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CS FOR HOUSE BILL NO. 182()
IN THE LEGISLATURE OF THE STATE OF ALASKA
EIGHTEENTH LEGISLATURE - SECOND SESSION

BY

Offered:

Referred:

Funding Information:	General Fund	\$7,300,000
	Other Funds	<u>-0-</u>
		\$7,300,000

Sponsor(s): REPRESENTATIVES JAMES, Mulder

A BILL

FOR AN ACT ENTITLED

1 "An Act making a special appropriation to the Department of Transportation and
 2 Public Facilities for identification and delineation of a transportation and utility
 3 corridor between Fairbanks and the Seward Peninsula; and providing for an
 4 effective date."

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

6 * Section 1. The sum of \$7,300,000 is appropriated from the general fund to the
 7 Department of Transportation and Public Facilities for reconnaissance photography and study
 8 and for right-of-way mapping in conjunction with identifying and delineating a transportation
 9 and utility corridor between Fairbanks and the Seward Peninsula.

10 * Sec. 2. The unexpended and unobligated portion of this appropriation lapses into the
 11 general fund June 30, 1996.

12 * Sec. 3. This Act takes effect immediately under AS 01.10.070(c).

Alaska State Legislature

REPRESENTATIVE
JEANNETTE JAMES
P.O. Box 56622
North Pole, Alaska 99705
(907) 488-0862

House District 34



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White in Juneau
State Capitol
Juneau, Alaska
99801-1182
(907) 465-3745

House Of Representatives

Sponsor Statement HB 182 & HB 183

By Rep. Jeannette James
Revised: 3/30/93

HB 182 and HB 183 are intended to initiate preliminary and ultimately result in final action necessary to properly review, identify and survey the best options for the establishment of a transportation/utility corridor from the Interior's existing transportation distribution hub to the western area of the Seward Peninsula near Nome.

The future of Alaskans residing north of the Alaska Range will require expansion of our existing transportation infrastructure. With the recent completion by the State of Alaska of its remaining land selection allotment, the major land ownership patterns are now discernable.

This legislation will direct the Dept. of Transportation to perform aerial reconnaissance, photography, interpretation and surveying. The DOT in the attached position paper supports this work. This work will identify areas with transportation corridors to be established and which offer the best cost effective options to access this vast resource rich area of our state.

The appropriation for this project is included in HB 182 and will authorize the expenditure of the funds necessary to secure this very important multi-modal land use transportation corridor as a step that will move us forward to a more positive economic future for a very large portion of Alaska.



*Department of Transportation
and Public Facilities*

POSITION PAPER

BILL NO: HB 182

APPROVED:

A handwritten signature in black ink, appearing to read "J. Durkin".

TITLE: Approp: Fairbanks-Nome
Transportation Corridor

DATE: March 3, 1993

DOT&PF supports the proposed reconnaissance work in that the information gained from it would be valuable in related land management decisions (i.e., it could help prevent land management decisions from foreclosing on transportation options). The information gained could also be incorporated into long-term transportation planning for interior and Western Alaska.

For Further Information contact Katy McHugh at 465-3904.

STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

CHIEF OF PLANNING AND ADMINISTRATIVE SERVICES

HB 182

WALTER J. HICKEL, GOVERNOR

FISCAL
ANALYSIS

2301 PEGASUS ROAD
FAIRBANKS, ALASKA 99709-5316
PHONE: (907) 451-5150

December 23, 1992

Re: Fairbanks-Seward Peninsula
Railroad Extension

Red Swanson
113 W. 5th Street
Juneau, AK 99801

Dear Mr. Swanson:

The following information is in response to your December 23, 1992 inquiry regarding the estimated cost for reconnaissance work to identify an alignment for railroad extension to the Seward Peninsula. We did a similar estimate in 1980 based on what it had cost us for comparable work between Eielson Air Force Base and the Canadian Border. The following figures reflect that estimate, updated to take into account inflation, technological advances, a substantial increase in length, and the relatively remote nature of new corridor. The estimate is based on a distance of 875 miles from Fairbanks to Lost River through Tanana, Allakaket and Bornite. While that may, or may not, be the ultimate alignment, it appears to be representative of the relative length of any possible alignment from Fairbanks to the Western Seward Peninsula.

Cost Breakdown

Reconnaissance Photography	\$75,000
-topo map work to identify alignment(s)	
-color photography of an entire route including alternate routes over 50% of its length	
Reconnaissance Study	\$90,000
-photo interpretation	
-some fieldwork	
-selecting a route for mapping	
-compile preliminary report	
Reconnaissance Subtotal	<u>\$165,000</u>

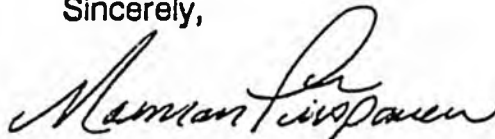
(This is as far as we could go without performing on-the-ground work. It would be adequate for identifying a corridor. It would not be adequate for identifying right of way limits. The following steps would be required for defining the necessary right of way. The estimated costs do not include environmental work that could be required for ground work, especially on park and refuge lands.)

Placing photo control panels on ground (assumes all work done with helicopters).	\$920,000
Aerial photography for mapping.	\$85,000
Control survey for mapping (assumes consultant contract).	\$5,000,000
Selecting center line for mapping -a study of the mapping photos -some field work	\$100,000
Mapping a 500 foot band for 875 miles.	\$840,000
Placing a final center line on mapping	\$160,000
Defining the right of way along the selected center line. -ties to section corners and property corners -property descriptions, etc.	\$50,000
Right of Way Mapping Subtotal	<u>\$7,135,000</u>
Total Cost of Reconnaissance/Location Project (not including Environmental document).	<u>\$7,300,000</u>

As you see, the cost of work that could be done to identify a corridor, without getting on the ground, is relatively small (\$165,000). On the other hand, delineation of right of way limits would cost substantially more and would involve actual ground work.

Please contact me if you have questions regarding either the cost estimate or the reconnaissance/location process.

Sincerely,



Norm Piispanen
Access Planner
Northern Region



BERING STRAITS NATIVE CORPORATION

March 30, 1993

The Honorable Richard Foster
Alaska State Representative
State Capitol
Juneau, AK 99811

Dear Representative Foster,

The Bering Straits Native Corporation (BSNC) has received a copy of House Bill number 182 and 183 concerning the funding and identification and delineation of a transportation and utility corridor between Fairbanks and the Seward Peninsula.

BSNC favors the allocation of funding for this project. However, HB 183 would as currently worded allow the State Department of Transportation and Public Facilities authority to acquire rights of way across land within the "corridor". BSNC advocates a lease agreement rather than condemnation.

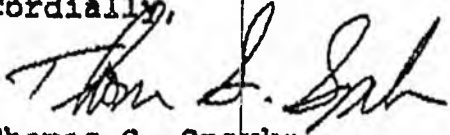
While BSNC favors the above noted bills, action would be needed by our Board of Directors on BSNC's stance of the actual building of a corridor between Fairbanks and the Seward Peninsula.

While much benefit may be derived from such a corridor, there are many questions as to its potential impact of the subsistence cash economy which currently exists in BSNC's villages. BSNC does not advocate any project that will negatively impact the subsistence economy of our villages.

BSNC believes that the State must devote funds to study and delineate a corridor and identify the known and potential mineral occurrences along such a route. If and when such a project is financially feasible and supported by the people of the BSNC region, the majority of the initial preliminary work would be completed by passage of the above noted bills.

At the appropriate time, please contact BSNC for action by its Board of Directors for a policy statement on the actual development of a transportation corridor between Fairbanks and the Seward Peninsula.

Cordially,



Thomas S. Sparks
Resource Development Specialist

cc: BSNC Village Corporations
Mr. Jack Carpenter, President
Mr. Guy Martin, Land Manager

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ALASKA MINERS ASSOCIATION, INC.
NOME BRANCH
P.O. BOX 1974
NOME, ALASKA 99762

March 1, 1993

Senator Bert Sharp
Room 514
State Capitol
Juneau, Alaska 99801-1182

and

Senator Mike Miller
Room 423
State Capitol
Juneau, Alaska 99801-1182

Dear Senators,

We have reviewed Senate Bill No. 130 and 131 in reference to studies for transportation systems from Fairbanks to the Seward Peninsula. We support the idea behind these bills, and would like to provide input to the DOTPF before the preliminary report is finalized.

We feel that access is necessary to resource development on lands within the state and the Seward Peninsula has much to offer.

If you have any comments, please call me at 443-2632.

Thanks kindly.

Sincerely,



Irene Anderson
Chair

cc: Senator Al Adams
Representative Richard Foster

WESTERN ARCTIC COAL

the Alaska Miner

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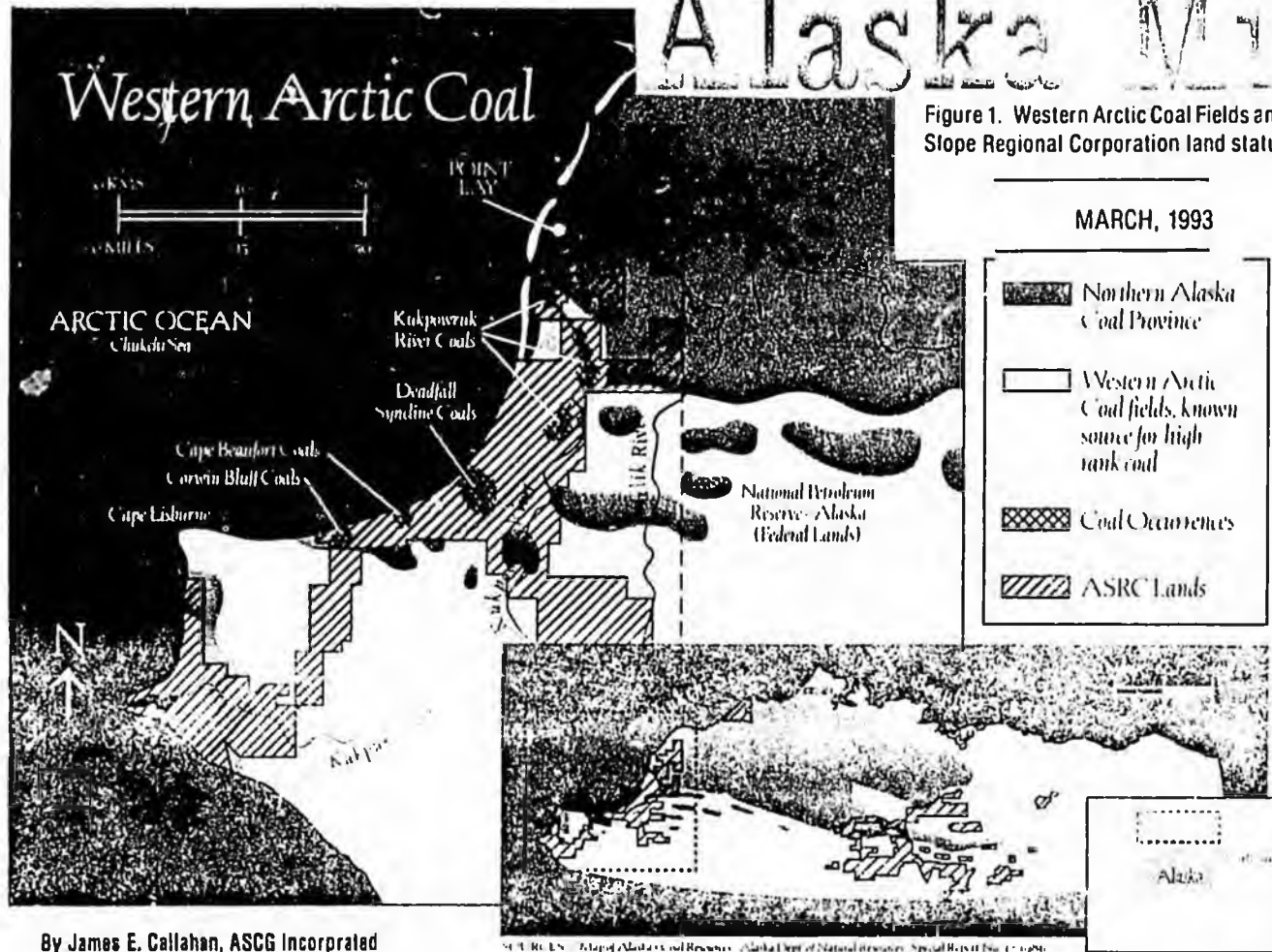


Figure 1. Western Arctic Coal Fields and Arctic Slope Regional Corporation land status.

By James E. Callahan, ASCG Incorporated
 Steve W. Denton, Denton Civil & Mineral
 Teresa A. Imm, ASCG Incorporated

INTRODUCTION

Located in northern Alaska is the Northern Alaska Coal Province (NACP), one of the largest coal provinces in the world. The NACP underlies approximately 30,000 square miles and extends 300 miles eastward from the Chukchi Sea. At the western end of the NACP lies the Western Arctic Coal Fields which contain hypothetical reserves of three billion tons of clean-burning, high-rank coal. The Western Arctic Coal Fields (figure 1), which lies outside the National Petroleum Reserve-Alaska boundary, is owned in large part by a private corporation, Arctic Slope Regional Corporation (ASRC). ASRC holds title to both surface and subsurface land and is working actively to market its coal deposits to the world.

GEOLOGY

Substantial bituminous coal resources are present in the Corwin Formation of the Nanushuk Group of Cretaceous age on the Arctic Slope of Alaska. The Corwin is a progradational fluvio-delta plain type deposit which thins in a southwest to northeast direction, from Corwin Bluffs reaching a zero edge south and southwest of Barrow. The

maximum measured thickness is in the type section at Corwin Bluff, where Chapman and Sable (1960) measured a 15,000 foot section. This figure was revised to 11,000 feet by Smiley (1969), based on repetition of floral zones resulting from faulting within the section. Elsewhere, large thicknesses of the upper part of the formation have been removed as a result of post-depositional uplift, deformation and erosion in the northern foothills belt of the Brooks Range. As a consequence of deep burial and subsequent exposure, the best quality coals (i.e., with the greatest heating value) are exposed in the foothills, in broad east-west trending synclinal basins separated by complexly faulted anticlinal belts. In the present Arctic Coastal Plain of the National Petroleum Reserve-Alaska (NPPRA), near surface coals exhibit a steadily decreasing trend in heating values northward from the foothills toward the shoreline.

In the foothills of the western Arctic, west of NPPRA, relatively detailed investigations specifically oriented to evaluation of coal resources have focused on three areas: The Kukpowruk River, Cape Beaufort, and the Deadfall Syncline. On the Kukpowruk River about 30 miles from Point Lay, a 23 foot coal is exposed in the south limb of the Howard

Syncline. This coal has been extensively drilled and sampled in the immediate vicinity of the cutbank exposure, by private interests and by the U.S. Bureau of Mines (USBM) and the U.S. Geological Survey (USGS). However, information on its lateral extent and continuity is limited, particularly to the east. At Cape Beaufort, in the onshore portion of a synclinal basin, about 7,500 feet of the Corwin formation is present. The USBM and USGS conducted drilling and trenching operations in that area to evaluate several promising coals during the 1960's and 1970's. In 1982, exploratory work sponsored by the State of Alaska was begun on private lands of ASRC in the Deadfall Syncline northeast of Cape Beaufort.

At Cape Beaufort, the thickest known coal reaches a maximum thickness of approximately 17 feet, but it contains a thick zone of clay partings interbedded with high ash coal. Several other coal seams reach a thickness of 11 feet, these contain numerous clay partings and a high ash "bony" zone. One 11 foot seam appears to be free of thick partings and maintains its thickness for three miles or more along strike. However, dip angles along the southeast flank of the basin increase fairly rapidly from a minimum of about 15 degrees on the northeast to over 50 degrees at the

southwest end of the syncline. Dip angles also increase quite rapidly downsection in the coal-bearing part of the Corwin Formation. These conditions are less favorable for conventional surface or underground mining.

It is the Deadfall syncline that currently holds the most promise for near-term development. The western extension of the Deadfall Syncline contains 7,000-8,000 feet of Corwin Formation, and known coals are generally comparable in thickness and quality to those coals at Cape Beaufort and the Kukpowruk River, with the added advantage of lower dip angles and dip-slope topography. Reconnaissance drilling funded by the State of Alaska in 1983 confirmed the presence of several thick coals in the axial plunge area of the basin. Exploratory work continued in 1984 by Howard Grey and Associates for Arctic Slope Consulting Engineers at both Cape Beaufort and the Deadfall Syncline. The purpose of the program was to evaluate sites for development of a small scale mining operation to provide coal as a substitute for fuel oil in western Alaska. Based on the 1984 work and preceding investigations, the Deadfall area was selected. In August, 1991, additional exploratory drilling was initiated by the Arctic Slope Consulting Group for the purpose of identifying a block of minable reserves large enough to develop for export. This included drilling to confirm the continuity and quality of an 18+ foot coal seam, and relatively deep drilling up- and down-section to begin to assemble a complete stratigraphic record through the coal-bearing section.

In the Deadfall Syncline, the thickest known coal seam, the K3 seam, reaches a maximum thickness of 18 feet. This maximum occurs near the axis of the syncline, where dips are less than 10 degrees over a broad area. Several other coals occur in the same part of the stratigraphic section at Deadfall Syncline. Two of these coal seams are found lower in the section, than the thick K3 seam, and reach thicknesses of greater than eight feet and 12 feet respectively on the north flank of the basin. The project area covers approximately 10% of the eastern end of the syncline (figure 2). Over 100 shallow to moderately deep (750 foot maximum) boreholes, as well as numerous auger holes have been drilled in the project area (figure 3). Drilling on the east end of the syncline has been used to establish the reserve base for future mining in the area. Recent boreholes have been logged using natural gamma and gamma density tools. These tools provide good resolution in coal beds and indicate the lithology of over- and underburden rocks (figure 4).

COAL QUALITY

The apparent rank of most unweathered samples of Nanushuk coals from the foothills basins of the central and western Arctic is high-volatile A to C bituminous, with heating

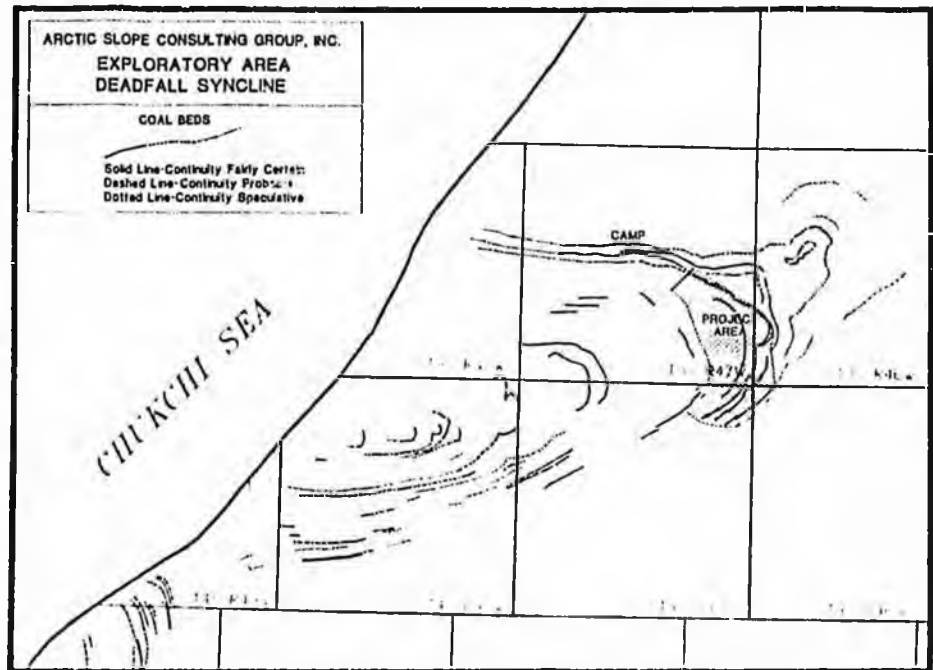


Figure 2 Exploration Area, Deadfall Syncline, Western Arctic Coal Project.



Figure 3. Winter drilling operations at Deadfall Syncline.

values often exceeding 13,000 BTU's on a moist, mineral matter-free basis. Moisture contents are generally less than 7% for samples taken at depths of greater than thirty feet. Full seam ash contents vary, depending on the

number and thickness of partings, but the inherent ash contents (excluding partings) are generally less than 10%.

The K3 seam at Deadfall Syncline appears exceptionally clean, with a full-seam as-received weighted average ash content of about 6%. If a four foot, relatively high ash zone (14%) found at the top of the K3 seam, is excluded the remaining 13-14 feet averages less than 4%. Percent sulfur of the K3 coal seam ranges from .14% to .39% averaging .23% (figure 5). Analysis of samples from typical boreholes at Deadfall Syncline shows that the coal is an excellent steam coal and is suitable as a blending coal in the formation of coke. Sulfur dioxide emissions are less than a quarter(1/4) of the U.S. Environmental Protection Agency's standard of 1.2 pounds per million BTU's.

COAL QUALITY SEAMS K1, K3, AND K4*

	K1	K3(1200)	K4
Moisture	172	326	320
Ash	2039	721	421
Heating Value (Btu/lb)	11,068	13,078	13,662
Total Sulfur	0.23	0.23	0.25
Rank	---	High Volatile A Bituminous	High Volatile A Bituminous

* RESULTS FROM 1991 EXPLORATORY DRILLING PROGRAM

Figure 5. Table of coal quality analyses of coals in the Deadfall Syncline.

DEVELOPMENT PLANS

Development of the western Arctic coal resources will be a challenge, but should be relatively straight forward. The only significant impediment to development, that has been identified to date, is the necessity to deal with the arctic climate of the Chukchi Sea. The long

Continued on page 17

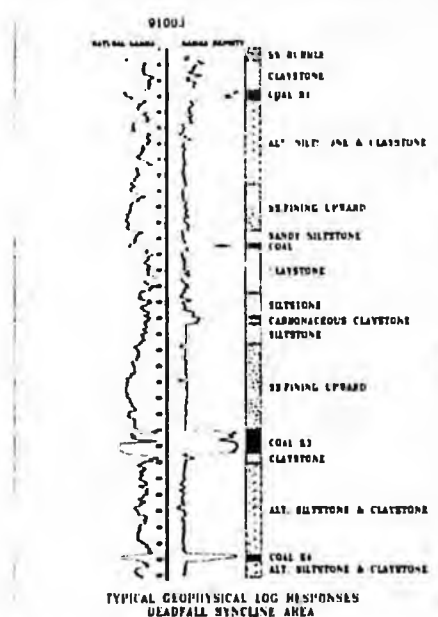


Figure 4. Typical geophysical log responses of coal seam within the Deadfall Syncline.

ice bound season and the heavy dependence of local residents on beluga whales for subsistence during the open water season are an impediment to shipping. However, the very factors which create these hurdles to development have a positive side.

Ledyard Bay, the nearest water body, is protected from the severe ice forces that create the immense pressure ridges typically associated with the Arctic Ocean. This opens up the potential of winter time operations for ice breakers and reduces the risks associated with building structures, such as offshore conveyors. The short open water season means that the time window for whale migration past the site is brief and mitigating impacts on them should be easily achievable.

Although the site is remote, the nearest national parks lands are approximately 50 miles away and national interest land impacts should not be an issue during development of this resource. The Deadfall Syncline is located in the foothills and impacts to coastal plains wetlands will be limited to those associated with the transportation system. Development of the western Arctic coal field can be accomplished in a fashion that will result in a very low level of adverse impact to the local environment. An Alaska Surface Coal Mining Permit has recently been issued for a small demonstration mine on the north limb of the syncline for extraction of 50,000 tons over a five year period.

Mining in the western Arctic coal field is expected to be more conventional than it will be unique. Although winters are long, the severity of the weather is moderated by proximity to the ocean. Minimum temperatures are higher than those experienced by Usibelli Coal Mine at Healy and the experience of the Red Dog Mine points to the likelihood that the western Arctic coals can be mined year round, with very little productivity loss due to weather. Pilot scale surface mining operations, that have been conducted to date, have shown that work can proceed during the full range of seasons and that typical surface mining practices for drilling, blasting and excavating can be employed. Because the area is within an "Arctic desert" zone, volumes of water that must be handled have been low and untreated water quality from the mine pit has been good.

Underground mining has not been studied to the same degree as surface mining, due to local availability of personnel trained in the use of surface-type mining equipment. However, the thickness, quality, continuity and structural simplicity of the deposit suggests that high efficiency underground mining should be well suited to many of the deposits. The major effects of weather will be mitigated by underground mining and environmental impacts would be reduced. However, the effect of permafrost on the behavior of rock types in the formation is largely unknown. We have identified only one coal mine in Spitsbergen, Norway as a possible analogue for underground mining in a permafrost environment. Therefore, large scale mechanized underground mining will probably be preceded by conventional surface and underground mining methods.

REFERENCES

- Chapman, R.M., and Sable, E.G., 1960, Geology of the Utukok-Corwin region, northwestern Alaska - Exploration of Naval Petroleum Reserve No. 4 and adjacent areas, northern Alaska, 1944-1953, Pt 3, Area geology: U.S. Geological Survey Prof. Paper 303-C.
- Smiley, C.J., 1969, Floral zones and correlations of Cretaceous Kupuk and Corwin Formations, northwestern Alaska: AAPG Bulletin., v. 53, no. 10, pt. 1, p. 2079-2093. 4

Report Recd:

3/30/93

From: Mark Hickey

ALASKA RAILROAD CORPORATION CORRIDOR PROFILES

STATE OF ALASKA LANDS SELECTION PROJECT

INITIAL SUBMISSION

SUBMITTED BY:

**ROBERT S. HATFIELD, JR.
PRESIDENT & CEO
ALASKA RAILROAD CORPORATION**

OCTOBER 16, 1991

ALASKA RAILROAD CORPORATION CORRIDOR PROFILES

STATE OF ALASKA LANDS SELECTION PROJECT

INITIAL SUBMISSION

INTRODUCTION

The Alaska Railroad Corporation (ARRC) has prepared this package of corridor profiles for use by the Access Corridors Steering Committee. The information identifies thirteen separate corridors that may be needed for railroad extensions, or new, unconnected rail systems. The ARRC has reviewed its own files and other known information in the time available to prepare a summary of the most likely corridors that may be needed, or the most prominent routes identified for rail transportation purposes that may be valuable from a multi-use perspective.

Considerable work has been done over the last eighty years by primarily federal and state agencies to identify and locate possible rail expansion routes. The ARRC has attempted to sift through that body of information and present those corridors worthy of further scrutiny by the Access Corridors Steering Committee.

This is not an all inclusive list of every route or corridor ever identified for rail purposes. Nor is it intended to serve as a definitive statement, since there may be new, unidentified extension proposals worth assessment. No attempt has been made to prioritize as yet these routes from a rail perspective. It should also be noted that mere inclusion in this package is not meant to suggest that all or most of these routes will be needed for rail purposes.

Some of the corridors have been included because they could serve as major multi-modal transportation corridors connecting different areas of Alaska (e.g., the line to the Seward Peninsula; the Kuskokwim Extension). Others are included because they continue to remain as higher priority rail expansion prospects that may need to be developed (e.g., Nenana to Kobuk/Bornite/Ambler; Palmer North). Others have been included because considerable engineering information exists establishing the corridor's location irrespective of current justification for need (e.g., the North Slope Extension; the Canadian Border Extension).

Based on discussions with staff from the Office of the State Pipeline Coordinator, it was decided to submit more corridors than might have otherwise been the case so they would have the benefit of the available data. The ARRC does not expect or recommend that state land selections be pursued for any or all of these corridors on the basis of this submission. Clearly there are a number of issues and policy considerations to be addressed by the entire Steering Committee to determine the best course of action for the state's limited selection options.

LIST OF CORRIDORS

The following list depicts the individual corridors included in the submission, with some indication whether the corridor has some engineering data to support location, versus merely a conceptual proposal.

<u>Corridor Number</u>	<u>Title</u>
001	Nenana to Tanana (Yukon River)
002	Tanana to Kobuk/Bornite/Ambler Mining District
003	Tanana to Deadhorse Airport
004	Tanana to Port Clarence (Teller), Seward Peninsula
005	Kobuk/Bornite to Cape Lisburne/Thetis Mine
006	Eielson Air Force Base to the Canadian Border
007	Western Alaska Routes*
008	Kuskokwim Extension
009	Kuskokwim Drainage Route*
010	Point Mackenzie Extension Beluga Coal Field Extension*
011	Palmer to Matanuska Coal Fields
012	Fire Island Extension
013	Kenai/Nikiski Extension*

(NOTE: * Indicates corridors that are conceptual in nature, with little or no engineering data or activity to support actual route location.)

PROFILE INFORMATION

Each corridor profile sheet includes information identifying the route's general alignment (if available); mileage estimate; survey information establishing location; recommended corridor width if known; whether material sites have been identified and located; the source document and other reconnaissance or survey studies supporting the recommended corridor; alternate alignments; and the location of plan and profile sheets if known.

Each corridor included has been developed as a stand-alone rail extension proposal. This means there is a minimal amount of overlap between some of the corridors identified. For example, Nenana to Tanana has been identified as a potential rail extension, and been presented as a stand-alone proposal in this package. There are several, additional routes that use the Nenana to Tanana extension as the first leg of a longer extension (e.g., Tanana to Deadhorse Airport; Tanana to Kobuk/Bornite/Ambler). These extensions share a common alignment from Tanana to Alatna. Portions of a corridor such as the Tanana to Alatna route have not been depicted as a stand-alone corridor however, since that route would not be useful for rail purposes except as part of one of these longer extension proposals.

MAPPING

As noted previously, there is little or no engineering data or activity to support a precise location for several routes. Additional maps with greater detail can be provided by ARRC engineering staff for many of these corridors if that proves necessary. In most cases, it will be possible to perform this work at the desired scale of 1:250,000.

ALASKA RAILROAD CORPORATION CORRIDOR PROFILE

STATE OF ALASKA LANDS SELECTION PROJECT

Corridor Identification Number: 001.

Corridor Title: Nenana to Tanana (Yukon River).

Route Description/Alignment: The line leaves the existing railroad near Nenana and heads west and north to the Yukon River. Leaving Nenana the line passes just north of Black Bear Lake, then uses the Tanana River Valley to the Yukon River. Round Point, which is between the mouths of the Tanana and Tozitna Rivers, is the Yukon River crossing location. A major bridge of about 3,600 feet would be required.

Mileage: 120 to 125 miles.

Survey Information: Location based on controlled preliminary survey using state-of-the-art air photo interpretation, with additional air and ground reconnaissance. Control points were established in the field to 3rd order accuracy. Plan and profile drawings were prepared with a horizontal scale of 1" = 800' and a vertical scale of 1" = 80'. Air photo interpretation was based upon the U.S. Geological Survey photos of the area taken in the early and mid-1950's. Accuracy is limited by the base maps used (i.e. USGS quadrangle sheets at scales of 1:63,360 and 1:250,000 with contour intervals of 50 to 200 feet). These scales translate as 1-inch to 1-mile and 1-inch to 4 miles.

Recommended Corridor Width: 5-mile wide band based on aerial photography.

Material Sites Identified/Located: Yes.

Source Document(s): *Alaska Transportation Corridor Study*; Tudor-Kelly-Shannon Engineering Consultants; 1970 (performed for the Federal Highway Administration; U.S. Department of Transportation).

Other Corridor/Reconnaissance Studies:

- * *Richardson Reconnaissance and Survey for a Land Route from Fairbanks to Council City, Alaska*; U.S. Army; 1906 (general reconnaissance with some rail consideration).
- * *Railroad Routes in Alaska*; Alaska Railroad Commission; 1913 (major U.S. government railway route assessment).
- * *Army Reconnaissance for Railroad or Highway West of Fairbanks*; U.S. Army; June 1942 (major assessment of several east/west corridors).
- * *Berryhill Report*; U.S. Army; 1943 (rail route location survey - Dunbar to Port Clarence via Tanana).

- * *Report on Location Investigation for the Northerly Extension of the Alaska Railroad from Nenana to the Yukon River in Vicinity of Rampart Dam Site (Dalton Study); NORTH Commission; 1968 (Nenana to Tanana/Yukon River winter field reconnaissance survey).*

Alternate Alignment/Route(s):

- * *Dunbar to Tanana (Alaska Transportation Corridor Study; Berryhill Report; and Dalton Study).*
- * *Fairbanks to Yukon River (Richardson Reconnaissance and Survey for a Land Route from Fairbanks to Council City, Alaska; Railroad Routes in Alaska; and Army Reconnaissance for Railroad or Highway West of Fairbanks).*

Location of Plan & Profile Sheets: Engineering Department; Alaska Railroad Corporation.

ALASKA RAILROAD CORPORATION CORRIDOR PROFILE

STATE OF ALASKA LANDS SELECTION PROJECT

Corridor Identification Number: 002.

Corridor Title: Tanana to Kobuk/Bornite/Ambler Mining District.

Route Description/Alignment: The line heads north from the Yukon River crossing at Round Point via the Tozitna and Mentanontli River Valleys passing near Norseman and Todatonten Lakes to the Koyukuk River at Alatna. The route then heads westward through the flood plain of the Alatna River, passing south of Norutak Lake and on into the Kobuk River Valley, ending at the Dahl Creek Airstrip near Kobuk.

Mileage: 273 miles.

Survey Information: Location based on controlled preliminary survey using state-of-the-art air photo interpretation, with additional air and ground reconnaissance. Control points were established in the field to 3rd order accuracy. Plan and profile drawings were prepared with a horizontal scale of 1" = 800' and a vertical scale of 1" = 80'. Air photo interpretation was based upon the U.S. Geological Survey photos of the area taken in the early and mid-1950's. Accuracy is limited by the base maps used (i.e., USGS quadrangle sheets at scales of 1:63,360 and 1:250,000 with contour intervals of 50 to 200 feet). These scales translate as 1-inch to 1-mile and 1-inch to 4 miles.

Recommended Corridor Width: 5-mile wide band based on aerial photography.

Material Sites Identified/Located: Yes.

Source Document(s): *Alaska Transportation Corridor Study*; Tudor-Kelly-Shannon Engineering Consultants; 1970 (performed for the Federal Highway Administration; U.S. Department of Transportation).

Other Corridor/Reconnaissance Studies:

- * *Army Reconnaissance for Railroad or Highway West of Fairbanks*; U.S. Army; June 1942 (major assessment of several east/west corridors).
- * *Berryhill Report*; U.S. Army; 1943 (rail route location survey - Dunbar to Port Clarence via Tanana).
- * *Report of the NORTH Commission*; the NORTH Commission; June 1970 (report did not analyze specific routes except Nenana to Tanana).

Alternate Alignment/Route(s):

- * Dunbar to Bornite via Tanana and Kobuk (*Army Reconnaissance for Railroad or Highway West of Fairbanks; Berryhill Report*).
- * Dunbar to Bornite via Bettles (*Alaska Transportation Corridor Study*).

Location of Plan & Profile Sheets: Engineering Department; Alaska Railroad Corporation.

ALASKA RAILROAD CORPORATION CORRIDOR PROFILE

STATE OF ALASKA LANDS SELECTION PROJECT

Corridor Identification Number: 003.

Corridor Title: Tanana to Deadhorse Airport.

Route Description/Alignment: The line heads north from the Yukon River crossing location at Round Point via the Tozitna and Mentanontli River Valleys passing near Norseman and Todatonten Lakes to the Koyukuk River at Alama. The route then continues east and north along the Koyukuk River past Bettles and Coldfoot and up the Dietrich River to Dietrich Pass and the Chandalar Shelf in the Brooks Range. The line crosses the mountains using a 4.25 mile tunnel. Beyond the mountains, the route would move through the Atigun River Valley, across a 100-mile stretch of arctic plain, and along the Toolik and Sagavanirktok Rivers, terminating at the Deadhorse Airport near Prudhoe Bay.

Mileage: 461 miles.

Survey Information: Location based on controlled preliminary survey using state-of-the-art air photo interpretation, with additional air and ground reconnaissance. Control points were established in the field to 3rd order accuracy. Plan and profile drawings were prepared with a horizontal scale of 1" = 800' and a vertical scale of 1" = 80'. Air photo interpretation was based upon the U.S. Geological Survey photos of the area taken in the early and mid-1950's. Accuracy is limited by the base maps used (i.e., USGS quadrangle sheets at scales of 1:63,360 and 1:250,000 with contour intervals of 50 to 200 feet). These scales translate as 1-inch to 1-mile and 1-inch to 4 miles.

Recommended Corridor Width: 5-mile wide band based on aerial photography.

Material Sites Identified/Located: Yes.

Source Document(s): *Alaska Transportation Corridor Study*; Tudor-Kelly-Shannon Engineering Consultants; 1970 (performed for the Federal Highway Administration; U.S. Department of Transportation).

Other Corridor/Reconnaissance Studies: *Report of the NORTH Commission*; the NORTH Commission; June 1970 (report did not analyze specific routes except Nenana to Tanana).

Alternate Alignment/Route(s):

- * Dunbar to Deadhorse via Bettles (*Alaska Transportation Corridor Study*).
- * Bettles to Deadhorse via Anaktuvuk Pass Corridor (*Alaska Transportation Corridor Study*).
- * Bettles to Deadhorse via North Fork (of the Koyukuk River) Corridor (*Alaska Transportation Corridor Study*).
- * Tanana to Deadhorse via recommended route except for a longer Sag River alternate (*Alaska Transportation Corridor Study*).

Location of Plan & Profile Sheets: Engineering Department; Alaska Railroad Corporation.

ALASKA RAILROAD CORPORATION CORRIDOR PROFILE

STATE OF ALASKA LANDS SELECTION PROJECT

Corridor Identification Number: 004.

Corridor Title: Tanana to Port Clarence (Teller), Seward Peninsula.

Route Description/Alignment: The route generally follows the Yukon River Valley west from the Yukon River crossing near Tanana. The line passes just north of Galena and then through the mountain pass near the village of Koyukuk. The line goes southwest from this point across the Nulato River, along the Shaktolik River Valley, across the Ungalik and Inglutalik Rivers to a crossing of the Kwik River just north of Norton Bay. The remainder of the route follows the Kwiniuk River Valley to Council and then on to Port Clarence (Teller).

Mileage: 576 miles.

Survey Information: This route was developed by the U.S. Army during World War II, with the intent of connecting the existing surface transportation system of interior Alaska with ports on Alaska's west coast. Apparently a considerable amount of actual route location and survey work was conducted on all or major portions of this alignment and several alternatives. Alaska Railroad Corporation personnel have been unable as yet to discover any plan and profile sheets. However, Mr. Cliff Fugelstad, former Chief Engineer of the Alaska Railroad, and Mr. Mark Hickey, ARRC consultant, have some of the detailed information depicting this work.

Recommended Corridor Width: Unknown, but probably not addressed based on review of available records.

Material Sites Identified/Located: Unknown, but probably not addressed based on review of available records.

Source Document(s):

- * *Army Reconnaissance for Railroad or Highway West of Fairbanks*; U.S. Army; June 1942 (major assessment of several east/west corridors).
- * *Berryhill Report*; U.S. Army; 1943 (rail route location survey - Dunbar to Port Clarence via Tanana).

Other Corridor/Reconnaissance Studies: *Richardson Reconnaissance and Survey for a Land Route from Fairbanks to Council City, Alaska*; U.S. Army; 1906 (general reconnaissance with some rail consideration).

Alternate Alignment/Route(s):

- * Fairbanks to Council City (*Richardson Reconnaissance and Survey for a Land Route from Fairbanks to Council City, Alaska*).
- * The 1942 *Army Reconnaissance for Railroad or Highway West of Fairbanks* addressed a number of alternate routes, including branch lines to Golovin Bay, Nome, St. Michael and Unalakeet. Alternate routes for a line from Fairbanks to Kotzebue or Deering were also identified and assessed, including a more northerly route-using the Tozitna and Kobuk River Valleys.

Location of Plan & Profile Sheets: None found at ARRC Headquarters; copies available from Mr. Fugelstad, former ARR Chief Engineer, and Mr. Hickey, ARRC consultant.

ALASKA RAILROAD CORPORATION CORRIDOR PROFILE

STATE OF ALASKA LANDS SELECTION PROJECT

Corridor Identification Number: 005.

Corridor Title: Kobuk/Bornite to Cape Lisburne/Thetis Mine.

Route Description/Alignment: Alignment heads west from Bornite crossing the Ambler River and then along the north bank of the Kobuk River. The route continues west along the south foothills of the Baird Mountains, across the Noatak River immediately north of Kotzebue, then north through the DeLong Mountains using the Kukpowruk River Valley. The line terminates at the Thetis Mine near Cape Lisburne on the Arctic Ocean.

Mileage: 361 miles.

Survey Information: Proposed corridor is based on drawing of a probable alignment on USGS quad maps (Scale 1:250,000). Work was performed under the direction of Mr. Cliff Fugelstad, former Alaska Railroad Chief Engineer. Apparently no other engineering data is available.

Recommended Corridor Width: Not established.

Material Sites Identified/Located: No.

Source Document(s): USGS quad maps (Scale 1:250,000) prepared by the Alaska Railroad's Engineering Department circa 1970 - 1975.

Other Corridor/Reconnaissance Studies: None identified.

Alternate Alignment/Route(s): None identified.

Location of Plan & Profile Sheets: USGS quad sheets located at Engineering Department; Alaska Railroad Corporation.

ALASKA RAILROAD CORPORATION CORRIDOR PROFILE

STATE OF ALASKA LANDS SELECTION PROJECT

Corridor Identification Number: 006

Corridor Title: Eielson Air Force Base to the Canadian Border.

Route Description/Alignment: The proposed alignment takes off from the existing spur line to Eielson Air Force Base, running southeast between the Richardson Highway and the Tanana River, then crossing that river near Flag Hill. The line then heads southeast up the Tanana River Valley, crosses the confluence of the Tanana and Delta Rivers, passes just south of Delta Junction, and generally parallels the Alaska Highway north of Tok and Tetlin Junction. The line then leaves the Alaska Highway and heads northeast through the Ladue Summit and along the Ladue River to the Canadian Border.

Mileage: 271 miles.

Survey Information: Considerable work has been performed by the Alaska Department of Transportation & Public Facilities in the late 1970's and early 1980's to identify and locate a specific route. This includes full control and centerline surveys, with some tying of section and property corners.

Recommended Corridor Width: 300 feet.

Material Sites Identified/Located: Considered, but apparently not identified.

Source Document(s): *Alaska Railroad Extension - Route Selection Project #X20089, Eielson to Canadian Border*; Alaska Department of Transportation & Public Facilities; June 1979 and April 1982 Update (detailed route reconnaissance and survey tying down a precise corridor). (NOTE: The portions of right-of-way crossing federal and state lands were applied for by the state in the early to mid-1980's; however, apparently no final actions occurred to reserve the requested right-of-way.)

Other Corridor/Reconnaissance Studies:

- * *Railroad Routes in Alaska*; Alaska Railroad Commission; 1913; (major U.S. government railway route assessment).
- * Some consideration for route in 1942/1943 route reconnaissance and survey work performed by the U.S. Army.
- * There are other studies addressing the feasibility of the proposed route, but none that identified a specific corridor.

Alternate Alignment/Route(s): Haines to Fairbanks (*Railroad Routes in Alaska*).

Location of Plan & Profile Sheets: Northern Region Division of Design & Construction; Alaska Department of Transportation & Public Facilities.

ALASKA RAILROAD CORPORATION CORRIDOR PROFILE

STATE OF ALASKA LANDS SELECTION PROJECT

Corridor Identification Number: 007.

Corridor Title: Western Alaska Routes (Golovin Bay/Cape Darby to Western Seward Peninsula and western portions of the Brooks Range, with a branch from Selawik to Kobuk).

Route Description/Alignment: There is no evidence of any engineering work to support this proposal. This alignment is conceptual only, starting at the Golovin Bay/Cape Darby area on the southern coast of the Seward Peninsula, heading north to numerous mineral deposits (coal in particular) in the western portions of the Brooks Range. A branch line between Selawik and Kobuk has also been suggested to access the Ambler mineral belt. Portions of the Kobuk to Cape Lisburne alignment might be useful for part of this route. Additional branch lines accessing the northern part of the Seward Peninsula have also been suggested as part of this concept.

Mileage: Main route - 400 miles (plus/minus); Selawik to Kobuk - 150 miles (plus/minus).

Survey Information: No known material available.

Recommended Corridor Width: Not established.

Material Sites Identified/Located: No.

Source Document(s): *The Alaska Railroad and its Future*; Commonwealth North; April 1988 (general assessment of long-term roles for the Alaska Railroad, including identification of several expansion proposals).

Other Corridor/Reconnaissance Studies: No known activity, although the Arctic Slope Regional Corporation has looked recently at some access alternatives as part of developing coal deposits. The Alaska Industrial Development and Export Authority (AIDEA) is just beginning an effort to determine the most feasible transportation system to support additional resource development activity in Northwest Alaska.

Alternate Alignment/Route(s): Brooks Range to Kivalina, or an adjacent port site closer to mineral deposits (based on general review of economic considerations and AIDEA's experience developing the Red Dog Mine Project).

Location of Plan & Profile Sheets: No known material available.

ALASKA RAILROAD CORPORATION CORRIDOR PROFILE

STATE OF ALASKA LANDS SELECTION PROJECT

Corridor Identification Number: 008.

Corridor Title: Kuskokwim Extension.

Route Description/Alignment: The line leaves the existing alignment of the Alaska Railroad where it crosses Willow Creek (approximately Milepost 187), and crosses the Susitna River Valley to the confluence of the Skwentna and Yentna Rivers. The route then follows the north bank of the Skwentna and Happy Rivers through Rainy Pass and on to McGrath with an alignment generally parallel to Dalzell Creek and the south fork of the Kuskokwim River.

Mileage: 229 miles.

Survey Information: The Alaska Engineering Commission conducted a general reconnaissance survey in 1914 with accompanying mapping. Location was determined by solar and celestial observation methods. Apparently no control points were established.

Recommended Corridor Width: Not established.

Material Sites Identified/Located: No.

Source Document(s): Captain McPherson's *Reconnaissance Survey*; Alaska Engineering Commission; 1914.

Other Corridor/Reconnaissance Studies: *Railroad Routes in Alaska*; Alaska Railroad Commission; 1913 (major U.S. government railway route assessment).

Alternate Alignment/Route(s): Alaska Railroad Commission work suggested a partial alternative to the alignment through Rainy Pass.

Location of Plan & Profile Sheets: Engineering Department; Alaska Railroad Corporation.

ALASKA RAILROAD CORPORATION CORRIDOR PROFILE

STATE OF ALASKA LANDS SELECTION PROJECT

Corridor Identification Number: 009.

Corridor Title: Kuskokwim Drainage Route.

Route Description/Alignment: There is no evidence of any engineering work to support this proposal. This alignment is conceptual only, starting at McGrath on the Kuskokwim River and generally following the Kuskokwim drainage to tidewater near Cape Newenham on Kuskokwim Bay. This line would serve as an outlet for numerous strategic and critical mineral deposits and timber in the general vicinity of the proposed route.

Mileage: 400 miles (plus/minus).

Survey Information: No known material available.

Recommended Corridor Width: Not established.

Material Sites Identified/Located: No.

Source Document(s): *The Alaska Railroad and its Future*; Commonwealth North; April 1988 (general assessment of long-term roles for the Alaska Railroad, including identification of several expansion proposals).

Other Corridor/Reconnaissance Studies: None identified.

Alternate Alignment/Route(s): None identified.

Location of Plan & Profile Sheets: No known material available.

ALASKA RAILROAD CORPORATION CORRIDOR PROFILE
STATE OF ALASKA LANDS SELECTION PROJECT

Corridor Identification Number: 010.

Corridor Title: Point Mackenzie/Beluga Coal Field Extensions.

Route Description/Alignment: The Point Mackenzie route leaves the existing line at Willow and heads southwest, threading its way between lakes and wetlands just west of the Nancy Lake Recreation Area and the Little Susitna River. The line continues south along the westerly boundary of the State Agricultural Lands, and then turns east to the terminus at Point Mackenzie. This is also the same alignment proposed for the north end if a railway is constructed with the Knik Arm crossing proposal. A different extension proposal in the same general vicinity would extend the line from a location near Pittman into the Beluga Coal Fields to the southwest.

Mileage: Point Mackenzie - 44 miles; Beluga - 70 miles (plus/minus).

Survey Information: Unable to determine level of activity performed to locate these routes. It appears the Matanuska-Susitna Borough has conducted some level of survey activity to support route location work.

Recommended Corridor Width: Apparently not established.

Material Sites Identified/Located: No information located.

Source Document(s): *Reconnaissance Report - Alaska Railroad Extension to Point Mackenzie*; Bomhoff & Associates, Inc.; January 1982 (preliminary reconnaissance report performed for the Matanuska-Susitna Borough). The Beluga Extension was assessed in various studies conducted for the Diamond Alaska Coal Company.

Other Corridor/Reconnaissance Studies: *Knik Arm Railroad Crossing Feasibility Study*; Alaska Transportation Consultants, Inc.; July 1984 (part of a major Knik Arm Feasibility Study performed for the Alaska Department of Transportation and Public Facilities).

Alternate Alignment/Route(s): Willow to Anchorage via Knik Arm Crossing (*Knik Arm Railroad Crossing Feasibility Study*).

Location of Plan & Profile Sheets: Data available is apparently held by the Public Works Department, Matanuska-Susitna Borough.

ALASKA RAILROAD CORPORATION CORRIDOR PROFILE

STATE OF ALASKA LANDS SELECTION PROJECT

Corridor Identification Number: 011.

Corridor Title: Palmer to Matanuska Coal Fields (via Sutton).

Route Description/Alignment: This route would follow the old Alaska Railroad alignment to the extent possible. Pursuant to the Alaska Railroad Transfer Act, the Alaska Railroad Corporation received a warranty of at least an exclusive-use easement for the line as far as Sutton, then a quit claim deed for the remaining rights-of-way to the east and north. There has not been any recent engineering work to identify possible alignments other than in relation to the Wishbone Hill Coal Project.

Mileage: 40 miles (plus/minus).

Survey Information: Considerable data exists based on actual line location information held by the Alaska Railroad Corporation and the Bureau of Land Management.

Recommended Corridor Width: 200 feet (if available).

Material Sites Identified/Located: Yes, but in most cases these holdings may not be available for use.

Source Document(s): Alaska Engineering Commission and Alaska Railroad engineering records.

Other Corridor/Reconnaissance Studies: *Railroad Routes in Alaska*; Alaska Railroad Commission; 1913 (major U.S. government railway route assessment).

Alternate Alignment/Route(s): None identified.

Location of Plan & Profile Sheets: Engineering Department; Alaska Railroad Corporation (some of this information may be held in archives).

ALASKA RAILROAD CORPORATION CORRIDOR PROFILE

STATE OF ALASKA LANDS SELECTION PROJECT

Corridor Identification Number: 012.

Corridor Title: Fire Island Extension.

Route Description/Alignment: Little detailed engineering work has been located to support a specific alignment for this proposal. One proposal depicts the line on an alignment leaving the existing branch line to Anchorage International Airport, crossing under or going around the North-South Runway, and then following the proposed causeway out to Fire Island. Another alternative would leave the existing line near Dimond Boulevard, passing between Anchorage International and Kincaid Park, and then out to Fire Island.

Mileage: 7 miles.

Survey Information: No known material available.

Recommended Corridor Width: Apparently not established.

Material Sites Identified/Located: No.

Source Document(s): *The Alaska Railroad and its Future*; Commonwealth North; April 1988 (general assessment of long-term roles for the Alaska Railroad, including identification of several expansion proposals). Some initial engineering activity to support route location has been performed by the Alaska Department of Transportation & Public Facilities and the Municipality of Anchorage. ARRC records do not contain this information presently.

Other Corridor/Reconnaissance Studies: None identified.

Alternate Alignment/Route(s): None identified.

Location of Plan & Profile Sheets: No known material available, except preliminary work noted above. The Public Works Department; Municipality of Anchorage would be the best source for additional information.

ALASKA RAILROAD CORPORATION CORRIDOR PROFILE

STATE OF ALASKA LANDS SELECTION PROJECT

Corridor Identification Number: 013.

Corridor Title: Kenai/Nikiski Extension.

Route Description/Alignment: There is no evidence of any substantial engineering work to support this proposal. One proposal would create a rail line to connect the Port of Seward and the petrochemical facilities at Nikiski north of Kenai via Moose Pass. Another version would connect Nikiski with Anchorage via a Turnagain Arm crossing. A line extending from Moose Pass would probably follow a large portion of the existing right-of-way for the Sterling Highway to Kenai and then proceed north to Nikiski.

Mileage: Moose Pass to Nikiski - 80 miles (plus/minus).

Survey Information: No known material available.

Recommended Corridor Width: Not established.

Material Sites Identified/Located: No.

Source Document(s): Apparently some work was performed by engineering staff at the Alaska Railroad during the 1950's and 1960's to identify potential alignments using aerial photography and drawing a probable alignment on USGS quad maps. No detailed information supporting this work has been located.

Other Corridor/Reconnaissance Studies: None identified.

Alternate Alignment/Route(s): Anchorage to Nikiski via Turnagain Arm.

Location of Plan & Profile Sheets: No material found; USGS quad sheet maps may be held in Alaska Railroad archival records.