ALASKA LEGISLATURE COMMITTEE FILES, 1989-1990 8672
6707 SENATE STATE AFFAIRS

advantages of the Bradfield route to tidewater as opposed to Stewart, B.C. It is hoped that a multilateral agreement between the state, the province and the mining companies will be reached to bring this road to realization.

While it is unlikely that the British Columbia study will demonstrate lower total costs to the mining industry by choosing the Iskut/Stewart road alternative, there may be socioeconomic reasons for B.C. to opt for the all Canadian route. Nonetheless, the state ought to be prepared, should the government and mining industry of B.C. desire to proceed, to enter into discussions aimed at putting together an agreement for a resource road project.

Since the report shows this proposed road to be both economically, and likely, politically viable in the near future, it is suggested that it would not be premature to fund an Environmental Impact Statement for the new fiscal year.

US-CANADA TRADE AGREEMENT SYNOPSIS...

NOT IN COMMITTEE PACKET

U.S.-CANADA FREE TRADE AGREEMENT

SYNOPSIS

BRADFIELD-CRAIG ROAD AND PORT PROJECT
ALASKA SENATE TRANSPORTATION COMMITTEE
May 2, 1989

An intercontinental road linking the British Columbia Highway system to the coast in Southeast Alaska has been a topic of discussion for many years. During the past 15 years the Alaska Department of Transportation has conducted a number of road reconnaissance studies that identified as many as 8 potential routes from the Canadian border to the coast. The area studied stretched from the Stikine River on the north to the Unik River on the south. After considering costs, engineering feasibility, environmental concerns and accessibility, the route through the Bradfield-Craig Watersheds appears to be the most feasible. It is the shortest route to the sea. It does not infringe upon any Wilderness area, and there is adequate water depth and land base at the head of the Bradfield Canal to accommodate a deep water port facility. On the Canadian side of the border the road will travel through the rich mineral and timber area in the Iskut River Basin and link up with British Columbia Highway 37 to complete the international road to the sea.

The economic benefits to be derived from the Bradfield-Craig Road and Port Project are many. This Project will open the door for a broad scope of long term growth and diversification. Initially the mines in the Iskut region will begin trucking large amounts of raw materials to the Bradfield Port. This would be the beginning of a new flow of commerce through Southeast Alaskan waters and ports. The road will encourage the development of other natural resources, especially timber, which in turn can provide an alternative saw log supply for our mills and encourage new growth in our timber industry facilities. The road will justify the activation of many known mineral deposits that are presently dormant for lack of cost efficient transportation. The road will afford us the opportunity to access new markets and take full advantage of the United States-Canada Free Trade Agreement, and the road will provide an alternate route for the independent traveler dispersing the pressure on our overtaxed ferry system. These are but a few of the myriad of economic opportunities that will arise.

Contained in the informational packet I distributed to you is a 2 page document titled, "Natural Resource Development in Northwestern British Columbia, 1988." The material in this document was compiled by Dr. Ted Grove, a highly respected Consulting Geologist with 30 years experience in natural resource development in Northwestern British Columbia and Alaska. Dr. Grove states, "Road access to the coast and electrical power would change the economics of developing the forest and mineral resources of the entire Iskut River, Unuk River and Sulphurets Creek Area."

He further states that, "If only a few of the potential copper mines were considered there would be a potential for over 300,000 tons of concentrates per year. Lead and zinc, coal and asbestos could add a further 1.3 million tons per year at peak cycles. Together with wood forecast the area could be projected to export 2 million (+) tons per year, provide hundreds of new jobs, and import large tonnages by sea and road."

The overall economic returns to Southeast Alaska from the Bradfield-Craig Road and Port Project are difficult to forecast but looking at Wrangells recent experience with just one operating gold mine and another in the construction phase you will see that in the past 12 months we have handled in excess of 6,300 tons of equipment and supplies. We have realized hard cash income of 2.5 million dollars. We have three new businesses and 20 new jobs. Since 1986 international flights at the Wrangell Airport have risen from 279 to 7,372 annually.

If you take these known dollar and volume figures and meld them into Dr. Groves projections it will give us some idea of what to expect in economic return if the road project is completed. An annual hard cash return of better than 3/4 of a billion dollars annually with an economic factor of 5.5 billion dollars. Thousands of new job opportunities and many new business ventures.

This Project should be looked upon, not as an expense, but as a viable investment in the future of Southeast Alaska

NATURAL RESOURCE DEVELOPMENT

IN NORTHWESTERN BRITISH COLUMBIA, 1988

Resource development in northwestern B.C. is highly dependant upon access and power. The area is rich in natural resources but has only limited access via Highway 37, a few aircraft landing strips, no rail, and no major developed power supply.

Stewart, B.C.'s most northerly port on the Pacific coast, has recently become the transportation hub for much of the area and is now a booming community because of logging along part of Highway 37, and mine exploration and development from Stewart to the Sulphurets Creek area. This surge of activity came about at Stewart largely because Cassiar Asbestos abandoned its Skagway route and chose a cheaper truck-barge haul through Stewart. Logging operators have also taken advantage of the route and are now shipping increasingly larger volumes of saw and pulp wood through this port.

Recent plans to build a major pulp mill at Stewart appear to have many obstacles at this time and an alternative will be to ship logs and chips to existing mills. The cut from the Telegraph Creek area alone has been estimated from 400-500,000 tons annually.

At the present time 1.2 million cubic meters of wood are shipped annually through Stewart. Current timber cutting licenses are good until 1996 at the same allowable cut from the North Kalum T.S.A. The larger Cassiar T.S.A. has a volume of 330 million cubic meters of mature timber of which 70 million cubic meters (21%) are found in the relatively small Iskut River timber block which currently lacks access and power.

The main mineral product now shipped along Highway 37 through Stewart is asbestos from the Cassiar Mine. Because of a recent B.C. government loan of $25 million new jobs have been added and production from open pit and underground has been assured to the year 2000. Stewart will also benefit from the new open pit operations at the nearby Silbak Premier and Big Missouri mines which will process 2,000 tons per day of gold-silver-copper-lead-zinc ore. Numerous new and revived mineral developments in the immediate Stewart area have added to the town's prosperity. In spite of the distance and lack of easy access, Stewart and Terrace, B.C. have also benefited from the huge surge of activity in the Iskut River-Unuk River-Sulphurets Creek area where at least 75 resource companies are actively developing major new gold-silver deposits. One of these, Skyline Explorations Ltd. Johnny Mountain Gold Mine, is now in production and a second, the nearby Cominco-Delaware SNIP property is nearing a production decision. Both these develop-

ments as well as a number of others in the Iskut River Gold Belt have largely switched to Wrangell as the more convenient air transportation centre.

Other deposits in the same area include copper, lead and zinc mineralization which because of the lack of access and power must remain undeveloped. Road access to the coast and electrical power would change the economics of developing the forest and mineral resources of the entire Iskut River, Unuk River and Sulphurets Creek area.

Most of the area from Stewart to Telegraph Creek was explored in the 1950's through the 70's for porphyry copper and molybdenum deposits. Several world scale copper-moly deposits such as the 1.6 billion - ton Shaft Creek, the Stikine Copper deposit and others have been found and partly developed but will go into production only when economic conditions including power and access to a sea port are considered appropriate.

Coal and ore concentrates from the general area extending from Cassiar to Stewart, but particularly from the Iskut River axis, would benefit from shorter road access to a sea port other than that currently provided by Stewart. A road along the Iskut River route to Bradfield Canal and a deep sea shipping facility would cut about 75 km off the current route. As Cassiar Asbestos has shown resource companies will switch routes and transport if there are benefits.

Shipments through the system are extremely difficult to forecast but if only a few of the potential copper mines were considered there would be a potential for over 300 000 tons of concentrates per year. Lead and zinc, coal, and asbestos could add a further 1.3 million tons per year at peak cycles. Together with wood forecasts the area could be projected to export 2 million (+) tons per year, provide hundreds of new jobs, and import large tonnages by sea and road.

Good road access to the sea would also benefit local tourist industries of the entire region.

Sept 22/88

E W GROVE CONSULTANTS LTD

EDWARD W. GROVE, Ph D . P Eng
CONSULTING GEOLOGIST

4581 Boulderwood Drive
Victoria, British Columbia
Canada V8Y 1A5

Phone (604) 658-2346
Fax (604) 658-5160

B.C. MINING OPERATIONS

VOLUMES, VALUES & FLIGHTS

NUMBER OF INTERNATIONAL FLIGHT OPERATIONS WRANGELL AIRPORT

Year	1986	1987	1988	1989
# Flights	279	3,600	6,361	7,372

AIRCRAFT CARGO VOLUM 4/1/88 - 4/1/89

FUEL	7,646,308	LBS.
LUBRICANTS	108,352	LBS.
FOOD & SUNDRIES	356,937	LBS.
BLDG. & HARDWARE SUPPLIES	177,000	LBS.
EQUIP. REPAIR & FABRICATION	72,000	LBS.
PROPANE, ACETYLENE, OXYGEN ETC.	236,900	LBS.
MISC. EQUIPMENT & SUPPLIES	22,000	
IN TRANSIT HEAVY EQUIPMENT & SUPPLIES	3,943,892	LBS.
ORE CONCENTRATES	76,275	LBS.
TOTAL AIRCRAFT CARGO VOLUME	12,642,644	LBS.

AIRCRAFT CARGO VALUE (local purchase) 4/1/88 -4/1/89

PETROLEUM PRODUCTS	$1,678,228
FOOD AND SUNDRIES	497,000
BUILDING, HARDWARE, AUTOMOTIVE	178,000
MISCELLANEOUS SERVICES	135,000
(trucking, equipment repair, longshore, video rentals, hotel, meals etc.)	
TOTAL LOCAL PURCHASES	$2,488,228

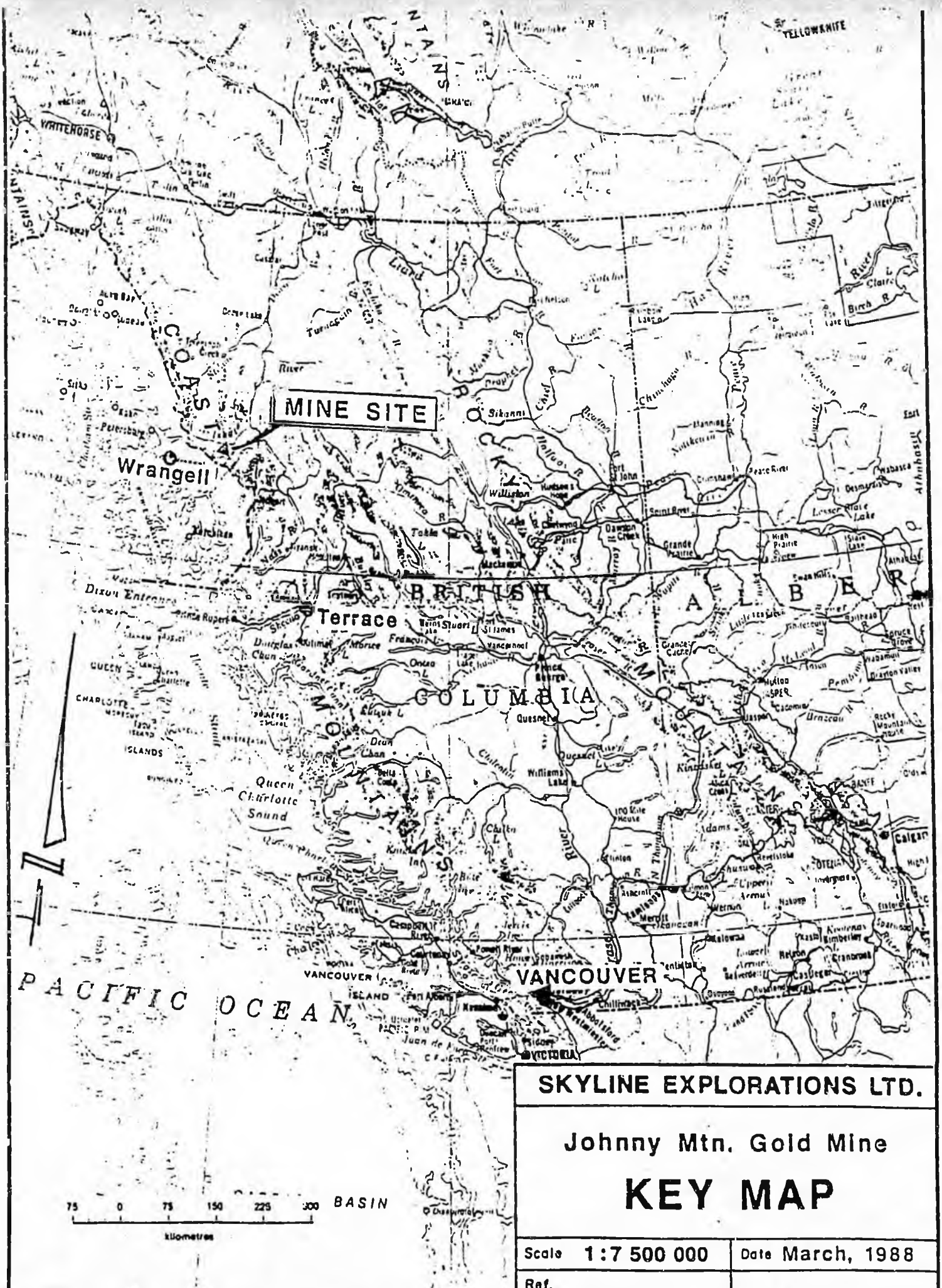
NEW BUSINESSES & JOBS AS A DIRECT RESULT OF MINING ACTIVITY

North Arm Expediting (new business)	3 employees
White Pass Oil (new business)	3 employees
Bradfield Electric (new business)	1 employee
(will have construction crew for power line)	
U.S. Customs	1 new employee
City Market	5 new employees
Diamond Aviation	1 new employee
Chevron Oil	1 new employee
Longshoremen	5 new jobs

TOTALS: 3 NEW BUSINESSES & 20 NEW JOBS

In addition there are 3 Canadian air carriers working out of Wrangell. Two servicing mining operations daily with 3 -4 employees staying in Wrangell. One transporting mining personnel for R & R one trip per week.

Estimated Overall Economic Value to Wrangell is in excess of $15,000,000.00.

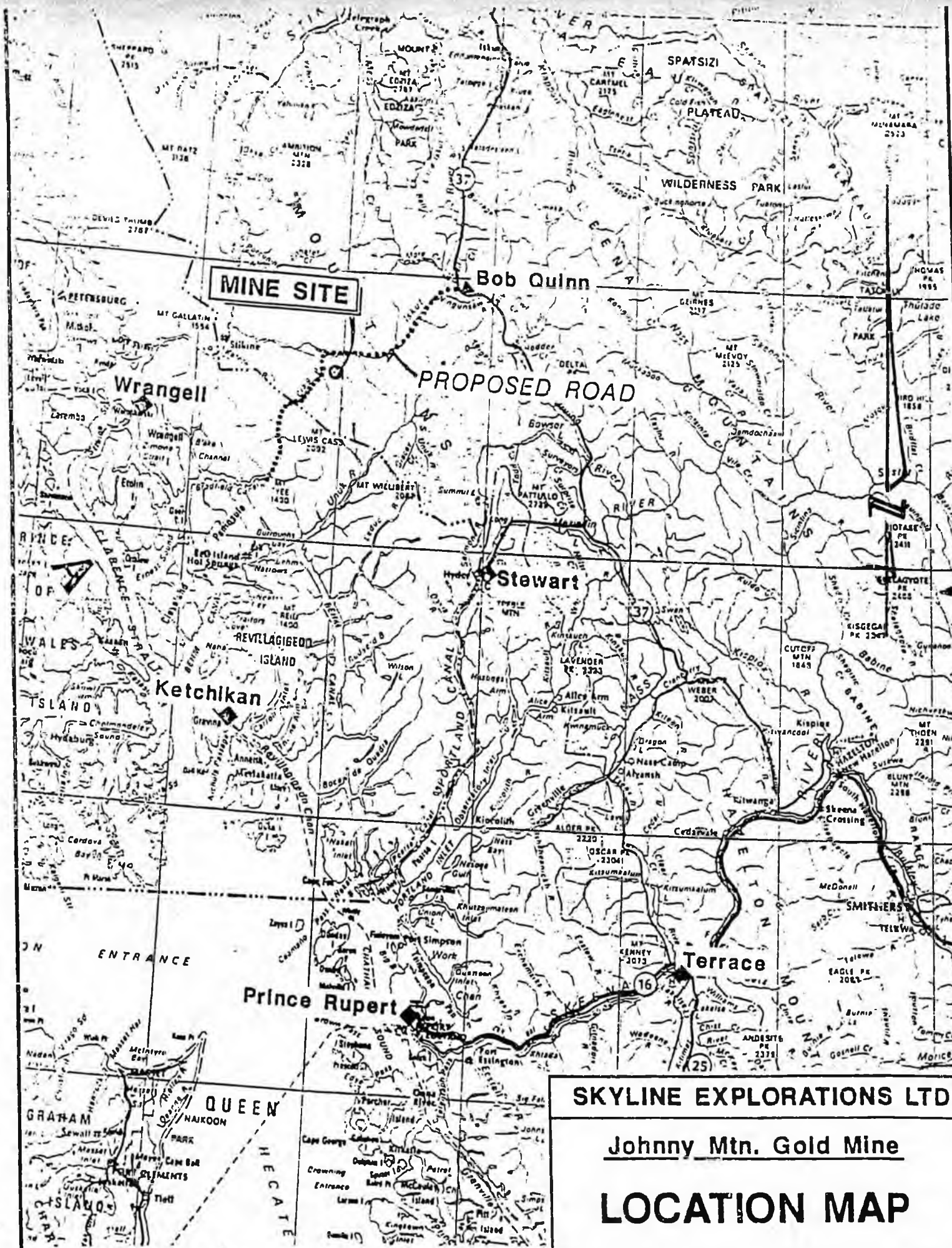


SKYLINE EXPLORATIONS LTD.

Johnny Mtn. Gold Mine

KEY MAP

Scale 1:7 500 000	Date March, 1988
Ref.	

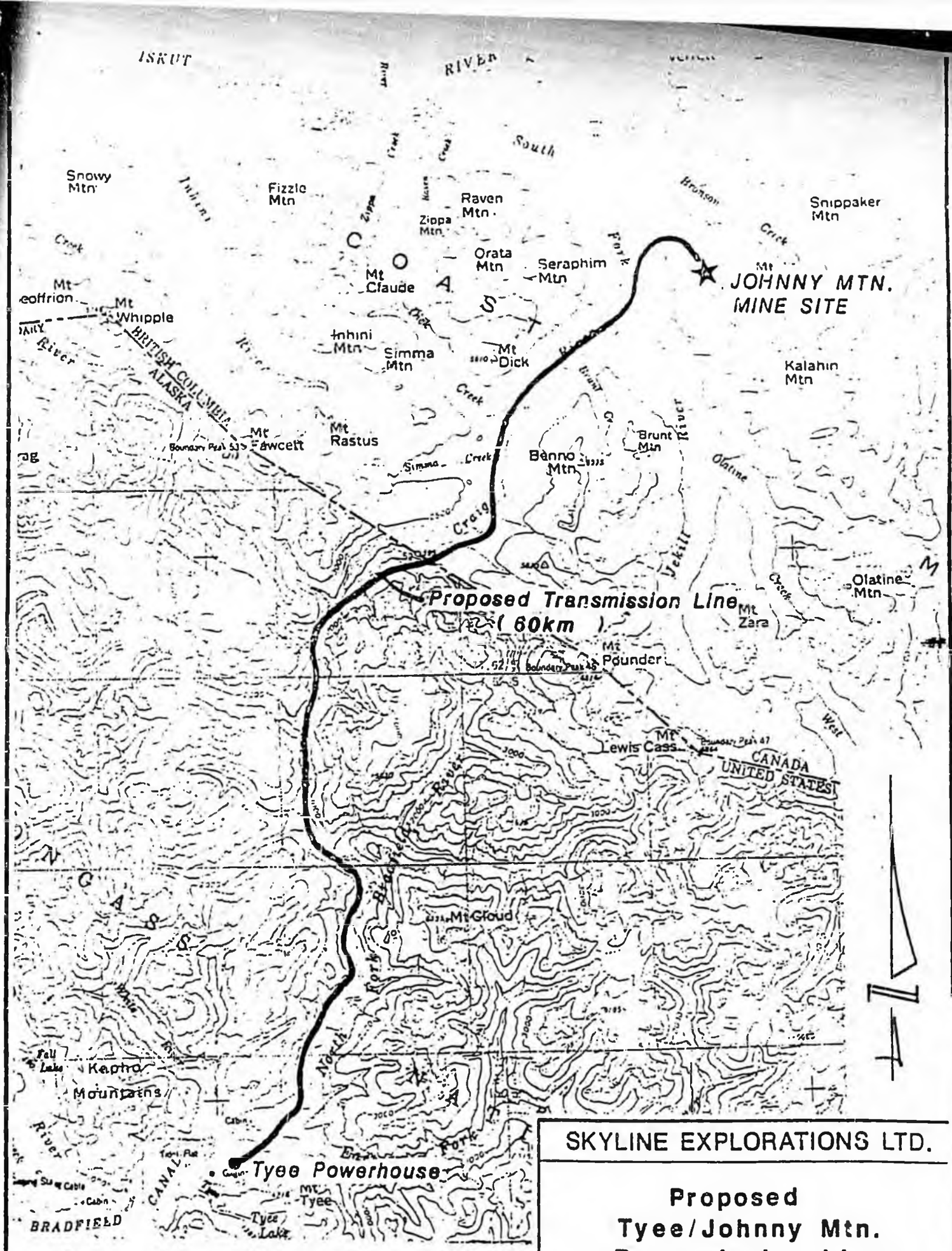


SKYLINE EXPLORATIONS LTD.

Johnny Mtn. Gold Mine

LOCATION MAP

Scale . 1:2 000 000	Date March, 1988
Ref.	



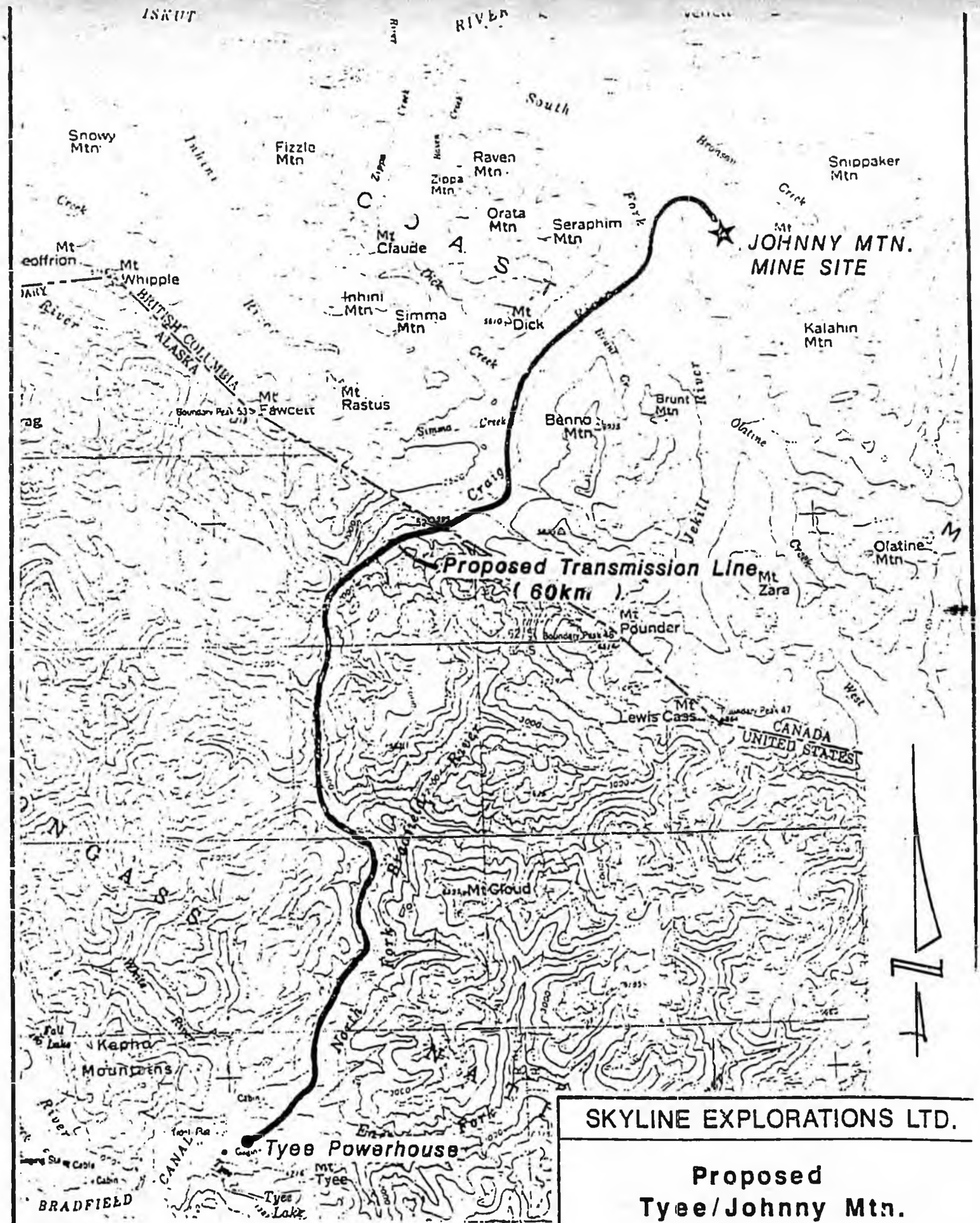
SKYLINE EXPLORATIONS LTD.

Proposed Tyee/Johnny Mtn. Transmission Line

Scale	1 : 250 000	Date	88/02/22
N.T.S.	N.T.S. 104/B		

CORRECTION

THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY



SKYLINE EXPLORATIONS LTD.

Proposed Tyee/Johnny Mtn. Transmission Line

Scale	1 : 250000	Date	88/02/22
N.T.S.	N.T.S. 104/B		

PROPOSED BRADFIELD-CRAIG ROAD

APPROXIMATE MILE/KILOMETERS

	MILES	KILOMETERS
BRADFIELD CANAL TO CASSIAR HIGHWAY (@ BOB QUINN LAKE)	86.0	138.40
BRADFIELD CANAL TO CANADIAN BORDER	31.0	41.38
CANADIAN BORDER TO JOHNNY MOUNTAIN MINE	15.0	24.14
JOHNNY MOUNTAIN TO CASSIER HIGHWAY	45.0	72.50
BRADFIELD CANAL TO CASSIAR JUNCTION	278.0	447.60
STEWART B.C. TO BOB QUINN LAKE	134.0	217.0
STEWART B.C. TO CASSIER JUNCTION	327.0	526.0

15. Bradfield Canal

LOCATION: At head of Bradfield Canal, southeast of Wrangell.

LEGAL DESCRIPTION: T. 65 S., R. 89 E.; T 65 S., R. 90 E., C.R.M.

ACREAGE: 5,020 - nominated
4,090 - proposed for selection

NOMINATED BY: City of Wrangell

ACCESS: By boat to anchorage in Bradfield Canal. Tidewater terminus of future transportation corridor into British Columbia (Iskut River, Cassier Highway). Airstrip for Tyee power project is within nomination. Old logging roads lead up North Fork Bradfield River.

NEARBY COMMUNITIES: Wrangell - 45 miles NW, Myers Chuck - 60 miles SW

LAND STATUS: National Forest

GENERAL DESCRIPTION: Flat valley land from above confluence of north and east forks of Bradfield River to Bradfield Canal. There are extensive mudflats and wet grasslands (over 2 square miles) at head of Bradfield Canal. The valley walls are steep and forested. Proposed selection includes some steep slopes adjacent to Bradfield Canal and relatively flat areas near the mouth of the Harding River that could be used as a port site.

The Tyee Lake hydroelectric project powerhouse is located within nomination, Tyee Lake is to the south. This power project, administered by the Alaska Power Authority, supplies electricity to Wrangell and Petersburg (see selection proposal #16).

East Fork Bradfield River is a natural transportation corridor to active mining areas near Mt. Johnny B.C., 35 miles to the NE. Mine developers are interested in power line to Tyee project and eventual road to tidewater. A road could eventually link to Cassier Highway and continental road system.

PURPOSE AND SUITABILITY: If a road or railroad is built into B.C., this site would become a port. Development of a new community is possible. There is a large area of flat land suitable for community development.

The North Fork of the Bradfield River is one of the two most likely transportation routes to the Iskut River, the other route being along Aaron Creek and the Katete River. Routes up the Stikine River are costly due to necessary bridges and also run through federally designated wilderness.

SELECTION HISTORY: None.

DIFFERENCE BETWEEN STATE AND FEDERAL MANAGEMENT: Port development would be much easier if the land is state owned. Community development could only occur under state ownership.

RECOMMENDATION: Priority A, although future use is speculative. Steep slopes on north side of Bradfield Canal and extensive mudflats that have high habitat values have been excluded from the selection.

LEGEND

- State owned
- Existing state selection
- Private (including Native owned)
- Boundary of proposed selection
- Boundary of area not recommended for selection

SCALE 1:63360

N

NFCG NOMINATION FOR SELECTION

BRADFIELD CANAL

4090 Acres

BRADFIELD CANAL A-5
T.65S., R.89 & 90E., C.R.M.

Tongass National Forest

DECISION NOTICE
and
FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT
BRADFIELD ELECTRIC TRANSMISSION CORRIDOR

USDA, Forest Service, Tongass National Forest
Stikine Area, Wrangell Ranger District

An environmental assessment that discusses the proposed Bradfield Electric power transmission line is available for public review in the Forest Service, Wrangell Ranger District office in Wrangell, Alaska.

Bradfield Electric, of Wrangell, Alaska, has requested a special use permit to survey, construct, operate and maintain a 69 KV power transmission line across National Forest lands from the Tyee power house to the Canadian border to serve short term mining interests around Johnny Mountain, B.C.

A Forest Service interdisciplinary team analyzed the potential environmental effects of this proposal, as well as the alternatives of using a long span design and buried transmission cable. Alternative routes were not considered because all other routes were either physically, economically, or legislatively undesirable. In addition, an alternative of denying the permit was considered. An environmental analysis document was then prepared.

The analysis indicates that alternative number 3 would provide the most desirable corridor for the powerline ROW because this route would have the least adverse environmental effects; the greatest potential for mitigation; would be acceptable within a LUD II area; and would not significantly interfere with the potential for future development within the corridor.

Based on this evaluation, it is my decision to adopt alternative number 3, a short span power transmission line, and to issue the required special use permit to Bradfield Electric, Wrangell, Alaska. This permit will allow for the survey, construction, operation and maintenance of a 69 KV power transmission line across National Forest lands. The approved route is from the Tyee powerhouse to the Canadian border along the North Fork Bradfield and Craig River drainages. All mitigation measures for protection of fish, wildlife, visual and soils resources as listed in the Environmental Assessment are adopted and shall be incorporated in the special use permit. In addition, the powerline will be designed to cross rivers and streams at a low angle of incidence, where physically possible, to help avoid bird strikes.

The proposed action will have no significant effect on subsistence uses or resources in accordance with ANILCA section 810.

I have determined that this action would not significantly affect the quality of the human environment. Therefore an Environmental Impact Statement is not needed.

Since the proposal to plan, construct, operate and maintain a power transmission line on National Forest lands may include wetlands or floodplains, implementation of this project shall not take place until thirty days after the date of this decision notice.

This decision is subject to administrative review pursuant to 36 CFR 211.18. Notice of appeal must be in writing and submitted to Douglas K. Barber, Acting Forest Supervisor, Stikine Area, P.O. Box 309, Petersburg, AK 99833, within 45 days of the date of this decision.

May 6, 1988
Date

/s/ Douglas K. Barber
DOUGLAS K. BARBER
Acting Forest Supervisor

BRADFIELD-CRAIG

ROAD & PORT PROJECT

SUPPORTING RESOLUTIONS

SOUTHEAST CONFERENCE

P.O. Box 22285 Juneau, Alaska 99802

SOUTHEAST CONFERENCE
RESOLUTION #88-09

RELATING TO THE CONSTRUCTION OF A ROAD FROM THE CANADIAN BORDER TO THE SEA VIA THE BRADFIELD-CRAIG RIVER CORRIDOR AND THE CONSTRUCTION OF A DEEP WATER PORT FACILITY ON THE BRADFIELD CANAL

WHEREAS, the Southeast Conference is dedicated to improving the economic stability and quality of life in all Southeast Alaskan communities; and

WHEREAS, efficient transportation systems are the key element for the movement of goods and services and the resulting development of a stable and diverse economic foundation in Southeast Alaska; and

WHEREAS, economic development in Southeast Alaska today is severely handicapped by high tariffs, Jones Act restrictions, market inaccessibility and other barriers directly attributable to inadequate transportation systems; and

WHEREAS, the success of any effort to broaden the economic base in Southeast Alaska is highly dependent upon our ability to develop a hard surface link to the mainland that will provide a viable alternative for accessing new markets in the United States and Canada; and

WHEREAS, the pending United States-Canada Free Trade Agreement affords and opportunity for furthering our economic relationships with Canada if we have access to the Canadian markets; and

WHEREAS massive natural resource developments in British Columbia have created a legitimate long term demand for access to the sea via a road system through Central Southeast Alaska; and

WHEREAS, the State of Alaska has completed numerous reconnaissance studies in Central Southeast Alaska to determine the most practical road route to access the mainland; and

WHEREAS, a road up the Bradfield-Craig River Corridor and construction for a deep water port on the Bradfield Canal has been adjudged the least sensitive environmentally and the most viable from an engineering standpoint by the Alaska Department of Transportation and Public Facilities (AK DOT/PF); and

WHEREAS, this route lends itself to AK DOT/PF long range transportation plans for expansion of road systems in Central Southeast Alaska; and

WHEREAS, the State of Alaska has nominated land selections for port development on the Bradfield Canal in anticipation of road construction: and

WHEREAS, the State of Alaska has allocated funds for, and is proceeding with, an economic feasibility study on the Bradfield-Craig Road and Port Project; and

WHEREAS, a utility corridor to supply power to Canadian mining companies has already been established parallel to the proposed Bradfield-Craig road route; and

WHEREAS, the State of Alaska has initiated diplomatic contact with British Columbia to discuss the Bradfield-Craig road and its continuation on the Canadian side of the border to intersect with the British Columbia highway system to complete the intercontinental link from Central Southeast Alaska to Canada and the Continental United States; and

WHEREAS, Canadian resource development interests have given their assurances to the State of Alaska and the Province of British Columbia that they find the proposed Bradfield-Craig Road and Port highly desirable as a route to the sea for export of raw materials, and that they will lend their support to the development of the project; and

WHEREAS, the City and Borough of Juneau, the Ketchikan Gateway Borough, and the Cities of Wrangell and Petersburg have endorsed the project by passing formal resolutions expressing their support for the Bradfield-Craig Road and Port Project.

NOW THEREFORE BE IT RESOLVED that the State of Alaska is urged to expedite construction of a road to Canada via the Bradfield-Craig River Corridor and the construction of a deep water port facility on the Bradfield Canal; and

BE IT FURTHER RESOLVED that because of the importance of this project to the future economic security of all Southeast Alaska, the Southeast Conference places the Bradfield-Craig Road and Port Project as a high priority of the Conference.

Adopted by the Southeast Conference this 24th day of September, 1988.

Ernest Polley, President

K E T C H I K A N G A T E W A Y B O R O U G H

Resolution No. 785

A RESOLUTION OF THE ASSEMBLY OF THE KETCHIKAN GATEWAY BOROUGH, ALASKA, URGING THE GOVERNOR AND THE ALASKA LEGISLATURE TO APPROPRIATE FUNDS FOR THE TIMELY CONSTRUCTION OF A ROAD FROM THE CANADIAN BORDER TO THE SEA VIA THE BRADFIELD-CRAIG RIVER CORRIDOR AND CONSTRUCTION OF A DEEP WATER PORT FACILITY ON THE BRADFIELD CANAL; AND ESTABLISHING AN EFFECTIVE DATE

R E C I T A L S

A. The Ketchikan Gateway Borough Assembly supports construction of a road from Canada through Central Southeast Alaska to access a deep sea port on the Bradfield Canal.

B. The Alaska Department of Transportation and Public Facilities (ADOT/PF) has conducted studies to determine the most practical route for such a road. Of the several corridors identified, designated roadless and wilderness areas selected by the American and Canadian governments hinder road construction on all but the route from the Canadian Border to the Bradfield-Craig River watersheds.

C. Extensive mining activity in British Columbia creates long-term demand for road access to deep water port facilities. Canadian mining and other resource development interests have expressed a preference for a route through the Bradfield-Craig corridor because of its access to the sea.

D. The Canadian mining company involved has a major capital investment in their operations and has assured the City of Wrangell they will actively participate in road construction to link up with the Bradfield-Craig route.

E. Construction of this road now will assure continuing trade relations with our Canadian neighbors.

F. The centralized location of this corridor lends itself to future expansion of transportation systems vital to the diverse economic development of Southeast Alaska. This corridor will promote commerce and industry, provide an alternate land route, and improve national defense.

NOW THEREFORE, BE IT RESOLVED BY THE ASSEMBLY OF THE KETCHIKAN GATEWAY BOROUGH, ALASKA, as follows:

Section 1. The Assembly requests Governor Cowper to direct ADOT/PF to determine the construction cost for the Bradfield-Craig River Route Road and deep water port facility on the Bradfield Canal.

Section 2. Governor Cowper is further requested to join with the Alaska State Legislature to introduce legislation based upon the ADOT/PF cost findings that will enable the Bradfield-Craig Road and Bradfield Deep Water Port Projects to proceed in a timely manner.

Section 3. The Assembly urges all Alaska Legislators to support the development of the road and port project.

Section 4. The Borough Clerk is directed to send copies of this resolution to Governor Cowper, Commissioner Hickey, Commissioner Brady, Commissionerer Smith, Colonel Willbur T. Gregory Jr., and all members of the Alaska State Legislature.

Section 5. This resolution shall become effective upon adoption.

ADOPTED this 20th day of June, 1988.

BOROUGH MAYOR

ATTEST:

BOROUGH CLERK

Approved as to form:

MUNICIPAL ATTORNEY

RECEIVED

MAY 27 '88

CITY OF WRANGELL
ALASKA

AGENDA

6-14-88

Presented by: The Manager
Introduced: 05/16/88
Drafted by: K.C.R.

RESOLUTION OF THE CITY AND BOROUGH OF JUNEAU, ALASKA

Serial No. 1310

A RESOLUTION SUPPORTING THE CONSTRUCTION OF A ROAD FROM THE CANADIAN BORDER TO THE SEA VIA THE BRADFIELD-CRAIG RIVER CORRIDOR AND SUPPORTING THE CONSTRUCTION OF A DEEP WATER PORT FACILITY ON THE BRADFIELD CANAL.

WHEREAS, the City of Wrangell has requested that the City and Borough of Juneau support the proposed Bradfield-Craig road and port project, and

WHEREAS, economic development anywhere in Southeast Alaska is directly or indirectly of benefit to all of the residents of Southeast Alaska, and

WHEREAS, extensive mining in British Columbia fifteen miles from the border crossing of the proposed Bradfield-Craig route has created an immediate and legitimate long-term demand for road access to the sea and deep water port facilities, and

WHEREAS, Canadian mining and other resource development interests have expressed a preference for the route through the Bradfield-Craig area because of its close proximity to the sea, and

WHEREAS, the mining interests already have major capital investment in their operations and have assured city and borough officials that they will actively participate in road construction to link up with the Bradfield-Craig route, and

WHEREAS, construction now of a twenty-six mile segment of road will ensure continuing trade relations with our Canadian neighbors, and

WHEREAS, this international road connection would provide many opportunities to implement the new United States-Canada Free Trade Agreement and thereby foster social, cultural, and economic relationships beneficial to both countries;

NOW, THEREFORE, BE IT RESOLVED BY THE ASSEMBLY OF THE CITY AND BOROUGH OF JUNEAU, ALASKA:

1. That the State of Alaska is urged to pursue the construction of a road from Canada down the Bradfield-Craig River Corridor and the construction of a deep water port facility on the Bradfield Canal.

2. Effective Date. This resolution shall be effective immediately upon adoption.

Adopted this 16th day of May, 1988.

Mayor

Attest:

Clerk

AGENDA

RESOLUTION 1129-R

5-16-88

A RESOLUTION OF THE PETERSBURG CITY COUNCIL URGING THE GOVERNOR AND THE LEGISLATURE OF THE STATE OF ALASKA TO INITIATE LEGISLATION TO APPROPRIATE FUNDS TO ENABLE THE TIMELY CONSTRUCTION OF A ROAD FROM THE CANADIAN BORDER TO THE SEA VIA THE BRADFIELD-CRAIG RIVER CORRIDOR AND CONSTRUCTION OF A DEEP WATER PORT FACILITY ON THE BRADFIELD CANAL.

WHEREAS, for the past three decades the City of Petersburg has supported construction of a road from Canada through Central Southeast Alaska to the sea; and

WHEREAS, these requests have resulted in seemingly interminable reconnaissance studies by the Alaska Department of Transportation and Public Facilities to determine the most practicable route for such a road; and

WHEREAS, the reconnaissance studies have resulted in a number of designated route potentials for a road; and

WHEREAS, legislative actions by the governments of the United States and Canada have now designated roadless and wilderness areas that would discourage road construction on all but one of the routes proposed in the reconnaissance studies; and

WHEREAS, a twenty six mile segment of that one remaining alternate route is from the Canadian Border down the Bradfield-Craig River watersheds and is the shortest route to the sea and deep water port capability; and

WHEREAS, extensive mining activity in British Columbia, fifteen miles from the border crossing of the proposed Bradfield-Craig route, has created an immediate and legitimate long term demand for road access to the sea and deep water port facilities; and

WHEREAS, Canadian mining and other resource development interests have expressed a preference for the route through the Bradfield-Craig area because of its close proximity to the sea; and

WHEREAS, the mining interests already have a major capital investment in their operations and have assured us they will actively participate in road construction to link up with the Bradfield-Craig route; and

WHEREAS, construction of a twenty six mile segment of road now will ensure continuing trade relations with our Canadian neighbors, but to procrastinate will send them the message that we are not interested and force them to go inland with all of their business; and

WHEREAS, construction of twenty six miles of road in this centralized location lends itself to future expansion of hard surface transportation systems vital to the economic diversification and development of all Southeast Alaska; and

WHEREAS, this international road connection would provide the opportunity for maximum utilization of the new United States-Canada Free Trade Agreement and foster social, cultural and economic relationships beneficial to both countries; and

WHEREAS, said international road would increase traffic flow efficiency for commerce and industry, provide a viable alternative land route for the traveler, improve national defense in the event of foreign hostilities and provide an evacuation route in the event of a coastal catastrophe.

NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF PETERSBURG, ALASKA:

1. Governor Cowper is hereby requested to direct the Department of Transportation and Public Facilities to make an accurate determination of construction costs for the Bradfield-Craig River route to the Canadian Border and a deep water port facility on the Bradfield Canal.

2. Governor Cowper is further requested to join with the Alaska State Legislature to introduce legislation based upon the cost finding of AK DOT/PF, that will enable the Bradfield-Craig Road and Bradfield Deep Water Port projects to proceed in a timely and expeditious manner.

3. In the name of prudent economic development and the furtherance of a strong self-supporting economic base in Southeast Alaska, we ask all legislators of the State of Alaska to support the development of this road and port project.

4. The City Clerk is hereby directed to transmit copies of this resolution to:

Governor Steve Cowper
Commissioner Mark Hickey, AK DOT/PF
Commissioner Judith Brady, AK DNR
Commissioner Anthony Smith, AK DOC/ED
Colonel Wilber T. Gregory Jr., Army Corps of Engineers
All members of the Alaska State Legislature

PASSED and APPROVED this 2 day of May, 1988.

Mayor

ATTEST:

City Clerk

CITY OF WRANGELL, ALASKA

RESOLUTION NO. 4-88-295

A RESOLUTION OF THE COUNCIL OF THE CITY OF WRANGELL, ALASKA URGING THE GOVERNOR AND THE LEGISLATURE OF THE STATE OF ALASKA TO INITIATE LEGISLATION TO APPROPRIATE FUNDS TO ENABLE THE TIMELY CONSTRUCTION OF A ROAD FROM THE CANADIAN BORDER TO THE SEA VIA THE BRADFIELD-CRAIG RIVER CORRIDOR AND CONSTRUCTION OF A DEEP WATER PORT FACILITY ON THE BRADFIELD CANAL.

WHEREAS, for the past three decades the City of Wrangell has been asking for construction of a road from Canada through Central Southeast Alaska to the sea; and

WHEREAS, these requests have resulted in seemingly interminable reconnaissance studies by the Alaska Department of Transportation and Public Facilities to determine the most practicable route for such a road; and

WHEREAS, the reconnaissance studies have resulted in a number of designated route potentials for a road; and

WHEREAS, legislative actions by the governments of the United States and Canada have now designated roadless and wilderness areas that would discourage road construction on all but one of the routes proposed in the reconnaissance studies; and

WHEREAS, a twenty six mile segment of that one remaining alternate route is from the Canadian Border down the Bradfield-Craig River watersheds and is the shortest route to the sea and deep water port capability; and

WHEREAS, extensive mining activity in British Columbia fifteen miles from the border crossing of the proposed Bradfield-Craig route has created an immediate and legitimate long term demand for road access to the sea and deep water port facilities; and

WHEREAS, Canadian mining and other resource development interests have expressed a preference for the route through the Bradfield-Craig area because of its close proximity to the sea; and

WHEREAS, the mining interests already have a major capital investment in their operations and have assured us they will actively participate in road construction to link up with the Bradfield-Craig route; and

WHEREAS, construction of a twenty six mile segment of road <u>now</u> will ensure continuing trade relations with our Canadian neighbors, but to procrastinate will send them the message that we are not interested and force them to go inland with all of their business; and

WHEREAS, construction of twenty six miles of road in this centralized location lends itself to future expansion of hard surface transportation systems vital to the economic diversification and development of all Southeast Alaska; and

WHEREAS, this intercontinental road connection would provide the opportunity for maximum utilization of the new United States-Canada Free Trade Agreement and foster social, cultural and economic relationships beneficial to both countries; and

WHEREAS, said intercontinental road would increase traffic flow efficiency for commerce and industry, provide a viable alternative land route for the traveler, improve national defense in the event of foreign hostilities and provide an evacuation route in the event of a coastal catastrophe.

NOW THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF WRANGELL, ALASKA:

Section 1. Governor Cowper is hereby requested to direct the Department of Transportation and Public Facilities to make an accurate determination of construction costs for the Bradfield-Craig River route to the Canadian Border and a deep water port facility on the Bradfield Canal.

Section 2. Governor Cowper is further requested to join with the Alaska State Legislature to introduce legislation based upon the cost findings of AK DOT/PF, that will enable the Bradfield-Craig Road and Bradfield Deep Water Port projects to proceed in a timely and expeditious manner.

Section 3. In the name of prudent economic development and the furtherance of a strong self-supporting economic base in Southeast Alaska, we ask all legislators of the State of Alaska to support the development of this road and port project.

Section 4. The City Clerk is hereby directed to transmit copies of this resolution to:

Governor Steve Cowper
Commissioner Mark Hickey, AK DOT/PF
Commissioner Judith Brady, AK DNR
Commissioner Anthony Smith, AK DOC/ED
Colonel Wilbur T. Gregory Jr., Army Corps of Engineers
All members of the Alaska State Legislature

Section 5. This resolution shall become effective on approval.

PASSED AND APPROVED: April 12, 1988

Terry Mc[illegible]
Mayor

[illegible] and correct copy of the original filed in my office.

Jeanette Vincent
City Clerk - Acting
City of Wrangell, Alaska

ATTEST: Jeanette Vincent
City Clerk (Acting)

CHAMBER OF COMMERCE
CITY OF WRANGELL, ALASKA

A RESOLUTION OF THE CHAMBER OF COMMERCE OF THE CITY OF WRANGELL, ALASKA SUPPORTING CONSTRUCTION OF A ROAD FROM CENTRAL SOUTHEAST ALASKA TO BRITISH COLUMBIA VIA THE BRADFIELD-CRAIG RIVER CORRIDOR, AND THE ESTABLISHMENT OF DEEP WATER PORT FACILITIES AT AN ACCEPTABLE SITE. WE REQUEST THAT OUR LOCAL, STATE, AND FEDERAL OFFICIALS TAKE APPROPRIATE MEASURES TO INSTITUTE THE PLANNING, PERMITTING AND FINANCING NECESSARY TO COMPLETE THIS PROJECT IN A TIMELY MANNER.

WHEREAS, the Wrangell Chamber of Commerce has historically supported construction of a road system connecting Central Southeast Alaska with British Columbia; and

WHEREAS, a road between Central Southeast Alaska and British Columbia would generate industrial, commercial and recreational opportunities essential to the economic stability, diversification and future growth of the region; and

WHEREAS, recent mining activity in British Columbia has created a rapidly expanding demand for road access to the sea and deep water port facilities in Central Southeast Alaska; and

WHEREAS, the Alaska Department of Transportation and Public Facilities has conducted a series of reconnaissance studies during the past three decades, to determine the most feasible routes for road access from Central Southeast Alaska to Canada; and

WHEREAS, within the past ten years congressional action and other considerations in Canada and Alaska have created roadless and wilderness areas within the reconnaissance study area; and

WHEREAS, the wilderness and/or roadless designation adversely affects road construction on all routes proposed in the reconnaissance studies with the exception of the route through the Bradfield-Craig River watershed area; and

WHEREAS, the Bradfield-Craig route is geographically the shortest distance to deep water port potential from the mining operations and other proposed renewable resource (timber) harvest areas in British Columbia; and

WHEREAS, Canadian mining firms have expressed a preference for this road route to the sea for shipment of ore concentrates to outside refining facilities; and

WHEREAS, the Canadian timber industry would open new areas and utilize the road for timber shipments to the sea; and

WHEREAS, the route from deep water on the Bradfield Canal to the Canadian border (approx. 25 miles) will accommodate the demand for deep water access at a cost considerably less than heretofore proposed routes; and

WHEREAS, construction of this road will herald the beginnings of long term Canadian-American relationships mutually beneficial to the future growth, economic diversification and overall economic development programs for the citizens of both countries.

NOW THEREFORE, BE IT RESOLVED BY THE CHAMBER OF COMMERCE OF THE CITY OF WRANGELL, ALASKA:

Section 1. The City of Wrangell, The State of Alaska Office of the Governor, Departments of Transportation, Natural Resources, Commerce & Economic Development; The United States Forest Service and the United States Corps of Engineers are hereby rquested to jointly and cooperatively take appropriate measures to institute planning, permitting, financing, and diplomatic intercourse with Canada in order to expidite construction of a road from Central Southeast Alaska to British Columbia via the Bradfield-Craig River corridor and to establish a deep water port facility at an appropriate site.

Section 2. The Secretary of the Wrangell Chamber of Commerce is hereby directed to transmit a copy of this resolution to each of the following:

Mayor Fern Neimeyer, City of Wrangell
Paul Meyhoff II, Office of the Governor
Commissioner Mark Hickey, AK DOT/PF
Commissioner Judy Brady, AK DNR
Commissioner Anthony Smith, AK DOC/ED
Walt Sheridan, USFS ANILCA Coordinator
Colonel Wilbur T. Gregory Jr., U.S. Army Engineers, Alaska District
Senator Ted Stevens
Senator Frank Murkowski
Congressman Donald Young
Lloyd Jones, Alaska State Senator
Robin Taylor, Alaska State Representative
John Sund, Alaska State representative

Section 3. This Resolution shall become effective on approval.

PASSED AND APPROVED: February 13 ,1988

Clifford James
President, Wrangell Chamber of Commerce

ATTEST: [signature]
Secretary

U.S.-CANADA FREE TRADE AGREEMENT

SYNOPSIS

THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release January 2, 1988

FACT SHEET

U.S.-CANADA FREE TRADE AGREEMENT

The United States and Canada have entered into a free trade agreement that, if approved and implemented, will take effect on January 1, 1989. The agreement will:

- Eliminate all tariffs on bilateral goods trade within 10 years of implementation;
- Reduce nontariff trade barriers;
- Establish principles for the conduct of bilateral trade in services;
- Establish rules for the conduct of bilateral investment;
- Resolve many outstanding bilateral trade issues;
- Enhance the energy and national security of the two countries;
- Facilitate business travel; and
- Establish a timely bilateral dispute settlement mechanism.

Economic Implications

Each year the U.S. and Canada exchange more goods and services than any two countries in the world. Bilateral trade in goods and services exceeded $150 billion in 1986.

The elimination of tariffs and most other barriers to trade between the two countries will increase economic growth, lower prices, expand employment and enhance the competitiveness of both countries in the world marketplace.

Chronology of the Negotiation

- In March 1985, President Reagan and Prime Minister Mulroney asked their trade officials to explore ways to reduce and

MORE

eliminate existing barriers to trade between the U.S. and Canada.

- On September 26, 1985, Prime Minister Mulroney formally requested that the U.S. and Canada examine the potential for negotiating a comprehensive free trade agreement.

- On December 10, 1985, President Reagan notified the Congress of his intent to enter into bilateral negotiations with Canada using "fast track" procedures.

- On June 17, 1986, U.S. and Canadian negotiators on the free trade area met for the first time in Ottawa.

- On October 3, 1987, President Reagan notified Congress of his intent to enter into a free trade agreement with Canada.

- On December 9, 1987, U.S. and Canadian negotiators initialled a final text of the agreement.

- On January 2, 1988, President Reagan and Prime Minister Mulroney signed the final text of the agreement.

The Fast Track

Section 102 of the Trade Act of 1974 authorizes the President to enter into bilateral free trade agreements and to have the Congress approve them on a "fast track" basis. Section 102 authority expires at midnight on January 2, 1988.

In order for a bilateral agreement to qualify for fast track consideration, several conditions must be met:

- The negotiation must be requested by the foreign country;

- The President must notify the House Ways and Means and Senate Finance Committees of the negotiations, giving them 60 legislative days advance notice:

- The President must notify the Congress of his intent to enter into an agreement 90 days before doing so.

After entering into an agreement, the President must submit it to Congress, along with a draft implementing bill, a statement of any administrative action proposed to implement the agreement, an explanation of how the bill or statement changes or affects existing law and a statement of reasons why the agreement serves the interests of U.S. commerce and why the bill and proposed action are required and appropriate.

MORE

The implementing bill is introduced in both Houses of Congress on the day it is submitted and is referred to the committees of jurisdiction. House committees have 45 days in which the House is in session to report the bill; they are discharged automatically from further consideration after that period. The House votes within 15 days in session after the measure has been received from the House committees.

After receiving the bill from the House, the Senate committees have 15 days in which the Senate is in session to report the bill; they are discharged automatically from further consideration after that period. The Senate votes within 15 days in session after the measure has been received from the Senate committees.

Amendments to the bill are not in order. A simple majority of each House is required for approval.

# # #

BRADFIELD INDUSTRIAL ROAD FEASIBILITY STUDY

DRAFT REPORT

APRIL 1989

Submitted to:

Alaska Department of Transportation and Public Facilities
Southeast Region
P.O. Box 021467
Juneau, Alaska

Prepared by:

S.C. Jacoby and Associates
Juneau, Alaska

with
Baxandall Associates
Juneau, Alaska

and
Mr. Phil R. Holdsworth
Juneau, Alaska

BRADFIELD INDUSTRIAL ROAD
FEASIBILITY STUDY

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BRADFIELD INDUSTRIAL ROAD
FEASIBILITY STUDY

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1.0 INTRODUCTION

During October 1988, the Alaska Department of Transportation and Public Facilities requested proposals for a study to determine the economic feasibility of building an industrial road from the head of the Bradfield Canal, via the Bradfield and Craig River drainages to the Canadian border -- a distance of 31 miles. The principal focus of the road, routing and destination would be to serve the transportational needs of Canadian mining interests in the lower Iskut River region by providing "straight-through" trucking to deep water at the Bradfield Canal.

In late October, a contract was awarded to Stephen C. Jacoby & Associates in conjunction with Baxandall Associates, P.E., and Mr. Phil R. Holdsworth, E.M., and a scope of work agreed on.

2.0 OBJECTIVES

The Bradfield Industrial Road feasibility study undertaken over the last several months has focused on a host of resource, economic, and policy issues relating to the feasibility of this project. The project objectives relate to three principal areas of input data;

1) Resource Assessment
Identification of the principal mining interests in the Iskut River area and surrounding mineral districts possibly affected by a port destination resource road. Assessment of present mine production and mine development forecasting for various mineral deposit classes. Similarly a timber resource analysis was performed assessing present inventory volume within the region and annual allowable cut estimates determined. The mineral and timber resource assessment would provide the basis for 1) prospective in-haul and out-haul relationships related to road access development and 2) unit haul cost analysis for route alternatives.

2) Bradfield Route - Engineering and Cost Analysis
An analysis of the Bradfield Route clearly defined two design alternatives, 1) continuous surface road, point to point and 2) road/tunnel point to point. Construction costs estimates were developed for both alterntatives and incorporated into comprehensive cost equations, for road development, and operation and maintenance along this route. It is understood all cost estimating will undergo final refinement following nominal route reconnaissance post scheduled for early summer, June-July 1989.

An on-going Iskut Valley Route alternative study, joint-funded by the British Columbia Ministry of Energy, Mines & Petroleum Resources and cooperators within the

B.C. mining industry, will provide construction cost estimates based on preferred alignments for Iskut River Road development from the Cassiar Hwy. (Highway 37) at Bob Quinn Lake to the Johnny Mountain mine area. Two tributary roads will additionally be evaluated, one up the Craig River to the international boundary, interfacing with the Bradfield Route at the common border, and another tributary link to the lower Unuk River. Review of this study will be incorporated in final report documentation, scheduled July 1989.

3) Economic Analysis of the Bradfield Route Alternatives
The analysis looked at the various alternatives and a comparative evaluation performed to determine the estimated expense in the development and operation of an access road to and through the Iskut Region. The construction, maintenance and operation and haul costs developed within the Engineering and Cost Analysis section were used in developing the route comparisons.

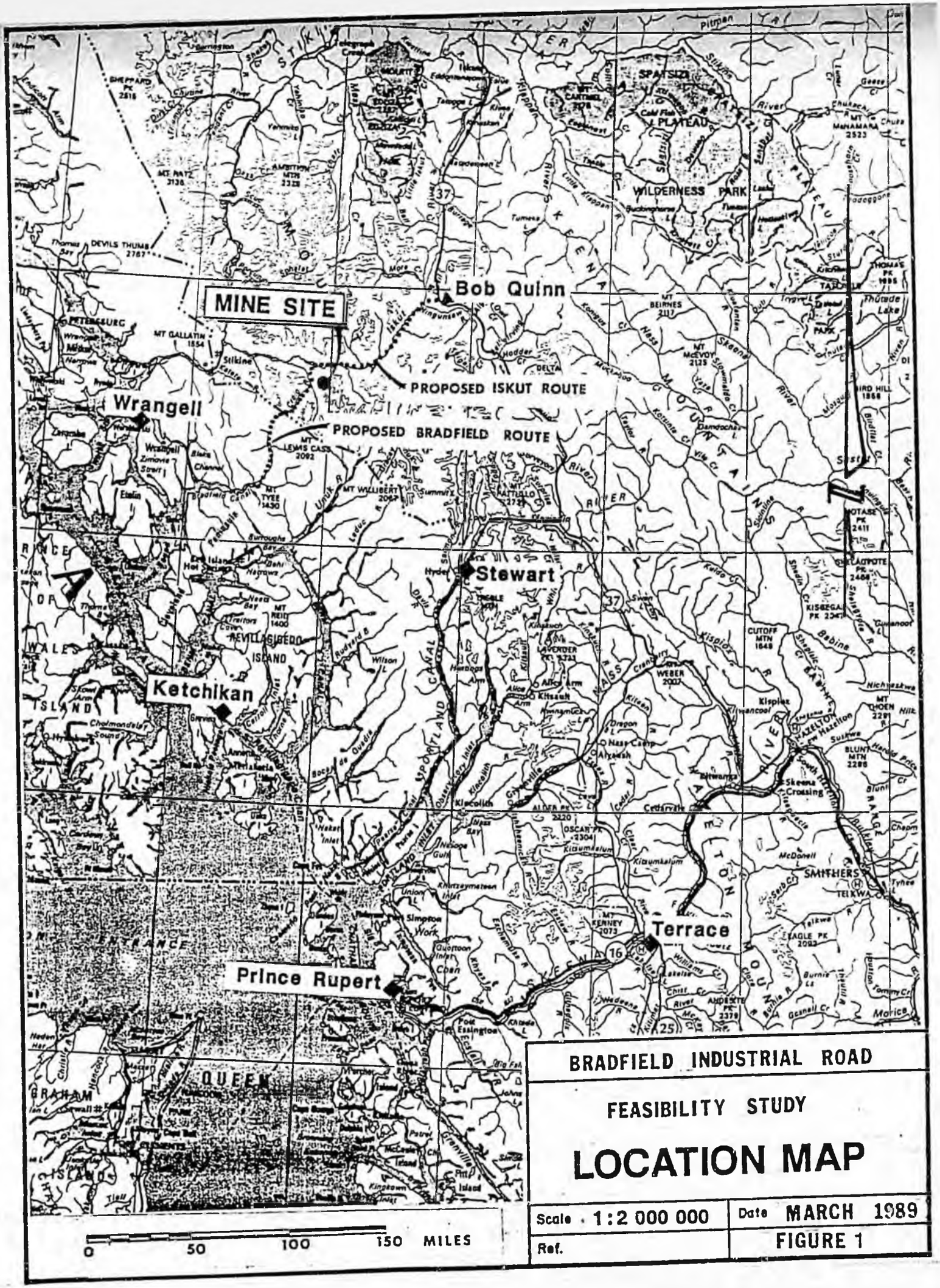
3.0 SUMMARY

The reported findings contained in this Bradfield Industrial Road analysis provide a certain measure of insight as to the economic feasibility of more direct and shorter road access for the mineral and timber resources within the Iskut Region of Northwestern British Columbia. The task of reliably assessing mineral resource potential is predicated on numerous assumptions relating to current exploration data, driven by strong base metal and precious metal pricing. A number of qualifications deserve recognition; for example, if the public sector were to absorb an increased percentage of infrastructure costs, the financial viability of the regional mineral properties would be vastly improved. Also, further exploration activities at major properties may define greater ore reserves or improved ore grades which could substantially change the viability of the prospects by increasing projected revenues, increasing the scale of operations while reducing unit costs of operation, or extending projected mine life. Similarly, through exploration, a number of apparently minor properties, based on present knowledge, could reach a higher potential. In short, there is considerable uncertainty regarding the timing and extent of development which cannot be avoided.

It should also be noted that this study recognizes that as a result of resource depletion and changing economic conditions, potential mines, once in production, could inevitably close over the course of the study period(twenty year life). The implications of such closures would have to be dealt with on a case by case basis.

The cost benefit analysis of the Bradfield route, incorporating construction cost and comparative haul cost analysis indicate the Bradfield route is economically viable in light of assumptions regarding commodity movement and the potential for increased

mine development activity within the Iskut Region. Construction costs for the various alternate routes were closely related. The key factor identified is the savings that would be realized in the cost of out-haul transport of resource commodities to a marine terminal and in-haul volume for mine development and annual operation.



BRADFIELD INDUSTRIAL ROAD

FEASIBILITY STUDY

LOCATION MAP

Scale · 1:2 000 000	Date MARCH 1989
Ref.	FIGURE 1

4.0 REGIONAL RESOURCES

4.1 MINERAL POTENTIAL

It has long been recognized that mining development would be the key growth sector in northwest British Columbia (Economic Development in northwest British Columbia: Challenges and Opportunities, May 1982). The Iskut region of northwest British Columbia has been the focus of a vigorous exploration program by the Canadian mining industry resulting in an unprecedented number of submissions to the Canadian government mine development review process for stage 1 and stage 2 reviews. During 1988 more than 30 companies engaged in exploration and drilling programs, spending in excess of $15 million. The main focus continues to be on gold and silver.

The assessment of the mineral potential of the Iskut region, as in any area, requires the review of available best data and the use of certain assumptions as to the likelihood of advancement to mine development. For this study, the Iskut region was divided into 3 distinct districts for mineral potential review. These districts are;

- The Iskut River District
- Unuk/Sulphurets District
- Stikine District

Each of these districts are positioned as potential beneficiaries from road access in the Iskut Region and to date have suffered erratic development because of the lack of easy access, high costs, and difficult weather conditions. If the suggested Bradfield Road system were followed, all noted deposits from these districts will use that portion of the road system on the Alaskan side of the border. There would be common useage of many segments of the road system on the Canadian side.

Within each district, the mineral properties were reviewed and significant properties identified on the basis of the following mineral deposit classes:

Class: 1) Producing mine
2) Production facilities under way
3) Current exploration and development, including drilling
4) Recent exploration, including drilling

Those deposits identified as Class 3 and 4 are active prospects which have generally received advanced exploration in recent years with annual expenditures in the million dollar range. There is a possibility that they might develop into small scale producers. See Mineral Claim Map, Figure 2.

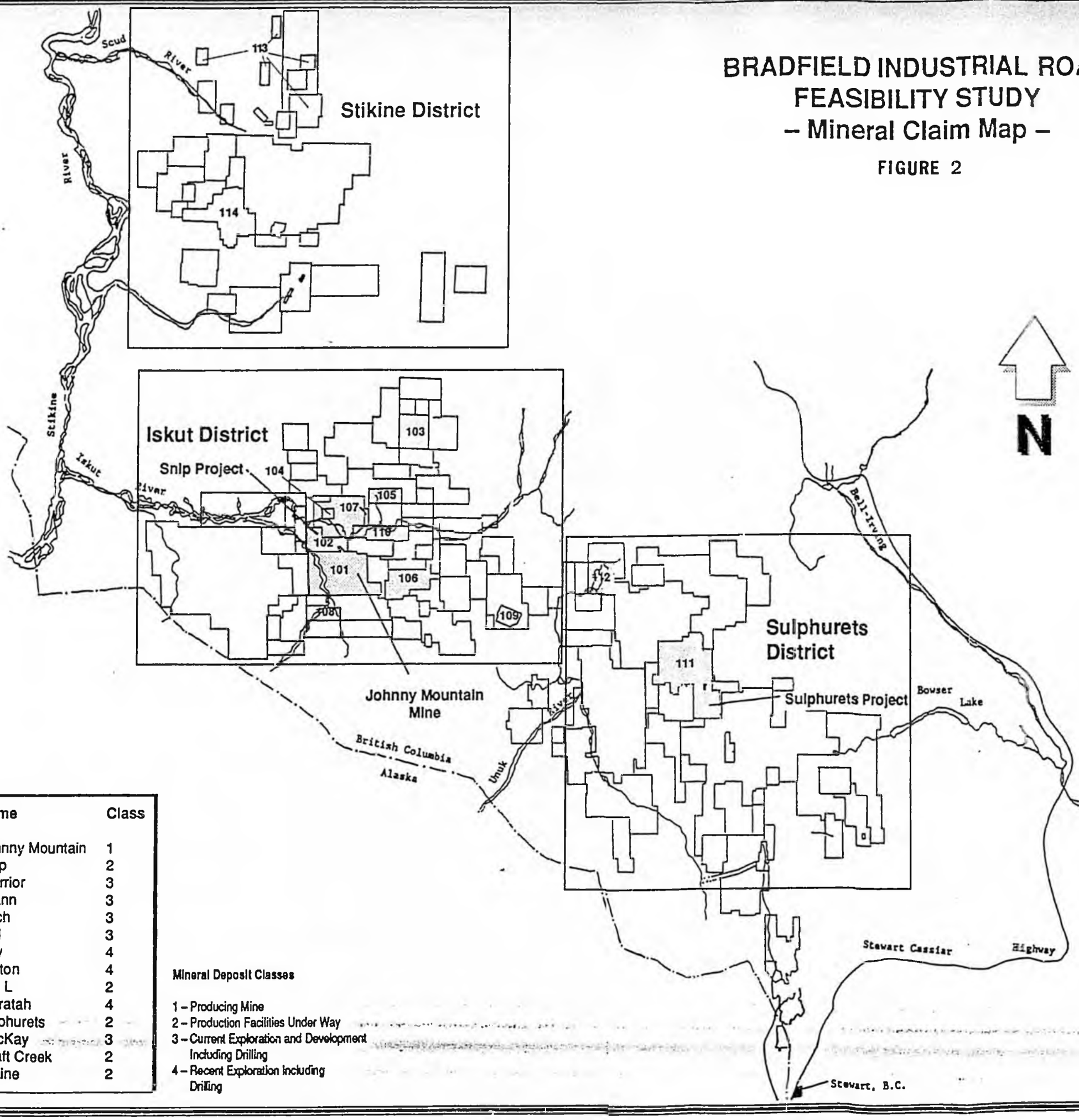
Fourteen mineral properties were carried forward to the mineral property listing to provide assumed production data. Forecasting of mineral production, both volume

and timing, is extremely difficult due to the range of unforeseen development parameters. However, best-estimate production volumes were developed from reserve data to support in-haul/out-haul tonnage estimates and applied unit haul cost analysis.

Significant data for projects identified from this review, for each of the three districts, are summarized in Table 1.

BRADFIELD INDUSTRIAL ROAD FEASIBILITY STUDY
– Mineral Claim Map –

FIGURE 2



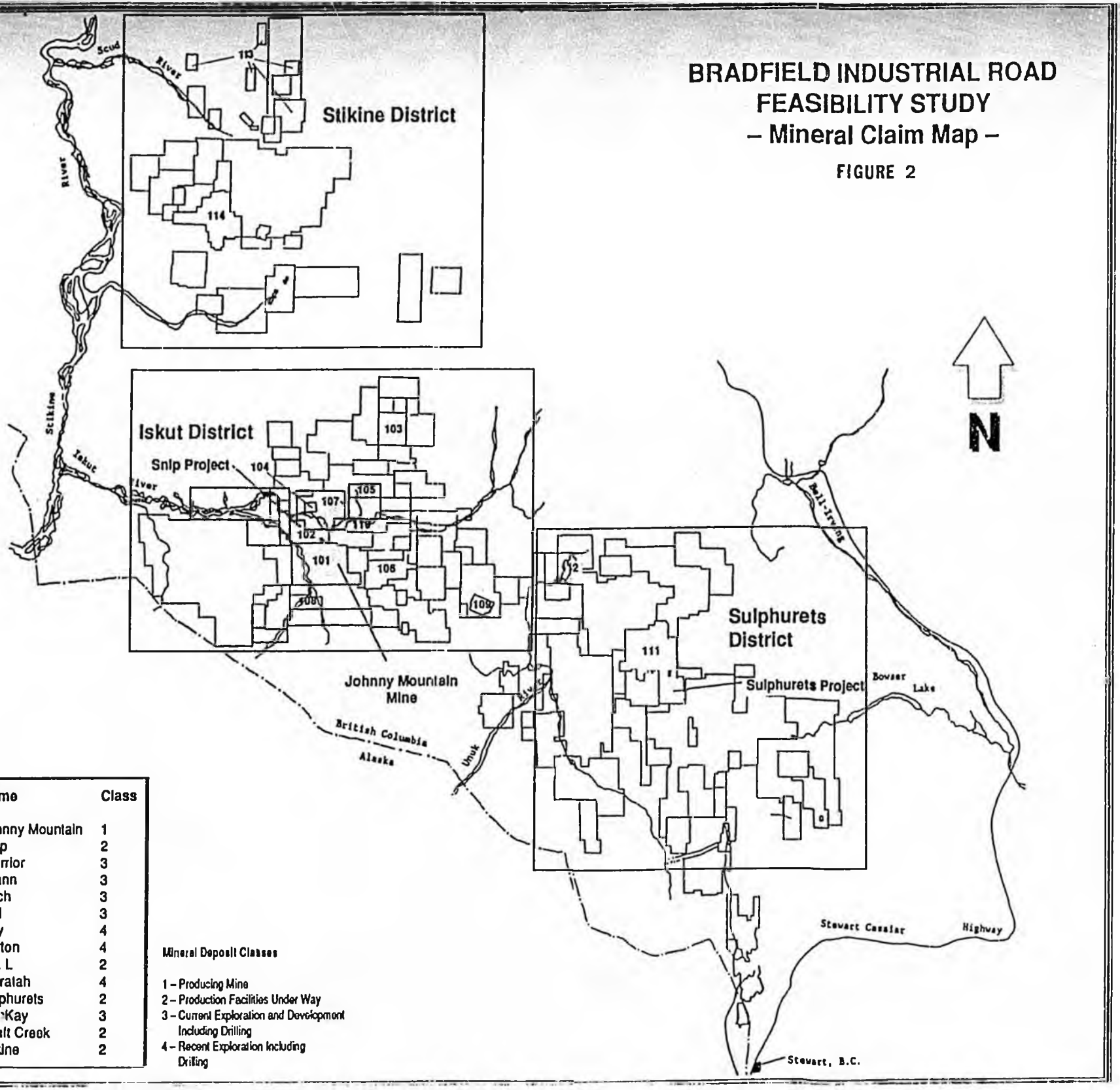
Map #	Name	Class
101	Johnny Mountain	1
102	Snip	2
103	Warrior	3
104	Joann	3
105	Bach	3
106	Inel	3
107	Ray	4
108	Burton	4
109	E & L	2
110	Waratah	4
111	Sulphurets	2
112	MacKay	3
113	Shaft Creek	2
114	Stikine	2

Mineral Deposit Classes

1 – Producing Mine
2 – Production Facilities Under Way
3 – Current Exploration and Development Including Drilling
4 – Recent Exploration Including Drilling

BRADFIELD INDUSTRIAL ROAD FEASIBILITY STUDY
– Mineral Claim Map –

FIGURE 2



Map #	Name	Class
101	Johnny Mountain	1
102	Snip	2
103	Warrior	3
104	Joann	3
105	Bach	3
106	Inel	3
107	Ray	4
108	Burton	4
109	E & L	2
110	Waratah	4
111	Sulphurets	2
112	McKay	3
113	Salt Creek	2
114	Stikine	2

Mineral Deposit Classes

1 – Producing Mine
2 – Production Facilities Under Way
3 – Current Exploration and Development Including Drilling
4 – Recent Exploration Including Drilling

BRADFIELD INDUSTRIAL ROAD FEASIBILITY STUDY
Mineral Property Analysis

TABLE I

	Map #	Name	Operator	Class	Commodities	Potential Reserves	Tons/day Milled	Tons Concentrate per year	Mine Life	Probable on-line Production	Miles to Bradfield	Miles to Stewart	Ratio
ISKUT DISTRICT	101	Johnny Mountain	Skyline, Ltd	1	Au, Ag, Cu	1,000,000 Tons	400	14,000	8 yrs	Now producing	43	160	3.7:1
	102	Snip	Cominco	2	Au, Ag, Cu	1,570,000 Tons	500	Potential future Cu Concentrate	8 yrs	1990	43	160	3.7:1
	103	Warrior	Gulf International	3	Au, Ag	Unknown	–	None Dore bullion	–	1995?	69	174	2.5:1
	104	Joann	Merridor Res	3	Fe/Cu, Au, Ag	Unknown	Possible 200	Possible 8,000	–	1995?	47	179	3.8:1
	105	Bach	International Wildcat	3	Au, Ag	Unknown	Possible 200	Dore Bullion	–	1995?	53	179	3.4:1
	106	Inel	Inel Resources	3	Au, Ag, Cu, Zn	Unknown	Possible 200	Possible 8,000	–	1995?	62	178	2.9:1
	107	Ray	Delaware Resources	4	Ag, Au, Zn, Pb, Cu	Unknown	Possible 200	Possible 8,000	–	1995?	47	179	3.8:1
	108	Burton	NW/Iskut Gold Syndacite	4	Ag, Au, Cu, Pb, Zn	Unknown	Possible 200	Possible 8,000	–	1995?	40	184	4.1:1
	109	E & L	Consolidated Silver	2	Ni,Cu	3,200,000 Tons	Possible 1,000	Possible 3,200	9 yrs	2000?	53	165	3:1
	110	Waratah	Tungco Resources	4	Au	Unknown	–	Dore Bullion	–	1995?	46	174	3.8:1
SULPHERETS DISTRICT	111	Sulphurets	Newhawk Gold Mines	2	Au, Ag, Cu, Cu, Pb, Zn	Lode 1,500,000 Heap Leach 20,000,000	500	Possible 15,000 Dore bullion	8 yrs	1991	95	189	2:1
	112	MacKay	Consolidated Stikine Silver	3	Au, Ag, Pb, Zn	Unknown	–	Possible 8,000	–	1995?	73	167	2.3:1
STIKINE DISTRICT	113	Shaft Creek	Teck Corporation	2	Cu, Mo, Ag, Au	900,000,000 Tons	100,000 open pit	318,000	25 yrs	2000?	87	178	2:1
	114	Stikine	Stikine Silver, Ltd.	2	Cu, Ag, Au	151,000,000 Tons	30,000 open pit	303,000	14 yrs	2000?	98	216	2.2:1

4.1.1 ISKUT RIVER DISTRICT

Most recent exploration and development expenditures in NW British Columbia were for precious metals and most were located in the rugged northwestern part of the province where the Iskut Gold Camp, site of the Reg (Johnny Mtn. - Class 1) and Snip (Class 2) deposits are found. This district has attained a very significant status with greater than 1.75 million ounces of gold identified between these two deposits alone. Over 75 mineral properties are located north and south along the lower to mid Iskut River axis.

The Johnny Mountain Mine, B.C.'s newest gold mine, shows reserves of 1.08 million tons grading 0.70 oz./T AU, 0.73 oz./T AG, and 0.75% CU. This is presently regarded a 250 ton per day operation, supplied entirely by air and employing 115 people. Official opening of the mine was August 17, 1988. Capital expenditures on this project are reported at $41 million.

Present in-haul transport requirements for the Johnny Mountain mine are estimated at 5,000 tons per year. Fuel for on-site power supply generation is the leading in-haul cargo volume component, representing over sixty percent of annual shipping volume. Concentrate out-haul is estimated at 14,000 tons per year.

The adjacent Snip deposit has reserves of 1.57 million tons grading 0.64 oz./T AU, and is on a fast track to production at a planned 300 tons per day in 1990. Anticipated capital costs are in excess of $30 million with a projected employment of 115.

Seven other properties in the Iskut River District were identified as having significant current or recent exploration programs, including drilling. These properties and related production data are listed in Table 1.

4.1.2. UNUK/SULPHURETS DISTRICT

The Unuk/Sulphurets District is formed around the axis of the Unuk River drainage, approximately 24 miles southeast of the Iskut - Johnny Mtn. area, and one of two districts (Unuk/Sulphurets and Stikine) periphery to the core Iskut River District. A total of over 40 properties are found in this district.

The Suiphurets property (Property #111 - Class 2) is a significant property within this district with reserves of 1.5 million tons grading 0.50 oz./T AU and 20.18 oz./T AG. The property has seen continued exploration with an extensive drilling and underground drifting program, scheduled for stage 1 review approval in mid 1989.

4.1.3. STIKINE DISTRICT

Peripheral to the deposits in the Sulphurets - Iskut mineral belt are two large copper deposits in the Stikine River area, both of which could benefit from the development of the Bradfield Road.

The Schaft Creek deposit (property #113 - Class 2) is basically a copper/molybdenum orebody with minor amounts of silver and gold. Access would require construction of 44 miles of road from the deposit to Bob Quinn Lake; and then the choice of one of the two alternate routes to tidewater, 134 miles via Highway 37 to Stewart or 87 miles to the Bradfield Terminal. Much of this latter route would service the majority of listed deposits in both the Iskut and Unuk districts.

The Stikine Deposit(property # 114- Class 2) is a relatively highgrade copper ore body with minor amounts of silver and gold. Final development is expected to be delayed because of difficult access involving a 3.3 mile tunnel, and the difficulty of permitting a 25-mile road down the Stikine River corridor to the Iskut River and then 28 miles up the Iskut to Bronson Creek, junction point for Stewart or the Bradfield Canal destination.

4.1.4. OTHER PROPERTIES

In 1983, a Canadian inter-ministry task force, directed by the Cabinet Committee on Economic Development, completed a series of studies on the scale and timing of potential mineral developments in northwest British Columbia (Northwest Economic Development Studies - Mineral Resources, 1983). This study identified nine "cornerstone" properties over a list of 23 known significant, but undeveloped mineral properties in the region. The Schaft Creek and Stikine copper deposits (as listed in 4.1.3.) were 2 of these 9 properties.

The Mt. Klappan deposit was also among the 9 properties listed which has, perhaps, regional proximity to the Bradfield Project. Mt. Klappan is a deposit of anthracite coal having undergone extensive exploration, determining that the deposit could be mined by low cost, open pit methods. A major constraint to this large project is the limited size of the world market for anthracite coal. Logistically, this deposit lies 62 air miles to the east of Cassiar Highway and it is unlikely that the Bradfield Route would be of any value for coal export to foreign markets. The report concludes a road route to Stewart would be most cost effective, aligned south from the mine site down the Skeena and Nass Rivers to Meziadin Junction and then 39 miles west to Stewart on the existing highway.

Another significant mineral deposit which might utilize the Bradfield Route is the

Cassiar Asbestos (McDame Extension) property located 70 miles north of Dease Lake on the existing road system. This former open-pit operation is now being converted to an underground operation, and has developed reserves of 178 million tons containing 5.57% fibre (equivalent to 10 million tons of marketable product). This indicates a mine life of over 100 years. Over 50 million dollars have been spent so far on mine development, and with the existing mill would treat 1.6 million tons per year -- equivalent to 90,000 tons per year of marketable fibre. Estimated employment is 150 people, and production is scheduled for 1990.

If the movement of this tonnage per year was planned to be trucked to Stewart via the Cassiar Hwy., and the Iskut River/Bradfield River Road from Bob Quinn Lake Junction to the Bradfield Terminal was available, the mileage would be 65 miles shorter by use of the latter.

4.2 TIMBER RESOURCES

4.2.1 ISKUT SUPPLY BLOCK

An analysis of the timber supply in the region of Norhtwestern British Columbia was undertaken to provide reliable estimates as to the acreage, type, volume, and accessibility of timber resources as a contributor to commodity movement in this region. Forest inventory data from the Ministry of Forests, Smithers office provided the base inventory data from which to describe the timber resource and develop estimates of a long-term annual allowable cut (AAC) - an indicator of potential timber supply and annual transport volume component.

The results of the first timber supply analysis performed by the British Columbia Ministry of Forests (April, 1984) describes the region of Norhtwestern B.C. as the Cassiar Timber Supply Area (TSA). Past harvesting patterns and proposed development plans show that in the Cassiar TSA only a very limited area of the forest is economically accessible, and in this area, only the best stands are merchantable.

The Iskut Supply Block, located in the southern region of the Cassiar TSA is the principle focus of the timber supply analysis. Forest inventory area and volume summaries, based on mature forest stands within the gross productive crown forest land base of the Iskut Supply Block, are estimated at 435,357 acres and a total inventory volume of 69,928,020 cubic meters(m^3). The majority of the Iskut Supply Block is mountainous, innaccessible and non-productive (with respect to timber) but there is a corridor of forest land along Highway 37 and the Lower Iskut Rivers axis which support sufficient, good quality stands to be considered economically accessible. Additional timber volume is conceptually described in the Craig River and the Unuk River drainages. Several small Timber Sale Licences have been

awarded in the Iskut Supply Block over recent times, however there are currently no active forest tenure licences in this area. The Iskut Supply Block has been a source of logs for export via the port of Stewart.

4.2.2 TIMBER TYPE AND VOLUME

The forest cover of the Lower Iskut River area comprises mainly mature and overmature hemlock, spruce, balsam, cottonwood, and pine (Forest Cover Map-Inventory Branch, Cassiar Timber Supply Area Report, September, 1988). The predominant species is hemlock, making up 85 percent of the total volume. Spruce occupies 10 percent of the total volume strata, balsam, cottonwood, and pine making up the remaining five percent.

Fifteen operable engineering units, totaling 107,484 acres, have been conceptually laid out in the Lower Iskut-Craig River area . Table 2 shows the acreage, volume, and species composition for each individual unit. As reported, a total volume of approximatley 14,878,000 cubic meters (m^3) is found on these units. The Unuk River drainage, south of the Iskut River axis to the U.S. border, has reported timber inventory acreage within six engineering units of 21,688 acres and volume estimated at 4,229,000m^3. Together, total estimated operable timber volumes in the lower Iskut-Craig River and Unuk River system is 19,107,000m^3. An annual allowable cut (AAC) estimated at 300,000m^3 per year is suggested by the Ministry of Forests for the Iskut-Craig area if the entire operable area, once accessed, proceeded under a forest license development plan providing a maximum and intense harvest level. The Unuk River system, currently with no allowable cut estimates, could presumably yield an additional 84,500m^3 per year. A total annual allowable cut of 384,500m^3 for the Isukut-Craig River and Unuk River systems equates to approximatley 365,000 tons of annual log volume as a potential contributor to transport volume from this region. The AAC figure was arrived at using the following productivity factors, based on the preliminary operability mapping of the area:

Daily Output:	250m^3/shift/crew
Number of crews	6
Annual Working Period	200 days
Harvesting Cycle:	50 years
Operable acres:	129,172
Reported Net Volume:	19,107,000m^3

Estimated Annual Allowable Cut: 384,500m3 per year or 365,000T/yr

The Long/short term needs for these drainage systems involve other resource users, hence some level of operational constraint is anticipated from an otherwise maximum harvest level.

TIMBER RESOURCE ANALYSIS
Lower Iskut River Area, Cassiar T.S.A.

TABLE 2

Lower Iskut River Engineering Units–Volume Summary

Unit #	Acres	Total Volume (1000 Cu.Meters)	Total Volume (1000 Tons)	Volume by Species (1000 cubic meters and %) Hemlock	Balsam	Spruce	Pine	Cot
1	8,580	951	934	858 (91)	51(5)	–	42(4)	–
2	3,900	426	421	426 (100)	–	–	–	–
3	7,332	1,063	1,024	899 (84)	–	164 (15)	–	1
4	9,048	1,080	1,059	1,023 (95)	–	48(4)		9
5	10,140	1,006	996	1,006 (100)	–	–	–	
6	15,288	1,822	1,794	1,767 (97)	–	47(2)	–	8
7	4,368	631	616	584 (94)	–	47(7)	–	
8	2,340	56	45	–	–	–	–	56 (100)
9	3,588	513	508	513 (100)	–	–	–	–
10	6,552	1,310	1,204	1,147 (88)	–	163 (12)	–	–
11	9,828	1,369	1,171	326 (24)	691 (50)	352 (26)	–	–
12	2,964	638	619	563 (88)	–	75 (12)	–	–
13	7,644	1,485	1,456	1,412 (95)	–	67(4)	–	5
14	6,240	750	708	557 (74)	–	177 (24)	–	16
15	9,672	1,778	1,700	1,442 (81)	–	311 (18)	–	25
Sub–Total	107,484	14,878	14,255	12,523 (84)	742 (5)	1,451 (10)	42	120

Unuk River Engineering Units–Volume Summary

1	642	151	148	37(24)	114(76)	–	–	–
2	1,537	269	265	172(64)	67(25)	30(1)	–	–
3	2,108	363	357	363(100)	–	–	–	–
4	6,704	1,208	1,189	1,153(95)	1	51(4)	–	3
5	5,520	1,212	1,194	1,171(97)	–	38(3)	–	3
6	5,177	1,026	1,010	1,016(99)	–	10(1)	–	–
Sub-Total	21,688	4,229	4,165	3,913(92)	182(4)	130(3)	–	7(1)

Grand Total	129,172	19,107	18,420	16,436(86)	924(4)	1,581(8)	42	1,27(1)

CUBIC CONVERSIONS

Hemlock: 1.01 cubic meters/ton
36 cu. ft/ton
180 board feet (Scribner)/ton

Spruce/Balsam/Pine: 1.23 cubic meter/ton
43 cubic ft/ton
210 board feet/ton

5.0 BRADFIELD ROUTE ANALYSIS

5.1 GENERAL

The objective of the study is the evaluation of both the feasibility and the cost of constructing a ground transportation facility to provide additional access from Southeast Alaska to the adjoining transportation facilities within Canada. The facility in turn would provide a more direct and shorter access route to salt water for the mineral and timber resources within the Iskut River region of British Columbia.

Recognizing the initial facility need and transport volumes as well as the availability of construction funding, the utilization of phase construction was chosen as the most viable approach. Initial construction would be a minimal facility with a basic alignment and gradient that could be upgraded to at least a Federal secondary standard as increased traffic volumes and types demanded.

Source data for review and analysis of the routes and standards included the Department of Transportation and Public Facilities, Southeast Region's Route Feasibility Study, Wrangell to Canada Border, November 1974, Supplemental Reconnaissance Study, Bradfield Canal Route, January, 1986, and the video tapes of their aerial reconnaissance of the Bradfield Canal Route initially flown September 26, 1985 with a follow-up flight on February 2, 1988. Additionally, Skyline Exploration LTD's Stage 1 Report for a Proposed Mineral Access Road, Iskut River Area, B.C., April 1982.

5.1.1. LAND STATUS

At the present time, the entire route corridor is Tongass National Forest land, and there are no active mining claims, witndrawls or easements within the corridor. Mining claims that were staked in the past and had land common to the corridor have expired. Two special use permits are issued by the U.S. Forest Service in the project area; 1) to the Alaska Power Authority for the Tyee Hydroelectric Project, and 2) to Bradfield Electric for the planned construction, operation and maintenance of a 69 KV power transmission line, extending from the Tyee Powerhouse to the Canadian border.

The State of Alaska has filed a National Forest Community Grant(NFCG) Nomination for a tentative land selection of 5,020 acres at the east end of Bradfield Canal. The application covers the area of deep water staging uplands, and approximately the lower 3 miles of the proposed road route.

5.2 ENGINEERING AND COSTS

5.2.1. ROAD STANDARDS

Initial construction would be a 16' wide, single lane roadway with intervisible turnouts. Vertical alignment would be limited to 8 percent maximum with maximum horizontal curvature of 15 degrees. This standard of road has been used extensively throughout Southeast Alaska and within most National Forests and has shown that it can readily handle an ADT of 100 vehicles. With reasonable traffic control measures, this number could be increased.

The road subgrade should be constructed of shot rock or other materials which would be capable of supporting "off highway" vehicle loadings. Roadway surfaces would be a crushed gravel surfacing material.

The majority of the road traverses moderate to flat terrain. The DOT/PF studies considered keeping the entire road on the west side of the Bradfield river. This study suggests moving the route to the east side to take advantage of the existing roadbed where possible. The first few miles of terrain along the west side of the river is fairly steep and provides minimal opportunity to place the roadway up, off the river flats. It is likely that the route would encounter extensive side hill cuts in locating the roadway in this area.

Major drainage structures would be initially constructed as a double lane facility. The structure would be capable of supporting a single off highway vehicle or normal two way traffic with standard highway loadings. This approach has been used within the Tongass National Forest on routes where future upgrading is anticipated and has shown to be a cost effective alternative.

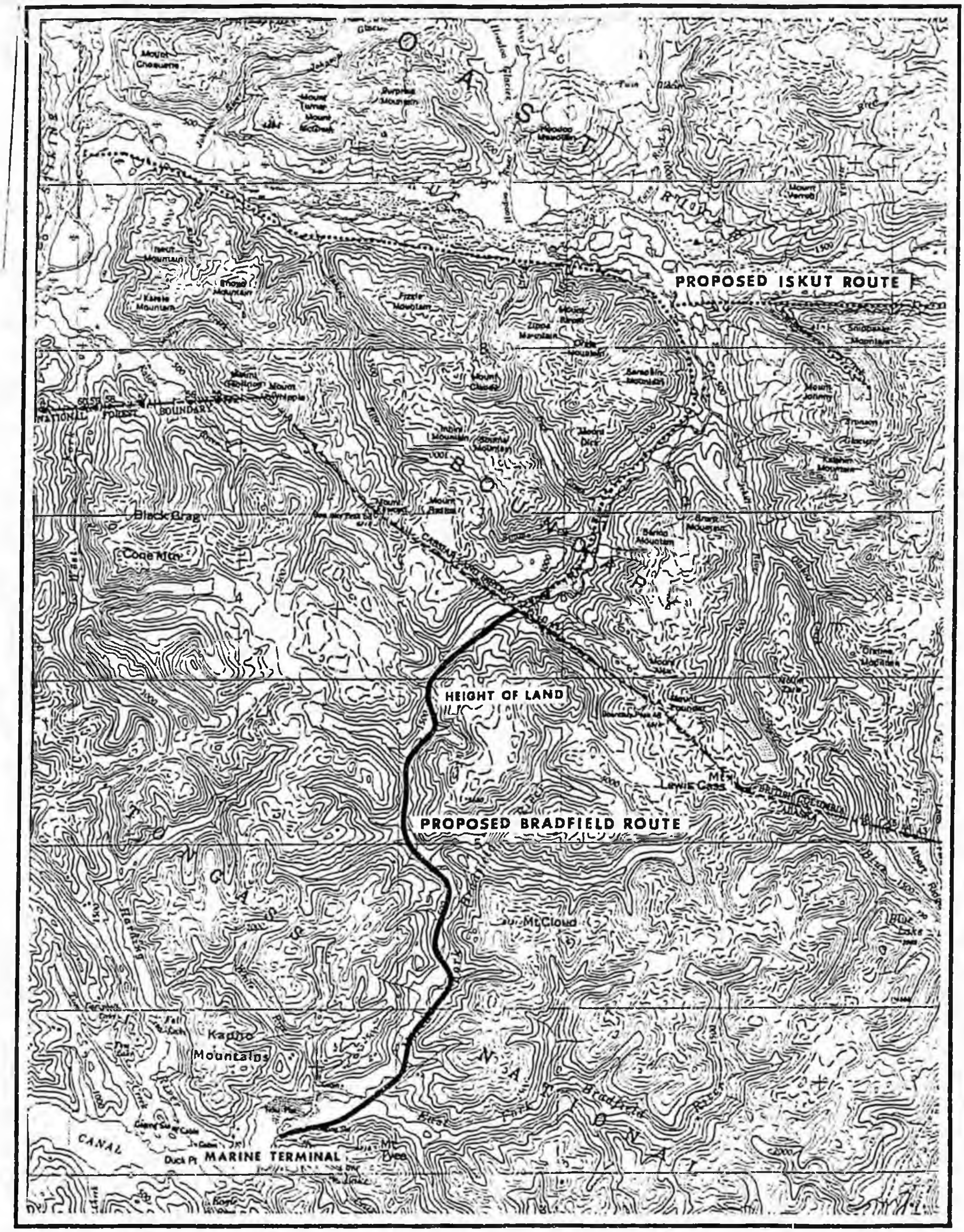
The initial tunnel construction standards are based on a 20 feet wide by 15 feet high bore. The tunnel would be self ventilating with lighting throughout. Based on our discussions with DOT/PF personnel, a 30 feet wide by 20 feet high bore was also evaluated for a measure to Federal Highway standards.

The assumptions used for marine terminal analysis provide for a 300 foot long steel sheetpile cell bulkhead with mooring dolphins at either end to allow tying up large draft open going vessels. There would be a 200' by 500' gravel surface staging area adjacent to the bulkhead. A wooden float with gangway would be provided to allow landing of small vessels and float planes. The terminal was placed on the east side of the canal as it appears that this location provides more protection from prevailing southeast winds.

5.2.2. ROUTE DESCRIPTION

The planned route would commence at a marine terminal located on the east side of the head of Bradfield Canal, approximately two miles west of the Tyee Lake Powerhouse(See figure 3). The route would then proceed along the south side of the Bradfield River, passing the powerhouse and continuing along the old timber access road. This would allow utilization of the existing roadbed. The route would cross the East Fork of the Bradfield at approximately M.P. 4.1 and continue up the east side of the North Fork crossing to the west side at approximately M.P. 11.3. The crossing would require fairly major drainage structures at M.P. 11.4 and 12.2. The route would then proceed up the west side of the drainage to approximately M.P. 21.2. At this point the route would either continue up the west side or cross to the east side of the drainage depending on the route alternative selected. The route would cross the height of land between the Bradfield River Drainage and the Craig River Drainage at approximately M.P. 25. The route would then proceed down the Craig River along its southeast side to approximately M.P. 29.5 where it would continue down the drainage to the Canadian Border. From there is would continue on down the Craig River drainage to the Iskut River and along the Iskut, intersecting the Cassiar Highway at Bob Quinn Lake. The route would also access the planned Canadian roads that extend on down the Iskut drainage to the Stikine River and those extending up the Snippaker and Coulter drainages, providing access to the lower Unuk River and Sulphurets Camp.

See Map Pocket inside back cover for a 1"=1mile route alignment map.



Bradfield Industrial Road Feasibility Study

ROUTE LOCATION MAP

FIGURE 3

5.2.3. ROUTE ALTERNATIVES

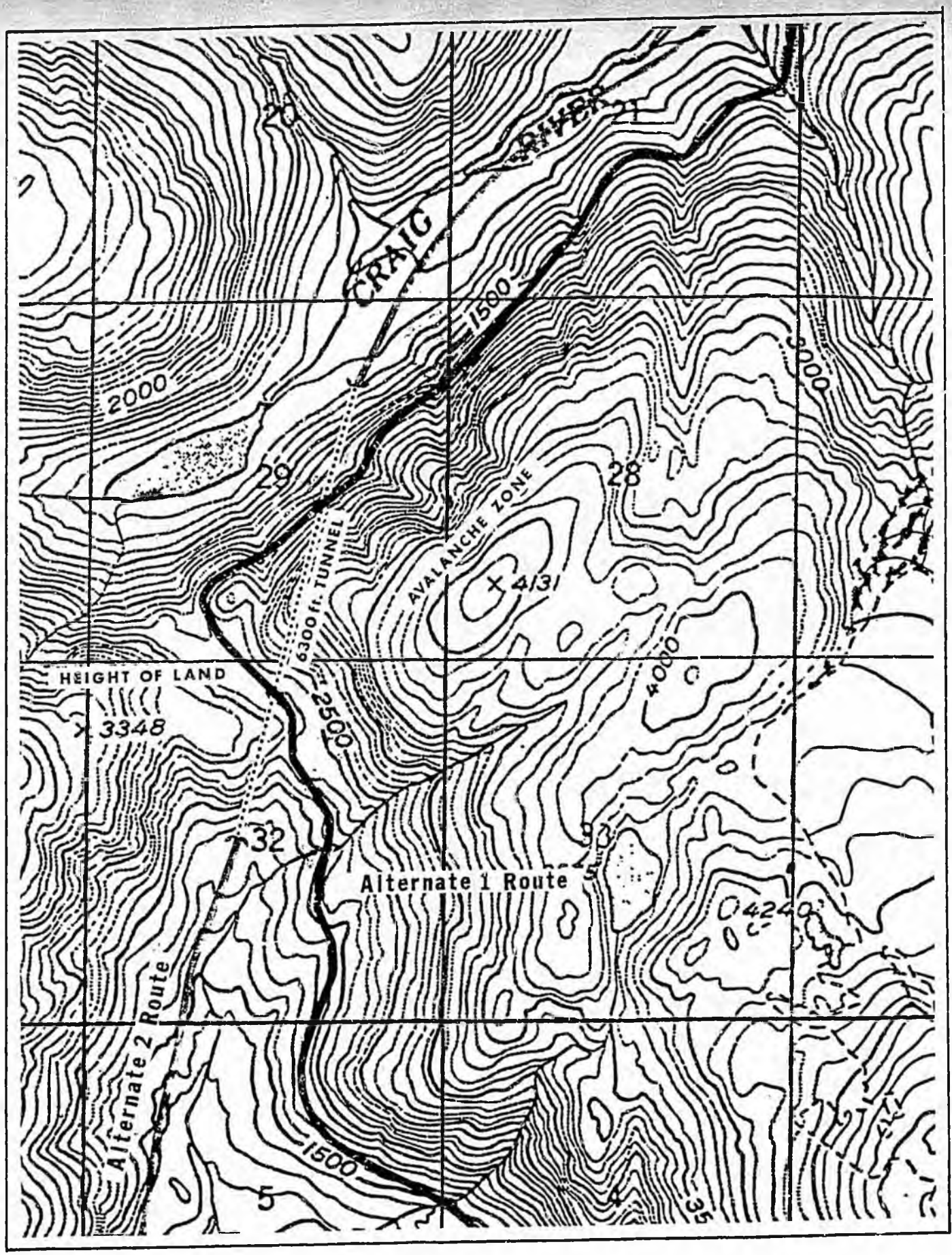
5.2.3.1. *Alternative 1.- Continuous Surface Road*

This alternative would involve construction of a continuous surface road from the marine terminal site to the Canadian border. The routing would require construction of 31.0 miles of road which will have basically a sustained gradient of 8% from M.P. 21 to M.P. 25.0 at the height of land, then a continued sustained 8% down to the Craig River at M.P. 29.4. The route also traverses excessively steep side slopes between M.P. 25 and M.P. 27 where a full bench roadway section as well as numerous avalanche sheds to protect the road users during winter travel will be required.

5.2.3.2. *Alternative 2.- Road/Tunnel*

This alternative uses a surface road with a 6300 foot long tunnel that allows the route to pass through the most adverse terrain area at the height of land between the two river drainages. It reduces the extended adverse road gradients as well as allowing the route to avoid the high avalanche zones. This routing would result in an overall route length of 30.2 miles between the marine terminal and the border. See figure 4, Height of Land Crossing.

An alternative that utilized an aerial tramway for crossing the adverse terrain at the height of land between the two river drainages was considered, but dropped. Though initial construction costs for this alternative were the least expensive of the three considered, the requirement for transfer of goods and materials between the tramway and ground transport vehicles and the expense of operation and upkeep, resulted in the alternative appearing to be uneconomical.



Bradfield Industrial Road Feasibility Study

HEIGHT OF LAND CROSSING

FIGURE 4

SCALE 1" = 2000 FEET

5.2.4. CONSTRUCTION COST ESTIMATES

Based on location of the planned road and its construction standards, the U.S. Forest Service Cost Estimating Guide for the Tongass National Forest was used as the base for estimating the road and drainage structure construction costs. The estimated costs were also evaluated against State of Alaska construction costs as well as other cost estimate data to help assure reasonableness.

Costs for the tunneling are based primarily on data from the contractor who constructed the tunnels for the Snettisham Powerhouse tap of Crater Lake and those of a recent access tunnel at the Kensington Mine just north of Juneau. The Crater Lake bore was a 11' high, horseshoe bore while the Kensington access was a 15' high by 20' wide bore. Tunneling cost figures from past DOT/PF cost estimates and from Canadian construction projects were also analyzed. The tunneling costs reported below are estimated for a 30 feet wide by 20 feet high bore, design standards meeting Federal Highway standards. Costs for reducing to a 20 feet by 15 feet bore are estimated to be 40 percent lower than that reported for the larger bore. Based on information gathered, it appears that if the larger tunnel is needed at some future date, it would be most cost effective to do the larger bore initially.

	CONTINUOUS SURFACE ROAD	ROAD/TUNNEL
Road Mileage	31.0 mi.	29.0 mi.
Tunnel		6300 ft.
Road Construction	$6,168,000	$4,807,000
Bridges	2,850,000	2,715,000
Snow Sheds	4,840,000	
Tunnel		9,261,000
Subtotal	13,858,000	16,783,000
Mobilization	416,000	424,000
Construction Camp Costs	439,000	488,000
Construction Staking	191,000	229,000
Contingency (20%)	2,772,000	3,357,000
Preliminary Engineering	768,000	722,000
TOTAL	$18,444,000	$ 22,003,000

*Construction of a Bradfield Canal marine terminal is estimated at $3,000,000.00

5.2.5. MAINTENANCE AND OPERATION COSTS

Costs for both summer and winter maintenance of road are based on Department of Transportation and Public Facilities estimates. Data collected form the British Columbia Ministry of Transportation personnel indicate lower costs might likely be experienced, but based on discussions with those involved with this project and the costs being experienced on the road between Skagway and Carcross, it was felt that the best approach would be to use the higher cost figures.

	CONTINUOUS SURFACE ROAD	ROAD/TUNNEL
Summer Mtc.	$404,000	$348,000
Winter Mtc.	402,000	335,000
Avalanche Control	80,000	20,000
TUNNEL Mtc. & Operation	--	120,000
TOTAL M&O	$886,400	$823,000

* Mtc. & Operation of Marine Terminal - $30,000

5.2.6. HAUL COST ESTIMATES

Two sets of haul cost data were generated to allow doing two separate cost benefit analysis. The first is to look at the differences in cost between the two Bradfield road alternatives. This was done to allow expanding the overall cost benefit analysis to recognize the haul costs savings in that the road/tunnel route does help minimize adverse haul gradients. The second set of data was generated to do a cost benefit analysis of the Bradfield Route versus hauling of the resource material to the marine terminal at Stewart, British Columbia.

The haul cost estimates for the Canadian resources are estimated from that point on the transportation route where the alternative between using the Bradfield Route or going to the Cassiar Highway and down to Stewart could be made. There was no attempt made to try to estimate costs for the other portions of the Canadian routes. The costs used for these routes are general in nature as data for the actual road

gradients is not readily available. This data would certainly need further expansion before one could make any actual haul direction determinations.

HAUL COSTS BY ROUTE

Bradfield River Alternative 1. (Continuous Surface Road)

Terminal to Border

Highway Vehicles	$24.69/ton
Off-Highway Vehicles	$21.85/ton

Border to Terminal

Highway Vehicles	$24.55/ton
Off-Highway Vehicles	$21.97/ton

Bradfield River Alternative 2. (Road/Tunnel)

Terminal to Border

Highway Vehicles	$22.47/ton
Off-Highway Vehicles	$19.65/ton

Border to Terminal

Highway Vehicles	$22.31/ton
Off-Highway Vehicles	$19.46/ton

6.0 ECONOMIC ANALYSIS OF ALTERNATIVES

The evaluation of alternatives was initiated with a comparison between the two route alternatives(road vs. road/tunnel) for the Bradfield Road. It is concluded the primary difference between the two Bradfield alternatives is the additional costs in construction of the tunnel. In the initial analysis, a smaller tunnel bore(20' x 15') was considered and indicated the road/tunnel alternative to be the preferred alternative. When the larger bore(30' x 20') was incorporated in the analysis, for reasons of addressing Federal Highway standards, the road became the better alternative, but with less than 2% rate of return over the road/tunnel alternative. Considering the haul cost savings and the likelihood of being better able to maintain a transportation corridor year around through use of the tunnel, the remainder of the economic analysis was run using the road/tunnel alternative for the Bradfield route.

Three comparisons were then evaluated between the Bradfield Route, using the road/tunnel alternative, and the Iskut/Stewart Route. For these comparisons, the construction and haul costs analysis used the mineral and timber properties as point of origin with contrasting destination of Bradfield terminal site vs. Stewart port.

The first of the three Bradfield-Iskut route comparisons looked at the relationship between the two routes considering just construction and maintenance and operation costs. The second comparison included the haul cost expense, but did not include the marine terminal at Bradfield Canal. This was done to provide a comparison of costs recognizing that if Stewart is to be used as the shipping point, there would most likely be similar costs in improving the terminal facilities there. In light of the rate of return found in the second comparative analysis, a third analysis was done to compare the alternatives with inclusion of the marine terminal costs at Bradfield Canal alone. The haul cost relationship proves to be the significant cost parameter throughout this evaluation. The haul cost saving associated with the shorter Bradfield route identifies this route as the preferred alternative.

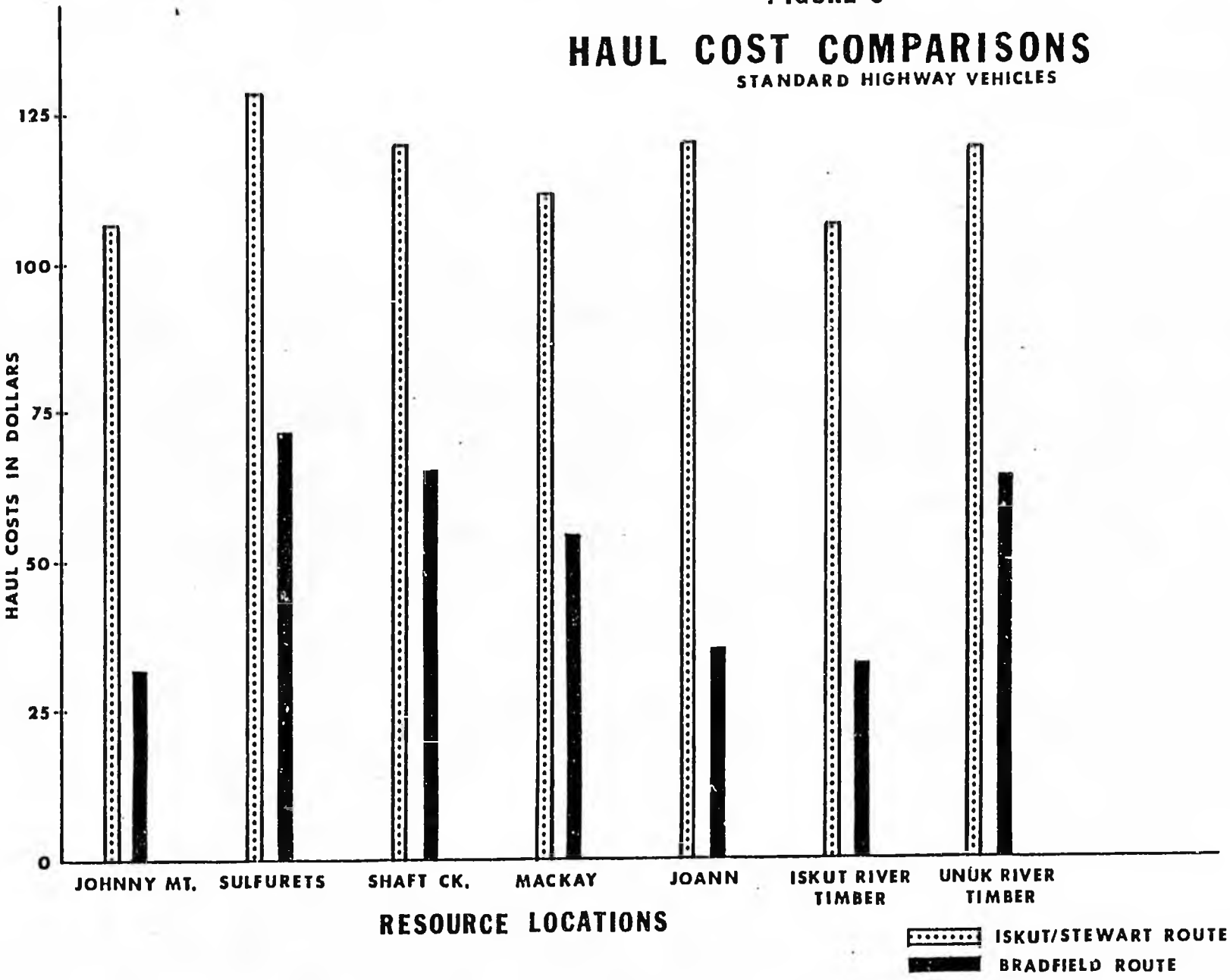
The analysis of the alternatives used a 20 year life, a minimum rate of return of 10% and a 5% per year increase in annual expense costs. The evaluation of the two Bradfield routes and the Bradfield - Iskut/Stewart alternatives assumed an initial haul volume of 30,000 tons with an annual increase of 5%. As the reduction in haul costs by use of the Bradfield is significant, any increase in annual haul volume results in an increase in the rate of return for the Bradfield Route. The construction, M&O and haul costs for the three evaluations was based on an average of mileage and costs associated with seven of the properties accessed. (See Figure 5)

The costs associated with use of both off highway and on highway vehicles were analyzed. As it is unlikely that off highway vehicles would be allowed on the Cassiar Highway, the cost benefit analysis were done using on highway vehicle costs only.

FIGURE 5

HAUL COST COMPARISONS

STANDARD HIGHWAY VEHICLES



6.1 BRADFIELD ROUTE ALTERNATIVES EVALUATION

Alternative 1- Continuous Surface Road
Alternative 2- Road/Tunnel
*includes Construction, Operation and Maintenance, and Haul cost

MRRR (%): 10
Study period (years): 20
Tax status: Before-tax analysis

	ROAD	ROAD/TUNNEL
Investment value ($):	1.8444E+07	2.2003E+07
Salvage value ($):	0	0
Economic life (years):	20	20
Present worth ($):	-3.711962E+07	-3.904228E+07
Annual worth ($):	-4360056	-4585891
Rate of return (%):	1.944441	

The better alternative is: ROAD

	ROAD			ROAD/TUNNEL		
Year	Annual Income	Annual Expense	Annual Tax	Annual Income	Annual Expense	Annual Tax
1	$0.	$1,541,900.	$0.	$0.	$1,406,800.	$0.
2	$0.	$1,618,995.	$0.	$0.	$1,477,140.	$0.
3	$0.	$1,699,945.	$0.	$0.	$1,550,997.	$0.
4	$0.	$1,784,942.	$0.	$0.	$1,628,547.	$0.
5	$0.	$1,874,189.	$0.	$0.	$1,709,974.	$0.
6	$0.	$1,967,898.	$0.	$0.	$1,795,472.	$0.
7	$0.	$2,066,293.	$0.	$0.	$1,885,246.	$0.
8	$0.	$2,169,607.	$0.	$0.	$1,979,508.	$0.
9	$0.	$2,278,088.	$0.	$0.	$2,078,483.	$0.
10	$0.	$2,391,992.	$0.	$0.	$2,182,408.	$0.
11	$0.	$2,511,591.	$0.	$0.	$2,291,528.	$0.
12	$0.	$2,637,171.	$0.	$0.	$2,406,104.	$0.
13	$0.	$2,769,029.	$0.	$0.	$2,526,409.	$0.
14	$0.	$2,907,481.	$0.	$0.	$2,652,729.	$0.
15	$0.	$3,052,855.	$0.	$0.	$2,785,366.	$0.
16	$0.	$3,205,497.	$0.	$0.	$2,924,634.	$0.
17	$0.	$3,365,772.	$0.	$0.	$3,070,865.	$0.
18	$0.	$3,534,060.	$0.	$0.	$3,224,408.	$0.
19	$0.	$3,710,763.	$0.	$0.	$3,385,629.	$0.
20	$0.	$3,896,301.	$0.	$0.	$3,554,910.	$0.

6.2 BRADFIELD ROUTE vs ISKUT-STEWART ROUTE EVALUATION 1

*includes Construction , Maintenace and Operation Cost

MRRR (%): 10
Study period (years): 20
Tax status: Before-tax analysis

	BRADFIELD ROUTE	ISKUT\STEWART ROUTE
Investment value ($):	2.88516E+07	1.66268E+07
Salvage value ($):	0	0
Economic life (years):	20	20
Present worth ($):	-4.589087E+07	-4.267262E+07
Annual worth ($):	-5390325	-5012309
Rate of return (%):	6.508346	

The better alternative is: ISKUT\STEWART ROUTE

	BRADFIELD ROUTE			ISKUT\STEWART ROUTE		
Year	Annual Income	Annual Expense	Annual Tax	Annual Income	Annual Expense	Annual Tax
1	$0.	$1,406,800.	$0.	$0.	$2,150,400.	$0.
2	$0.	$1,477,140.	$0.	$0.	$2,257,920.	$0.
3	$0.	$1,550,997.	$0.	$0.	$2,370,816.	$0.
4	$0.	$1,628,547.	$0.	$0.	$2,489,357.	$0.
5	$0.	$1,709,974.	$0.	$0.	$2,613,825.	$0.
6	$0.	$1,795,472	$0.	$0.	$2,744,516.	$0.
7	$0.	$1,885,246.	$0.	$0.	$2,881,741.	$0.
8	$0.	$1,979,508.	$0.	$0.	$3,025,828.	$0.
9	$0.	$2,078,483.	$0.	$0.	$3,177,120.	$0.
10	$0.	$2,182,408.	$0.	$0.	$3,335,975.	$0.
11	$0.	$2,291,528.	$0.	$0.	$3,502,774.	$0.
12	$0.	$2,406,104.	$0.	$0.	$3,677,912.	$0.
13	$0.	$2,526,409.	$0.	$0.	$3,861,808.	$0.
14	$0.	$2,652,729.	$0.	$0.	$4,054,898.	$0.
15	$0.	$2,785,366.	$0.	$0.	$4,257,643.	$0.
16	$0.	$2,924,634.	$0.	$0.	$4,470,525.	$0.
17	$0.	$3,070,865.	$0.	$0.	$4,694,051.	$0.
18	$0.	$3,224,408.	$0.	$0.	$4,928,753.	$0.
19	$0.	$3,385,629.	$0.	$0.	$5,175,191.	$0.
20	$0.	$3,554,910.	$0.	$0.	$5,433,950.	$0.

6.3 BRADFIELD ROUTE vs ISKUT-STEWART ROUTE EVALUATION 2

*includes Construction , Maintenace and Operation Cost, and Haul Cost

MRRR (%): 10
Study period (years): 20
Tax status: Before-tax analysis

	BRADFIELD ROUTE	ISKUT/STEWART ROUTE
Investment value ($):	2.88516E+07	1.66268E+07
Salvage value ($):	0	0
Economic life (years):	20	20
Present worth ($):	-5.58034E+07	-8.48299E+07
Annual worth ($):	-6554647	-9964087
Rate of return (%):	32.60027	

The better alternative is: BRADFIELD ROUTE

	BRADFIELD ROUTE			ISKUT/STEWART ROUTE		
Year	Annual Income	Annual Expense	Annual Tax	Annual Income	Annual Expense	Annual Tax
1	$0.	$2,225,200.	$0.	$0.	$5,631,000.	$0.
2	$0.	$2,336,460.	$0.	$0.	$5,912,550.	$0.
3	$0.	$2,453,283.	$0.	$0.	$6,208,177.	$0.
4	$0.	$2,575,947.	$0.	$0.	$6,518,585.	$0.
5	$0.	$2,704,744.	$0.	$0.	$6,844,514.	$0.
6	$0.	$2,839,981.	$0.	$0.	$7,186,740.	$0.
7	$0.	$2,981,980.	$0.	$0.	$7,546,076.	$0.
8	$0.	$3,131,079.	$0.	$0.	$7,923,380.	$0.
9	$0.	$3,287,633.	$0.	$0.	$8,319,548.	$0.
10	$0.	$3,452,014.	$0.	$0.	$8,735,525.	$0.
11	$0.	$3,624,615.	$0.	$0.	$9,172,301.	$0.
12	$0.	$3,805,845.	$0.	$0.	$9,630,916.	$0.
13	$0.	$3,996,137.	$0.	$0.	%$10,112,461.	
14	$0.	$4,195,944.	$0.	$0.	%$10,618,084.	
15	$0.	$4,405,741.	$0.	$0.	%$11,148,988.	
16	$0.	$4,626,028.	$0.	$0.	%$11,706,437.	
17	$0.	$4,857,329.	$0.	$0.	%$12,291,758.	
18	$0.	$5,100,195.	$0.	$0.	%$12,906,345.	
19	$0.	$5,355,205.	$0.	$0.	%$13,551,662.	
20	$0.	$5,622,965.	$0.	$0.	%$14,229,244.	

6.4 BRADFIELD ROUTE vs ISKUT-STEWART ROUTE EVALUATION 3

*includes Construction, Operation and Maintenance, Haul Cost, and Marine Terminal Cost

MRRR (%): 10
Study period (years): 20
Tax status: Before-tax analysis

	BRADFIELD ROUTE	ISKUT/STEWART ROUTE
Investment value ($):	3.18516E+07	1.66268E+07
Salvage value ($):	0	0
Economic life (years):	20	20
Present worth ($):	-5.916676E+07	-8.48299E+07
Annual worth ($):	-6949705	-9964087
Rate of return (%):	26.65364	

The better alternative is: BRADFIELD ROUTE

	BRADFIELD ROUTE			ISKUT/STEWART ROUTE		
Year	Annual Income	Annual Expense	Annual Tax	Annual Income	Annual Expense	Annual Tax
1	$0.	$2,255,200.	$0.	$0.	$5,631,000.	$0.
2	$0.	$2,367,960.	$0.	$0.	$5,912,550.	$0.
3	$0.	$2,486,358.	$0.	$0.	$6,208,177.	$0.
4	$0.	$2,610,676.	$0.	$0.	$6,518,585.	$0.
5	$0.	$2,741,210.	$0.	$0.	$6,844,514.	$0.
6	$0.	$2,878,270.	$0.	$0.	$7,186,740.	$0.
7	$0.	$3,022,183.	$0.	$0.	$7,546,076.	$0.
8	$0.	$3,173,292.	$0.	$0.	$7,923,380.	$0.
9	$0.	$3,331,957.	$0.	$0.	$8,319,548.	$0.
10	$0.	$3,498,554.	$0.	$0.	$8,735,525.	$0.
11	$0.	$3,673,482.	$0.	$0.	$9,172,301.	$0.
12	$0.	$3,857,156.	$0.	$0.	$9,630,916.	$0.
13	$0.	$4,050,013.	$0.	$0.	%$10,112,461.	
14	$0.	$4,252,514.	$0.	$0.	%$10,618,084.	
15	$0.	$4,465,139.	$0.	$0.	%$11,148,988.	
16	$0.	$4,688,396.	$0.	$0.	%$11,706,437.	
17	$0.	$4,922,815.	$0.	$0.	%$12,291,758.	
18	$0.	$5,168,956.	$0.	$0.	%$12,906,345.	
19	$0.	$5,427,403.	$0.	$0.	%$13,551,662.	
20	$0.	$5,698,773.	$0.	$0.	%$14,229,244.	

7.0 OTHER CONSIDERATIONS

7.1 POWER SUPPLY OPTIONS

Power supply options have been examined by B.C. Hydro for supplying regional power to the existing mine at Johnny Mountain as well as other potential mine developments throughout Northwest British Columbia. In all cases, the results were subject to unforseeable start-up datas for mine development and general uncertainties relating to the potential Stikine/Iskut hydro electric project.

Four power supply options are considered:

1) Extension from British Columbia Hydro's grid.
2) Hydro generation near mine sites (more creek for Shaft Creek and/or Stikine Copper, and small hydro, where identified, for other mines.
3) Diesel generators at mine sites
4) Extension from Tyee Lake Hydro at Bradfield Canal.

Option 1 Is contingent on the Stikine/Iskut Power Project, a forseeably delayed opportunity due to many environmental and political considerations.

Options 2 and 3 Suggest, in most cases, diesel operation is preferred to small hydro as an on-site source of electricity.

Option 4 The average energy costs from the Tyee Project should provide more efficient operation, improve power reliability, and is compatible with Regional Intertie System Development.

Power supply options 1 and 4 are biased upward for mines and potential mines where supplemental diesel operation is required because of the start-up date of the mine precedes the earliest, feasible, in-service date for another source of power such as the potential Stikine/Iskut power project or Tyee Power. Thus, if mine start-up is sensitive to power costs, it may be advantageous for some potential mines to delay production until after a network power project proceeds.

This is not to suggest that a decision on the Stikine/Iskut or Tyee extension can be based on mine development in the region. Such a decision must be based on future regional energy demand, possible energy export demand and the successful negotiation of international agreements.

Extension of Tyee Hydroelectric Project power via the Bradfield Corridor is supported by the Alaska Power Authority consistent with Federal Law providing for the export and sale of electricity and electric power lines crossing international borders

(Department of Energy-Guide to Authorization Procedures, November 1980). A Harza Engineering Study released in October 1987, for the Alaska Power Authority - Transmission Intertie
Study concludes:

1) An economic potential for utilization of surplus power from Tyee, and
2) Interconnecting Tyee to various mining projects is supported, in most cases, by the close geographical proximity of District mining properties

7.2 FUNDING OPTIONS

An assessment of present and near term availability of capital funds for access road development required review of four principal sources:

1) State of Alaska General Fund
2) FHWA - (Federal Highway Funds)
3) AIDEA Funds - (Alaska Industrial Development and Export Authority)
4) Mining Industry Capitalization

Subject to source number 1) The state of Alaska General Fund appears very remote. Present capital funds are restricted to declining state revenues, and highly prioritized statewide public transportation objectives. In simple terms the general fund allocation in it's present form and rate of growth is regionally and fractionally apportioned to meet diverse operational needs. The net effect being a poor source for single-use capital intensive investment.

Subject to source number 2) The 1988 Federal Highway Fund apportionment for the State of Alaska was $150-160 million. The Department of Transportation S.E. Region allocation was less than 10 percent or roughly $13 million. For the same problematic reasons as the State General Fund, the Southeast Regional Funds are allocated throughout the region for public transportation needs and provide little opportunity for access road development.

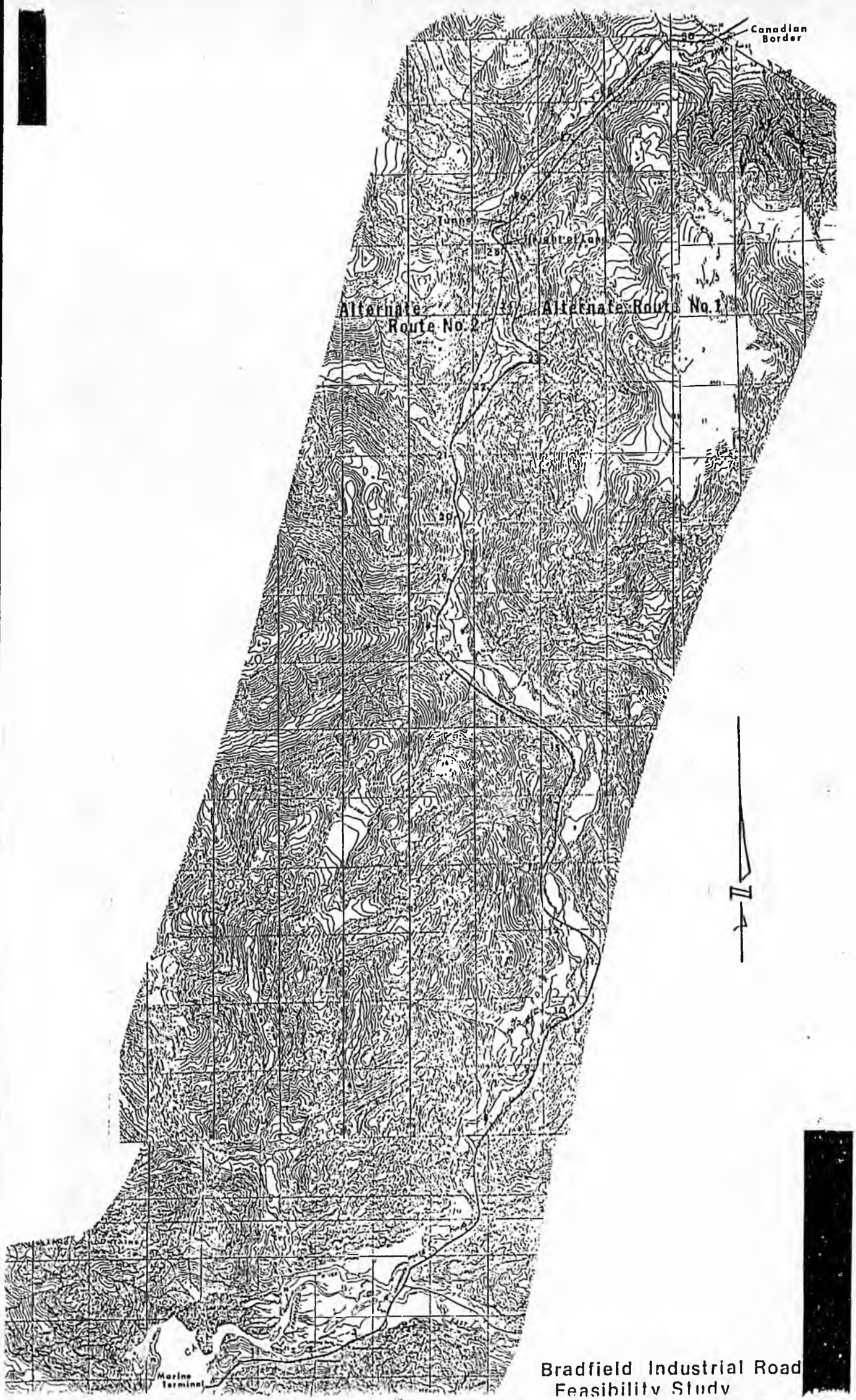
Subject to source number 3) The Alaska Industrial Development and Export Authority Funds provide the greatest opportunity for access road capital funds. The authority was created by the Alaska State Legislature in 1967 pursuant to the Industrial Development Act to finance industrial and business enterprises for the purpose of promoting the general properity and economic welfare of the people of the state, and to relieve problems of unemployment.

In February 1987 an AIDA agreement entitled Delong Mountain Transportation Project, provided for the authority to construct, own and operate a 52 mile road and deepwater port to serve the Red Dog Mineral Deposit. Proceeds from revenue

bonds issued by the authority and state appropriations ensure project financing. The initial principal user of the project is Cominco Alaska Incorporated, and under the agreement Cominco is to pay the authority established Toll Fees including certain "Piedged Revenues" or minimum annual assessment. Total project expenditures are assigned at $165 million. Toll charges are presently assessed at a rate which is expected to repay construction costs over a 50-year period, inclusive of a 6.5 percent rate of return. The tolls may be reevaluated, and subject to change, based on volume and value shipped.

Authority funding for the Bradfield Industrial Road would be dependent upon satisfactory arrangements being consumated between the users of the facility and the Authority. Those user(s) agreements would have to contain acceptable financial provisions to ensure that funds utilized for the construction and operation of the facility would be repaid by those using the transportation system. Arriving at such mutually satisfactory agreements will require direct negotiations between the potential users as well as the Government of British Columbia and the State of Alaska.

Subject to source number 4) Canadian mining industry capitalization for access road and port development. Recommendations are for the Alaska Department of Transportation to maintain dialogue with the Canadian study team evaluating Iskut River access routes and associated cost estimates. Upon completion of the Iskut Corridor study, cost completion and user efficiency may be more clearly defined against the Bradfield alternative. In the past, the British Columbia Province has expected the private sector to take the lead responsibility for mine access road development. This position has only strengthened with poor outllooks for provincial infrastructure capital. The Canadian mining industry will carefully evaluate salt water access with maximum utility and minimal debt service for long term mine viability.



Bradfield Industrial Road
Feasibility Study

2.5.90 HB311

Kubina:
- $17-20 million
- 90 days for funding in study

JONES:
Access into B.C.
- Economic activity on the other side may help pay — mining ACTIVITY.

PAT — Why finance prior to feasibility? (see DOT/PF fiscal note)
>

ADAMS: DOT should respond to questions on feasibility.

TAYLOR:
Iskoot River Resource Road.
- hoped to complete to Mine Sites by December 1990.
- Delaware Cominco

Will DOT do the work to justify revenue bonds

PARKER: Skeena River Rep. (CANADA)
Angus Lee
Rod Solver
- critical to sound development

Canadians are proceeding

PAT: what were assumptions of transportation.... for mining operations.

PARKER: Isabelli _ coal
Timber
Mineral
PAT Road in from Kassia Highway would be in competition to Bradfield Road?

Jim Gogh: Wrangell _ Econ. Develop.
Shortest / no wilderness impact /

US/CANADA Free Trade Agreement

Christenson: Chugach Native Assoc.
support HB 311 _
Portage to Whittier
Holdings at Shotgun Cove
"Could occur through private development but state should pursue road."

~~Larry~~ Howl: RR.

Drainage:

FAIKS _ European technology?
Railroad Liability for Railroad.

Georgia Buck _ Mayor
$5-$30 one way
current _ $64 round-trip

Brockway:

send for info

Larry Howl R.V. / CAR / TRUCK
How much (VAN)

Keith Gherken
Statute requires feasibility study prior to new funding mechanism

Ventilation

PAT Does DOT study complete other aspects — i.e. technical, safety in addition to feasibility? YES

PAT How to get information

- 2x normal debt service required for investors.

Kelly: does $822 million include loading terminal NO.

Kelly's Whittier Tunnel — only 5 ~~AM~~ minute

Milt Parker

ADAMS:
Individual Rec

KELLY: financial questions > Bradfield
who will build port

Whittier:

Steve Jacoby:
Div. of Gov. Coor. · 3562

Call Charlie, if:
shows up.

H B

323

DIANA HERSCHBACH
MAT-SU BOROUGH SCHOOL BOARD

P.O. BOX 521084
BIG LAKE, AK 99652

(907) 892-7839

SENATE STATE AFFAIRS COMMITTEE

BILL NUMBER HB 323

SPONSOR MENARD

BILL TITLE Big Lake Ice Classic

DATE REFERRED ~~HB~~ 1.17.90

HEARING SCHEDULED

FISCAL NOTE PREPARED

SPONSOR CONTACTED

INTERESTED PARTIES CONTACTED

Diana Herschbach - 892-7839

OTHER

STATE OF ALASKA
1990 LEGISLATIVE SESSION

BILL VERSION: HB 323
PUBLISH DATE: _____

FISCAL NOTE

REQUEST:

Revision Date: _____
Title: Authorizing a Big Lake Ice Classic
Sponsor: Menard, et al.
Requestor: House State Affairs

Agency Affected: Commerce & Economic Dev.
BRU: Occupational Licensing
Components: _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 91	FY 92	FY 93	FY 94	FY 95	FY 96
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL	0	0	0	0	0	0
REVENUE	0	0	0	0	0	0

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL	0	0	0	0	0	0

POSITIONS:

FULL-TIME	0	0	0	0	0	0
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary) No fiscal impact in FY 90.

Prepared by: Randall P. Burns, Director
Division: Occupational Licensing
Phone: 465-2535
Date: _____

Approved by Commissioner: Larry Parker for
Agency: Department of Commerce & Economic Development
Date: 2/1/90

Distribution (by preparer):
Legislative Finance
Legislative Sponsor
Requestor
Office of Management and Budget
Impacted Agency(ies)

3983D-1/012390d

Department of Commerce & Economic Development / POSITION PAPER

HB 323: "An Act authorizing a Big Lake Ice Classic."

The Big Lake Ice Classic will have a nominal effect on the Games of Chance and Skill program currently in place. The ice classic would be operated and administered by the Houston Junior-Senior High School Booster Club and the Big Lake Chamber of Commerce jointly, or by either the Houston Junior-Senior High School Booster Club or the Big Lake Chamber of Commerce. The department would not be involved other than receiving and processing an annual application and annual report and collecting the permit fees. This ice classic is not predicted to have any major impact on the enforcement and audit function carried out by the department under the Games of Chance and Skill program. The organizations must meet the requirements of a "Qualified Organization" as defined in AS 05.15.210(28) and 15 AAC 105.010.

The department believes that the Big Lake Ice Classic will provide an additional opportunity for the Houston Junior-Senior High School and the Big Lake Chamber of Commerce to raise needed funds.

We assume the Big Lake Ice Classic will be operated in the same manner as the original Nenana Ice Pool was conducted in 1959 and prior years. This means, as per AS 15.12.210(18), a game of chance where a prize of money is awarded for the closest guess of the time the ice moves. In the Nenana Ice Pool, a person actually guesses the time the ice will move by writing out on a ticket the date and time of the person's guess.

Provided the Big Lake Ice Classic is conducted in this usual manner, the department supports the legislation.

Larry Merculieff, Commissioner

Date: 23/1/90

LM/JH/dgl6132D
12390d

SENATE COMMITTEE REPORT

DATE: January 17, 1990 FURTHER:

DATE TURNED INTO OFFICE: _____

State Affairs Committee considered HOUSE BILL NO. 323

"An Act authorizing a Big Lake Ice Classic."

and recommended:

[ ] replace with _____ CS _____ [ ] same title
[ ] or adopt _____ CS _____ [ ] new title
[ ] technical title change (HB only)

[ ] attached amendment(s)
[ ] _____ letter of intent adopted

[ ] do pass

[ ] do not pass

[ ] no recommendation

[X] individual recommendations

[ ] further referral to _____

ATTACHES NEW FISCAL NOTE(S): Dept/Date:

[ ] fiscal note(s) _____

[ ] zero fiscal note(s) _____

[ ] appropriation-no fiscal note

APPROVES PREVIOUS: Dept/Date:

[ ] fiscal note(s) _____

[X] zero fiscal note(s) _____
Comm. Econ. Dev. 1.16.90

[ ] Governor's bill w/fiscal note

SIGNING DO PASS:

Pat Lekisch (DO PASS)

OTHER RECOMMENDATIONS:

Jan Faith No Rec

Tim Kelly No Rec

Pat Pawlowski do pass

Chair Signature and Recommendation