its tributaries and adjacent clear water sloughs. Chum or dog salmon are predominate in number. Chum spawning occurs in several sloughs along the Tanana between Fairbanks and Big Delta; the mouth of the Delta River provides habitat for the largest fall chum spawning in Alaska. Chum spawning also occurs in the Salcha River; in Clear, Shaw and Clearwater Creeks, in the Tanana at the confluence with the Johnson River, and to a minor extent in the Upper Tanana. Spawning times are roughly from mid-September through October. The eggs, and later sac fry, remain in streambed gravels throughout the winter.

Coho or silver salmon utilize sloughs of the Tanana River near Harding Lake, Clear, Shaw and Clearwater Creeks for spawning. Coho spawning is from approximately mid-September through November.

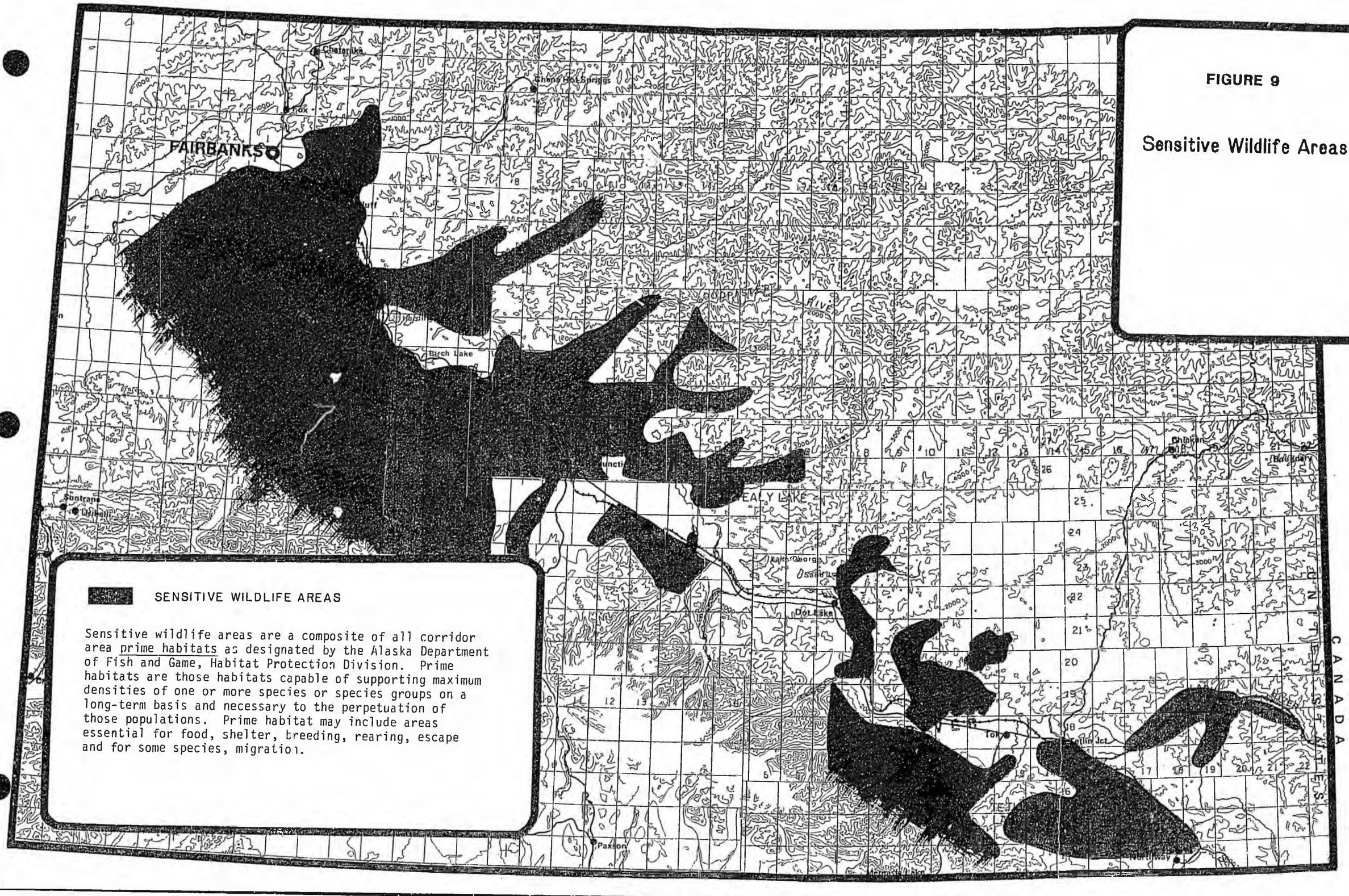
Chinook or king salmon spawn from mid-July to mid-August in the Salcha and Goodpaster Rivers. Both Coho and Chinook eggs and sac fry also remain in streambed gravels over winter.

Resident Fish

Resident fish species, including grayling, whitefish, northern pike, and burbot occur in clearwater sloughs and streams in numerous corridor locations. Most overwintering is in the Tanana River. Grayling, in particular, then migrate back into tributary streams, spawning from late April through late May.

FIGURE 9

Sensitive Wildlife Areas



SENSITIVE WILDLIFE AREAS

Sensitive wildlife areas are a composite of all corridor area prime habitats as designated by the Alaska Department of Fish and Game, Habitat Protection Division. Prime habitats are those habitats capable of supporting maximum densities of one or more species or species groups on a long-term basis and necessary to the perpetuation of those populations. Prime habitat may include areas essential for food, shelter, breeding, rearing, escape and for some species, migration.

A Tanana and Ladue valley railroad alignment would require numerous drainage crossings. Bridges and culverts would be utilized at crossings and no man-made barriers, stopping fish migration, would be necessary. No loss of the identified spawning beds from in-stream project construction activity would be required, although bridge construction and culvert placements could result in siltation, impacting any immediately downstream habitats.

Habitat Categories

The general areas of wildlife population concentrations for individual species detailed above have been classified by the Alaska Department of Fish and Game into habitat categories. Categories of prime habitat and important habitat have been designated. Prime habitat is defined as those habitats capable of supporting maximum densities of one or more species or species groups on a long-term basis and necessary to the perpetuation of those populations. Prime habitat may include areas essential for food, shelter, breeding, rearing, escape and for some species, migration. Important habitat is capable of supporting medium or high densities of one or more species or species groups for short or long periods and may include areas important (though not essential) for food, shelter, breeding, rearing and for some species, migration. Figure 9, "Sensitive Wildlife Areas," represents a composite of all corridor area prime habitats (except raptor habitats), as designated by the Alaska Department of Fish and Game, Habitat Protection Division. Raptor habitats, each containing nest sites, are not included due to the confidentiality of this information.

SUBSISTENCE

Both local residents and sportsmen from outside the corridor participate in hunting, fishing and trapping activities within the project corridor. Subsistence use is concentrated along routes of access including major waterways, trails and roads and within game concentration areas.

The proposed railroad project is expected to have an impact on corridor subsistence activity; the degree of impact is not known. Little or no affect upon fishing would result. Trapping, primarily occurring along waterways, would be impacted in proportion to the extent of furbearer habitat lost to a railroad alignment. After initial construction, a railroad facility would not accommodate road access (adjacent to the tracks) into previously inaccessible subsistence trapping and hunting areas. Off-road access already exists. With the possible exception of the Ladue River valley, little of the corridor is isolated from routine

off-road vehicle use during hunting and trapping seasons. However, a railroad facility would probably encourage additional off-road use on and immediately adjacent to the railroad alignment. While pre-railroad subsistence patterns could be adversely affected, additional subsistence activity would likely result from the project.

Project induced land development, especially additional mining and agriculture, is also possible although it cannot be quantified. Transportation links between development property and a railroad facility could result in secondary impacts of a potentially significant nature to corridor subsistence.

COASTAL ZONE

The project corridor is not located within the area covered by the Alaska Coastal Zone Management Program.

WATER QUALITY

The project corridor contains numerous tributaries to and a major portion of the Tanana River, and the much smaller Ladue River drainage. Two different types of stream systems are present: glacially impacted streams, carrying heavy sediment loads during summer months, and clearwater streams, originating in the lower foothill regions. All stream flows are typically low during fall and winter months, but show significant flow increases during breakup, glacial melt and peak summer rainfall periods. Extensive wetland areas are also present in the corridor, including Shaw Creek Flats, the Tetlin Lake area and sloughs along the Tanana River.

Most surface water in the Tanana basin is of acceptable chemical water quality and meets Federal and State standards. The dissolved-solids concentration is generally less than 200 ppm; the principal constituents are calcium, magnesium and bicarbonate (USGS, Report HA-319, 1970).

Project activities would result in water quality impacts. Impacts that could be anticipated are both physical and chemical and include:

-erosion and sedimentation resulting from disturbance of streambanks and stream channels by bridge construction activity and in-stream gravel material removal

-potential spills of fuel or oil resulting from in-stream construction equipment operation

-potential spillage (long-term) of materials being transported over the completed railroad

Mitigation for the above water quality impacts would include:

-minimization of stream crossings and crossing placements at the least dynamic stream locations

-expedient recontouring of disturbed streambanks and revegetation or other protective measures to prevent soil erosion into adjacent waters

-contract provisions limiting in-stream construction equipment operation and placing constraints on the timing of in-stream activity to avoid fish spawning or migration impact

-cleanup of spilled materials that would, if not removed, impact water quality

The project is not anticipated to contaminate any principal or sole-source aquifers.

Compliance with water quality standards of the State of Alaska would be necessary and can be accomplished. The acquisition of required permits from the Alaska Departments of Environmental Conservation, Fish and Game, the U.S. Army Corps of Engineers and the U.S. Coast Guard would also be necessary. Gravel material removal from rivers, streams or floodplains involves Title 16 permits from Fish and Game. Activities resulting in discharge of dredged or fill material into waters involves Section 404 and 401 permits from the Corps and Environmental Conservation respectively. Bridge construction would necessitate Section 9 permits from the U.S. Coast Guard. Figure 10 identifies several corridor rivers and streams that would be crossed by a railroad alignment and would require bridge construction.

WETLANDS AND FLOODPLAINS

The term wetlands may refer to a wide range of aquatic habitats including swamps, marshes, bogs, sloughs, wet meadows, shallow lakes, ponds, streambanks, etc. Wetlands provide vegetative material that is the base for many aquatic and terrestrial food chains. Wetlands may also provide breeding, rearing and feeding habitats for species of waterfowl, furbearers and moose. Wetlands reduce the severity of flooding and control erosion; wetlands may recharge groundwater. Numerous recreational opportunities are provided by wetland habitat (e.g., hunting, fishing).

Much of the Tanana and Ladue River valleys contain wetlands. Extensive wetland areas occur in Shaw Creek Flats, the Tetlin Lake area and sloughs along the Tanana River. A railroad alignment would ideally avoid most wetland areas where existing foundation conditions usually present severe engineering and economic constraints (e.g., large amounts of fill material would be required to construct a railroad embankment through wetland areas). However, avoidance is not possible or practical in all cases. Figure 10 identifies numerous corridor rivers and streams that would be crossed by a railroad alignment. Although each location would involve a bridge crossing, the respective riparian or streambank wetlands would still be impacted. Other railroad alignment possibilities would also necessitate crossing most of the same drainages and would consequently impact a comparatively equal amount of wetland acreage. Alignment impact to wetlands would also occur at locations where smaller drainages are crossed, utilizing culverts to maintain the drainage patterns, and where areas of permanently or periodically saturated soils (e.g., wet meadows) are traversed. Appendix G further identifies wetland areas that would be impacted by the proposed alignment. In general, these wetland areas are primarily important as wildlife habitat. None of the areas are known to be unique in relation to total corridor wetland resources. The project would include all praticable measures to minimize harm to wetlands. Examples of such measures include erosion control and maintenance of existing drainage patterns.

Known or inferred river flooding may occur along several rivers of the corridor (Figure 7). Crossing of river floodplains would necessitate construction of bridges capable of withstanding floodstage discharges and elevation of tracks or roadbed where facility overtopping would otherwise be anticipated to occur. This would minimize floodplain risks associated with the project, including the potential for property loss, hazard to life, or interruption of railroad facility use. The project would impact natural and beneficial floodplain values, primarily wildlife habitat values. In comparison though with the total floodplain areas of the Tanana River and its tributaries, significant adverse project impacts on floodplain values are not expected to result. Except for construction of industrial tracks (at presently unidentified locations), the railroad alignment should not induce, directly or indirectly, development in the base floodplain. As with impacted wetland acreages, floodplain involvement offers no practicable alternatives to the project proposal. Other alignment alternatives would result in additional economic or wetland and floodplain impacts.

AIR QUALITY

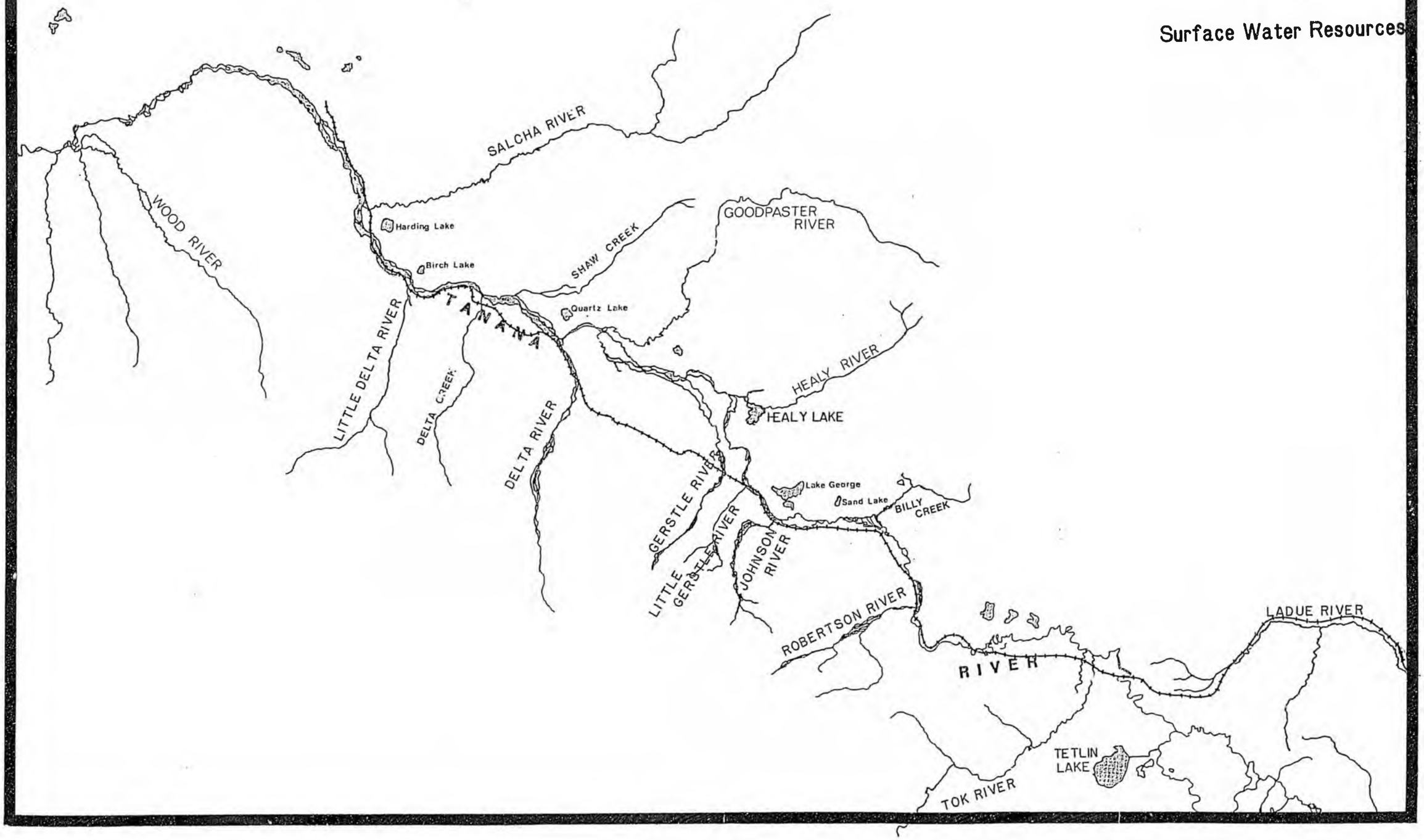
Little site-specific air quality data has been recorded for the project corridor. Air quality is very good and the project corridor falls within those areas of the State in attainment with national ambient air quality standards mandated by the Clean Air Act Amendments of 1977.[4]

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[4] At the present time, non-attainment areas include Anchorage, Fairbanks and North Pole.

FIGURE 10

Surface Water Resources



Additionally, the project corridor is within those areas designated as Class II by State air quality classification. State designated Class II standards are more stringent than the national standards. Class II designation allows for regional growth to affect air quality up to approximately one fourth of the national air quality standards.

Project impacts on air quality would include emissions from construction equipment operation, a temporary impact, and railroad locomotive emissions, a permanent impact of the facility. Diesel locomotive emissions contain several pollutants including particulate matter, sulfur dioxide, carbon monoxide, hydrocarbons, nitrogen dioxide, aldehydes, and organic acids. Emission concentrations are variable depending on, among other factors, locomotive use patterns (i.e., railyard switching or road-haul service) and engine configurations. However, an average of emissions produced per locomotive would be comparable to the emissions produced by two heavy-duty, diesel powered trucks or buses. The project should not cause or contribute to air pollutant concentrations which exceed any standards.

NOISE

The effects of noise on human health can be both physiological and psychological, though primarily psychological. Physiologically, excessive noise is capable of producing hearing loss. Pyschological effects may include interference with speech communications, sleep disturbance, annoyance, etc.

Sound levels are measured in decibels, a numerical expression of the relative loudness. Below are some examples of typical decibel readings of common sounds.

40	Quiet Room
50	Quiet Street
60	Normal Conversation
90	Shouted Conversation
107	Loud Power Mower
120	Thunderclap
150	Jet Take-Off

Studies have determined that 67 dBA (decibels, A-weighted sound level) is an average amount of sound received over one hour that begins to

interfere with normal conversation, producing psychological impact.[5]

The Code of Federal Regulations, Title 40, Part 201 specifies Federal noise emission standards that apply to all locomotives and rail cars. Table 2 is a synopsis of total sound levels permitted. Assuming all railroad equipment utilized upon project completion would meet the Federal noise emission standards, a zone of worst case noise impact can be calculated relative to the 67 dBA interference level. Table 3 represents the impact zone.

A large portion of the corridor is undeveloped or relatively uninhabitated. No significant human impact from railroad construction or operation noise would result in these locations. Developed areas that would receive noise impact include the communities of Salcha, Delta Junction and Dot Lake. The degree of impact would be dependent upon the decibel noise levels generated, the duration of the noise and the sensitivity of the noise receptors. The zones of impact identified in Table 3 pertain to a worst case scenario for railroad operation, that is, the interference limits resulting from maximum allowable noise emission levels. More recently manufactured railroad equipment produces less noise emissions, therefore, noise impacts of the railroad could likely be substantially less. Also the 67 dBA disturbance level is related to an hour of noise emission. Moving trains produce a transient noise impact lasting only a minute or two per train. Receptors within the impact zone include residences, a school and a church at Salcha; residences, churches, a school, motels, public meeting rooms, and a library at Delta Junction and a school, church, motel and public meeting room at Dot Lake. A few other isolated residences would also be within the impact zone. Construction mitigation could include scheduling noise generating activities to occur during less noise critical times of day near residential receptors or other noise sensitive areas. Noise mitigation for railroad operation might require noise barriers and/or acoustical construction within existing impacted buildings.

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[5] National Cooperative Highway Research Program Report 117

The human ear is more sensitive to sound energy at high frequencies than at low frequencies. Also, the ear's sensitivity to sounds of different frequencies changes with the level of the sound. The A-weighted sound level (dBA) is the actual measured sound level weighted to match the sensitivities of the human ear.

TABLE 2
FEDERAL NOISE EMISSION STANDARDS FOR RAILROADS

Total sound levels may not exceed the following decibels* (A-weighted sound level)

Equipment & Conditions	Manufactured Before 12-31-79	Manufactured After 12-31-79	At Speeds Up To 45 MPH	At Speeds Greater Than 45 MPH
Locomotives moving at any time or under any condition of grade, load, acceleration or deceleration	96 dBA	90 dBA		
Locomotives at idle throttle setting	73 dBA	70 dBA		
Rail cars in motion			88 dBA	93 dBA

*measured with fast meter response at a point 100 feet from the geometric center of the locomotive along a line perpendicular to the centerline of the track.

TABLE 3
RAILROAD NOISE IMPACT ZONE
(Worst Case)

Equipment & Conditions	Theoretical dBA's Generated*	Distance from Track Centerline to Outside Edge of Noise Impact Zone (67 dBA point)
Idling locomotive	70 dBA	160 ft.
	73 dBA	250 ft.
Rail cars in motion	88 dBA	2500 ft.
	93 dBA	5400 ft.
Moving locomotive	90 dBA	3400 ft.
	96 dBA	8500 ft.

*at a point 100 ft. from the track centerline

ARCHAEOLOGIC, HISTORIC AND CULTURAL RESOURCES

Numerous known archaeologic and historic sites are present within the corridor area. The Alaska Heritage Resource Survey identifies approximately 66 sites within eight miles of the proposed alignment. Only one site, Rika's Landing (a Richardson Highway roadhouse), is on the National Register of Historic Places. Several other sites are potentially eligible for the National Register.

No cultural resource field survey for the railroad project has yet been conducted. Previous archaeological investigations for other projects or purposes have occurred in or near the corridor. They include the following: a survey in 1944 along the Alaska Highway between Fairbanks and Whitehorse by Frederick Johnson, a 1976 survey by the Alaska Division of Parks along the Alaska Highway between Delta Junction and Tok, a survey of Fort Wainwright lands by E.J. Dixon, and a survey conducted for the proposed Northwest Gas Pipeline project by Anne Shinkwin and Jean Aigner. Since there is a potential for project impact to undiscovered sites, the State Historic Preservation Office has recommended a preconstruction cultural resource survey. Detailed survey work would be done along the proposed railroad alignment and at each material source site, construction camp site and at other facility locations (i.e., industrial track sites, yards) to be identified during the project design phase.

While all impacts to archaeological sites from a railroad alignment cannot be accurately quantified prior to cultural resource field survey work, the nature of potential impacts can be discussed. Impacts could be both direct and indirect. The obliteration or alteration of sites by alignment placement could occur. Sites outside of the project right of way could receive indirect impact, the greater accessibility to previously remote locations making these sites subject to disturbance by souvenir hunters.

Of the known corridor archaeologic and historic sites, three sites lie within an area of potential impact by the project. In each case, the impact would be indirect. The sites consist of a winter cemetery and two prehistoric archaeologic sites. None are presently on the National Register of Historic Places. Further field investigation may be necessary to develop the adequate documentation required for determinations of National Register eligibility and of the possible extent of indirect project impact. This would occur prior to construction activity.

Should previously undiscovered cultural resources be found in any project affected area during construction, project work would cease until contact with the State Historic Preservation Office. Appropriate mitigation would then be pursued.

4(F) - PROTECTED PROPERTIES

In accordance with Section 106 of the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act, a project alignment cannot impact significant publicly owned parks, recreation areas, wildlife and waterfowl refuges or historic sites on or eligible for inclusion on the National Register of Historic Places unless a determination is made that (1) there is no feasible and prudent alternative to use of above properties, and (2) the project includes all possible planning to minimize harm to those properties.

State park units within the corridor (Figure 12) include the following:

Salcha River State Recreation Site	61.41 acres
Harding Lake State Recreation Area	168.96 acres
Quartz Lake State Recreation Site	600.00 acres
Rika's Landing State Historic Site	10.26 acres
Clearwater State Recreation Site	26.52 acres
Moon Lake State Recreation Site	22.25 acres
Tok River State Recreation Site	3.83 acres

The proposed railroad alignment is considerably removed from six of the State park units (from approximately one mile up to seven miles). The seventh unit, Moon Lake State Recreation Site, would be directly impacted by the project. Moon Lake is a rest and overnight stop for Alaska Highway travelers as well as a recreation site for local residents. The 22 acre wayside contains 15 campsites, a swim beach, and a boat launching area. The park borders Moon Lake, a naturally blocked slough of the Tanana River. The proposed railroad alignment, north of the Alaska Highway at the Moon Lake location, traverses between the Tanana River and the highway and avoids less acceptable grades on the south side of the highway. There is no feasible and prudent alternative to the above alignment. It would traverse through the wayside requiring a physical occupation of park acreage. The right of way needed for the project would not preclude use of the beach and lake, but would impact the value and utility of the overall park unit.

No components of the National Wild and Scenic Rivers System are located within the project corridor. A Federal withdrawal, PLO 3943, has reserved lands within one-half mile of Clear Creek for protection of public recreation values. The proposed railroad alignment passes south of the withdrawal. No other significant recreation areas exist within the corridor.

Two wildlife refuges occur within the corridor. One is a State refuge, the Delta Junction Bison Range, located southeast of Delta Junction and south of the Alaska Highway. It provides fall and winter habitat for a herd of approximately 375 bison. The second refuge is the 700,000 acre Tetlin National Wildlife Refuge. It is located south of the Alaska Highway between Midway Lake and the Canadian border. Tetline Refuge provides habitat primarily for waterfowl, other migratory birds, large mammals and furbearers. The Tanana Valley corridor in the vicinity of the Delta Junction Bison Range offers feasible railroad alignment alternatives to use of refuge land. The Alaska Department of Fish and Game has recommended that an alignment parallel the northern border of the Bison Range. Thus, the railroad embankment, combined with adjacent snow fencing, could produce a barrier to inhibit bison from leaving the refuge and crossing over into agricultural lands to the northeast. An alignment utilizing the Ladue River Valley would preclude any potential impacts to the Tetlin National Wildlife Refuge.

Corridor archaeologic and historic sites within an area of potential impact by the project include three sites: a winter cemetery and two archaeologic sites. None of the three sites are presently on the National Register of Historic Places. Eligibility for the register is undetermined at this time; determinations would be necessary prior to any construction activity.

SCENIC RESOURCES/AESTHETICS

Regional land forms visually associated with a potential railroad alignment would include forested basins of the Tanana and Ladue River valleys, rivers within the basins, surrounding hills, ridges and distant mountains. A railroad alignment would traverse portions of both remote, undeveloped land and land in close proximity to communities and transportation and utility networks. The above close-up and distant viewscapes are not unique in Interior Alaska, nor would the visual quality over a 270 mile alignment distance change significantly.

Project changes in the natural landscape would primarily include vegetation removal within the project right of way and at material source sites, and the introduction of a railroad facility where none had previously existed. Due to the extensive forested environment present, a railroad facility would be largely concealed from ground views made beyond the right of way.

OUTDOOR RECREATION

The project corridor contains numerous recreational opportunities. Lakes and streams contain a variety of sport fish. Several wildlife species are hunted or trapped. For more information regarding the distribution and seasonal populations of fish, game and furbearer species, refer to the wildlife section. Water sports opportunities include powerboating, sailboating on larger lakes and floatboating. Winter sports consist of snowmobiling, dog mushing and cross country skiing. Picnicking, camping, photography, hiking, prospecting, berry picking, firewood gathering and sight seeing are other recreation activities possible in the corridor. The above activities are most prevalent where access is readily available, such as along the Alaska Highway and secondary roads and along the major rivers. Remote locations in the corridor show less evidence of use.

A railroad is not expected to present a barrier to or preclude any existing recreation activities. A railroad alignment would create a measure of accessibility and thereby introduce another area of linear recreational use. While no roads would be maintained along a railroad alignment after initial construction, the cleared alignment would provide a route more attractive to snowmobile, ATV and foot travel than the surrounding terrain. Consequently, environmental degradation could result from ATV impacts upon fragile soils.

LAND USE

Land classification within the corridor is State, either patented, tentatively approved, or pending; Federal, under Bureau of Land Management, U.S. Fish and Wildlife Service or military jurisdiction; Alaska native regional and village selected or Indian reservation; and private (see Figure 11).

The State of Alaska has selected the majority of corridor lands. Large blocks of State land occur around the Delta Junction area, in the Alaska Range immediately south of the Alaska Highway and in the Fortymile country extending southward and including the Ladue River valley.

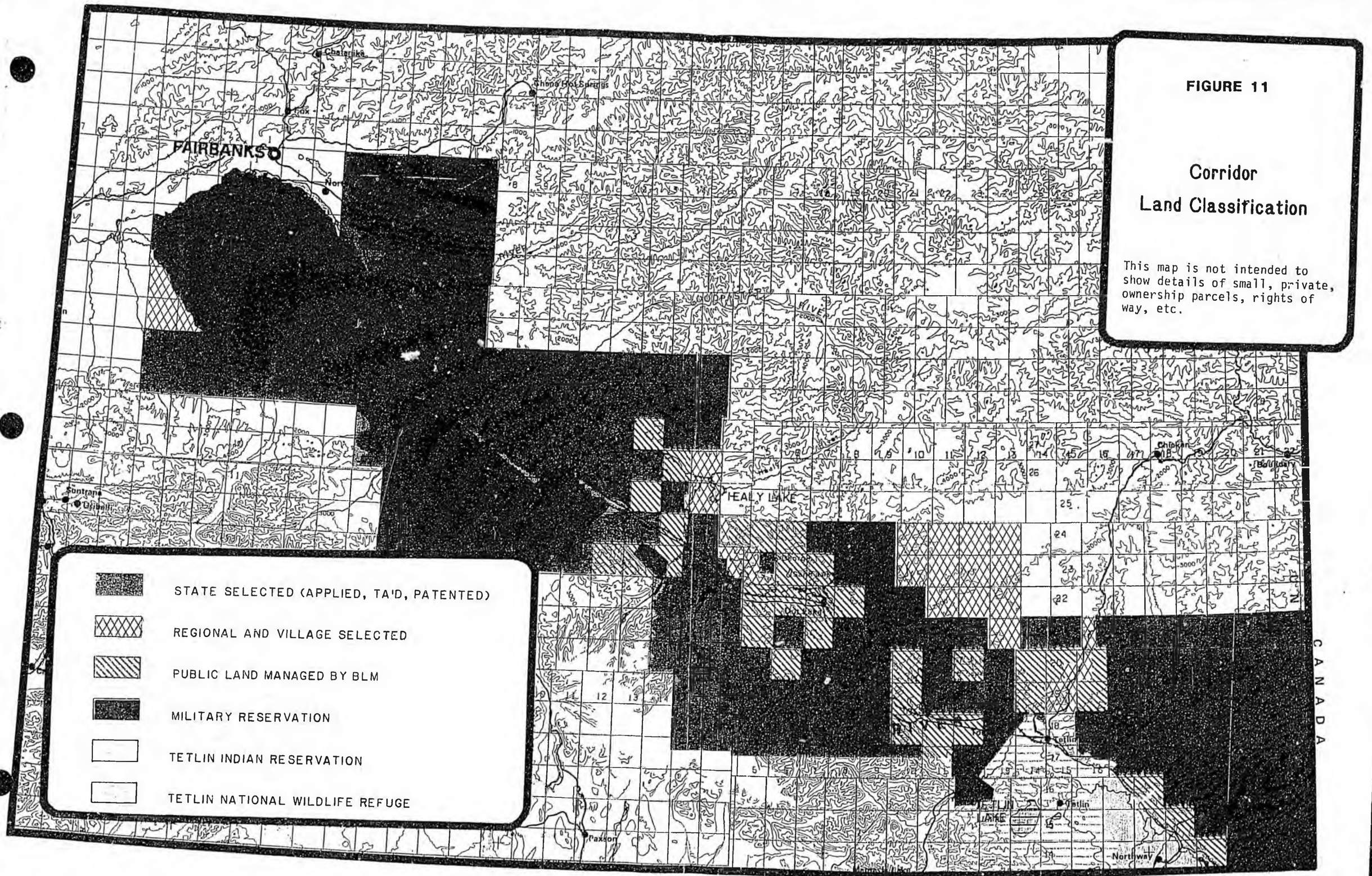
Federal lands include the Fort Wainwright Military Reservation, Eielson Air Force Base, Fort Greely, isolated parcels of BLM administered lands scattered throughout the corridor, and the Tetlin National Wildlife Refuge managed by the U.S. Fish and Wildlife Service.

Regional and village native selections include areas around Healy Lake, Lake George, Dot Lake and Tanacross. The Tetlin Indian Reservation occupies an extensive area surrounding Tetlin Lake.

FIGURE 11

Corridor Land Classification

This map is not intended to show details of small, private, ownership parcels, rights of way, etc.



Private ownership parcels occur primarily in communities and at sporadic locations along the Alaska Highway.

TABLE 4

CORRIDOR COMMUNITIES

COMMUNITY	1980 CENSUS
North Pole	724
Moose Creek	510
Eielson AFB	5232
Salcha	319
Harding Lake	38
Big Delta	285
Delta Junction	945
Fort Greely	1635
Dot Lake	67
Tanacross	117
Tok	589
Tetlin	107

Current corridor development ranges from areas of intensive development to remote undeveloped portions. Table 4 lists corridor communities and 1980 population figures. All of the communities except the remote native village of Tetlin are located adjacent to the State highway system. In addition to residential and transportation land use

activity, the communities of North Pole, Moose Creek, Big Delta, Delta Junction, and Tok also contain commercial and public services land use. Fort Wainwright, Eielson AFB, and Fort Greely are predominantly used for military manuevers and military equipment testing. Communication and utility land uses in the corridor include the U.S. Coast Guard LORAN station east of Tok, a network of microwave stations, TV and radio receiving and repeater sites, the Alyeska Pipeline, and several power and telephone systems. Recreation land use includes State Park units and numerous undifferentiated corridor locations where diverse and multi-season recreation activities occur. Natural resource development includes agriculture, mining and forestry. Agricultural activity occurs east and southeast of Fairbanks and east of Delta Junction. Both mining and timber harvesting areas are distributed throughout the corridor (Figure 12).

Future development trends within the corridor are dependent to a great extent on governmental land use policy. Some corridor communities are in the process of preparing local land use plans for land surrounding their community. The State of Alaska, Department of Natural Resources, has existing management goals and objectives for management of State lands. Several State land disposals are proposed within the corridor. These include small scale agriculture (10-80 acres), subdivision, and remote parcels. The proposed disposals are in various stages of development approval, on-site feasibility, and subdivision layout. A Tanana Basin Area Plan is presently being prepared by the Department of Natural Resources for land use policies and decisions in the basin. A portion of the project corridor also falls within the Bureau of Land Management's FortyMile Planning Unit, with Federal land use goals and objectives. The U.S. Fish and Wildlife Service is working on a plan for the Tetlin National Wildlife Refuge addressing public use, habitat and wildlife management, and transportation corridors in the refuge. A private development proposal in the corridor, contingent on adequate financing is the natural gas pipeline. The pipeline would transport natural gas from the North Slope to the lower 48 states along a route following the Alaska Highway from Fairbanks to the south.

Project inconsistencies with or adverse effects on existing and planned land uses are minimal. Some State land disposal areas, primarily agricultural, would be bisected by the railroad alignment. Physical separation from and loss of equipment access to agricultural fields would be a potential impact. Suitable track crossing sites could be provided to help mitigate this impact. The presence of a railroad in or near subdivision or remote disposals would not necessarily produce a significant negative impact, although occasional passing trains would intermittently affect the serene environment of those areas. Again track crossing sites in appropriate locations would be necessary for continued road access. Proposed land disposals could also be replatted to accommodate the railroad alignment.

FIGURE 12

Existing and Proposed
Corridor
Land Use Activities

FARMING AREA
(general area where several farms are located)
PROPOSED STATE FOREST RESOURCE MANAGEMENT AREA

MINING AREA

STATE PARK

COMMUNICATION SITE

RECENT TIMBER HARVESTING AREA
(commercial, house logs, fuelwood)
RECENT AND CURRENTLY PROPOSED STATE LAND DISPOSALS
(remote, subdivision, agriculture)
TRANS-ALASKA PIPELINE

PROPOSED NATURAL GAS PIPELINE

FAIRBANKS
Aurora Lodge
Quartz Lake
Big Delta
Delta Junction
HEALY LAKE
Tanacross
Tetlin Jct.
Tetlin
TETLIN LAKE
Northway
Paxson
DELTA RIVER
CANADA

Future land use benefits would result from the project. Benefits relate to the provision of access to resource development areas, to corridor communities with consumer and industrial product needs, and to military installations. Railroad access would connect these locations to markets, suppliers, labor, etc. and increase the land available for development.

SOCIOECONOMIC

No benefit/cost analysis has been done for the project. However, certain general assumptions may be made. Project socioeconomic impacts would be both beneficial and adverse. Beneficial impacts would occur as a result of construction employment. Several hundred persons could be employed during construction activities. Communities near the project would benefit from construction wages spent there. Likewise, an economic benefit to local shippers with siding access would result from the rate competition a rail facility would effect with nonrail carriers. As a regional benefit, general economic growth could result from railroad generated resource development. On the other hand, adverse project impacts would occur. A significant amount of State monies would be expended to construct the railroad extension. During construction, limited highway traffic disruption would occur where the railroad alignment crosses or closely parallels public roads. Also, local community services could be burdened by the influx of project construction workers.

ENERGY

Both energy costs and benefits would result from a railroad extension; neither are quantifiable. Project construction activities would involve the energy commitment of fuel for equipment operation. After facility construction, railroad operation and maintenance would necessitate a continual energy commitment. Since a train is more energy efficient in moving freight than either plane or truck, an energy savings would result in the transport of products that would otherwise be made by the latter two methods. Additionally, an energy savings in highway maintenance might be possible, as the project relieves truck freighting pressure on the Alaska Highway.

CONSTRUCTION IMPACTS/PERMITS

Railroad construction involves several types of activities including the following: foundation investigation, alignment surveying, mobilization of construction equipment, clearing of timber, cut and fill earthwork, bridge construction, base preparation, placement of ties and rails,

and clean up. Although most activities are generally of a progressive nature, combinations of the identified activities could be ongoing at any one time in different locations. Many of the construction activities are also seasonal in nature. Examples of potential construction impacts and possible mitigation activities include the following:

Erosion and Sedimentation

Construction activities would be performed so as to cause the least disturbance to surface areas, vegetation and water bodies.

All disturbed surface areas would be left in a stabilized condition, with revegetation or other means of stabilization accomplished as soon as possible.

Where soil material is expected to be suspended in water, settling basins would be constructed to intercept silt before it reaches streams, lakes or wetlands.

Timber Removal

Trees cut in connection with right of way clearing operations could be made available, when practical, for commercial or private firewood utilization.

Wildlife Disturbance

Construction activities would be restricted in specific locations during key periods of biological activity such as breeding, nesting, rearing or spawning.

In-stream activities would be avoided or minimized near fish spawning beds, rearing and overwintering areas.

Activities causing a blockage to fish passage would be prohibited.

Cultural Resource Discoveries

Should previously unknown cultural resources be found in any project affected area during construction, project work would cease until contact with the State Historic Preservation Office and the Federal landowner where applicable.

Safety and Inconvenience

At locations where a railroad alignment must cross existing public

roads, adequate signing during and following construction work would be required for safety of the motoring public.

Construction at public road/railroad crossings could involve minor traffic delays, however, roads would remain open to traffic use.

Noise

Construction activity could be scheduled to occur during less (noise) critical times of day near residential receptors or other noise sensitive areas.

Air Quality

Open burning of cleared vegetation or other project generated wastes would be prohibited at locations where smoke or odor could have an adverse effect on nearby residences.

* * *

To facilitate the identified construction activities, significant amounts of construction materials, equipment and labor would be required. Construction materials, exclusive of embankment needs, would primarily come from outside the project corridor. Large quantities of gravel and rock would be required for the embankment for nearly 270 miles of railroad. Using the typical section indicated in Figure 3 approximately 67,000 cu.yds. of embankment material per mile over favorable foundation conditions can be estimated to be required. For localized unfavorable foundation conditions (e.g., floodplain, permafrost, etc.) greater quantities would be necessary. In addition, a continual supply of gravel and rock would be necessary for embankment maintenance. The Tanana Basin contains abundant alluvial gravels. However, project materials investigations to identify specific mining locations have not yet occurred. Although normal construction practices utilize material sources as close to the point of embankment construction as possible, importing gravel materials from longer distances over newly constructed portions of railroad alignment might also prove feasible and cost effective. Irrespective of material source locations, large surface disturbed areas would result from gravel mining for the project. With material source mining, additional environmental impacts (e.g., erosion, vegetation and habitat loss, noise, etc.) would follow.

To accommodate construction equipment and personnel, construction camps would also likely be required. Locations for construction camps have not been identified, nor the number of workers that the project would require. Camp location impacts would be reduced by selection of sites away from sensitive environmental areas.

During construction, all applicable standards, guidelines and permit requirements of the State of Alaska and of Federal agencies having jurisdiction would be adhered to. Examples of permits that could be required for a railroad project are shown in Table 5.

TABLE 5

PERMITS THAT COULD BE REQUIRED

PERMIT TITLE	AGENCY WITH JURISDICTION	AREA OF CONCERN
Section 401 Permit (Certificate of Reasonable Assurance)	Alaska Department of Environmental Conservation	Control discharge into navigable waters in order to protect the waters from being polluted
Air Quality Control Permit	Alaska Department of Environmental Conservation	Control air contaminant emissions to prevent, abate and control air pollution
Air Quality Permit to Open Burn	Alaska Department of Environmental Conservation	Prevent, abate and control air pollution
Anadromous Fish Protection Permit	Alaska Department of Fish and Game	Protect and preserve fish in waters that the Commissioner of Fish and Game designated as important to the spawning, rearing, or migration of anadromous fish
Section 404 Permit (Discharge of Dredged or Fill Material into U.S. Waters)	U.S. Corps of Engineers	Conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, navigation, recreation, water quality and, in general, the needs and welfare of the people
Permits for Bridges Over Navigable Waters	U.S. Coast Guard	Insure the navigability of waterways is not impaired and that all environmental impacts have been considered

COORDINATION AND COMMENTS

Early project coordination, prior to the initiation of an environmental study, included several Department contacts with agencies and community groups. Involved in those preliminary project "location" meetings were representatives of Eielson Air Force Base, Fort Wainwright, Fort Greely, the Alaska Railroad, Northwest Pipeline, the Alaska Department of Fish and Game, the Delta Junction City Council, the Delta Junction Planning Commission, and residents of Delta Junction and Tok. Alignment concerns were voiced and considered in the route location process.

On November 24, 1981 the Department held an interagency scoping meeting to determine the scope of the environmental study -- that is, what issues needed to be identified and addressed and to what degree. Below are listed the agencies and organizations invited to participate in the scoping process. Those agencies and organizations identified with an asterik were either represented at the scoping meeting and/or provided written project input. Six environmental study issues deemed most significant by concensus of the scoping meeting attendants were land use (existing and planned), natural resources use, wetlands, noise, floodplain management, and wildlife (including endangered species). Many other issues were also considered important.

Public Works Canada*

Canadian Transportation Administration*

Federal Railroad Administration

Alaska Railroad*

U.S. Department of the Interior

- Bureau of Land Management
- Bureau of Indian Affairs
- Fish and Wildlife Service*

Geological Survey

National Marine Fisheries Service*

U.S. Forest Service*

U.S. Environmental Protection Agency*

Federal Aviation Administration*

U.S. Army Corps of Engineers*

U.S. Coast Guard*

Fort Wainwright*

Eielson Air Force Base*

Fort Greely*

Alaska Office of the Governor

Alaska Office of History and Archeology*

Alaska Department of Natural Resources

Forest, Land and Water Management*

Geological and Geophysical Survey*

Parks*

Alaska Department of Fish and Game*

Alaska Department of Environmental Conservation*

Alaska Department of Commerce and Economic Development

Fairbanks North Star Borough*

City of Fairbanks

City of Delta Junction

Tok Chamber of Commerce

Fairbanks Chamber of Commerce

Tetlin Indian Corporation

Dot Lake Village Corporation*

Doyon Limited

Interior Village Association

Tanacross Village Corporation

Tanana Chiefs Conference*

Healy Lake Village Corporation

Northwest Alaska Pipeline Company*

Alyeska Pipeline Service Company*

Golden Valley Electric Association

Alascom

Sitka Telephone Company

Alaska Power and Telephone Company*

Glacier State Telephone Company*

National Audobon Society

Alaska Conservation Society

Sierra Club

Friends of the Earth

Fairbanks Environmental Center

Comments received regarding the project have specified various concerns; no comments have been unfavorable. Agency coordination will continue throughout project development. The public and special interest groups will also be invited to provide input. Permit acquisitions (e.g., Section 404, Anadromous Fish Protection, etc.), with corresponding stipulations, and the contract provisions, including pollution control requirements and funding, will mitigate to the greatest extent practical environmental impacts of the project. Re-evaluation of this document will also occur, as necessary, throughout project development.

APPENDIX A

Previous Railroad Extension Studies

Alaska - Canada Transcontinental Rail Connection to Contiguous United States, State of Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. January 1977.

Alaska Railroad Extension Route Selection, Project X20089, State of Alaska Department of Transportation and Public Facilities. July 1979 and April 1982 update.

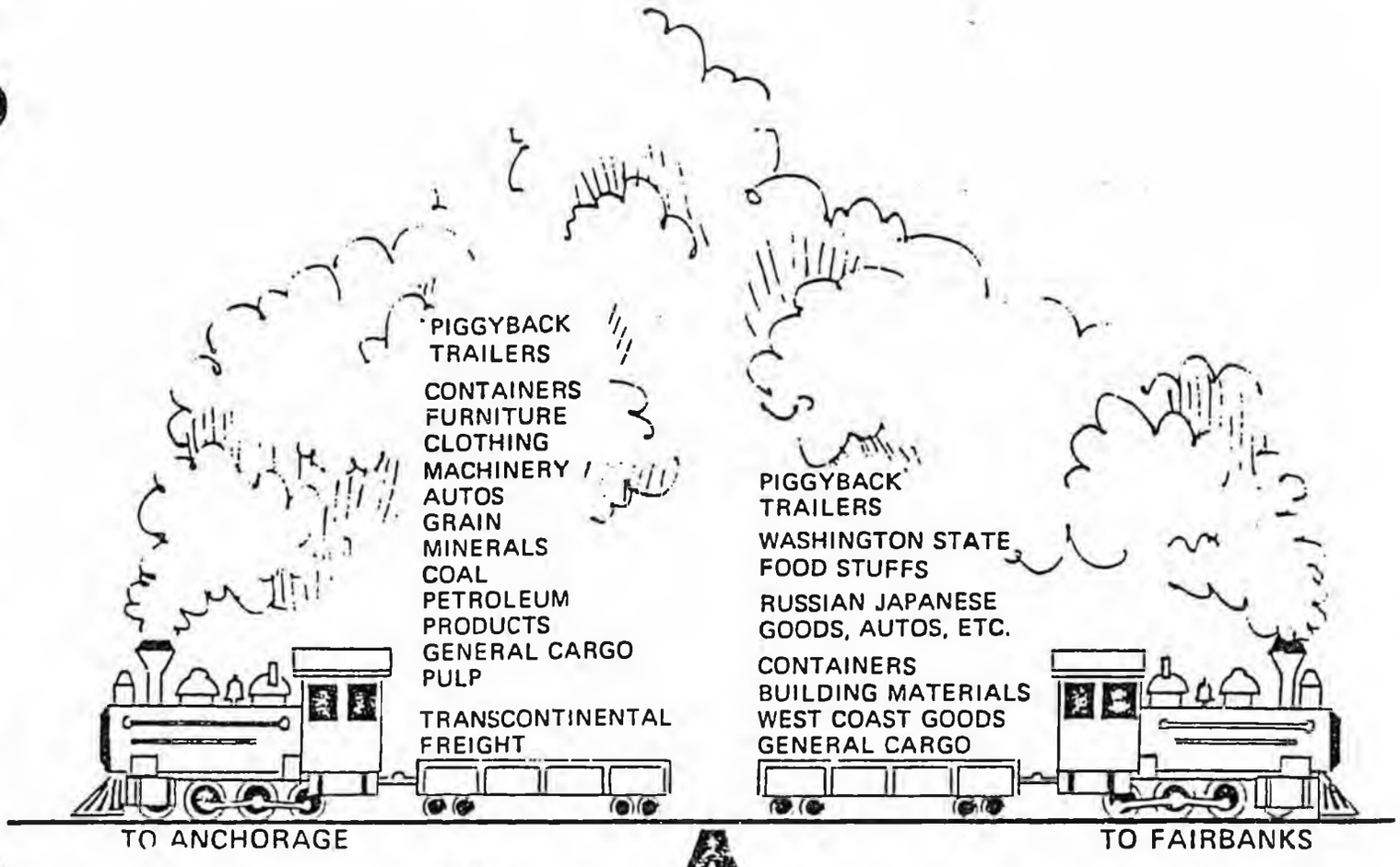
Feasibility Study, Proposed Extension of the Alaska Railroad from Eielson Air Force Base to the Canadian Border, Larry Orsini Associates, Inc. December 1980.

Interior Transportation Study, Project Identification and Evaluation, State of Alaska Department of Transportation and Public Facilities. 1983.

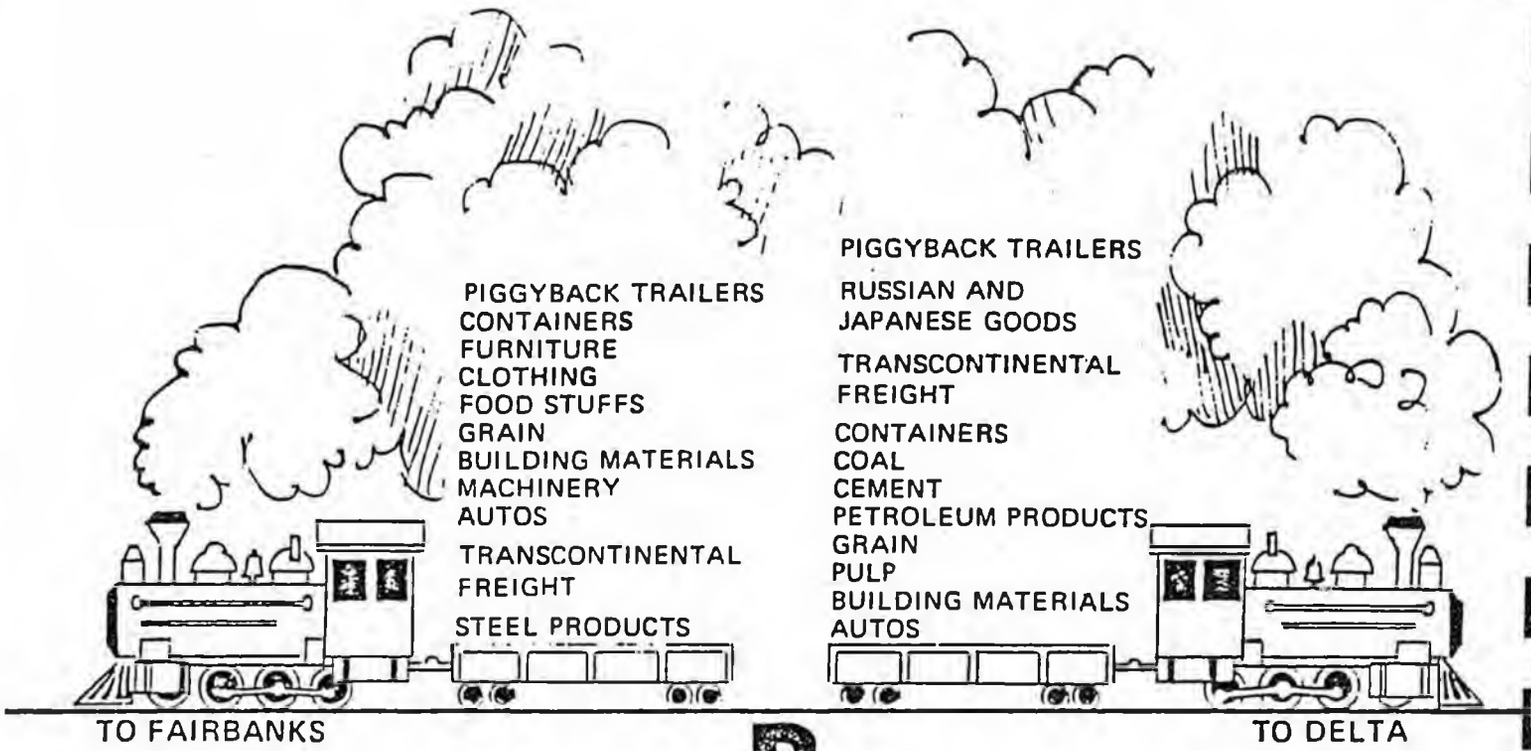
APPENDIX B

Possible Products Flow Along A Rail Connection

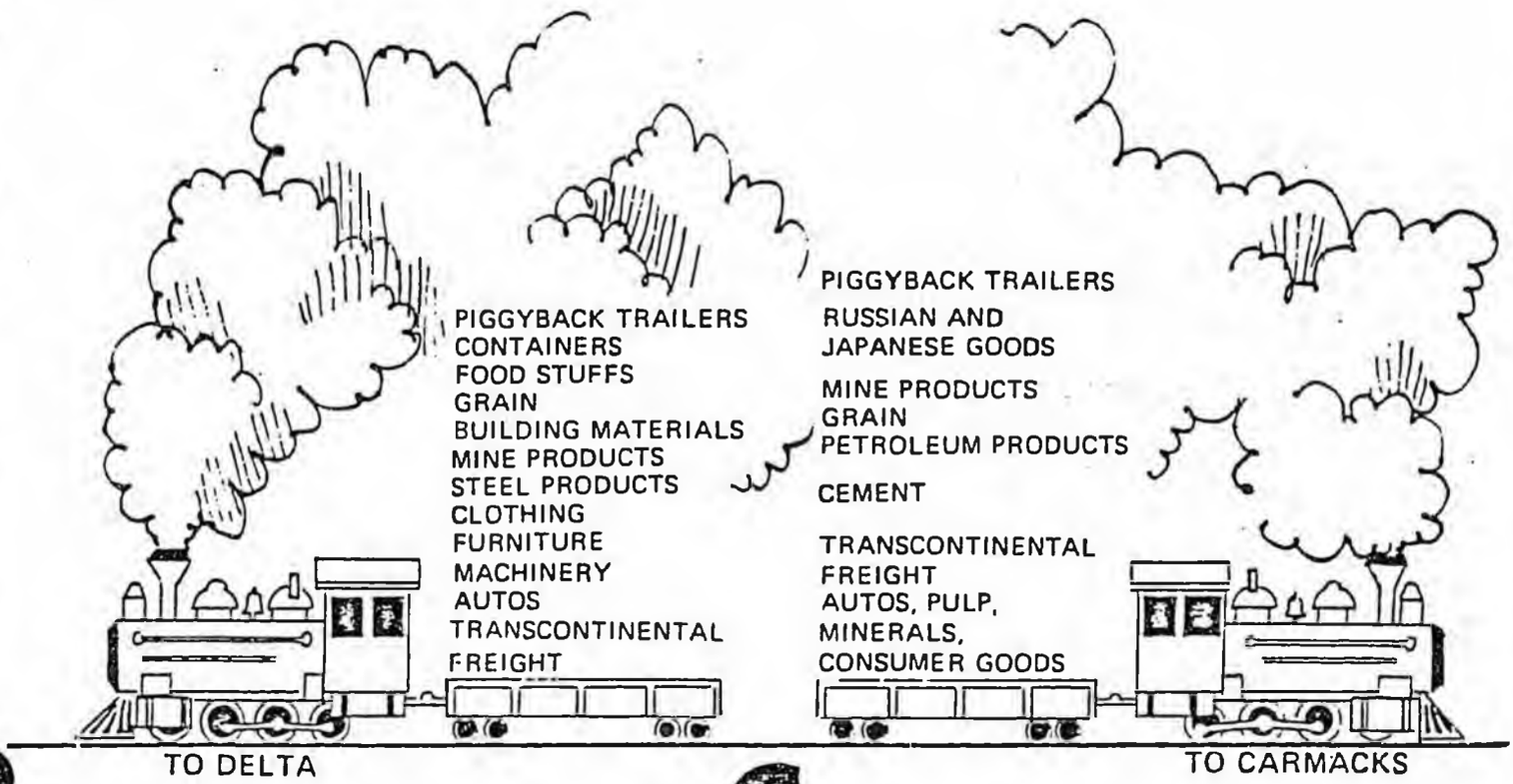
Illustrations from the report: Alaska-Canada Transcontinental Rail Connection to Contiguous United States, State of Alaska Department of Commerce and Economic Development, January 1977.


PIGGYBACK
TRAILERS
CONTAINERS
FURNITURE
CLOTHING
MACHINERY
AUTOS
GRAIN
MINERALS
COAL
PETROLEUM
PRODUCTS
GENERAL CARGO
PULP
TRANSCONTINENTAL
FREIGHT
PIGGYBACK
TRAILERS
WASHINGTON STATE
FOOD STUFFS
RUSSIAN JAPANESE
GOODS, AUTOS, ETC.
CONTAINERS
BUILDING MATERIALS
WEST COAST GOODS
GENERAL CARGO
TO ANCHORAGE
TO FAIRBANKS

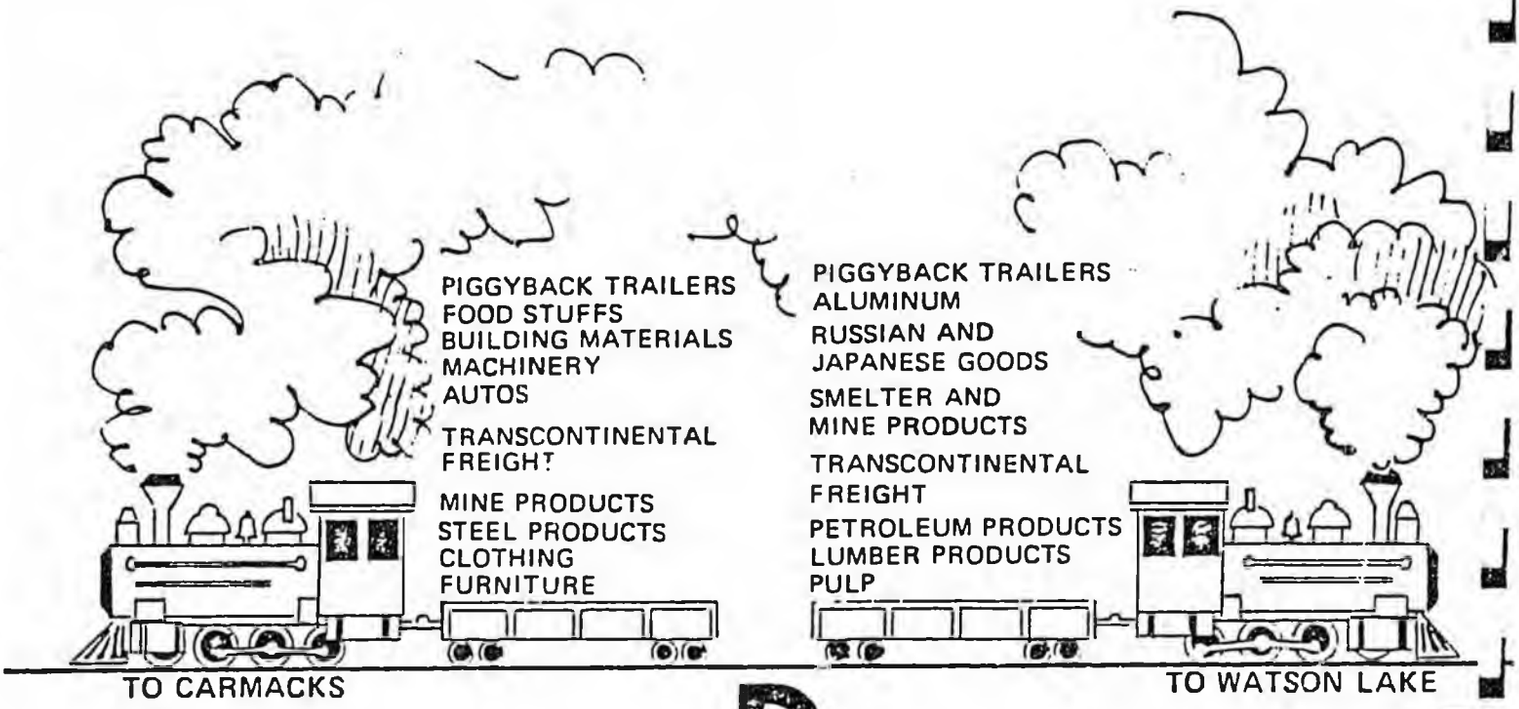

A
ALASKA
YUKON
TERRITORY
FAIRBANKS
DELTA
A
CARMACKS
ROSS RIVER
ANCHORAGE
WHITEHORSE
WATSON LAKE
FORT NELSON
SKAGWAY
DEASE LAKE
JUNEAU
(UNDER
CONSTRUCTION)
GULF OF ALASKA
EDMUNTMON
N
PRINCE GEORGE
CALGARY
PRINCE RUPERT
SOME EXISTING RAILROAD ROUTES
PROPOSED ROUTES
KAMLOOPS

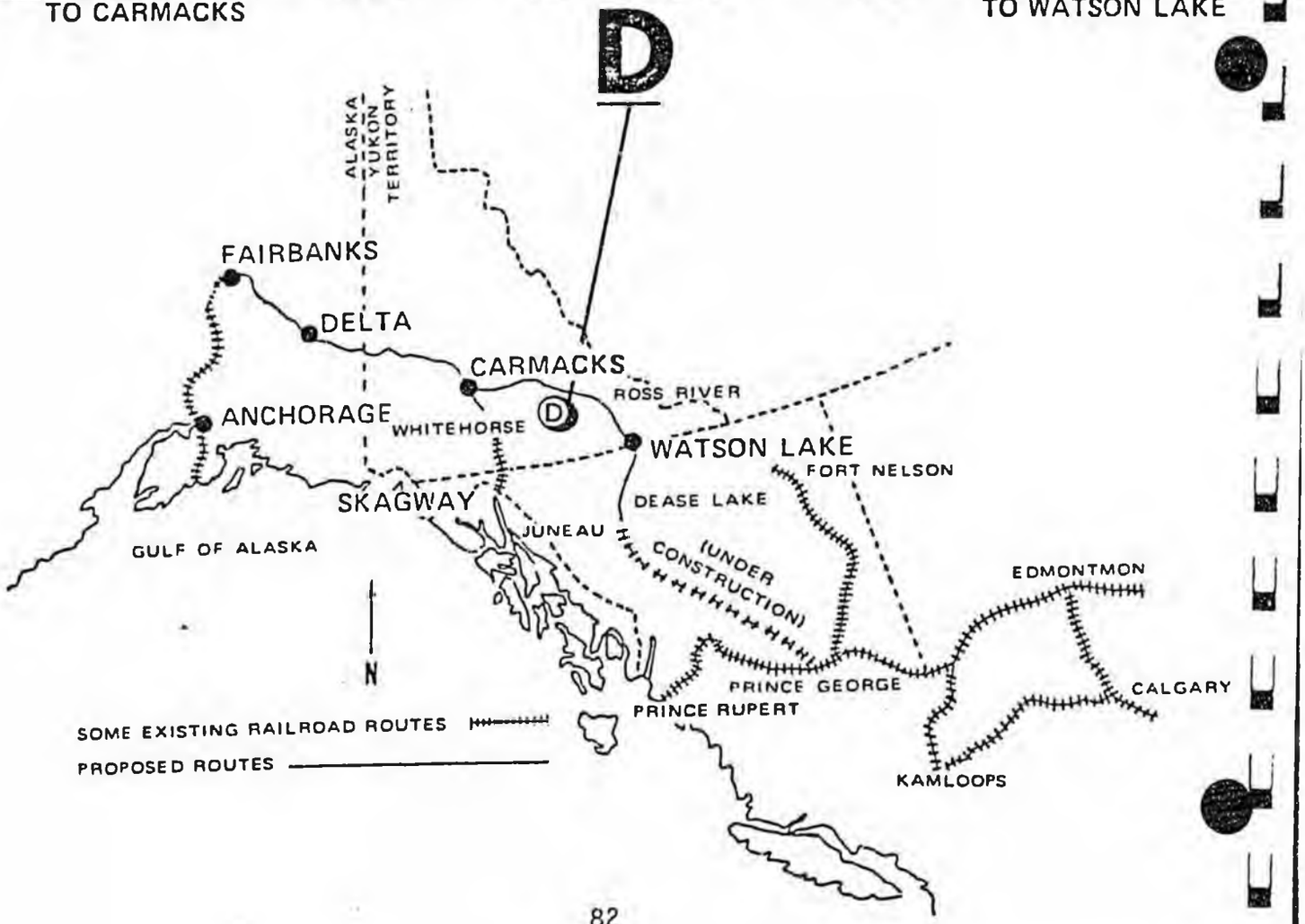

PIGGYBACK TRAILERS
CONTAINERS
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CLOTHING
FOOD STUFFS
GRAIN
BUILDING MATERIALS
MACHINERY
AUTOS
TRANSCONTINENTAL FREIGHT
STEEL PRODUCTS
PIGGYBACK TRAILERS
RUSSIAN AND JAPANESE GOODS
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CONTAINERS
COAL
CEMENT
PETROLEUM PRODUCTS
GRAIN
PULP
BUILDING MATERIALS
AUTOS
TO FAIRBANKS
TO DELTA

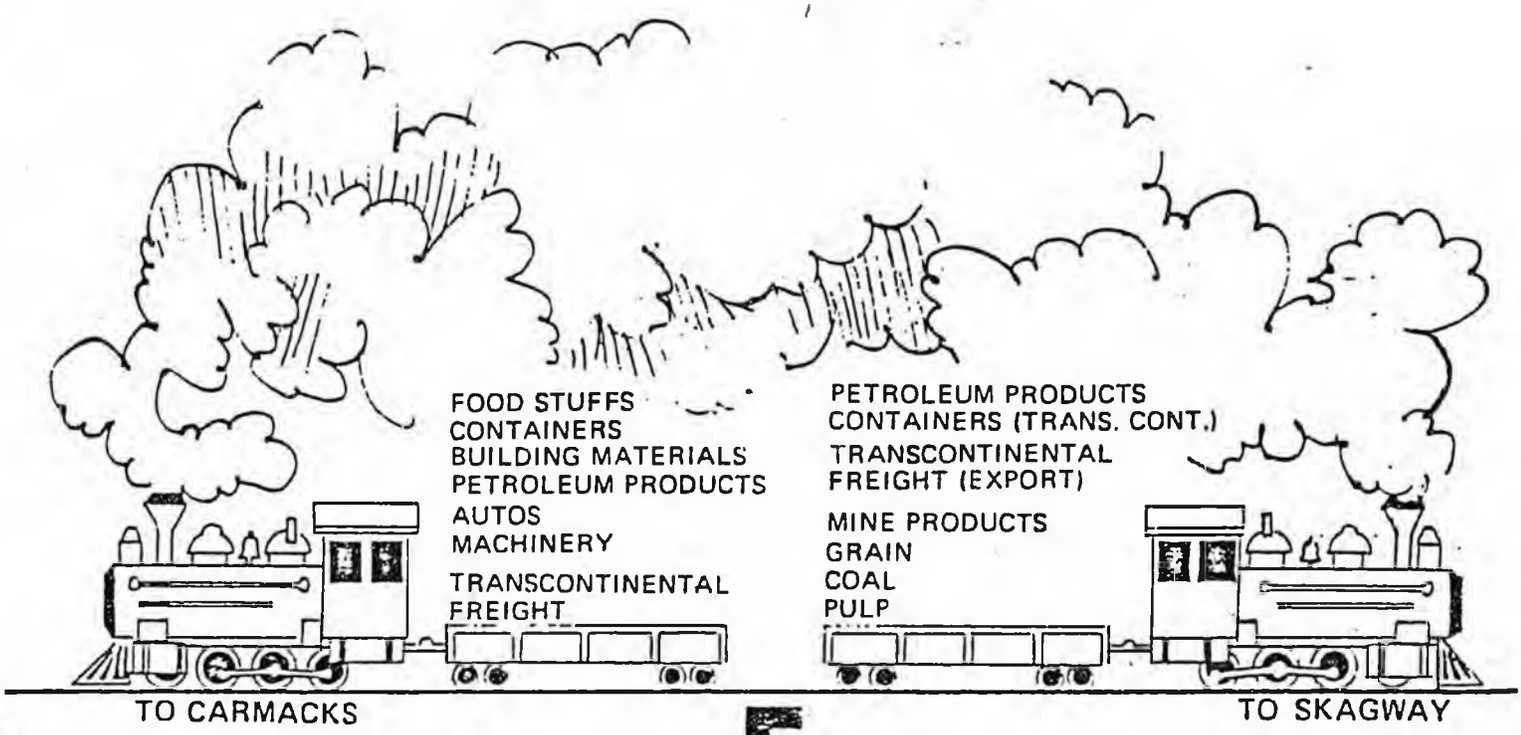

B
ALASKA YUKON TERRITORY
FAIRBANKS
DELTA
CARMACKS
ROSS RIVER
ANCHORAGE
WHITEHORSE
WATSON LAKE
FORT NELSON
SKAGWAY
DEASE LAKE
JUNEAU
(UNDER CONSTRUCTION)
GULF OF ALASKA
EDMONTMON
PRINCE GEORGE
CALGARY
PRINCE RUPERT
KAMLOOPS
N
SOME EXISTING RAILROAD ROUTES
PROPOSED ROUTES

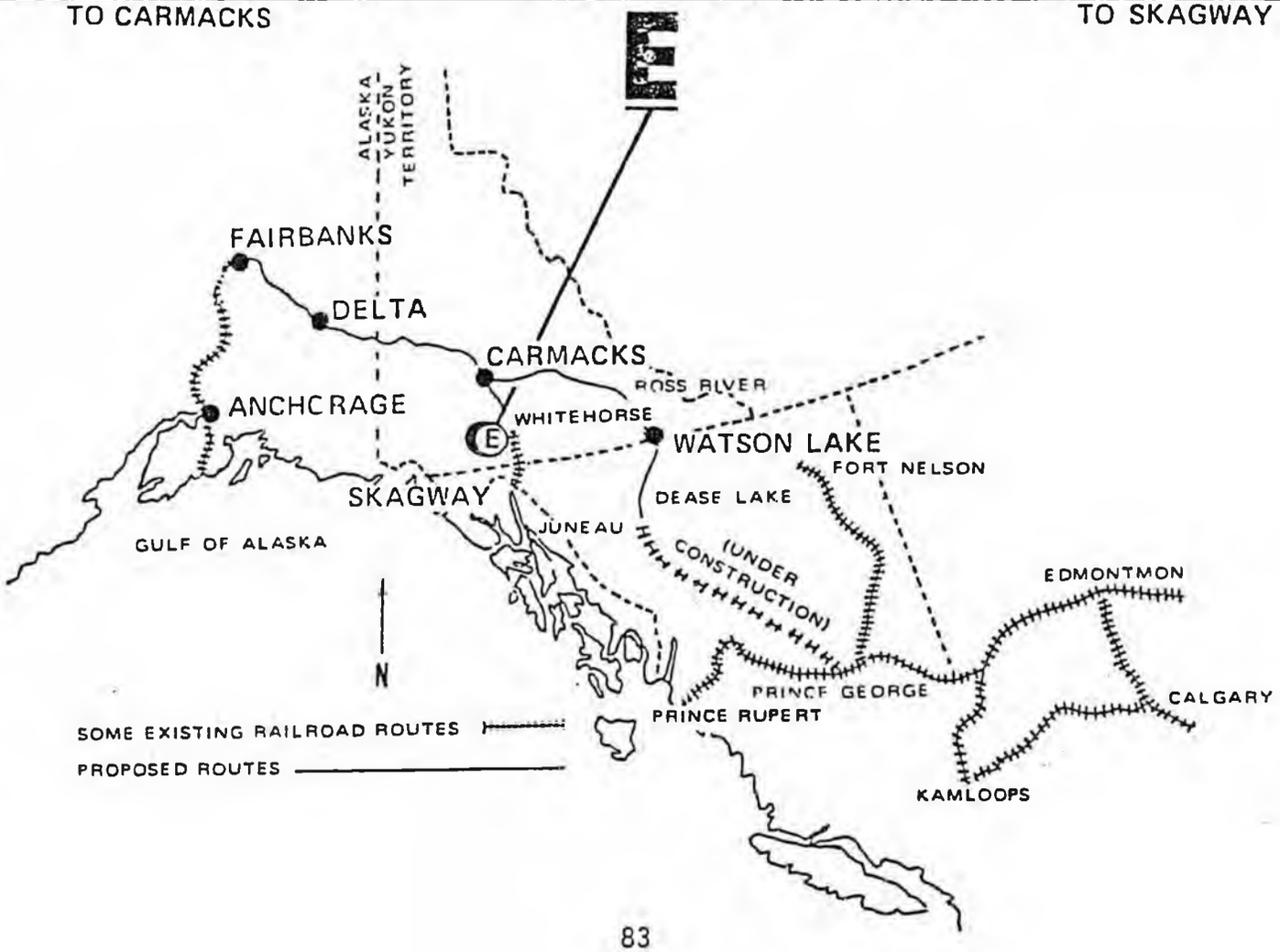

PIGGYBACK TRAILERS
CONTAINERS
FOOD STUFFS
GRAIN
BUILDING MATERIALS
MINE PRODUCTS
STEEL PRODUCTS
CLOTHING
FURNITURE
MACHINERY
AUTOS
TRANSCONTINENTAL
FREIGHT
TO DELTA
PIGGYBACK TRAILERS
RUSSIAN AND
JAPANESE GOODS
MINE PRODUCTS
GRAIN
PETROLEUM PRODUCTS
CEMENT
TRANSCONTINENTAL
FREIGHT
AUTOS, PULP,
MINERALS,
CONSUMER GOODS
TO CARMACKS


ALASKA
YUKON
TERRITORY
FAIRBANKS
DELTA
CARMACKS
ROSS RIVER
ANCHORAGE
WHITEHORSE
WATSON LAKE
FORT NELSON
SKAGWAY
DEASE LAKE
JUNEAU
(UNDER
CONSTRUCTION)
GULF OF ALASKA
EDMONTMON
PRINCE GEORGE
CALGARY
PRINCE RUPERT
KAMLOOPS
N
SOME EXISTING RAILROAD ROUTES
PROPOSED ROUTES


PIGGYBACK TRAILERS
FOOD STUFFS
BUILDING MATERIALS
MACHINERY
AUTOS
TRANSCONTINENTAL FREIGHT
MINE PRODUCTS
STEEL PRODUCTS
CLOTHING
FURNITURE
TO CARMACKS
PIGGYBACK TRAILERS
ALUMINUM
RUSSIAN AND JAPANESE GOODS
SMELTER AND MINE PRODUCTS
TRANSCONTINENTAL FREIGHT
PETROLEUM PRODUCTS
LUMBER PRODUCTS
PULP
TO WATSON LAKE


D
ALASKA
YUKON
TERRITORY
FAIRBANKS
DELTA
CARMACKS
ROSS RIVER
ANCHORAGE
WHITEHORSE
WATSON LAKE
FORT NELSON
SKAGWAY
DEASE LAKE
JUNEAU
(UNDER CONSTRUCTION)
GULF OF ALASKA
EDMONTMON
N
PRINCE GEORGE
CALGARY
PRINCE RUPERT
SOME EXISTING RAILROAD ROUTES
PROPOSED ROUTES
KAMLOOPS


FOOD STUFFS
CONTAINERS
BUILDING MATERIALS
PETROLEUM PRODUCTS
AUTOS
MACHINERY
TRANSCONTINENTAL
FREIGHT
PETROLEUM PRODUCTS
CONTAINERS (TRANS. CONT.)
TRANSCONTINENTAL
FREIGHT (EXPORT)
MINE PRODUCTS
GRAIN
COAL
PULP
TO CARMACKS
TO SKAGWAY


ALASKA
YUKON
TERRITORY
FAIRBANKS
DELTA
CARMACKS
ROSS RIVER
ANCHORAGE
WHITEHORSE
WATSON LAKE
FORT NELSON
SKAGWAY
DEASE LAKE
JUNEAU
(UNDER
CONSTRUCTION)
GULF OF ALASKA
EDMONTMON
PRINCE GEORGE
CALGARY
PRINCE RUPERT
KAMLOOPS
N
SOME EXISTING RAILROAD ROUTES
PROPOSED ROUTES

APPENDIX C

Route Reconnaissance Work

Excerpted from the State of Alaska Department of Transportation and Public Facilities location study: Alaska Railroad Extension Route Selection, Project X20089, July 1979.

Previous developments, (highways, pipelines, communications systems, airports), have established a general transportation corridor from the present terminus of the Alaska Railroad at Eielson Air Force Base southeast to the Canadian border. This corridor can be described in broad terms as the valley of the Tanana River or in more narrow terms, as the route of the Richardson and Alaska Highways.

A study of topographic and land status maps of eastern Alaska readily shows that the terrain and the associated economic and environmental considerations effectively rule out any general corridor other than the Tanana River Valley. This route study was confined to the Tanana Valley except for the easternmost 50 miles which follow the Ladue River down to the Canadian border.

The Ladue border crossing was first proposed in 1942 when the U.S. Army Corps of Engineers surveyed a route for a rail connection to Alaska. Interest in that project faded after the end of World War II, but the route chosen at that time has been reaffirmed many times in subsequent years. The Ladue crossing directs the Yukon Territory segment of the railroad route into the broad valleys of the White, Yukon, Pelly and Liard rivers. The valleys provide a fairly direct route to Watson Lake, Y.T., through which the connecting link to the existing transcontinental rail system will pass.

It should also be pointed out that the Ladue River border crossing allows the easiest and most direct route to Whitehorse, Y.T., should Canada decide to run the rail connection through that city. This study considers only the Ladue River border crossing.

The first step in selecting a railroad route was to study topographic maps and to identify on these the route possibilities that appeared to merit further study by means of aerial photography.

From the map study, it was determined that the 108 mile section from Delta Junction to Tok was adequately covered by aerial photographs taken in September 1976 for the purpose of highway reconnaissance. Likewise, the 80 mile segment from Tok to the Canadian border via the Ladue River had previously been photographed in a 1973 rail study. This left only the 75 mile segment from Eielson to Delta Junction lacking in

reconnaissance photo coverage. Photographs of this area were scheduled for the fall of 1977.

Map study of the Eielson to Delta Junction area revealed several possible routes including an alignment along the north bank of the Tanana River and several alternatives south of the river. In September 1977, these routes were investigated by a fixed-wing overflight involving the Regional Geologist, Hydrologist and Reconnaissance Engineer. After this investigation, three routes were chosen as the most promising rail locations, one north of the Tanana River and two south of the river.

All three of these routes were subsequently photographed in color on October 1, 1977. All of the aerial photos mentioned above are at a scale of 1 inch = 1000 ft.

Through the winter of 1977-78, considerable time was spent studying the reconnaissance photographs in an effort to select a preliminary alignment. The preliminary route was then studied in detail and refined in 1978 and 1979. Photogrammetric mapping was chosen as the most effective means of selecting a precise route for the railroad. This method allowed a high degree of latitude in final route selection and was adaptable to the time and funding constraints which had been placed on the project. The mapping work was assigned to two consulting firms which were already under contract to provide mapping services to the State of Alaska. The Department also engaged consultants to do the control survey work necessary for accurate mapping.

In all cases, coordinate positions and azimuths were originated from existing Geodetic Survey, U.S. Geological Survey, U.S. Army Corps of Engineers, Bureau of Land Management and two stations estalished by the International Boundary Commission. The control traverses or nets were also closed with respect to other stations of the same origin or previously established monuments which had been derived from them. After running a field data traverse through the network from geodetic station to station, a compass adjustment was made to position all intermediate points. The thus derived positions of each new traverse or control station were anticipated to be within 1:30,000 accuracy relative to existing control. Actual field determinations have proven this to have been accomplished.

All vertical control was derived from existing U.S.C. & G.S. or U.S.G.S. Bench Marks. A more detailed discussion of the control survey is presented in a report prepared by the consultants upon completion of the survey work. That report also contains a listing of the positions of all control points.

As the Department received control data from the survey consultants, it was sent to the mapping consultants and the production of contour maps began by mid-summer 1978. This was accomplished at a scale of 1 inch = 100 ft. with a 2 inch contour interval. The band of mapping varied from 500 ft. to 800 ft. Over most of the length of the project a 500 ft. wide strip centered on the preliminary route was mapped. In some areas of rough terrain, a wider strip of mapping was requested to allow more flexibility in selecting a final railroad route.

As the mapping was received, the Department placed a railroad centerline on it. Occassionally, the line is tightly controlled by topography. This is most obvious when climbing from the Tanana River to the Ladue Summit. A 1% "Grade Contour" was laid out on the mapping by starting at the Ladue Summit and working down to the highway on the Tanana side. A railroad centerline was then drawn to get the best "fit" to this grade contour. The result is a railroad centerline with a sustained 1% grade and continuous curvature for a distance of about 10 miles.

As the alignment was placed on the mapping, the Regional Geologist and Hydrologist reviewed it and recommended needed changes. When the most desirable "fit" was achieved, the State Plane Coordinates of the tangent intersections were scaled off the contour maps and bearings and distances of the tangents were calculated, as well as all curve data. All of the alignment and coordinate data has been tabulated and is on file at the Interior Regional Office of the Department of Transportation and Public Facilities.

APPENDIX D

Agency, Organization and Individual Responses

Public Works Canada | Travaux publics Canada
Pacific Region | Région du Pacifique

TECHNICAL SERVICES
Chief, Technical Services
Environment
Materials
Contracts and Review
Consultant Coordinator

12 November 1981

Our File
3720-1

INTERIOR REGION
DIRECTOR D&C
D.O.T.P.F.
NOV 18 2 22 PM '81

Mr. Robert W. Ward
Commissioner
Department of Transportation
and Public Facilities
Pouch Z
JUNEAU, Alaska 99811

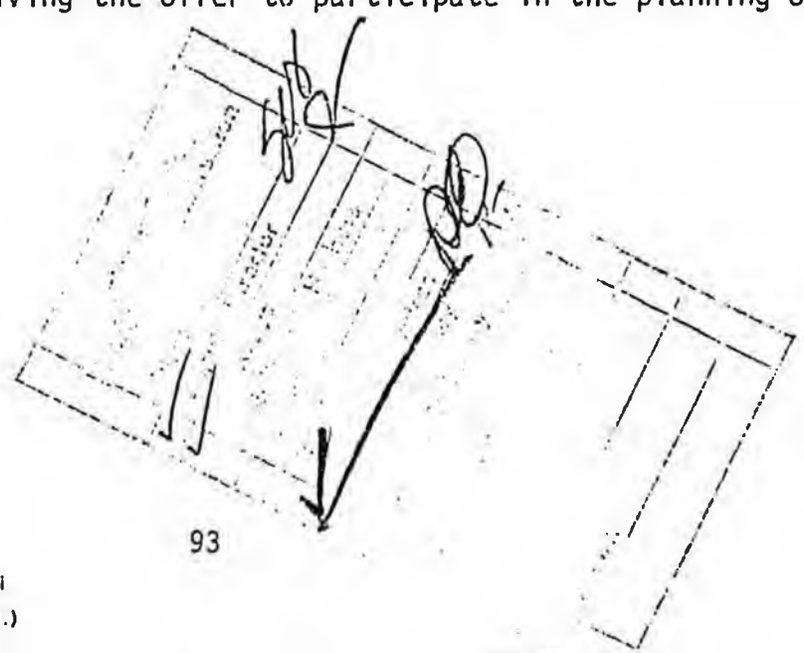
Dear Commissioner Ward:

Your letter of November 2, 1981, with attached report is acknowledged. I appreciate receiving the information and request that we remain on your coordination list. I had hoped that either John Hudson, our Senior Departmental Representative in Whitehorse, or myself could have attended the November 24, 1981 meeting in Fairbanks, but regrettably, both of us have previous commitments. I will try to have a representative at your next meeting.

Our responsibility in the Yukon is limited to the maintenance, design and construction of highways, buildings and marine installations. Our interest in your proposed Railroad Extension stems from the need for the various modes of transportation to complement one another. Within our federal family, responsibility for decisions concerning railroads rests with Transport Canada, and I have taken the liberty of forwarding your letter and report, and a November 4, 1981 letter from Stephen C. Sisk to Mr. A.D. McKenzie, Western Regional Co-ordinator, Canadian Transportation Administration, 2760 - 200 Granville Street, Vancouver V3L 1B3. Mr. McKenzie is interested in your plans and can provide information concerning the British Columbia Railway and the Whitepass & Yukon Route (rail).

I very much appreciate receiving the offer to participate in the planning of this project.

Yours truly,



J.W. Gayton
Regional Manager
Design and Construction

cc: S.C. Sisk,
A.D. McKenzie
J. Hudson

1166 Alberni Street
Vancouver, B.C.
V6E 3W5

1166, rue Alberni
Vancouver (C.-B.)
V6E 3W5

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 1668
Juneau, Alaska 99802

November 16, 1981

INTERIOR REGION
DIRECTOR D&C
D.O.T.P.F.
NOV 19 1 05 PM '81

Mr. Stephen Sisk
Design and Construction
Interior Region
Department of Transportation
and Public Facilities
600 University Avenue, Suite 8
Fairbanks, Alaska 99701-1074

Dear Mr. Sisk:

We have received Commissioner Robert W. Ward's, November 2, 1981, letter regarding the environmental study to be undertaken by the State Department of Transportation and Public Facilities in response to the charges contained in House Bill 47. Although, it is likely an extension of the Alaska Railroad to the Canadian border could impact some of the fishery resources under National Marine Fisheries Service (NMFS) purview, we cannot provide an in-depth project review or comments at this time. Further, we will not be attending the scoping meeting in November. Adherence to the Federal Railroad Administration environmental guidelines will help to reduce many of our potential concerns.

We appreciate the opportunity provided us to review and comment on project plans to date. Please keep this office of NMFS on your mailing list so that we may keep abreast of this project.

Sincerely,

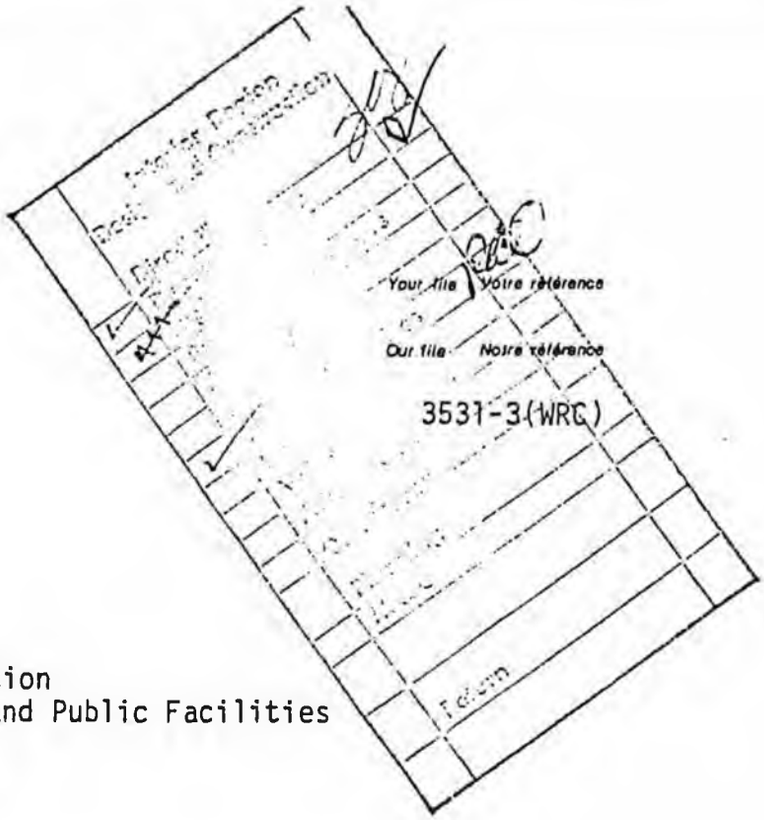
Robert W. McVey
Director, Alaska Region

Interior Region
Design and Construction
Director
Deputy Director
Highways
Buildings & Harbors
Aviation
ROW
Central Services
Fairbanks Residency
Valdez Residency
Planning
M & O
Tinkler
Return

94

Transport Canada / Transports Canada

Surface / Surface



November 19, 1981

Mr. Stephen C. Sisk
Director, Design and Construction
Department of Transportation and Public Facilities
State of Alaska
2301 Peger Road
Fairbanks, Alaska
99701

Dear Mr. Sisk,

In view of the fact that railway matters fall within the purview of the Canadian Surface Transportation Administration of Transport Canada, the Regional Director-General of Public Works Canada has referred to me your letter of November 4 regarding a meeting to be held in Fairbanks on November 24 on the subject of a proposed railway extension from Fairbanks to the Yukon border.

We are always interested in hearing details of initiatives being taken in other jurisdictions, particularly with a view to assessing the implications in terms of Canadian policies and programs, but I feel I should tell you that at the present time there seems to be little prospect of Transport Canada becoming seriously involved in the question of establishing a rail link between Alaska and the lower forty-eight states. In the circumstances, it might therefore be inappropriate for us to seek representation at a meeting designed to address very specific issues.

I must hasten to add that this should not be seen as a reluctance to cooperate to the fullest extent with officials of the Government of Alaska and if, as part of your exercise, you require any information regarding those aspects of the Canadian surface transportation system which come under Federal jurisdiction, please let me know and I shall be pleased to assist in any way possible.

Nov 27 2 55 PM '81
INTERIOR REGION
DIRECTOR D&C
D.O.T.P.F.

Yours very truly

A.D. McKenzie
Western Coordinator.

TECHNICAL SERVICES
Chief, Technical Services
Engineering
Materials
Contracts and Review
Consultant Coordination

L ARTMENT OF TRANSPORTATION

UNITED STATES COAST GUARD

Address reply to:
COMMANDER dpl
Seventeenth Coast Guard District
P.O. Box 3—5000
Juneau, Alaska 99802

907-586-7355

16000
25 NOV 1981

Mr. Stephen Sisk, Director
Design and Construction, Interior Region
Dept. of Transportation and Public Facilities
State of Alaska
600 University Ave, Suite B
Fairbanks, Alaska 99701-1074

Nov 30 10 24 AM '81
INTERIOR REGION
DIRECTOR D&C
D.C.T.P.F.

Dear Mr. Sisk:

My office has reviewed the Alaska Railroad Extension Route Selection Project X20089 document dated July 1979 that was received with Commissioner Ward's letter dated 2 November 1981. Two major points that I feel you should consider in your next planning phase are as follows.

First, bridge permits will be required for the crossings of the Tanana River. These crossings include the one at mile 25 and the one just upstream from the Alaska Highway bridge at approximately mile 199.5.

Second, Section 4(f) of the Department of Transportation (DOT) Act provides for the protection of parks, recreation areas, wildlife and waterfowl refuges, and historic sites. The route's projected passage through or near the Moon Lake campground area may be in conflict with the provisions of this Act.

I appreciate the opportunity to review and comment on the proposed project.

Sincerely,

H. E. Stanley

H. E. STANLEY
Captain, U. S. Coast Guard
District Planning Officer
Seventeenth Coast Guard District



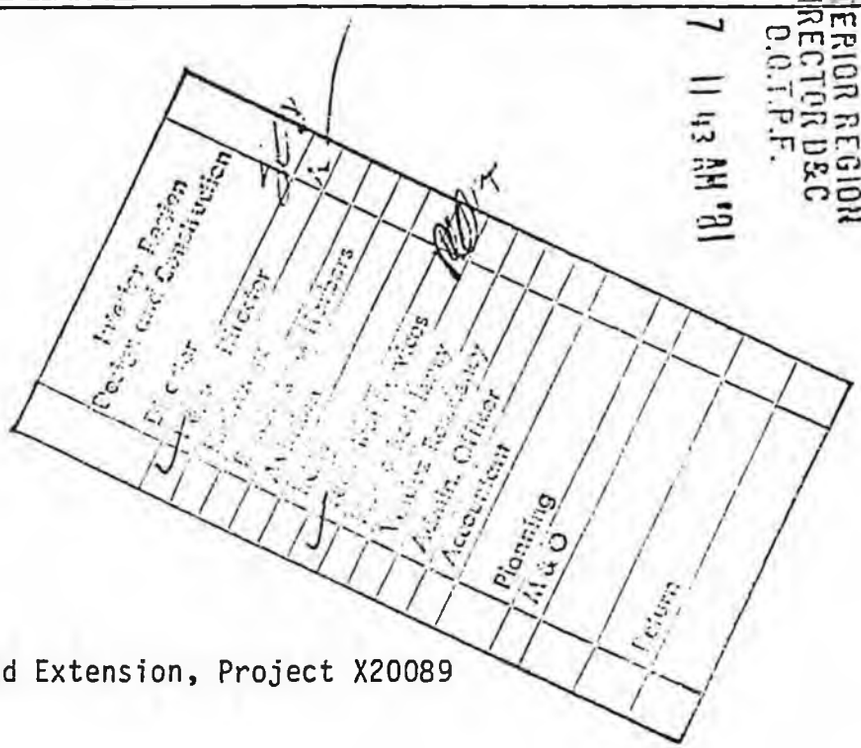
Interior Region

DEC 10 1981

fairbanks north star borough
p.o. box 1267 520 fifth ave. fairbanks, alaska 99707 907-452-4761

DEC 7 11 43 AM '81
INTERIOR REGION
DIRECTOR D&C
O.C.T.P.F.

December 1, 1981



Stephen C. Sisk, Director
Design & Construction
Dept. of Transportation &
Public Facilities
2301 Peger Road
Fairbanks, AK 99701

Attention: Mike Tinker

Re: Alaska Railroad Extension, Project X20089

Dear Mr. Sisk:

Thank you for the opportunity to address plans to construct an extension of the Alaska Railroad from its present terminus to the Canadian border. We ask that you include a bypass of the Fairbanks urban area as part of the project.

Reasons for constructing a rail bypass of Fairbanks are numerous. The existing line into Garden Island creates a serious traffic hazard at road intersections: Sheep Creek Road, the old Nenana Highway, University Avenue, and the two crossings of Phillips Field Road, in particular. With the additional rail traffic, that hazard will increase.

A high quality rail line along the south side of Fairbanks would encourage industrial development in an area already designated for industrial use. We must encourage industrial growth on the outskirts of Fairbanks, where residential neighborhoods will not be disrupted.

With an increase in industrial activity, the need for importing and exporting toxic chemicals and toxic wastes will also increase. A bypass of the City of Fairbanks would reduce the number of people directly exposed to potential hazard, as well as reducing the likelihood of its occurrence.

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Since the state is considering extending the Alaska Railroad to the Canadian border in anticipation of increasing freight traffic, it is imperative that a bypass of Fairbanks be constructed at the same time.

I will be available to discuss a rail bypass of the Fairbanks urban area at your convenience.

Sincerely,

Don Goggin
Planning Director

DCG:PT:mkr

INTERIOR REGION
DIRECTOR D&C
D.O.T.P.F.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ALASKA OPERATIONS OFFICE
Room E535, Federal Building
701 C Street, Box 19
Anchorage, Alaska 99513
Phone (907) 271-5083

DEC 2 37 PM '81
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Interior Region

DEC 09 1981

Technical Services

4 DEC 1981

Interior Region
Design and Construction

Stephen C. Sisk, Director
Design and Construction
Department of Transportation and Public Facilities
2301 Peger Road
Fairbanks, Alaska 99701

Dear Mr. Sisk:

Thank you for your invitation to attend the interagency scoping meeting in connection with the study of environmental impacts associated with the proposed Alaska Railroad extension to the Canadian border. Due to the limited availability of travel funds, our office was unable to send a representative.

We will, however, be interested in maintaining as great a level of involvement in this process as our staff and funds allow, consistent with relevant Agency regulations. To this end, we are interested in reviewing the report prepared by your agency, pursuant to Alaska House Bill 47, delineating a utility corridor for the proposed extension. We would also appreciate the opportunity to review the results of the 24 November scoping meeting, and other meeting minutes and reports that will be produced during this study.

The Alaska Operations Office of EPA will review the products of this study effort, and any resulting project, mainly for consistency with our Section 404(b)(1) guidelines. These regulations require that practicable alternatives to the placement of dredged or fill material in waters of the United States be examined. Compliance with Council on Environmental Quality regulations will generally satisfy most, if not all, of the specific requirements. Bill Britt of my staff will be the Agency contact for Section 404 activities.

To insure that requirements of the National Environmental Policy Act are complied with, you may wish to provide the Environmental Evaluation Branch in our Seattle Regional Office with all appropriate review material. Correspondence to the Regional Office should be addressed to:

Ms Kathy Davidson M/S 443
Environmental Evaluation Branch
Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

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For day to day involvement in the project please contact the Alaska Operations Office. If there is a question concerning the items discussed in this letter, please contact Bill Britt at 271-5083.

Sincerely yours,

W. James Sweeney, Director
Alaska Operations Office

cc: USFWS, Fairbanks
NMFS, Anchorage
ADFG, Fairbanks
ADEC, Fairbanks
CORPS (Regulatory Functions/Environmental Resources)
Kathy Davidson M/S 443

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF PARKS

JAY S. HAMMOND, GOVERNOR

619 WAREHOUSE DR., SUITE 210
ANCHORAGE, ALASKA 99501

PHONE: 274-4676

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Interior Region

MAR 15 1982

Technical Services

February 19, 1982

Re: 1120-10

Mike Tinker, Environmental Coordinator
DOT, Interior Region
2301 Peger Road
Fairbanks, Alaska 99701

SUBJECT: Proposed Alaska Railroad Extension

Dear Mr. Tinker:

We have reviewed the subject proposal and would like to offer the following comments:

STATE HISTORIC PRESERVATION OFFICER

Our review indicates that significant cultural resources may be impacted. Specifically AHRS sites XBD 027 and XBD 067 have been seen to be potentially eligible for the National Register of Historic Places. Also XBH-246 appears to be potentially eligible. This site will need further investigation to determine site boundaries and to gather sufficient archaeological material for a determination of cultural affinity. Furthermore, the corridor, as proposed goes through an area deemed to have a high probability for historic/ prehistoric site as noted by E.J. Dixon in the University of Alaska Museum report: Archaeological Survey and Inventory of Cultural Resources Fort Wainwright, Alaska. This area lies Southwest of Harding Lake where the corridor crosses the Tanana River and extends to the southernmost border of the Fort Wainwright Military Reservation. The corridor from this point east to Tetlin Junction may also be considered as archaeologically sensitive, based upon the known cultural resource sites from previous surveys along the Tanana River. That portion of the corridor that passes along the Ladue River may affect unknown cultural resources. The Ladue River has potential for having been a transportation corridor into the Yukon territory via the White and Stewart Rivers. Also, 1980 research along the gas pipeline west of this research area found sites in a topographically similar area (a minor river drainage with a broad, flat valley).

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Therefore, per 36 CFR 800 and AS 41.35.070, a preconstruction cultural resource survey/site investigation is recommended. Should there be any questions concerning this review, please call Diana Rigg at this office.

Robert D. Shaw
State Historic Preservation Officer

STATE PARK PLANNING

Recreation opportunities which could be adversely effected is enhanced by the proposed railroad extension should be identified in the Tanana Basin planning project during the next year.

LAND & WATER CONSERVATION FUND GRANT PROGRAM

No Comment.

Sincerely,

for Chip Dennerlein
Director

CD:mlb

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Interior Region

FEB 26 1982

Technical Services

Tanana Chiefs Conference, Inc.

Doyon Building
201 First Avenue
Fairbanks, Alaska 99701
Phone (907) 452-8251

February 24, 1982

Mr. Mike Tinker
Environmental Coordinator
State of Alaska
Dept. of Transportation
2301 Peger Road
Fairbanks, AK 99701

RE: November 1981 Scoping results, Alaska Railroad Extension

Dear Mr. Tinker:

Frank Borecki of our Realty section passed along the above noted material for my review.

Our concern for the planning of this project goes beyond the identification of certain surface renewable resources, to the identification of user group patterns and user groups. We view that traditional uses of the lands in question could be significant and that this information must be developed and utilized in the planning of any surface transportation corridor and development.

I note some reference is made in your summary of the November meeting to existing land use, but this is not very clear as to the intended meaning.

Specifically, the use patterns of which we speak refer to such as traplines, trapping cabins and camps, fish camps, access and trails incidental to the activities suggested by the presence of these, berry picking areas, and areas of firewood and house log gathering to mention the more common types of use areas.

Not very much of this information has been carefully documented in the State. The Subsistence Divison of ADF & G has designed a research project to develop this type of traditional land use mapping in the Tanana Basin south of Fairbanks, but the work has not yet begun.

The DNR has also developed a Tanana Basin Land Use Atlas to be used for its Tanana Basin Area Plan. However, we find the Atlas to be incomplete and inadequate inasmuch as traditional land use and occupancy information is not documented on the atlas maps.

I see a reference in the scoping summary:

> The existence/location of mining claims in the Ladue River Valley needs to be investigated.

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We wish to suggest that, in addition to developing that type of information for rail corridor planning to the Canadian Border, traditional land use and occupancy information should also be included.

We are told that, generally some Northway residents do use the Ladue River area for trapping; perhaps the area is important for other activities as well, on one here is certain.

I would appreciate being placed on any mailing lists which are used to update interest parties on this planning effort, and I would appreciate an opportunity to participate at future meetings which are called to address the study of the route.

Sincerely,

TANANA CHIEFS CONFERENCE, INC.

Jim Kowalsky
Director, Wildlife & Parks
Dept. of Community & Natural Resources

JK:ds

cc: Henry Springer

United States Department of the Interior

REPLY REFER TO: SE

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Interior Region
JUL 20 1982

FISH AND WILDLIFE SERVICE
1011 E. TUDOR RD.
ANCHORAGE, ALASKA 99503
(907) 276-3800

Technical Services

Interior Region
Design and Construction
Director
Deputy Director
Highways
Buildings & Harbors
Aviation
DOW
Technical Services
Name Redacted
Name Redacted
Name Redacted
Return

JUL 22 1982
HIGHWAY DIV. & BR
INTERIOR REGION
DOT & PF

Mr. Stephen C. Sisk
Director, Design and Construction
Department of Transportation and Public Facilities
2301 Peger Road
Fairbanks, Alaska 99701

Dear Mr. Sisk:

This responds to your June 24, 1982 request for information on threatened or endangered species in the corridor of the proposed Alaska Railroad Extension - Project # R-51033. Based on the best information currently available to us, the American Peregrine Falcon (Falco peregrinus anatum) is the only listed or proposed threatened or endangered species present in the project area.

Peregrine Falcon

The widespread use of chlorinated hydrocarbon based pesticides was the principle factor in the severe decline of Peregrine Falcon populations in boreal forest and tundra regions of Alaska. On June 2, 1970, the American Peregrine Falcon was officially listed as an endangered species.

JUL 26 2 57 PM '82
INTERIOR REGION
DIRECTOR D&C
D.O.T.P.F.

The Tanana River valley from Nenana to Tetlin was, historically, a major nesting area for Peregrine Falcons in Alaska. Peregrines are known to have nested at 18 locations along this reach of the river. The following table and the attached map identify 12 nesting locations that are within 3.25 miles of the proposed Alaska Railroad alignment.

CENSORED

The U.S. Fish and Wildlife Service considers the location of Peregrine Falcon eyries to be sensitive information. The illegal taking of peregrines for falconry continues to pose a threat to this endangered species.

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File

CENSORED

The U.S. Fish and Wildlife Service considers the location of Peregrine Falcon eyries to be sensitive information. The illegal taking of peregrines for falconry continues to pose a threat to this endangered species.

Although many of the nest sites are currently inactive, the peregrine population along the Tanana River has risen from a nadir in 1974 when only one pair was present to 5 pairs in 1982. We are optimistic that many of the presently unoccupied sites will again be used by nesting peregrines as the population fully recovers. We, therefore, believe that all historical nest sites, whether presently active or not, are important for providing for the full recovery of the species.

The Bald eagle, though not considered threatened or endangered in Alaska, is a protected species pursuant to the Bald Eagle Protection Act of 1940, as amended. As many as 10 pairs of bald eagles nest within 3-4 miles of the Alaska Highway within the Tanana River floodplain (Bob Ritchie, ABR, Fairbanks, pers. comm.). More information about bald eagle nesting locations can be provided upon request.

Your letter clearly states that although the railroad extension is not a Federal project, the DOT intends to follow Federal Railroad Administration environmental guidelines. In this regard, we appreciate the opportunity to address endangered species concerns in the planning of this project and look forward to your continued cooperation. Skip Ambrose (452-6785) or Dennis Money (263-3435) are available to further consult with you regarding the Peregrine Falcon and this project. A copy of the Endangered Species Act of 1973, as amended, will be forwarded to you under separate cover.

Sincerely,

Assistant Regional Director

cc: Strobelle, USFWS, Fairbanks
Grundy, Alaska Dept. of Fish and Game, Fairbanks

APPENDIX E

List of Preparers

Coordination and Supervision
Mike Tinker, Regional Environmental Coordinator

Organization and Text
Randy Horner, Environmental Section

Graphics
Belinda Swift, Environmental Section

Typing
Deborah Jernigan, Environmental Section

Project Description Information
Danny Johnson, Reconnaissance Section

Geological Information
Hal Livingston, Regional Geologist

Land Ownership Information
Burle Beard, Right of Way Section

In addition to the above Department of Transportation and Public Facilities personnel, the following individuals were contacted for specific corridor or project-related information:

U.S. Soil Conservation Service
Jim Vancura

U.S. Fish and Wildlife Service
Skip Ambrose
Dennis Money

Alaska Railroad
Ted Trueblood
Francis Weeks
Mike Sudal

Alaska Department of Fish and Game
- Matt Robus
- Dave Kellyhouse
- Larry Jennings
- Dave Johnson
- Dick Peckham
- Pam Bruce
- Al Townsend
- Jack Dietricson

Alaska Department of Natural Resources
- Les Fortune
- Frances Van Ballenberghe
- Rob Walkinshaw
- Chris Glenn
- Diana Rigg

Alaska Department of Environmental Conservation
- Tom Moyer

APPENDIX F

Document Circulation List

Federal Railroad Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

Alaska Railroad
P.O. Box 7-2111
Anchorage, Alaska 99510

Canadian Surface Transportation Administration
2760-200 Granville Street
Vancouver, B.C. V6C 1S4

U.S. Department of the Interior
Office of the Secretary
P.O. Box 120
Anchorage, Alaska 99501

Bureau of Land Management
Fairbanks District Office
P.O. Box 1150
Fairbanks, Alaska 99707

U.S. Department of the Interior
Fish and Wildlife Service
Northern Alaska Ecological Services
Room 110, Federal Building, Box 20
101 12th Avenue
Fairbanks, Alaska 99701

U.S. Department of the Interior
Fish and Wildlife Service
Western Alaska Ecological Services
733 W. Fourth Avenue, Suite 101
Anchorage, Alaska 99501

U.S. Fish and Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503

U.S. Department of The Interior
Bureau of Indian Affairs
101 12th Avenue
Box 16
Fairbanks, Alaska 99701

National Marine Fisheries Service
Alaska Region
P.O. Box 1668
Juneau, Alaska 99802

U.S. Forest Service
Institute of Northern Forestry
University of Alaska Campus
Fairbanks, Alaska 99701

Environmental Evaluation Branch
Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

Alaska Operations Office
Environmental Protection Agency
701 C Street, Box 19
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Federal Aviation Administration
5640 Airport Way
Fairbanks, Alaska 99701

U.S. Army Corps of Engineers
Alaska District
P.O. Box 7002
Anchorage, Alaska 99510

U.S. Customs Service
620 E. Tenth Avenue
Anchorage, Alaska 99501

Seventeenth Coast Guard District
P.O. Box 3-5000
Juneau, Alaska 99802

Post Commander
Fort Wainwright, Alaska 99707

Base Commander
Eielson A.F.B.
Eielson, Alaska 99702

Post Commander
Fort Greely, Alaska 98733

State of Alaska
Office of the Governor
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Alaska Office of the Governor
Division of Policy Development
and Planning
Pouch AD
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Alaska Department of Commerce
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Division of Tourism
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Department of Environmental Conservation
Box 1601
Fairbanks, Alaska 99701

Habitat Division
Department of Fish and Game
1300 College Road
Fairbanks, Alaska 99701

Alaska Department of Natural Resources
Division of Parks
619 Warehouse Drive, Suite 210
Anchorage, Alaska 99501

Office of History and Archeology
State Historic Preservation Office
619 Warehouse Drive, Suite 210
Anchorage, Alaska 99501

Division of Geological and
Geophysical Survey
P.O. Box 90007
College, Alaska 99708

State of Alaska
Department of Natural Resources
Division of Land and Water Management
4420 Airport Road
Fairbanks, Alaska 99701

City of Fairbanks
410 Cushman Street
Fairbanks, Alaska 99701

Tok Chamber of Commerce
P.O. Box 389
Tok, Alaska 99780

Fairbanks North Star Borough
P.O. Box 1267
Fairbanks, Alaska 99707

City of Delta Junction
P.O. Box 229
Delta Junction, Alaska 99737

Fairbanks Chamber of Commerce
550 First Avenue
Fairbanks, Alaska 99701

Tanana Chiefs Conference, Inc.
320 Second Avenue
Fairbanks, Alaska 99701

Dot Lake Village Corporation
P.O. Box 441
Tok, Alaska 99780

Doyon Limited
201 First Avenue
Fairbanks, Alaska 99701

Tetlin Indian Corporation
Tetlin Village
Tetlin, Alaska 99779

Interior Village Association
127½ Minnie Street
Fairbanks, Alaska 99701

Tanacross Village Corporation
Tanacross, Alaska 99776

Healy Lake Village Corporation
Healy Lake, Alaska 99727

Alyeska Pipeline Service Company
Pouch 60290
Fairbanks, Alaska 99706

Northwest Alaskan Pipeline Company
1001 Noble Street
Fairbanks, Alaska 99701

Golden Valley Electric Association
P.O. Box 1249
Fairbanks, Alaska 99707

Alascom, Inc.
949 East 36th Avenue
Anchorage, Alaska 99502

Sitka Telephone Company
P.O. Box 257
Sitka, Alaska 99835

Glacier State Telephone Company
P.O. Box 55129
North Pole, Alaska 99705

Alaska Power and Telephone Company
Box 222
Port Townsend, Washington 98368

Interior Woodcutters Association
P.O. Box 73762
Fairbanks, Alaska 99707

Northern Environmental Center
218 Driveway Street
Fairbanks, Alaska 99701

APPENDIX G

Impacted Wetlands

Approximate Milepost	Wetland	Impact
4	Twenty-three Mile Slough	bridge crossing
8	Twenty-three Mile Slough	bridge crossing
11-14	Piledriver Slough (4)	bridge crossings
14-15	Unnamed drainages (2)	culvert crossings
18	Unnamed drainage	culvert crossing
19	Unnamed drainage	culvert crossing
20	Salcha River	bridge crossing
25	Tanana River	bridge crossing
25-28	Unnamed drainages (10)	culvert crossings
29-30	Unnamed drainages (4)	culvert crossings
31	Unnamed drainage	culvert crossing
35	Unnamed drainage	culvert crossing
38	Little Delta River	bridge crossing
39	Unnamed drainage	culvert crossing
44	Unnamed drainages (2)	culvert crossings
45-48	Unnamed drainages (6)	culvert crossings
50	Unnamed drainages (2)	culvert crossings
53	Delta Creek	bridge crossing
54	Unnamed drainage	culvert crossing
59	Clear Creek	bridge crossing
61	Clear Creek	bridge crossing
75	Delta River	bridge crossing
86	Unnamed drainage	culvert crossing
89	Unnamed drainages (2)	culvert crossings
90	Unnamed drainage	culvert crossing
91	Granite Creek	bridge crossing
92	Unnamed drainage	culvert crossing
93	Rhoads Creek	bridge crossing
97	Sawmill Creek	bridge crossing
109	Gerstle River	bridge crossing
111	Unnamed drainage	culvert crossing
113	Little Gerstle River	bridge crossing
114	Unnamed drainage	culvert crossing
121	Johnson River	bridge crossing
123	Dry Creek	bridge crossing
124	Unnamed drainage	culvert crossing
126	Sears Creek	bridge crossing
128	Unnamed drainages(2)	culvert crossings
129	Berry Creek	bridge crossing
132	Unnamed drainages (2)	culvert crossings
135	Unnamed drainage	culvert crossing
137	Unnamed drainage	culvert crossing
139	Unnamed drainages (2)	culvert crossings
141	Unnamed drainage	culvert crossing

Approximate Milepost	Wetland	Impact
142	Chief Creek	bridge crossing
144	Bear Creek	bridge crossing
155	Robertson River	bridge crossing
158	Unnamed drainages (2)	culvert crossings
159	Unnamed drainage	culvert crossing
160	Sheep Creek	bridge crossing
161	Unnamed drainage	culvert crossing
162	Cathedral Rapids Creek No. 3	bridge crossing
163	Cathedral Rapids Creek No. 2	bridge crossing
164	Cathedral Rapids Creek No. 1	bridge crossing
166	Unnamed drainage	culvert crossing
168	Unnamed drainages (2)	culvert crossings
170	Yerrick Creek	bridge crossing
171	Unnamed drainage	culvert crossing
192	Unnamed drainage	bridge crossing
194	Tok River	bridge crossing
198	Unnamed drainage	culvert crossing
200	Tanana River	bridge crossing
205	Unnamed drainage	culvert crossing
207	Unnamed drainage	culvert crossing
208	Unnamed drainage	culvert crossing
209	Unnamed drainage	culvert crossing
211	Unnamed drainages (2)	culvert crossings
213	Unnamed drainages (2)	culvert crossings
219	Ladue River	bridge crossing
220	Ladue River	bridge crossing
224	Ladue River	bridge crossing
225	Unnamed drainage	bridge crossing
230	Unnamed drainage	bridge crossing
233	Unnamed drainage	bridge crossing
234-235	Unnamed drainages (2)	bridge crossings
237	Unnamed drainage	culvert crossing
238	Unnamed drainages (2)	culvert crossings
241	Unnamed drainage	bridge crossing
243	Unnamed drainage	culvert crossing
245	Ladue River	bridge crossing
245	Unnamed drainage	culvert crossing
246	Ladue River	bridge crossing
247	Unnamed drainage	culvert crossing
248	Unnamed drainage	bridge crossing
249	Unnamed drainage	culvert crossing
250	Unnamed drainage	culvert crossing
251	Unnamed drainage	bridge crossing
253	Unnamed drainages (3)	culvert crossings

Approximate Milepost	Wetland	Impact
255	Chicken Creek	bridge crossing
256	Unnamed drainage	culvert crossing
257	Unnamed drainage	culvert crossing
258	Unnamed drainage	culvert crossing
259	Unnamed drainage	bridge crossing
260	Unnamed drainage	culvert crossing
261	Unnamed drainage	culvert crossing
262	Unnamed drainage	culvert crossing
263	Unnamed drainage	culvert crossing
265	Unnamed drainage	culvert crossing
267	Unnamed drainage	culvert crossing
268	Unnamed drainage	culvert crossing
269	Unnamed drainage	culvert crossing
270	Unnamed drainage	culvert crossing

It is probable that the project would also impact other presently unidentified wetland areas where saturated soil conditions exist despite the absence of visible flowing surface water.