

ALASKA LEGISLATURE COMMITTEE FILES 2001-2002 8672

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GIL CARMICHAEL
ADDRESS TO THE ALASKA/CANADA
RAIL LINK CONFERENCE
VANCOUVER, B.C., JANUARY 20, 2000

I welcome this opportunity. On several occasions I have accepted invitations to address audiences in Alaska concerning future options and opportunities as that state considers its 21st Century transportation needs. Strategies and intentions on the part of the people of British Columbia and the Yukon always have been important to any plans that Alaska might undertake, and I am pleased to know that opinion leaders in Canada have begun to consider what steps are appropriate for them.

As an outsider, it is not proper for me to come here and lecture you about what you should do. But I do have experience which I believe is worth sharing.

A North American Rail System Has Evolved

One of the developments that stimulated this meeting is the growing recognition that remarkable changes in recent years have transformed the main-line railroads of North America into a unified operating network. This North American rail system carries profound...and positive implications for the economies, societies, environmental concerns, and mobility needs of the people who live in Canada, Mexico and the United States.

There actually is a lengthy history of cross-border operations involving our railroad companies. For many decades tracks of the Canadian-owned Soo Line ranged throughout the United States midwest to destinations as far away as Cincinnati and Kansas City. The Grand Trunk, a long-time subsidiary of Canadian National, operated to Detroit and Chicago. United States railroads controlled routes in southern Ontario. Burlington Northern has served Vancouver and Winnipeg for many years. Amtrak operates to Montreal, Toronto and Vancouver. In the early decades of the 20th Century United States rail companies controlled affiliates within Mexico, and later Mexico's national railway system held interests in a key route in Texas.

One important legacy of cross-border ownership and operation is a continental rail system with common and standardized track, equipment, and operating practices. Locomotives, freight cars and passenger equipment can operate freely over routes in all three nations.

The basic pattern of a North American rail system has been in place for a century. Unfortunately, it suffered along with the fortunes of the rail industry in the post-World War II era,

when public policy in the United States favored transportation solutions involving highways and commercial aviation, and was content to allow rail transportation to languish. That finally changed in 1980 when Congress adopted the Staggers Act and conferred a greater degree of economic deregulation upon the industry.

The result of Staggers was "staggering." A sick industry was restored to health. During the past 20 years more than 60 billion dollars of private capital investment has flowed to new equipment, better track, and innovative technology. United States railroads are profitable again. Light-density lines have been spun off to hundreds of local and regional carriers who have preserved and improved freight service. Policy in Canada meanwhile allowed the nation's federally-chartered company, Canadian National, to divest itself of uneconomic lines and dramatically improve its balance sheet. Mexico restructured its rail system through a privatization plan that now stands as a world model. Private companies with joint Mexican-US ownership now operate routes throughout that nation and have developed improved high-performance corridors which link the interior of Mexico with freight customers as far away as Montreal and Vancouver.

Today, the North American Rail System serves 90 states and provinces--almost 400 million people--with 240,000 miles of routes. Main-line routes connecting major cities utilize heavy-duty welded rail and are in better operating condition than at any time in the industry's history.

A Global Intermodal Network Is in Place

Meanwhile, another innovation has taken place over the past 20 years, and it has profoundly altered transportation. Intermodal transportation has become the global standard for moving freight---using a system which is sharply focused on speed, safety, reliable scheduling, and economic efficiency. "Intermodal" is to transportation what the "internet" is to communications.

Today, the intermodal network emphasizes moving freight in North America and passengers in Europe and Asia. It is beginning to include passenger service in the United States.

The global high-speed intermodal freight system builds on the strengths of each mode--who have become partners in offering service. Key to its success is the versatility of the cargo container. Cargo ships and airplanes span the oceans. The freight railroad is the high-speed, long-distance, transportation artery for container movement on the land. The truck provides local feeder service at origins and destinations. Cargo airplanes deliver high-value and specialized freight. This

system works--but it urgently needs dramatic improvements to its land component in order to handle growing volumes of containers delivered by ship and airplane.

Modern, strategically located, high-efficiency, high-capacity intermodal terminals are key to the system, providing almost "seamless" interchange of containers. Secondary rail and highway routes support the intermodal system and connect cities, rural regions, and individual freight customers to the main-line corridors.

Today, a doublestack train leaving a coastal port like Vancouver can replace 280 trucks, run at speeds up to 90 miles an hour on the western railroads, and afford as much as nine times the fuel efficiency of an 18-wheel trailer rig on the highway. Overall, the operational and economic efficiency of freight's intermodal network conserves fuel, reduces other environmental impacts, and is significantly safer. It represents the most economically and environmentally "sustainable" approach to transportation services. These are especially critical elements for the pristine nature of Northwest Canada and Alaska.

A Rail Corridor Offers Many Advantages

The time has come, it seems to me, for the people of northwestern Canada and the state of Alaska to consider the benefits of being connected to the huge North American Rail System and the global intermodal network--whose long-distance land component is the railroad. Experience elsewhere demonstrates that efficient transportation service brings down the cost of transporting goods and passengers. The people of Alaska, British Columbia and the Yukon are consumers of goods and are far removed from the sources of manufacture.

Other important trends are in place which suggest to me the advantages of a British Columbia-to-Alaska rail linkage. I recognize that some people would argue that vast sections of this region be preserved in pristine condition. However, construction of the Alaskan Highway more than a half-century ago opened northwest Canada and Alaska to development. In retrospect, we would have been better off if a railroad line had been built instead. But that is a bit of history that we cannot erase.

During the post-World War II era, Alaska's population has grown by roughly 100,000 each decade. That trend is firmly in place. Northern British Columbia and the southern Yukon have been opened to mineral extraction. At the same time the entire area is attracting the interest of tourists. They are coming. They will continue to do so.

I am convinced that a policy of "selective expansion" of transportation connections, based upon the railroad, will be

preferable to annual invasions of sport utility vehicles rambling willy-nilly over environmentally-sensitive land--such as Alaska's Denali National Park.

The Unique Benefits of Railroads

For this part of the North American continent, rail service offers several advantages over highways.

The railroad operates over a narrower right-of-way, and leaves a smaller footprint upon the land. Construction activity is less disruptive of natural surroundings. Research undertaken in Russia suggests that a rail corridor has far less impact in regions of permanent frost because track ballast absorbs much less radiant heat from the sun than a highway surface. Research conducted by Alaska's Department of Transportation found that it actually raised the freeze line.

Railroad design allows heavier weights to be transported with little effect upon the land surface. This takes on special importance in regions of unstable soil conditions, and those climates subject to frequent freezing and thawing. By contrast, even the best-designed interstate highways built over stable terrain are being repaved at nearly twice the rate originally projected, because heavy trucks cause so much damage.

Railroad operations are more environmentally benign as well. Trains are more fuel efficient and emit lower levels of pollution. Pollution levels can be reduced even further through the use of locomotives powered by natural gas--or ultimately by electrification at some point in the future. The "occasional train" is less intrusive than a constant procession of highway vehicles. They also afford all-weather capabilities. I am told that one railroad track has capacity equal to eight lanes of highway.

Rail transportation offers a particular benefit in accommodating tourism business. Train travel by itself can be part of the tourism experience, and moving tourists by train permits controlled access to scenic areas, as the Alaska Railroad has proved for years. When people leave the train, they can move in groups via shuttle buses, which cause fewer problems than a herd of private vehicles operating independently. No matter how carefully we plan roadways to minimize environmental concerns, when people visit your scenic wonders by SUV, they will be inclined to roam wherever their personal fancies impel them.

I already have noted the lower-cost transportation that railroads can provide versus truck or air cargo. But a rail-based tourism system also will allow for the expansion of a job-producing tourist economy in an environmentally sustainable way.

It Is Time to be Visionary

I have presented my case for connecting northwest Canada and Alaska to the North American Rail System and the global intermodal transportation network. It is not my intent to recommend a particular route alignment, and I am aware that preliminary studies already have taken place. Obviously, a rail line through northwest Canada logically would connect with the Alaska Railroad. I also believe that consideration should be given to "multi-modal" rail corridors. It is an easy matter to establish a buried fiber optics cable in the process of building a railroad line. This would connect remote regions to the continent's main-line telecommunications system. Portions of the corridor may make sense for energy pipelines as well. Rail corridors can easily move freight, passengers, fuel and information.

The specific route--its components and capabilities--rightfully belongs as a decision to be made by the people of British Columbia, Alaska and the Yukon. Part of the decision process should include the feasibility of private investment to defray a portion of the costs. By working with its congressional delegation and the U.S. Department of Transportation, I believe that Alaska can make a strong case that segments of this rail project to be built in that state should qualify for funding under the recent surface transportation reauthorization law.

I recognize that Alaska, British Columbia and the Yukon represent special places whose priorities sometimes are different from those considered elsewhere. Distance. Remoteness. Climate. Environment. The status of native inhabitants. Natural resources. Scenery. Wilderness.

Growth is taking place, and will continue. Alaska's rate of population increase during the past 50 years is exceeded only by that of Arizona, Florida and Nevada. Tourists arrive in greater numbers each year to Alaska and northwest Canada. In the "lower 48" states, the 20th Century was a period in which we accomplished much in transportation, but the landscape is littered with the debris of our mistakes. We became over-reliant upon the highway and the airport. We allowed our railroads to founder for 80 years until the choices were stark ones--deregulation or nationalization. Many local and intercity rail passenger services were left to die. Our transportation policies led to the withering of small towns and the crowding of new suburbs. We brought smog and highway gridlock to our large cities.

You people have the opportunity to capture the benefits of the 21st Century's transportation system without repeating our mistakes of a century that has just passed into history. You have the freedom to design a system for your use that qualifies as "ethical." Ethics may seem to be a strange word to apply to

something as commonplace as transportation, but it is a concept that I have argued for more than a quarter-century. When I speak of an ethical transportation system, I mean one that is economically-efficient, safe, environmentally-benign, and energy-conserving, but also meets the mobility needs of the people who live here--or come to visit.

We now know that highways and airways cannot solve the transportation problems facing us. They cannot meet the freight and passenger growth that we confront. I encourage you be visionary. If you plan carefully, you can maintain the best possible quality of life for your citizens.

Thank you.

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Steve Hites has been in the entertainment business in the North since 1972, when he left his home in Colorado and came to Skagway, Alaska, seeking a job with the White Pass & Yukon Route narrow gauge railroad. While working his way through the company as a brakeman, conductor, train dispatcher, and passenger agent, he performed in local theaters and saloons, and wrote dozens of songs about the Klondike Gold Rush and the history of Alaska and the Yukon. These songs formed the basis of his first album, "Yukon Legacy", which was recorded live at the Red Dog Saloon in Juneau, Alaska, and released in 1978. It was the first record album ever produced in Southeast Alaska.

Hites has toured throughout the North over the last 27 years, and in addition to hundreds of stage, television, film, and radio performances, he has released two more albums: "Inside Passage" (1992, 1996), and "Life on the Railroad" (1993). His original songs have appeared on several albums by other northern artists. He has also produced three professional multi-media programs, a stage play, and written and published a book on the White Pass & Yukon Railroad, "Scenic Railway of the World."

During his railroad career in Alaska, Hites worked as Director of Rail Operations for Tour Alaska, Inc., pioneering the use of privately-owned vista dome passenger cars on the Alaska Railroad. He was Manager of Passenger Operations for the successful reopening of the White Pass & Yukon Route as a summer-only passenger excursion railroad. This line passes through the Klondike Gold Rush National Historical Park as well as the Tongass National Forest, and carried over 285,000 people in 1999. Hites continues to work in a consulting capacity for Tri-White Corporation, the Toronto owner of the White Pass & Yukon.

With the rapid growth of the Alaska cruise industry, Hites and his wife, Gayla, concentrated their efforts on recreating the Skagway Street Car Company, a sightseeing operation in Skagway which uses a fleet of eleven antique automobiles

SKAGWAY STREET CAR COMPANY
SKAGWAY MERCANTILE
EXCELSIOR CAPE

from the 1920's and '30's to show visitors around the historic community and all its points of interest. Hites calls the tour "theater without walls", and dresses up in a 1890's- style black three- piece suit with gold watch and derby hat. "We get to tell old Skagway stories on every tour," he says. "It's great fun."

The company also operates a fleet of modern 27-passenger minibuses, providing short sightseeing tours up to the US/Canadian border, and longer day trips into the Yukon Territory. The majority of the company's tours are sold on cruise ships.

In 1996 the company opened a new entertainment complex in Skagway. The three-story building houses the 160-seat Club House Theater, the 2,000 square foot Skagway Mercantile specialty retail store, and the Excelsior Cafe & Bakery, as well as providing the company with offices, storage, and staff apartments. The building was inspired by the 1899 architect's drawings of the original Club House of the Arctic Brotherhood, a Klondike Gold Rush social organization. The new building, which was built in the Skagway Historic District in the Klondike Gold Rush National Historical Park, incorporates all of the period elements of a structure which would have been built in Skagway in 1899. It is Skagway's largest historic-styled building.

Steve Hites's stories, songs, and original music can be heard daily each summer when he performs at the Club House Theater, or at some 300 special concert performances which he contracts to do aboard the cruise ships which call in at Skagway throughout the season.

Hites has a degree in History and Education from Whitworth College. He served on the Skagway City Museum Board for ten years, and was elected to a seat on the Skagway City Council from 1991 through 1994. During his term the Council voted the Guidelines for the Skagway Historic District into law. These guidelines, which are part of the Skagway City Code, are used to direct development in the Skagway Historic District, where architecture and signage must reflect the period of the Alaska - Yukon Gold Rush of 1896 - 1910. Most of this district in downtown Skagway is also part of the Klondike Gold Rush National Historical Park's Skagway Unit.

Steve Hites and his wife Gayla have one grown son, Ryan.

Tourism & Recreational Railroads: A Northern Glimpse into the 21st Century

The first railroad in the Far North, the White Pass & Yukon Route, was built one hundred years ago with British financing, American engineering, and Canadian contracting. I wrote a song to honor Micheal J. Heney, the energetic young Canadian contractor who helped to build the WP&YR.

"Big Mike Heney"

Copyright 1980 by Steve Hites, Skagway, Alaska USA.

*I was born one cold gray morning on the Overland Express;
the brakeman was the midwife, the conductor was impressed.
They knew I was a railroad man from the chew tucked in my cheek;
I shrieked like a locomotive, had a spike between my teeth.
(He shrieked like a locomotive, had a spike between his teeth.)*

*Before I was old enough to walk they had me layin' track
crawlin' along, ties under my arm, a rail across my back
I warmed my bottle on the firebox, I helped to shovel coal
While the engineer would take his nap, I made the engine roll
(While the engineer would take his nap, he made the engine roll)*

*Drillin' tunnels through the Rockies, drinkin' whiskey during the day
I grew up on the CPR, Van Horn a leadin' the way
We laid track so fast we never looked up 'til a fish swam by to say
"you've laid the railroad over a cliff into Vancouver Bay"
(Yes, you've laid the railroad over a cliff into Vancouver Bay)*

*As I was there treadin' water, another fish passed by to say
"They've found gold up in the Klondike two thousand miles away"
So I hitched a ride on a humpback whale right up to Skagway town
The gold rush needed a railroad, I started breakin' ground*

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Rep. Jeannette James

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(The gold rush needed a railroad, he started breakin' ground)

*With picks and shovels and powder, and a wild-eyed gang of men
we blasted into the mountains and blasted them down again
I used spiderwebs for trestles, fought with grizzly bears as well
"Give me dynamite and snooze, I'll build a railway straight to Hell."
(Give him dynamite and snooze he'll build a railway straight to hell.)*

*I went on to other exploits, built a railroad to the Pole
a railroad to Hawaii, trains to Singa por and Seoul
but a man like me just can't sit back as I gaze up at the stars
I'll build a railroad up to Jupiter, a shortline on to Mars
("He'll build a railroad up to Jupiter, a shortline on to Mars.")*

All that talk about the last century has got me going. Let's build a Time Machine, get in it together, set the old "Way Back Dial" (remember the Way Back Machine from the "Rocky and Bullwinkle Show", with Sherman and Mr. Peabody?), and hang on!

It is the late 1960's. Trains Magazine editor David P. Morgan writes a cover story which asks, "Who Killed the Passenger Train?" Privately operated North American passenger trains are dying off, victims of the interstate, the automobile and the airplane.

Let's go on forward a bit. It is the mid 1970's. The lives of quasi-government corporations Amtrak and Via Rail hang in the balance as government committees drag these skeletal rail services through the hot coals of debate on "public need" vs. "public dollars" spent on passenger trains.

Whoa. That's enough of that. Let's jump forward again.

It is the mid 1980's. Union Stations in major cities are turned into shopping malls, hotels, and restaurants. The last American private passenger train, the Rio Grande Zephyr, is allowed to suspend service. The passenger train has finally reached the end of the line.

Not good scenery here. Seems the farther ahead we go, the worse it gets. But being optimists (and everyone in this room is an optimist, or you wouldn't be here talking about construction of the last link in the transcontinental railroad), we want to see where all this ends up.

Now, it is the year 2000. It is now thirty-five years after the "official death" in the press of the passenger train. And we look out across a very different landscape.

Rail travel is booming. It is not traditional rail travel by any means. It is a new type of experience: recreational rail travel, leisure rail travel, maybe, even, perhaps, rail cruising. The phenomena is still new enough that workable labels have yet to be attached. But whatever you want to call it, the recent popularity of recreational rail travel begs comparison with the rise in popularity experienced in the cruise industry. And with tourism predicted to become the largest industry in the world during this century, business and industry leaders should look closely at these parallels to better understand present and future opportunities.

Into our Time Machine again! Back again to the '60's.

The Jet Age arrives. The remaining transatlantic ocean liners are doomed. Some survive by trying to transform themselves into warm-water party vessels, offering leisurely cruises around the Caribbean. They don't really go much of anywhere, there isn't much to do on board (shuffle board and gambling), and even the entertainment is sophomoric. But it keeps several companies afloat. Entrepreneurs like Miami's Ted Arison charter laid-up ships on the cheap from the likes of Canadian Pacific, fill them with discount cruisers, bring them home happy, and do it again. Wanting to find a name that tells potential customers what he is selling, Arison chooses "Carnival" for the atmosphere on board, and tags his vessels "The Fun Ships". (Carnival's "Fun Ships" now comprise the largest and most profitable cruise line in the world.) Stan McDonald charters the CPR's "Princess Patricia", and starts Princess Cruises. Chuck West starts Westours, a cruise and land package operator to Alaska. (For a detailed study of this fascinating transition period, read Carnival Cruise Line's President's Bob Dickenson's 1997 book, "Selling the Seas: The Creation of the Modern

Cruise Industry").

Wow! What's happened here? An outdated transportation mode whose fleets are ready for the scrapper is repackaged and becomes a leisure mode. The ship becomes the vacation. The means becomes the end, and the journey becomes the vacation.

Let's pop back to the present, because this is exactly what has happened with the passenger train.

Successful examples of this change are all around us.

Excursion railroads like the White Pass & Yukon Route, and the Durango & Silverton;

"Day trains" like The Rocky Mountaineer, and the Sierra Madre Express in Mexico's Copper Canyon, who overnight their passengers in hotels along the rail route;

"Cruise trains" like the American Orient Express

Private car "trains" like the Princess' Tour's Midnight Sun Express, and Holland America Line Westours' McKinley Explorer;

Dinner trains like the "Spirit of Washington" running in the Seattle metropolitan area, and BC Rails' dinner train to Squammish;

Combinations of the above like the Napa Valley Wine Train;

Excursion trains used as substitutes for automobiles like the Grand Canyon Railway;

Ski trains like the one out of Denver, Colorado to Winter Park on the old D&RGW;

Steam excursion trains operating over regular roads, like BC Rail's popular "Royal Hudson".

There are many others, but these show the diversity of products available to the 21st Century recreational railroad passenger in North America.

These new products all have several things in common:

- They do not primarily serve the public as a means of getting from A to B
(This is even true with the Denver Ski Train. The customer is buying the skiing experience packaged with the train, not the transportation service.)
- They provide what the customer wants (as to a variety of services)
- They do it at a price which is acceptable to the market
- They make money, or they aren't around anymore. Not one of these operations is subsidized by a government. My personal rule of thumb: railroad operations should pay their own way.

Recreational rail travel needs to be looked at as a for-profit enterprise. For most common carriers, passenger revenues have never been more than incremental, an "add on" to freight revenues. And, in the Far North, with its light population density, local passengers have never been a major part of a railroad's revenue. So, these revenues need to be generated from elsewhere.

The first revenue train operated by the first railroad in Alaska was a July 21st, 1898 passenger excursion train from Skagway to the end-of-track on the White Pass and Yukon Route. Four flat cars were jammed with local politicians, businessmen, writers from Seattle, and from the towns three newspapers. Shortly after the road's completion in 1900, the White Pass rolled out its timeless slogan, "Scenic Railway of the World," which it carries to this day.

WP&YR maintained a Passenger Office in Chicago, Illinois. White Pass salesmen like Herman Weig carried their bulky "magic lantern" show out on the road. The marvelous hand-tinted photo transparencies held audiences in awe, and Weig lectured throughout the country to church groups and service clubs on the glories of leisure travel in the mysterious Land of the Midnight Sun.

Canadian Pacific put together complete vacation packages to Alaska and the Yukon early on, using their fleet of coastwise steamships. Northern Pacific followed, partnering with the Alaska Steamship Company. With the opening of the Copper River & Northwestern, circle tours could be booked all the way through to Fairbanks, with rail from Cordova to Chitna, thence overland to the Chena River, and connecting

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with river steamers back up the Yukon itself and back out at Skagway. The completion of the U.S. Government Railroad in 1923 created yet another circle tour loop, from Seward to Anchorage, and on to Fairbanks, now entirely by train.

Seventy- six years after U.S. President Warren G. Harding drove the ceremonial last spike at Nenana, two railroads in the Far North survive. Passenger revenues are essential to both, but they are generated by tourism to Alaska. Neither survives on ticket sales generated along the route of its line.

The Alaska Railroad is a full service common carrier running over the same route opened by President Harding. It operates year-round passenger service on its own trains. During the busy summer tourist season, the ARR express trains between Anchorage and Fairbanks offer private car haulage rates to Princess Tours and Holland America Line Westours, whose private fleets now total over two dozen full-dome railcars. These luxurious vista domes are carried on the tail end of the trains behind the regular Alaska Railroad coaches. In addition, the ARR has recently purchased a new full-domed trainset which can be used for service on the popular scenic run from Anchorage to Seward, Alaska.

The White Pass & Yukon Route, which suspended operations for five and a half years between 1982 and 1988 due to the closure of its principle shipper, the Cyprus Anvil lead-zinc mine, reopened in May 1988 as a passenger-only summer excursion railroad. Cashing in on the rapid growth of the cruise market, the WP&YR carried 36,000 riders its first season back in business, hit 100,000 by the fourth season, and carried an astounding 278,000 revenue passengers in 1999. With its 40-mile round-trip ride sold as a Shore Excursion on every cruise ship calling on Skagway, operating up to nine trains per day, many to sold-out crowds, it is one of the most profitable of all excursion railroads, commanding one of the highest rates per passenger mile operated anywhere in the world. Its Toronto owner, Tri-White Corporation, plans to grow an even larger leisure services company from within the WP&YR. They have no plans to change the profitable 100 year old narrow gauge railroad, but President Fred McCorriston has repeatedly said that White Pass will look at any reasonable business proposal that can make money for his company.

So much for the present. What will the future of rail cruising look like? How will it look in the Far North? We do have several clues.

One of the least heralded and most dramatic changes which has come about has been the complete redesign and re-engineering of the passenger car.

Tom Rader, founder of Colorado Railcar Manufacturing in Ft. Lupton, Colorado, began the re-invention of the vista dome in 1988 with the introduction of the "Ultradome" on the Midnight Sun Express between Anchorage and Fairbanks. Rader continued engineering the concept with the "Ultradome II" series, and now builds completely new "from the ground up" full-dome railcars, in both a double-decked (bi-level) and single level version (new sills, new trucks, brand new everything). Customers for the Rader domes include Princess Tours, Peter Armstrong's Rocky Mountain Rail Tours, and the British Columbia Railway. The Alaska Railroad purchased a full trainset of Rader-built equipment from First American Railways defunct "Florida Fun Train". (For answers as to why that failed, see me after the conference: we'll have a drink and talk about where not to locate one's terminals, and how you really need to have a solid market your product before you start running it.)

Rader threw the old Pullman Standard-type construction concepts out the window, and literally built a new window. Using modern materials and techniques, he created the largest viewing areas ever built into rail equipment. With their rooftops made entirely out of specially strengthened, tinted, bowed glass, these versatile and lightweight cars offer passengers unprecedented scenic viewing opportunities.

Many railroads run through spectacular scenery, but without a platform from which to view that scenery, the ability to experience that beauty is diminished, or even lost. If what the railroad has to sell is its scenery, it must find the best way to serve that product up for the viewing customer. The new dome design has provided one way.

And they are just a box, waiting to be made into something.

Just like aboard the cruise ships, the interior spaces of the new rail cars are being re-shaped by the customer as well. To rise like a Phoenix from the ashes, the concept of the ocean liner has to re-invent itself. On Royal Caribbean International's new Voyager of the Seas, old-time shuffleboard has been replaced by ice skating rinks, golf courses, in-line skating arenas, rock climbing walls, and multiple themed restaurants. Similarly, the tired railroad day coach has become the interactive video arcade car, a bi-level atriumed dance lounge, a two-tiered themed dining room, or a solarium car with retractable roof fully equipped with weight room, saunas, and multiple hot tubs.

Sleeping accommodations no longer need to be crammed into dark narrow spaces with the bathroom down the hall, or perhaps under the seat of your tiny roomette. Guests on the cruise train of the 21st Century will lie down in comfortable double beds under their section of the full dome, reaching from one side of the car to the other, falling asleep under a canopy of stars, and in the morning awake - not to an Amtrak Deluxe Bedroom commode/shower all-in-one combination plastic molds- but to their own full-sized washroom with separate in-room shower bath. When not enjoying the on-train activities (lectures in the library, a piano concert or dance band in the Showroom), they can watch television or videos in their suite, or let the countryside roll by outside while they listen to the music of their choice on their state-of-the-art in-room stereo sound system.

To be fair, some of this is already being done on the beautifully refurbished 1950's era equipment of the American Orient Express. But no matter how you clean it up, the platform being used by the AOE still dates from the 1950's: tiny rooms, bathrooms down the hall or retrofitted, and a high price tag for the pleasure (between \$500 and \$1,000 per person per day).

With no real competition in the luxury end of the market, the AOE has done well. But any train which utilizes the new car technology will provide more of the creature comforts the customer wants, and will capture the market in short order.

The cruise trains of the 21st Century will be what the market demands. Any railroad wanting passenger revenues will need to use the most modern platforms available to get a piece of that market. They will present new and different itineraries to lure more people to try the cruise train product: ski cruises, Civil War theme cruises, The American Southwest cruises, "the best Capital cities of America" cruises, and "National Parks of the West". The possibilities are endless. And the proposed transcontinental link between Canada and Alaska, with its scenery and sweep, is a natural for the new trains.

Cruise lines, tour companies, and travel wholesalers could offer packages with a cruise ship one way, and a rail return on the "cruise train" back again in the opposite direction. Stopping along the way for historical, cultural, or natural points of interest, the cruise train itinerary, like that of a cruise ship, would allow passengers the opportunity to get out and experience the areas along the route first hand. Off-train excursions into the countryside, like Shore Excursions on ships, would allow for more in depth exploration.

Pretty cool stuff. But as we enter this new era, for businesses that really want to be a part of it and participate, the sky literally has to be the limit. The market demographics tell us that the leisure traveler of 2000 is younger, more educated, more sophisticated, more well-traveled, more active, and more financially secure than ever before. They are far more demanding, but they will pay the fare for a perceived value. They like nice things.

I recall the middle-aged Texan who was riding with his family and a small group of escorted tour passengers on the original Midnight Sun Express back in 1984. He was wearing a leisure suit with an open-necked shirt, and several gold chains hung around his neck. As we glided into the Nenana River Canyon southbound, we decided to treat the small group to something special, and served brunch up topside in the dome. Sipping his fresh Bloody Mary, savoring the perfect unbroken hollandaise sauce on his Eggs Benedict, listening to the tastefully muted classical music floating over the sound system, he leaned back. looked at me and said, "Ya' know, son, I like nice things. This is a nice thing."

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The passenger trains which will be placed into service on the proposed last great transcontinental link between Canada and Alaska will have to be cut of that kind of cloth.

The cruise trains of the next century must be "nice things". If they are, long distance rail travel will most certainly "make its own way", finding a comfortable niche in the leisure market of the future.

One last element to consider. Beyond the statistics and market information, beyond the geography and the engineering, there is the adventure of what is being proposed here today. The doing of something never before done, of participating in something important, something great. No one put that feeling into words in a better way than Gordon Lightfoot did in 1967 with his wonderful song about the very first Canadian Transcontinental railroad, the "Canadian Railroad Trilogy".

(CANADIAN RR TRILOGY).



Note: The above paper was presented by Steve Hites at the Alaska Canada Rail Link Conference, January 20, 2000, Vancouver, B.C.

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MARKET DEVELOPMENT POTENTIAL
for the
COMMODITY CARGO TRANSPORT
between
ALASKA, CANADA AND THE NORTHERN TIER

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EXISTING AND PROPOSED RAILROAD LINES IN ALASKA AND CANADA AND NORTHERN TIER

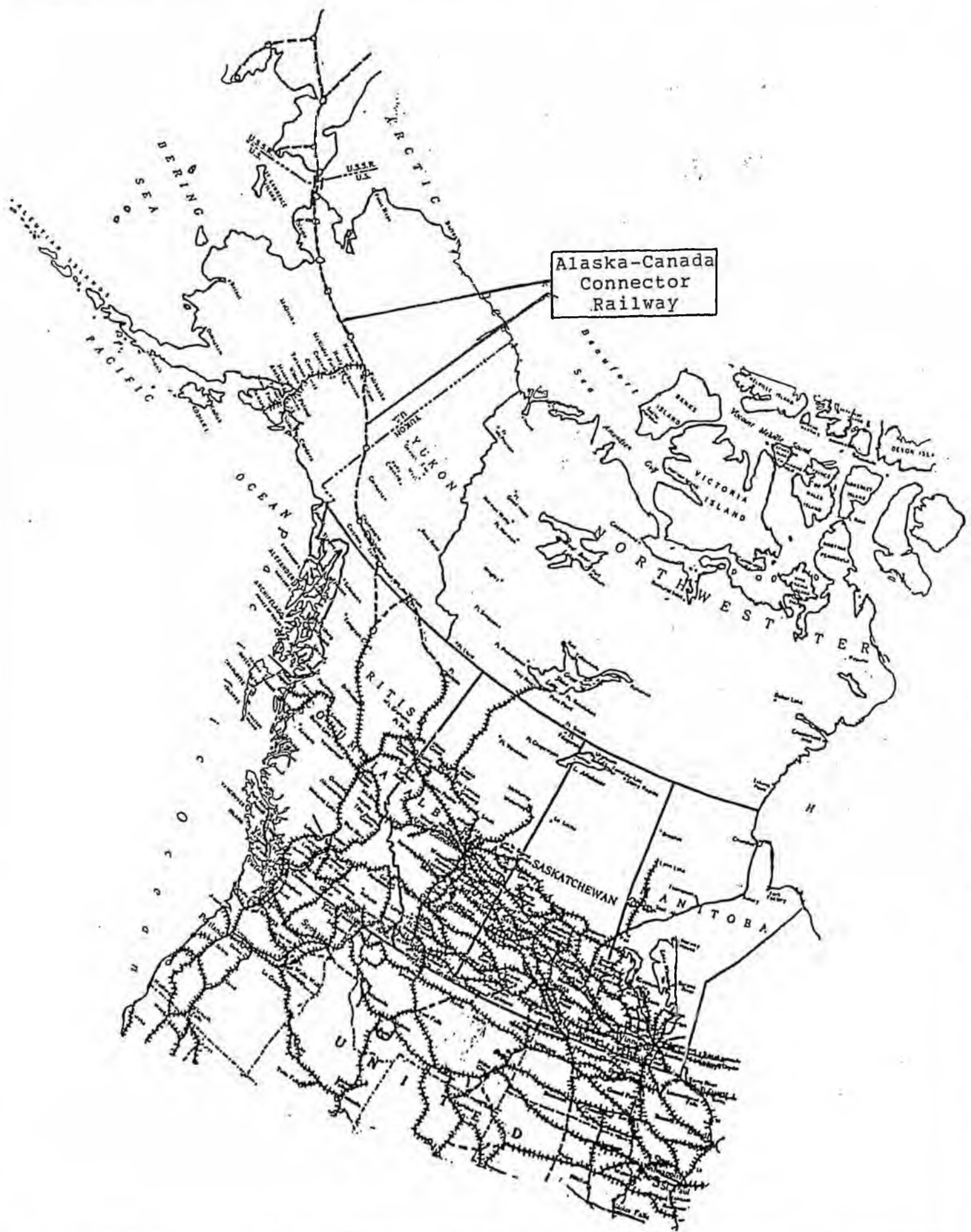


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INTRODUCTION

There is renewed interest in the connection of the Alaska Railroad with the rest of the North American rail network (Ref. 1). The economy of Alaska is becoming increasingly intertwined with the rest of the United States as a north-south orientation. In addition, the Canadian provinces are becoming more interconnected to their southern neighbors in the United States and Mexico as north-south interlinkages become greater. The completion of the railway link between Alaska and British Columbia is the one major element in the completion of the North American rail network, as shown in Figure 1.

There are several reasons why the completion of the railway from Canada to Alaska would be beneficial for all of the affected regions. The completion of the railway line from Canada to Alaska would reduce the transportation costs of goods hauled to Alaska. The result would be a reduction in the cost of living to Alaska residents. It would then become easier and cheaper to export raw materials from Alaska to Canada and the Lower 48 States of the United States. Fuel and mineral resources produced in Alaska would then become more competitive from a price standpoint in the lower 48 states as compared to alternative sources.

The completion of the construction of the railway from Canada to Alaska can also influence trade patterns in North America and throughout the World. The recent passage of the North American Free Trade Agreement (NAFTA) between Mexico and the United States in 1993 has led to a major expansion in north-south trade between the three countries. It has been estimated that the volume of north-south trade in North America has increased by 5.0 percent per year from 1993 to 1999. The total volume of the east-west trade in North America during the same period has only increased by 1.5 to 2.0 percent per year.

There is the potential for extending the North American railway network to the south from Mexico to South America by way of Central America (Ref. 2). There have been proposals advanced to develop a unified rail, road, air and marine transportation system among all of the nations of North and South America. The Western Hemisphere Transportation Ministers' conference held in New Orleans in December 1998 agreed to begin the planning for such a unified transportation system as a part of a future trade area of the Americas (Ref. 3). The route layout for a proposed Western Hemisphere rail network is illustrated in Figure 2.

There is also the possibility of increases in east-west trade by way of Alaska to Asia and Europe. A recent article by Gillespie (Ref. 4) in 1998 in the Alaska Business Journal described the possibility of completing an underground railroad tunnel beneath the Bering Strait. There have been a number of proposals made to build a railroad tunnel under the Bering Strait, but have so far been unrealized (Refs. 5,6,7,8). The construction of a railroad tunnel under the Bering Strait would allow a Worldwide railroad network to be developed as shown in Figure 3. Alaska and neighbor Chukotka would then become the American and Asian World trade centers for a future Worldwide rail network connecting all continents.

Figure 1

CONNECTING RAILROAD ROUTE NETWORK TO THE BERING STRAIT RAILROAD TUNNEL 5

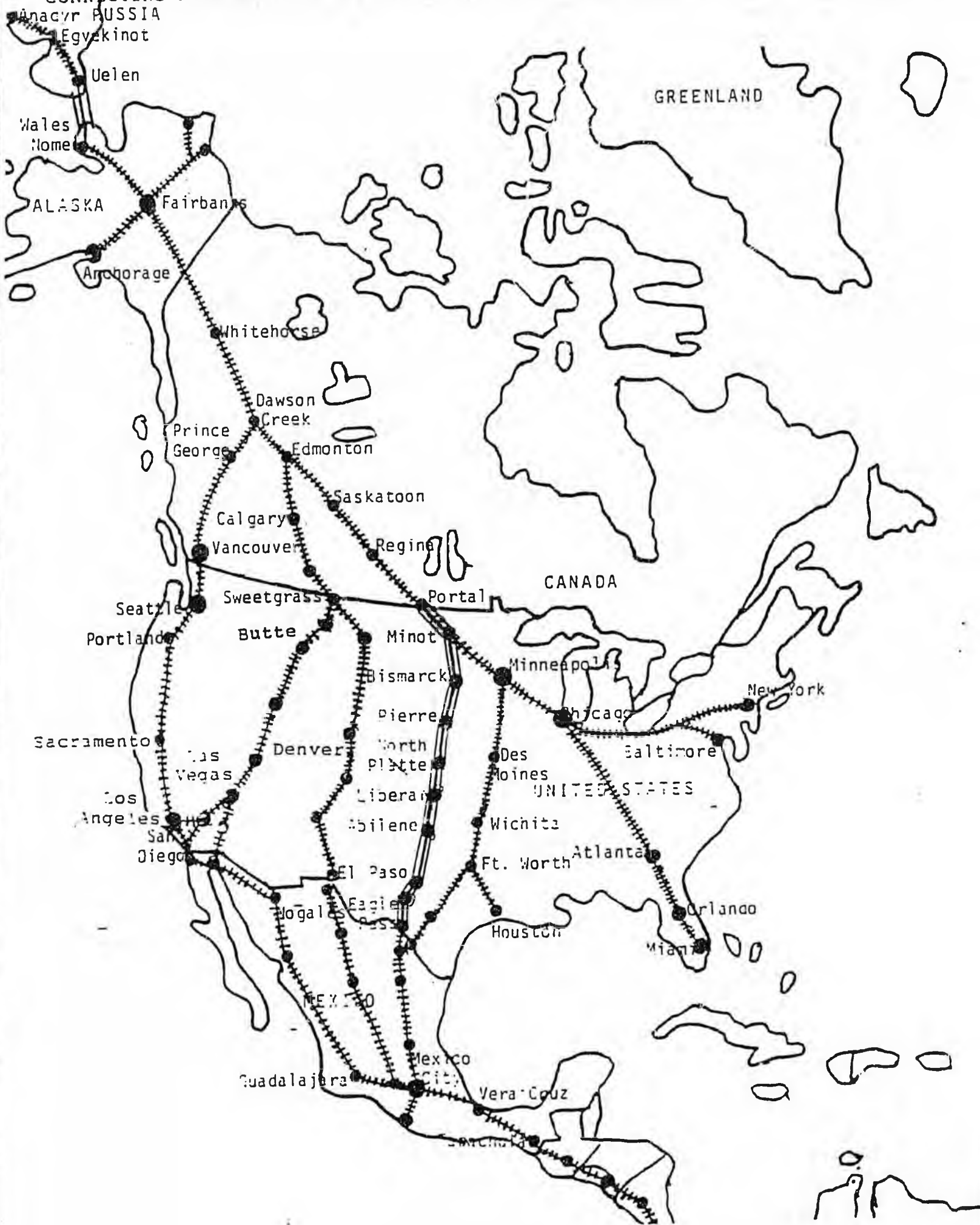


Figure 2

PROPOSED INTERAMERICAN RAILROAD LINE BETWEEN NORTH AND SOUTH AMERICA

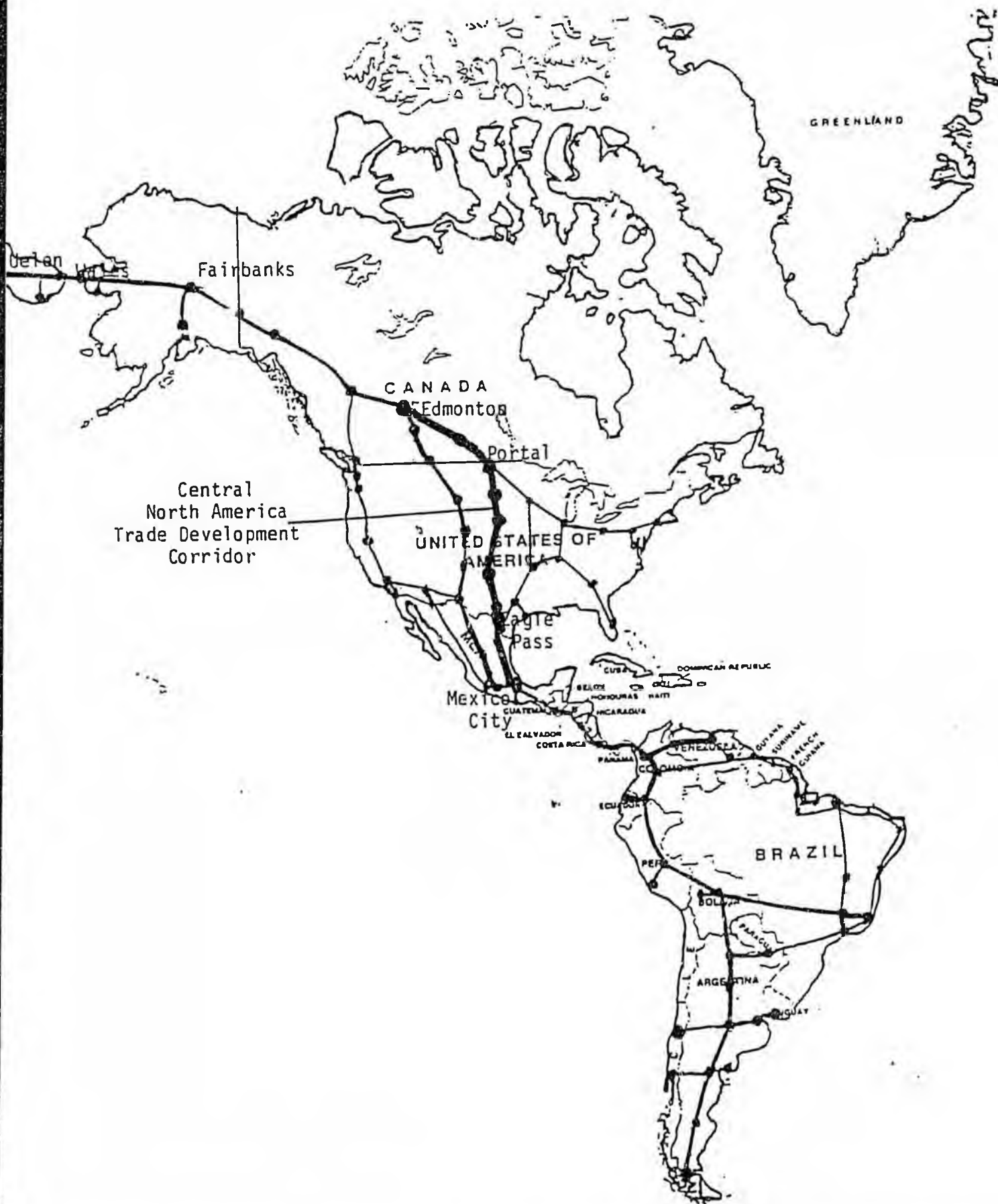
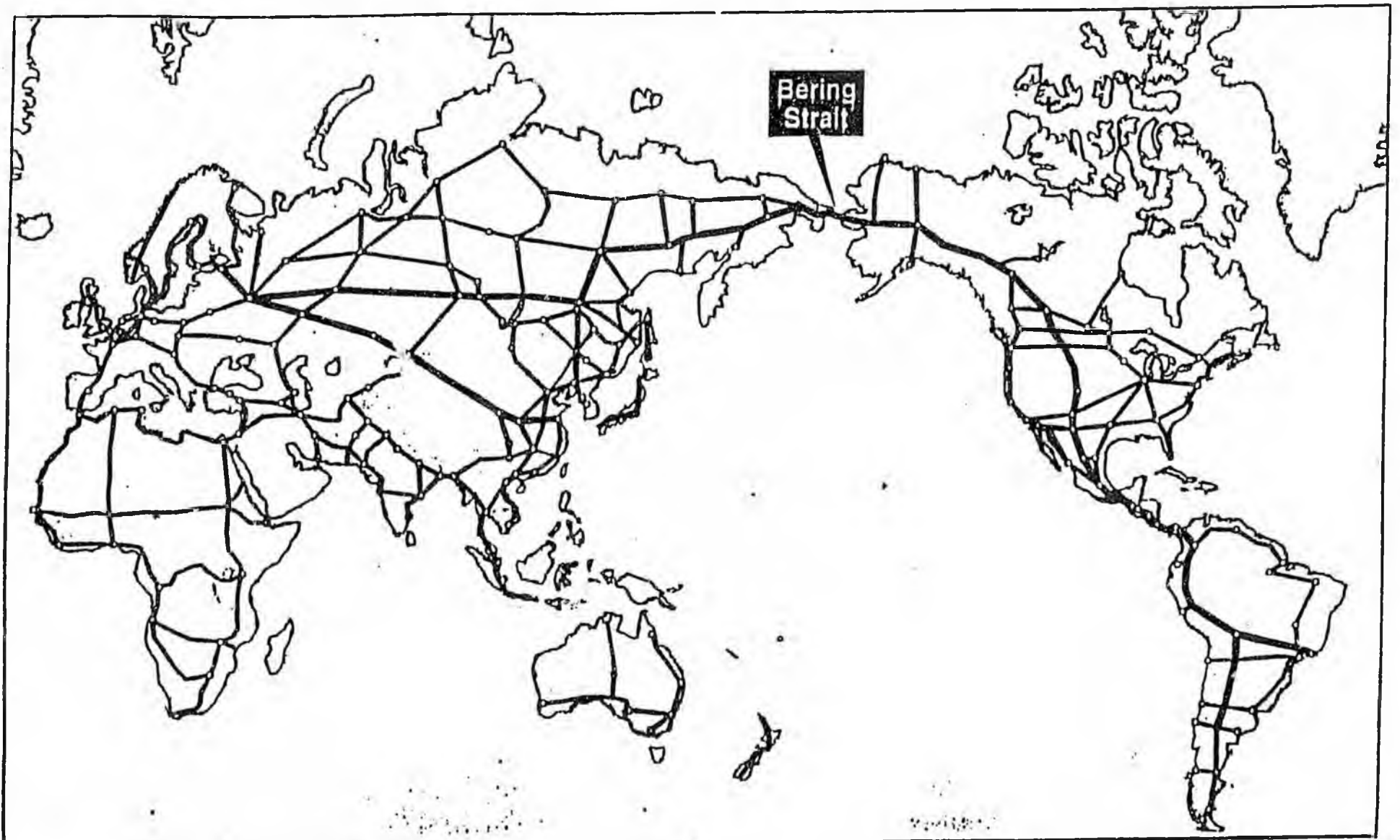


Figure 3

ROUTE LAYOUT OF THE PROPOSED WORLDWIDE RAILROAD NETWORK TO ALL CONTINENTS(Ref.9).

Main lines of a worldwide rail network, as sketched by H.A. Cooper



BACKGROUND

The earliest efforts to develop a railway line between Alaska and Canada with the Lower 48 States were actually a part of early proposals to develop a Worldwide railroad network. There were reported but unsubstantiated reports of a proposed as early as the late 1860's after the Civil War to build a railway line from Denver to Paris by way of Alaska and Russia (Ref. 9). This railway project was to be a part of the efforts to construct the Trans-Siberian Railway being constructed under the direction of Count Sergei Witte (Ref. 10). However, these efforts never came to fruition because other railroads needed to be built in more populated areas.

The completion of the Trans-Siberian Railway from Moscow to Port Arthur in 1903 and to Vladivostok in 1908 led to the formation of a company in the State of New Jersey in 1906 (Ref. 6). The purpose of this railway was to connect Paris and Moscow with New York plus Fort Nelson and Edmonton in Canada to Chicago and New York. This company was incorporated with \$6 million U.S. in equity capital with French, Russian and American investors with the purpose of operating both freight and passenger service. This project was halted by the onset of World War I (Ref. 11) and was not restarted.

After World War II, there were extensive surveys of railway line development under the direction of Joseph Stalin in Russia. These efforts led to the surveying and grading of the entire Northern Arctic railway along the Arctic Ocean from Vorkuta to Egvekinot over 4,000 miles. In addition, route surveys and engineering designs were conducted of the 2,500 mile long rail corridor from Yakutsk in the Sakha Republic to the Bering Strait (Ref. 12). These efforts were suspended upon Stalin's death but reappeared in a book by Chersakov in Russia in 1993 to build a railway from Moscow to New York, as shown in Figure 4 (Ref. 13). In the United States there were also efforts made by the Czech engineer George Kournal, who proposed building a tunnel under the Bering Strait (Ref. 5).

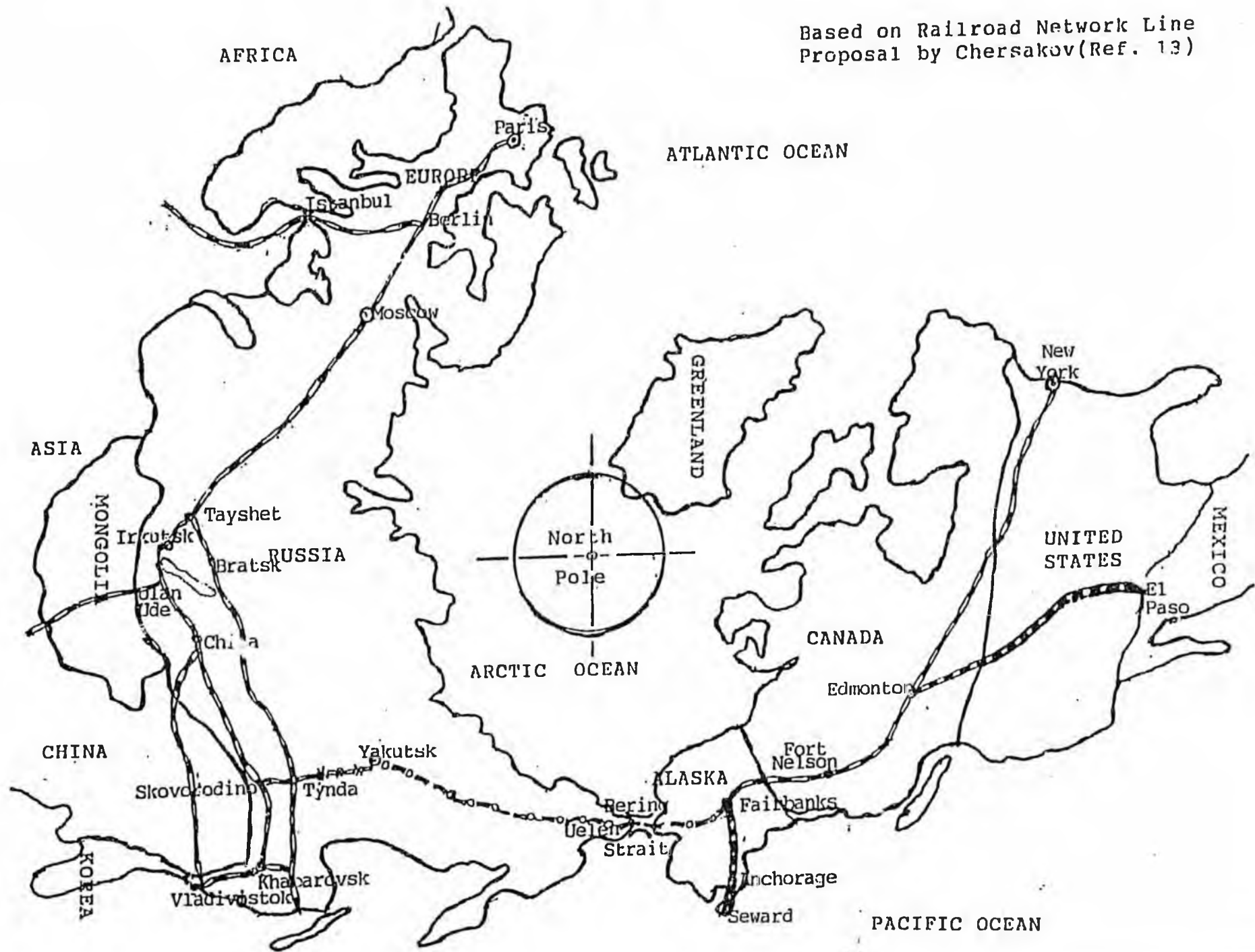
The concern about the possibility of constructing a railway line to Alaska began with the purchase of Alaska and the Aleutian Islands from Russia in 1867. Russia at that time sold Alaska to the United States in part because it lacked the transport infrastructure to maintain these remote regions. The initial development of Alaska began in the 1890's with the discovery of gold, but did not become significant until the onset of World War II in 1941.

A number of military facilities were built in Alaska during World War II to begin the development of its infrastructure. One of the major projects was to connect Alaska with Canada by either a highway or rail line. The roadway was built as an alternative to the railway because of its lower initial cost and shorter construction time. In addition, the initial street shortage during World War II resulted in a greater priority being given to tanks and artillery than a railway at that time (Ref. 34).

The Alaska Railroad was originally chartered as an initial part of this infrastructure by the United States Congress in 1912 through the establishment of the Alaska Railroad Commission. The authorization of \$35 million U.S. for railroad construction by the U.S. Congress in 1912 was approved by President Wilson in 1914 to make it possible to begin layout, design and construction. The legislation approved called for the construction of 1,000 miles (1,600 km) of

Figure 4
 PROPOSED RAILROAD NETWORK LINKAGE BETWEEN THE EURASIAN AND NORTH AMERICAN CONTINENTS

Based on Railroad Network Line
 Proposal by Chersakov (Ref. 13)



railroad lines in Alaska from the interior to an ice-free port along the Pacific Ocean at the Southern end of the Kenai Peninsula.

It was originally decided to build the Alaska Railroad from the ice-free Port of Seward at the South of the Kenai Peninsula to the Fairbanks area via Anchorage with a total length of 515 miles (825 km). This original section of the Alaska Railroad was finally completed in 1923 at a cost of \$60 million and was dedicated by then President Warren Harding. The Alaska Railroad was extended for an additional 20 miles (38 km) in Eielson during the 1950's as a part of its rebuilding and expansion to serve Eielson Air Force Base as a new facility with a total length of 535 miles (860 km). As a result, there are 465 miles (745 km) of railroad line, which remain unbuilt by the Federal Government in Alaska under the terms of this originating legislation passed in 1912 (Ref. 14), which could be constructed in the future.

The Alaska Railroad as an operating railroad line was owned by the Federal Government, but had relatively little traffic upon its initial completion so that it required an annual Congressional appropriation until 1938. The line's traffic greatly increased during World War II and thereafter so as to never again require an operating subsidy. The line was rebuilt during the early 1950's at a cost of \$100 million U.S. so as to be able to handle the increasing traffic demands associated with the Korean War and then the Cold War. The Alaska Railroad was finally sold by the Federal Government to the State of Alaska in 1984 for \$23 million U.S. and continues to be under the present ownership by the State of Alaska under profitable operation today.

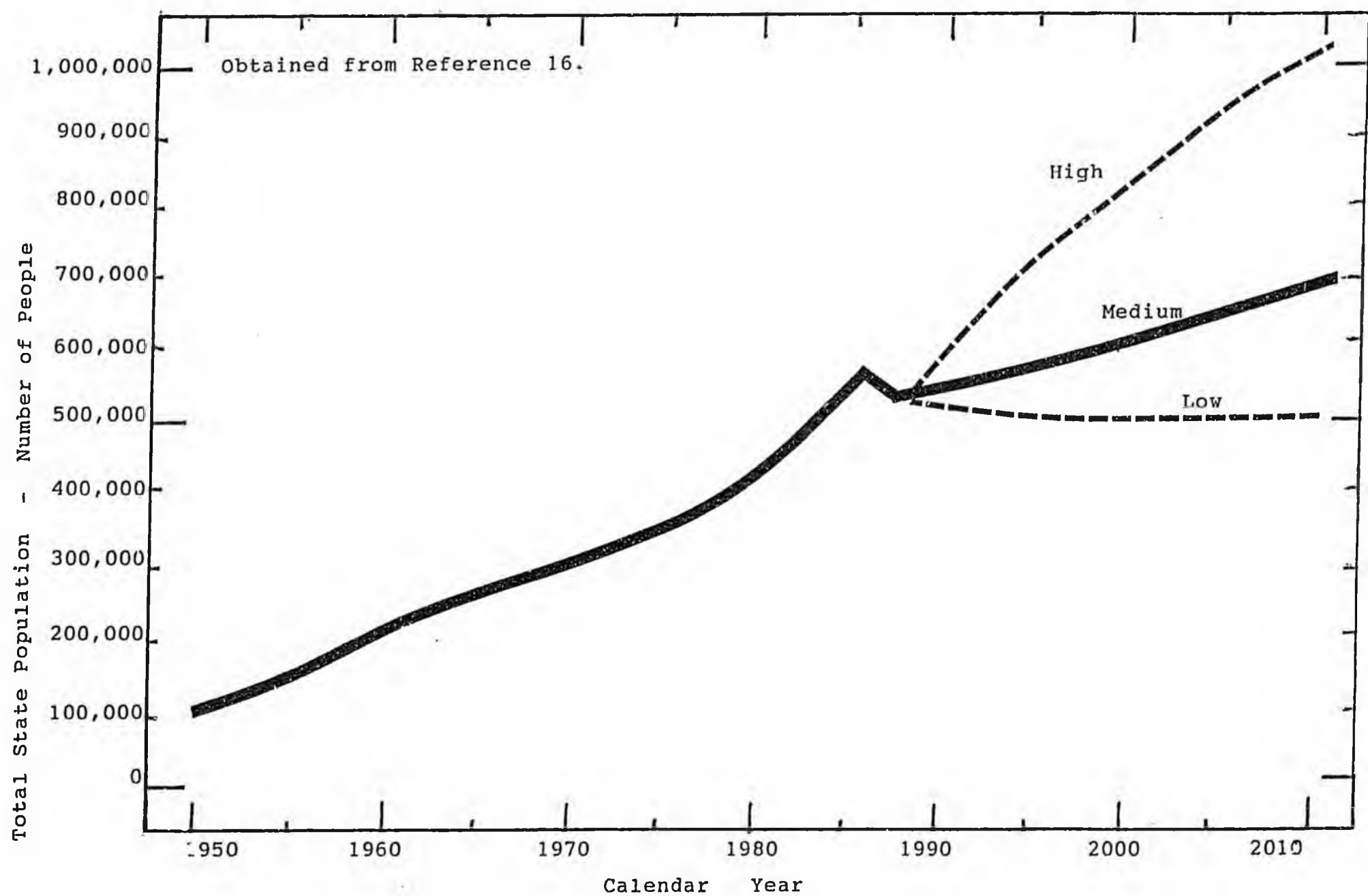
One of the main reasons for the development of the military infrastructure in Alaska was to allow for supplies to be transported to Russia to assist in its war effort with Germany during World War II. The development of the civilian infrastructure of Alaska began in earnest after the end of World War II. The economic growth of Alaska greatly accelerated following the development of the Prudhoe Bay oil field on the North Slope after 1975 with the construction of the pipeline to Valdez to facilitate crude oil shipments to the West Coast of the United States.

As a result, the population of Alaska has grown from 100,000 in 1950 to 500,000 in 1990 and to an estimated 600,000 in 2000. The population of Alaska could reach 700,000 to 1,000,000 by 2010, as shown in Figure 5 (Ref. 15). The population growth of Alaska appears to be closely following the medium scenario for development at an estimated rate of increase of 1.4 to 1.5 percent per year. In excess of 70 percent of the total population of Alaska lies within the so-called "Rail Belt" between Seward, Anchorage, Denali and Fairbanks.

INFRASTRUCTURE

There is a parallel need to develop the railroad infrastructure of the Northwestern part of North America in order to provide a suitable degree of economic integration with the railroad systems of Canada, the United States and Mexico and eventually to Asia. Railroads generally provide the most suitable means for land-based transportation of large quantities of freight and even passengers in the far Northern climates of Canada and Alaska. These superior characteristics of railroads over highways occur because of their relative ease of maintenance with respect to frost heaves in permafrost, their greater resistance of materials to extremely cold temperatures, and their inherently greater energy efficiencies and lower land use requirements.

Figure 5
PAST, PRESENT AND FUTURE TRENDS IN POPULATION FOR THE STATE OF ALASKA



The railroad network in Alaska is relatively minimal at the present time with only a single North-South corridor in the South-Central part of the state known as the "Rail Belt". There is a 535 mile long railroad line from Seward at the Southern end of the Kenai Peninsula through Anchorage on the Cook Inlet to the North as far as Fairbanks in the central interior of Alaska and then East to Eielson Air Force Base, as shown in Figure 6. There is also a branch line from Portage to Whittier, which allows access to boat traffic to Southeastern Alaska. A rail-barge service connects from Whittier to Prince Rupert in British Columbia and to Seattle, Washington in the Northwest corner of the Lower 48 States to and from the Port of Whittier. There are also several small branch lines to specific industries and mining operations on the route to the coal mine at Healy, the gravel mine at Palmer and others.

These railroad operations in Alaska are all owned and operated by the Alaska Railroad Corporation. The Alaska Railroad Corporation is owned by the State of Alaska with its headquarters in Anchorage. The Alaska Railroad hauls considerable amounts of petroleum products, coals, gravel, wood, chemicals and intermodal freight. The overall freight traffic level on the Alaska Railroad was 5.1 million short tons (4.6 million metric tons) hauled in 1991, as shown in Table 1. This level of railroad freight traffic is expected to grow significantly in the future, as illustrated in Figure 7 (Ref. 16).

The total revenue produced from the hauling of this 5.1 million short tons of freight in 1991 was \$48.0 million U.S. The Alaska Railroad also hauled 471,217 passengers in 1991, which has divided between the regular coach and tour business, to produce a revenue of \$16.4 million. The total revenue on the Alaska Railroad in 1991 from the combined freight and passenger services was \$68.3 million U.S. as compared to expenses of \$63.9 million U.S. to result in a net profit of \$4.4 million U.S. as shown in Table 2 (Refs. 17,18,19).

The total freight traffic on the Alaska Railroad was estimated as approximately 9.5 million short tons (8.6 million metric tons) in 1998 and 11.5 million short tons in 1999 (10.4 million metric tons) based on data reported in the Alaska Business Journal (Ref. 20). Railroad passenger traffic was estimated as 550,000 per year in 1998 and 600,000 per year in 1999 with the continuing growth of Alaska's tourist trade. The total revenues for the Alaska Railroad were expected to have exceeded \$95 million U.S. in 1999 with \$75 million U.S. from freight and \$20 million from passengers with a net income of \$8 million U.S.

The other railroad is the White Pass and Yukon Railroad in the extreme Southeastern corner of Alaska from Skagway to Whitehorse in the Yukon Territory of Canada. This railroad is a 111-mile long narrow gauge line as compared to the standard gauge Alaska Railroad. This railroad formerly hauled copper, lead and ore concentrates from mines in the interior to the coast for shipment by boat to smelters located elsewhere. This rail line now operates exclusively as a primarily Summer passenger tourist operation with little if any freight service (Ref. 21).

There are also railroad lines in the adjacent provinces of Alberta and British Columbia, which would be important as the connecting links to the proposed Alaska-Canada connector railroad project. In British Columbia, the British Columbia Railway presently operates a 460-mile (740-km) line from Vancouver in the Lower Mainland to Prince George in the interior. Branch lines

LOCATIONS OF THE EXISTING AND PROPOSED ALASKA RAILROAD LINES IN THE RAILBELT

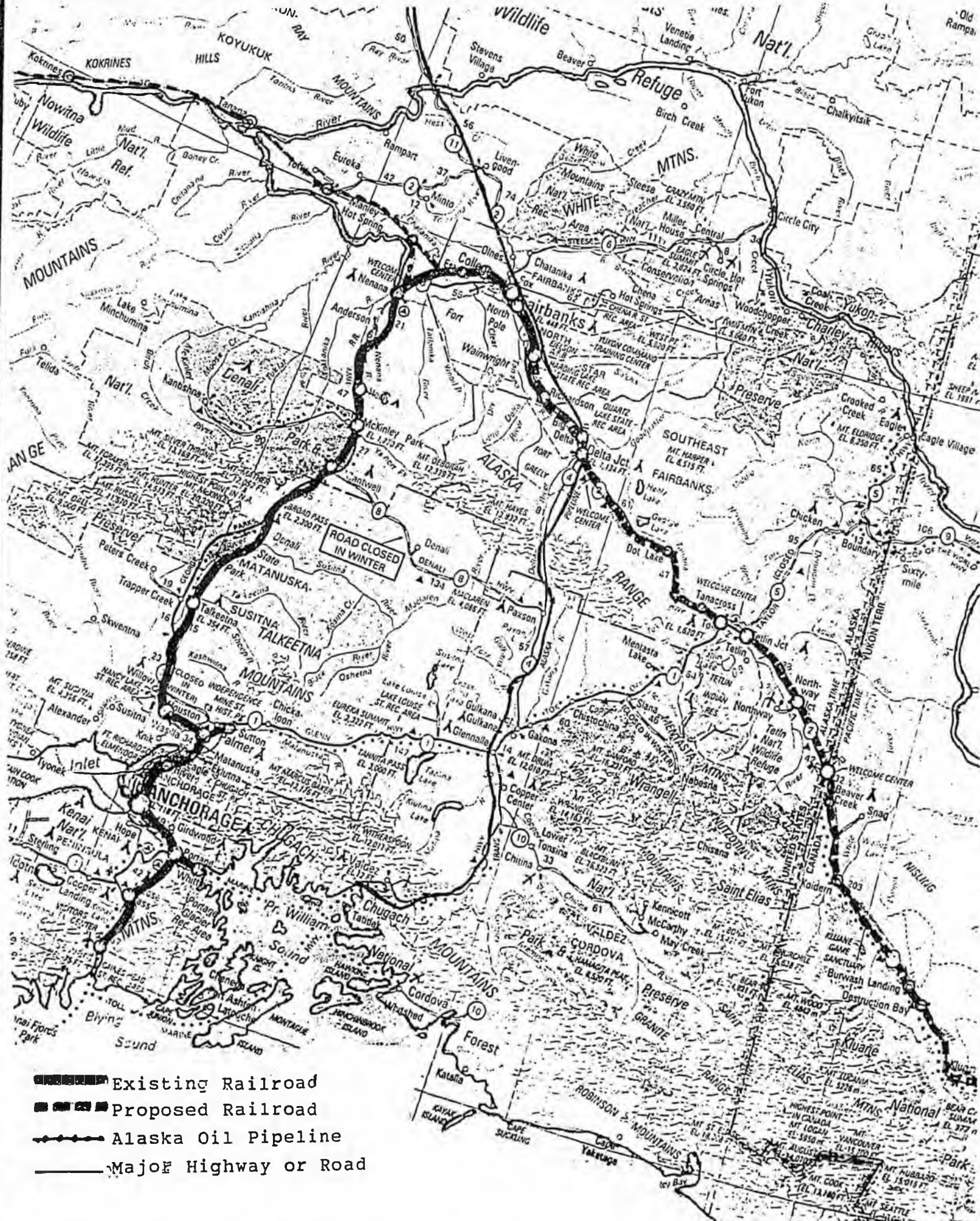


Table 1

OBSERVED FREIGHT TRAFFIC LEVEL TRENDS ON THE ALASKA RAILROAD (REFS. 17, 18)

Specific Commodity	Freight Traffic Level-Million Net Short Tons/Year		
	1980	1985	1991
Gravel	1.00	1.00	1.80
Coal	0.60	1.50	1.60
Petroleum	0.15	0.20	1.40
Intermodal	0.10	0.20	0.20
Other	0.25	0.40	0.10
Total	2.10	3.30	5.10

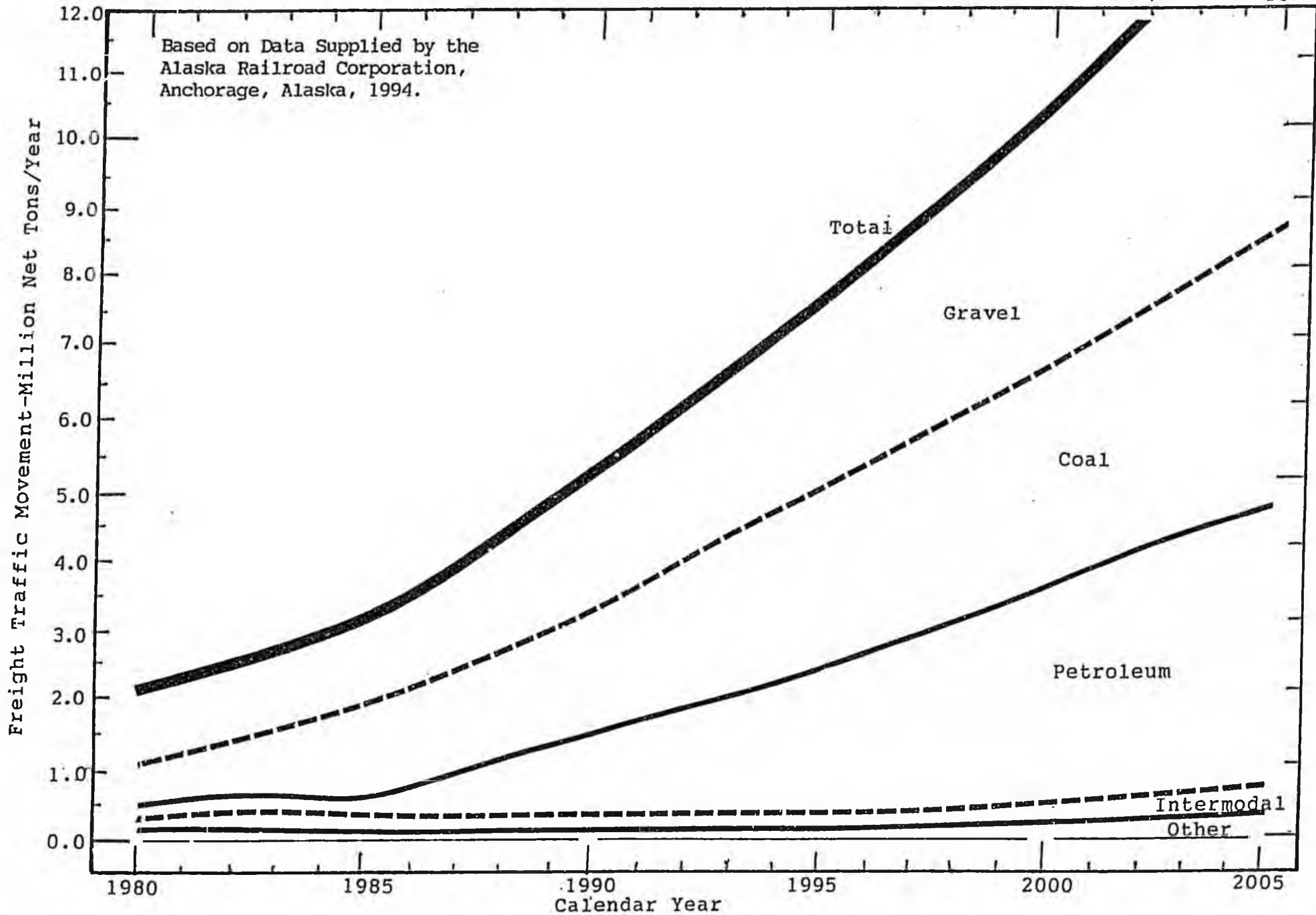
Table 2

TRAFFIC LEVELS AND REVENUE LEVELS FOR THE ALASKA RAILROAD IN 1991 (REFS. 18, 19)

Specific Commodity	Freight Traffic Level-Million Net Short Tons/Year		
	Haul Distance Miles	Quantity Tons/Year	Revenue \$/Year
Petroleum	356	1,400,000	\$19,000,000
Coal	358	1,600,000	\$12,000,000
Intermodal	356	200,000	\$6,500,000
Gravel	35	1,800,000	\$3,000,000
Other	356	100,000	\$7,500,000
SubTotal	-	5,100,000	\$48,000,000
Passenger	515	471,217	\$16,400,000
Leases	-	-	\$4,000,000
SubTotal	-	471,217	\$20,600,000
Total	-	-	\$68,600,000

Figure 7

OBSERVED TRENDS IN FREIGHT TRAFFIC MOVEMENT BY COMMODITY ALONG THE ALASKA RAILROAD (Refs. 17,18).



extend from Prince George to the North to Fort Nelson and to the Northwest at Jackson near Dease Lake, as shown in Figure 8. There is also a branch line to the coal mine at Tumbler Ridge, British Columbia which is electrified, and handles 5 million tons per year of coal.

There is a connection from the British Columbia Railway to the Canadian National Railway at Prince George with a line to Prince Rupert. There are also connections to both the Canadian Pacific and Canadian National Railways at Edmonton in Alberta from which connections to the Midwestern and North Central United States can be made by way of Montana, North Dakota and Minnesota. There is a recently privatized branch line from Peace River in northern Alberta to Fort Resolution in the Northwest Territories and from Edmonton to McMurray in the Athabasca tar sands region from north of Edmonton.

The British Columbia Railway carried 17.9 million net short tons (16.2 million metric tons of cargo in 1997, a 6.15 percent increase over 1996 with an average haul of 300 miles (480 km). The total revenues of the British Columbia Railway were approximately \$275 million U.S. in 1997, a 1.91 percent increase over 1996. The net income of the British Columbia Railway was \$50 million U.S. in 1997, a 10.7 percent increase over 1996 (Ref. 22).

The British Columbia Railway operates two lines, which may serve as useful interconnections to the Alaska Railroad. The 450-mile (720-km) long single-track line from Chetwynd to near Dawson Creek to Fort Nelson would serve as the access line to Edmonton and the Midwestern and Eastern United States. The 500-mile line (800-km) from Prince George to Summit Lake and Fort St. James along Takla Lake has a single track for 300 miles (480 km) to Chipmunk. The rail line has only bridges and grades with no tracks for the final 200 miles (320-km) to Dease Lake.

The Fort Nelson branch line through the Peace River Valley presently hauls grain, wood, oil, other minerals and foods and equipment with 2 to 4 trains per day. The Dease Lake line typically has one to two trains per day and handles almost exclusively logs for the pulp and paper mills at Prince George. The Fort Nelson line handles an estimated annual traffic flow of 3.5 to 7.5 million short tons (3.2 to 6.8 million metric tons) per year while the Dease Lake line handles 1.5 to 2.5 million short tons (1.35 to 2.25 million metric tons) per year of freight. The total freight traffic flow on the two lines is between 5.0 and 10.0 million short tons (4.5 to 9.0 million metric tons) per year, which approximates that of the Alaska Railroad.

The connection of the Alaska Railroad and the British Columbia Railway will require the construction of 880 miles (1,410 km) from Eielson to Dease Lake at a minimum. The connection of the two railroads between Eielson and Fort Nelson will require the construction of a total of 1,180 miles (1,895 km) of trackage. The connection of the Alaska Railroad at Eielson with the British Columbia Railway at both Dease Lake and Fort Nelson will require the construction of 1,360 miles (2,185 km) of track. The total estimated capital cost of constructing the entire railway connections is between \$6.9 and \$4.7 billion U.S. (Ref. 23).

The estimated route distances for the various railway line segments to connect the Alaskan and Canadian railway systems are listed in Table 3. The illustrations of the individual route distances for the interconnection of the Alaskan, Canadian and American railway networks is illustrated in Figure 9. It will then be possible to have trains running between Alaska and the United States

Figure 8

NETWORK CONFIGURATION OF EXISTING RAILROAD LINES IN ALBERTA AND BRITISH COLUMBIA (Ref. 16).

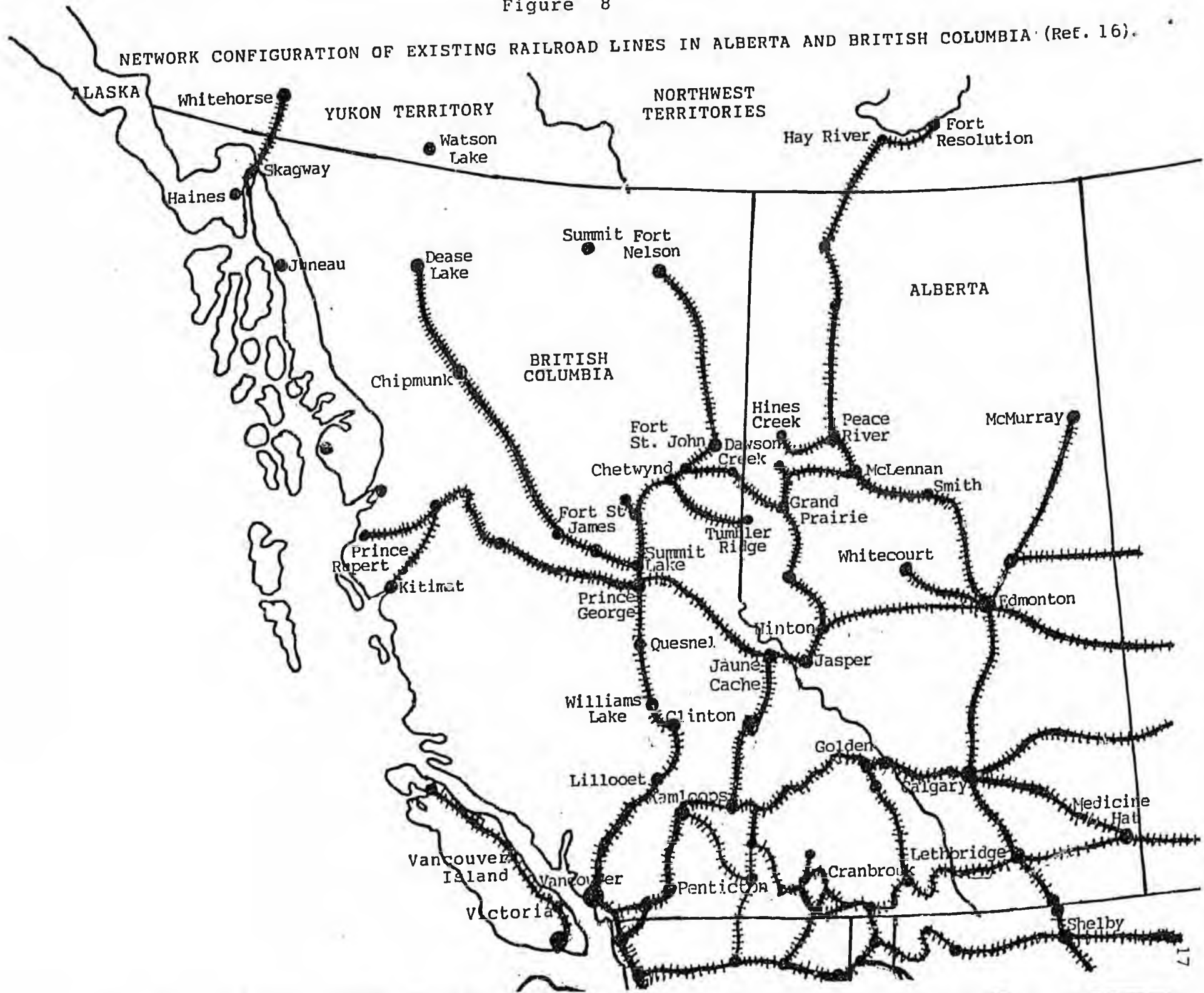


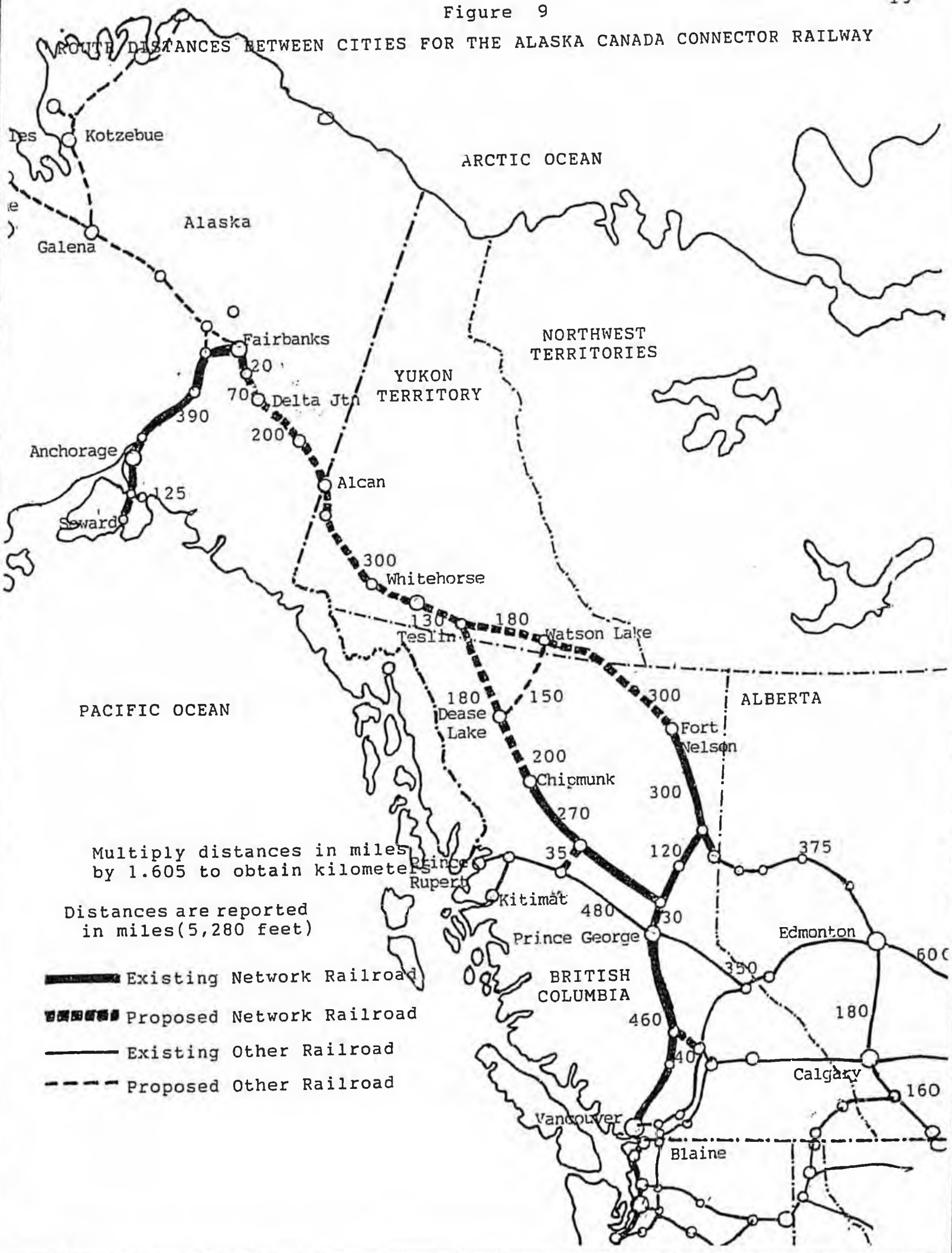
TABLE 3
ESTIMATED ROUTE DISTANCES FOR RAILWAY CONSTRUCTION
IN THE STATE OF ALASKA, THE YUKON TERRITORY AND
THE PROVINCE OF BRITISH COLUMBIA (REF. 24)

Segment Category	Route Segment By City Pair	Route Distance		Affected Railroad	Present Status
		Miles	Kilometers		
Alaska-Canada	Fairbanks to Eielson	20	32	ARR	Existing
	Eielson to Delta Junction	70	113	ARR	Proposed
	Delta Junction to Alcon	200	320	ARR	Proposed
	Alcon to Whitehouse	300	480	TBD	Proposed
	Whitehouse to Teslin	130	210	TBD	Proposed
Dease Lake Connector	Teslin to Dease Lake	180	290	TBD	Proposed
	Dease Lake to Chipmunk	200	320	BCR	Graded
	Chipmunk to Summit Lake	270	435	BCR	Existing
	Summit Lake to Prince George	30	48	BCR	Existing
Fort Nelson Connector	Teslin to Watson Lake	180	290	TBD	Proposed
	Watson Lake to Dease Lake	150	240	TBD	Proposed
	Watson Lake to Fort Nelson	300	480	TBD	Proposed
	Fort Nelson to Chetwynd	300	480	BCR	Existing
	Chetwynd to Summit Lake	150	240	BCR	Existing
	Summit Lake to Prince George	30	48	BCR	Existing
Washington Connector	Prince George to Prince Rupert	480	770	CNR	Existing
	Prince George to Vancouver	460	740	BCR	Existing
	Vancouver to Blaine	30	48	BNSF	Existing
Montana Connector	Chetwynd to Edmonton	525	845	CNR	Existing
	Edmonton to Sweetgrass	340	545	CPR	Existing
	Prince George to Edmonton	350	560	CNR	Existing
North Dakota Connector	Edmonton to Saskatoon	250	400	CPR	Existing
	Saskatoon to Regina	130	210	CPR	Existing
	Regina to Portal	150	240	CPR	Existing
Alaska Railroad	Seward to Anchorage	120	195	ARR	Existing
	Anchorage to Fairbanks	415	665	ARR	Existing
	Fairbanks to Eielson	20	32	ARR	Existing

Abbreviations: ARR – Alaska Railroad; BCR – British Columbia Railway;
 CNR – Canadian National Railway; CPR – Canadian Pacific Railroad;
 BNSF – Burlington Northern Sante Fe Railroad; TBD – To be Determined.

Figure 9

ROUTE DISTANCES BETWEEN CITIES FOR THE ALASKA CANADA CONNECTOR RAILWAY



Multiply distances in miles by 1.605 to obtain kilometers

Distances are reported in miles (5,280 feet)

- Existing Network Railroad
- ▨▨▨▨▨▨** Proposed Network Railroad
- Existing Other Railroad
- - - - -** Proposed Other Railroad

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		Miles	Kilometers		
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	Eielson to Delta Junction	70	113	ARR	Proposed
	Delta Junction to Alcon	200	320	ARR	Proposed
	Alcon to Whitehouse	300	480	TBD	Proposed
	Whitehouse to Teslin	130	210	TBD	Proposed
Dease Lake Connector	Teslin to Dease Lake	180	290	TBD	Proposed
	Dease Lake to Chipmunk	200	320	BCR	Graded
	Chipmunk to Summit Lake	270	435	BCR	Existing
	Summit Lake to Prince George	30	48	BCR	Existing
Fort Nelson Connector	Teslin to Watson Lake	180	290	TBD	Proposed
	Watson Lake to Dease Lake	150	240	TBD	Proposed
	Watson Lake to Fort Nelson	300	480	TBD	Proposed
	Fort Nelson to Chetwynd	300	480	BCR	Existing
	Chetwynd to Summit Lake	150	240	BCR	Existing
Washington Connector	Summit Lake to Prince George	30	48	BCR	Existing
	Prince George to Prince Rupert	480	770	CNR	Existing
	Prince George to Vancouver	460	740	BCR	Existing
Montana Connector	Vancouver to Blaine	30	48	BNSF	Existing
	Chetwynd to Edmonton	525	845	CNR	Existing
	Edmonton to Sweetgrass	340	545	CPR	Existing
North Dakota Connector	Prince George to Edmonton	350	560	CNR	Existing
	Edmonton to Saskatoon	250	400	CPR	Existing
	Saskatoon to Regina	130	210	CPR	Existing
Alaska Railroad	Regina to Portal	150	240	CPR	Existing
	Seward to Anchorage	120	195	ARR	Existing
	Anchorage to Fairbanks	415	665	ARR	Existing
	Fairbanks to Eielson	20	32	ARR	Existing

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 CNR – Canadian National Railway; CPR – Canadian Pacific Railroad;
 BNSF – Burlington Northern Santa Fe Railroad; TBD – To be Determined.

through Canada in an uninterrupted way. The commodities which could be hauled on this extension of the North American railway network, is the subject of the remainder of this paper.

ENERGY

Energy is a matter of critical concern with regard to the construction of the proposed railroad between Alaska, Canada and the Lower 48 States for several reasons. The United States is the World's largest consumer of energy, where Alaska has the Nation's largest untapped reserves of energy. The hauling of crude oil, petroleum products, natural gas or gas liquids and coal can be done either by the railroad itself or by parallel gas or oil pipelines. The future development of energy resources in either Alaska or northwestern Canada will require the transport of large amounts of equipment and materials for the energy production facilities and the required pipelines plus the provisions for workers at the production sites.

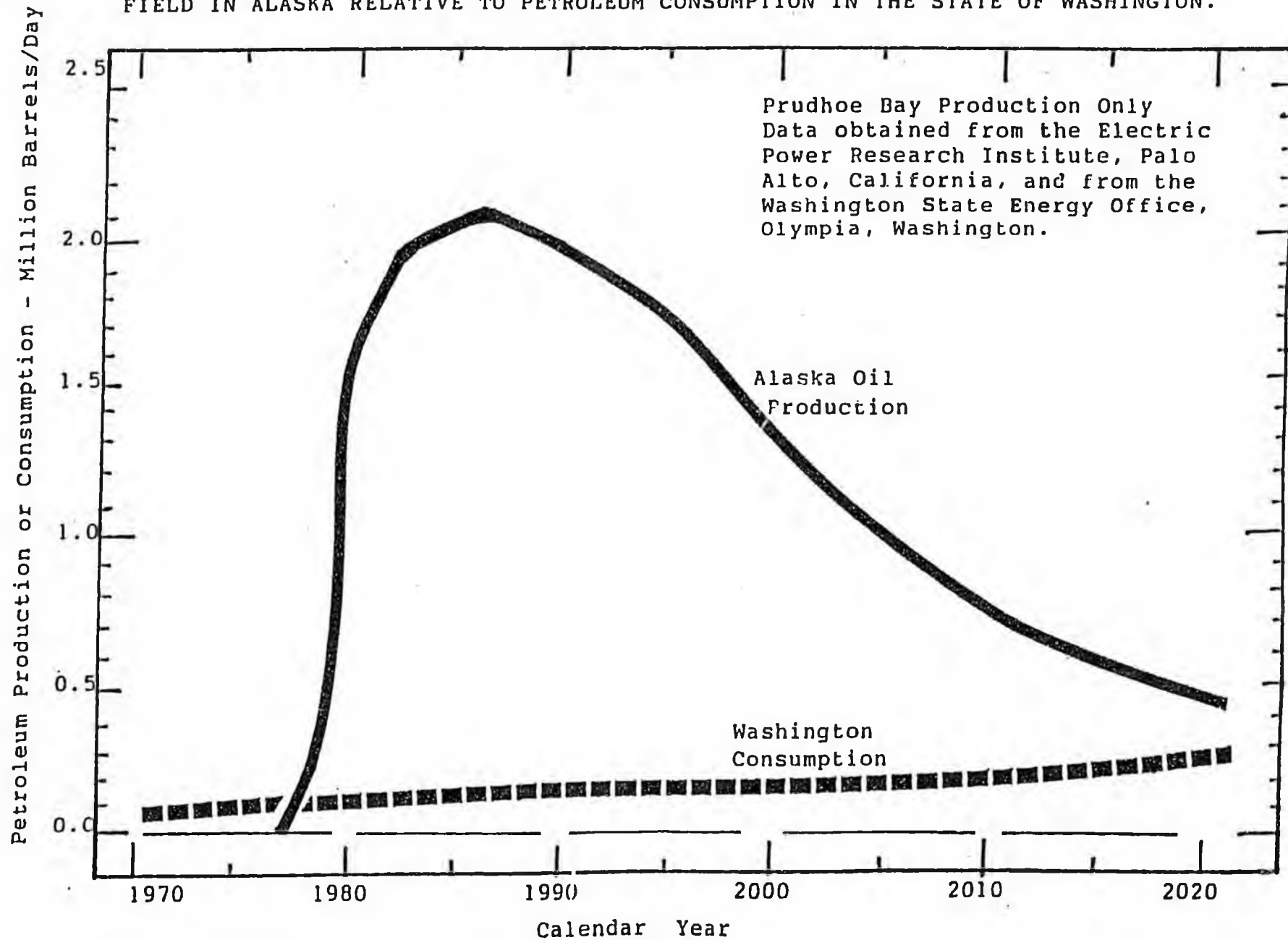
One of the main products being shipped by railroad in Alaska at the present time over the Alaska Railroad is either crude oil or petroleum products. The North Slope oil field at Prudhoe Bay has been the major oil producing field in Alaska since the late 1970's, which has taken up the slack in oil production in Texas by increasing oil production in Alaska, at least until recently. However, even the large Prudhoe Bay field in Alaska is now beginning to decline as well, as shown in Figure 10. The production out of the Prudhoe Bay field has declined from 2.1 million barrels per day (111 million metric tons per year) at its peak to 1.9 million barrels per day (101 million metric tons per year) in 1990 to 1.8 million barrels per day (95 million metric tons per year) in 1993.

There is also approximately 100,000 barrels per day produced from other oil fields in Alaska as well, which are located on the Kenai Peninsula of far southern Alaska for approximately 5.3 million metric tons per year. There is a large oil field adjacent to the Southwest of the existing Prudhoe Bay field of approximately equivalent size in the National Strategic Petroleum Reserve. There is also a large oil field within the Arctic National Wildlife Refuge (ANWR) to the East of the existing Prudhoe Bay field. The field to the Southwest of Prudhoe Bay could be developed under present conditions. However, it would probably be very difficult to develop the ANWR field to the East of Prudhoe because of environmental restrictions in a wildlife refuge area. The total untapped oil reserves in Alaska are in the range of 10 to 20 billion barrels or more or between 1.3 and 2.5 billion metric tons per year.

The limiting constraint to the future development of both petroleum and natural gas from the Prudhoe Bay area of the North Slope of Alaska may well be transportation in addition to environmental restrictions. The existing crude oil pipeline from Prudhoe Bay to Valdez is beginning to suffer from increasing maintenance problems because of electrolysis requiring greater cathodic protection. The Alyeska crude oil pipeline is also suffering increasing maintenance problems resulting from greater pump and pipe wear. The result is the necessity to periodically curtail oil throughout or to build bypasses in certain sections to correct these problems. There has also been a large oil spill on Prince William Sound in 1989 as well as smaller oil spills in recent years. These problems are expected to continue into the foreseeable future to at least some extent.

Figure 10

OBSERVED AND EXPECTED TRENDS IN TOTAL CRUDE OIL PRODUCTION FROM THE PRUDHOE BAY FIELD IN ALASKA RELATIVE TO PETROLEUM CONSUMPTION IN THE STATE OF WASHINGTON.



The result is that the existing Prudhoe Bay pipeline may not be able to handle the future crude oil flow requirements if the other field is developed from the area. As a result, there may be a need to develop additional transportation facilities for bringing crude oil out of the Prudhoe Bay field. The construction of a railroad line from Prudhoe Bay to Fairbanks to connect with the proposed Bering Straits connecting railroad would make it possible to transport crude oil to Washington, Montana and Minnesota over land without any pipeline maintenance problems. The needs for crude oil by refineries in the Midwestern and Eastern United States could then be readily met without any possibility of the reoccurrence of marine oil spills at Valdez on Prince William Sound, at Ferndale or Anacortes on Puget Sound or elsewhere.

There is also the need to build a natural gas pipeline out of the Prudhoe Bay area. The previous idea was to build the pipeline to Valdez and load liquefied natural gas onto ships for transport to major use points. However, the loading and unloading of liquefied natural gas may present some added safety risks and certainly adds some increased costs. A better alternative may be to build a natural gas pipeline from Prudhoe Bay to Fairbanks and then parallel to the proposed connecting railroad from Alaska through Canada to the Lower 48 States, as has been previously discussed.

The need for developing natural gas resources in Alaska and transporting them to the Lower 48 States is made especially great because of the expected growth in its use. Natural gas has been designated as the "environmental fuel of choice" by the Clinton Administration, and as a result its use is expected to grow by at least five percent per year over the next few years. Natural gas consumption has increased from 20 trillion cubic feet per year (565 billion cubic meters per year) in 1990 to 23 trillion cubic feet per year (650 billion cubic meters per year) in 1993 and is expected to reach 30 trillion cubic feet in 2000 as shown in Figure 11.

Natural gas consumption is expected to increase to 32 trillion cubic feet per year (905 billion cubic meters per year) by 2000 and 41 trillion cubic feet per year (1,160 billion cubic meters per year) in 2010 if present trends continue. Unfortunately, domestic natural gas production from the Lower 48 States is estimated to only increase from 18 trillion cubic feet per year (510 billion cubic meters per year) in 1990 to 25 trillion cubic feet per year in 2010. The result is that the amount of natural gas, which will need to be imported from outside of the Lower 48 States or from new fields is expected to increase from one trillion cubic feet per year (28 billion cubic meters per year) in 2000 to 20 trillion cubic feet per year (565 billion cubic meters per year) in 2010.

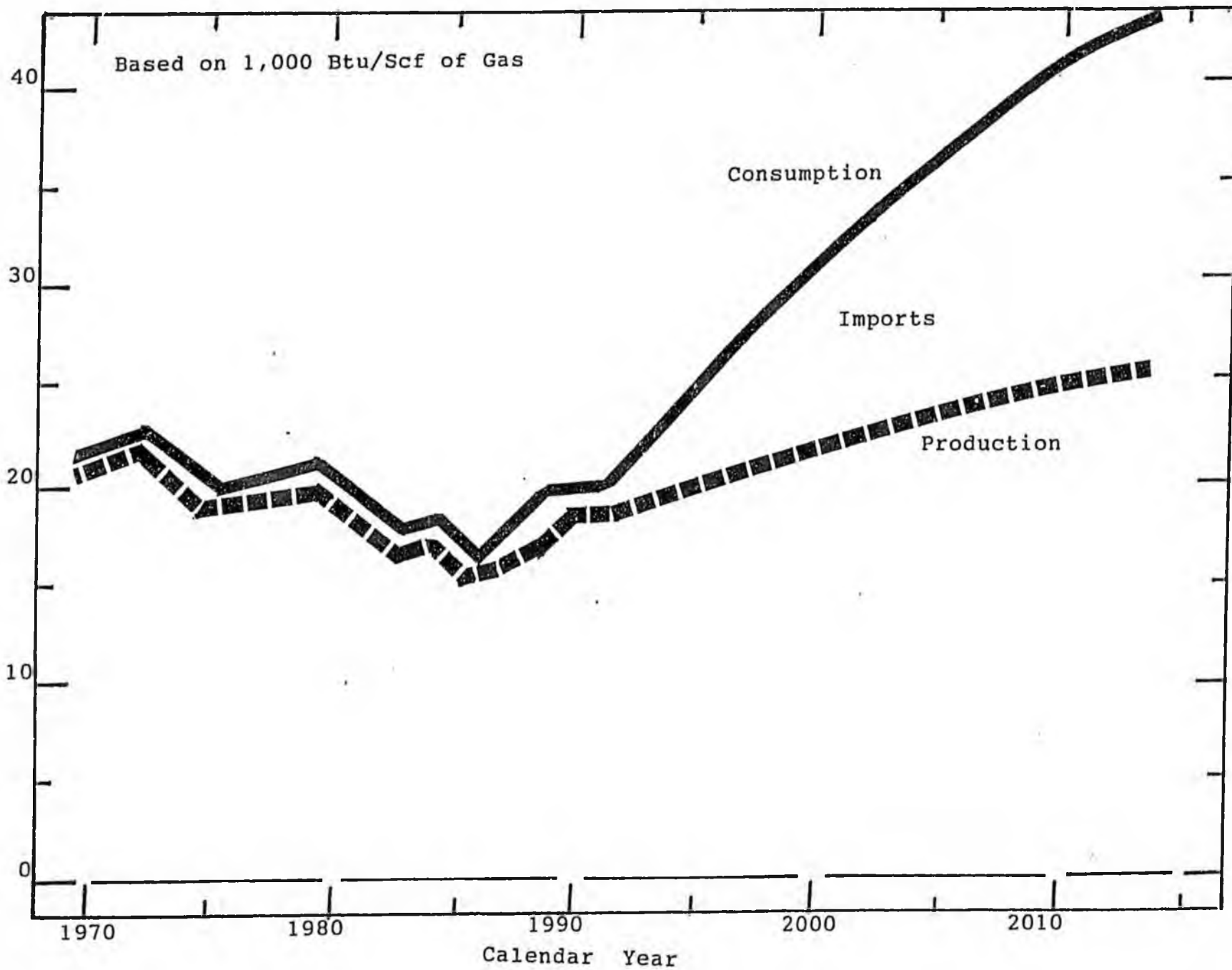
The potential sources for importing natural gas from other countries are more limited than for crude oil because of the need for cryogenic cooling, the safety concerns of storing and transporting liquefied natural gas, and the additional expense involved. As a result, the practical options for large-scale importation of natural gas are limited to pipeline transport from Mexico or Canada at the present time. The location of a natural gas pipeline parallel to the proposed Alaska connecting railroad would make it possible to transport natural gas from Alaska to the Lower 48 States or even from Canada on an enhanced economical basis.

The United States is the World's greatest energy consumer and is also the World's greatest energy importer. The United States consumes large amounts of petroleum, which is primarily used for transportation. The United States imported more than half of its total petroleum consumed this past year. The petroleum production in the United States is expected to continue

Figure 11

EXPECTED TRENDS IN NATURAL GAS PRODUCTION AND CONSUMPTION IN THE UNITED STATES

Natural Gas Production or Consumption - Trillion Cubic Feet/Year



to decline while its consumption is expected to continue to increase, as shown in Figure 12 (Refs. 26, 27). Alaska has the greatest known reserves of untapped domestic petroleum in the United States, which reason and logic say need to be developed in order to reduce imports.

The United States has very limited amounts of oil and gas resources, but very large reserves of coal, as listed in Table 4 (Ref. 26) and illustrated in Figure 13 (Ref. 27). There are very large coal reserves located in Alaska, as shown in Table 5 (Ref. 28). There is a large coal field at Beluga on the Kenai Peninsula in Southern Alaska, which could be utilized, plus the Nenana field near Fairbanks in Central Alaska. There is another large coal field in the Colville Valley of Northwestern Alaska with a high heating value, which could also be developed in the future. The Arctic Slope low sulfur coal reserves of 20 billion metric tons or more are one of the World's largest deposits, but is limited in terms of development by transportation (Ref. 28). The coal reserves in Alaska constitute 20 to 25 percent of the total for the entire Nation and are between 500 billion and one trillion metric tons in magnitude (Ref. 29).

The Alaska coals tend to be of the bituminous and subbituminous grades with some lignites. The coal in Alaska tends to be very low in sulfur content with a minimal air pollution potential. The coal in the Colville Valley is high in heating value to make it desirable as either a utility or industrial fuel. Some of this coal has properties, which make it suitable for metallurgical coking as well as for utility steam coal. The coals from Alaska would have a particularly suitable market in Japan and Korea for steelmaking, as well as those from British Columbia, where these countries tend to have very little coal reserves of their own.

The expected coal use in Japan, Korea and Taiwan alone is expected to increase from 80 million metric tons per year in 1990 to 200 million tons per year by 2010. Some of this coal could be provided from Alaska and Siberia in the future. However, a considerable amount would still be expected to come from Australia, as it is generally the price leader for the Pacific region in terms of the present export market. There are presently about 700,000 short tons (600,000 metric tons) of coal shipped from the Usibelli mine near Healy to Seward over the Alaska Railroad and then by ship to Korea for use in electric power generation. There is also approximately 4.3 million short tons (3.9 million metric tons) of high grade bituminous coal shipped from the Tumbler Ridge mine in northeastern British Columbia by the British Columbia Railway to Vancouver for export to Japan and elsewhere in Asia.

One solid bulk energy fuel, which could be hauled on the connecting Alaska-Canada railroad is coal. As previously noted, Alaska has very large available resources of both utility steam coal and metallurgical coking coal. The State of Alaska is presently exporting approximately 0.75 million short tons per year of low sulfur coal to Korea to the Korean Electric Power Company. This coal is mined at the Usibelli mine near Healy to the South of Fairbanks and then transported on the Alaska Railroad to Seward. The coal is then loaded onto ships and taken to Korea for electric power generation. There is also another 0.75 million short tons per year hauled on the Alaska Railroad to local power plants in Alaska, which operated by local electric utilities, private industries, native corporations, and by the U.S. military bases.

The present coal hauling on the British Columbia Railway is 5.3 million short tons per year (4.8 million metric tons) from the Tumbler Ridge mine near Dawson Creek to Vancouver for export to

Table 4

COMPARISON OF TOTAL ENERGY RESERVES AND CONSUMPTION PATTERNS IN THE
UNITED STATES IN 1991 (REF. 26)

Energy Resource	Total Energy Resources		Annual Energy Consumption	
	10 ¹⁵ Btu	% of total	10 ¹⁵ Btu/Year	% of total
Coal	75,000	61.7%	18.9	23.4%
Nuclear	46,000	37.8%	6.2	7.7%
Oil	350	0.3%	33.5	41.4%
Gas	300	0.2%	19.3	23.8%
Hydro	-	-	2.9	3.6%
Renewable	-	-	0.1	0.1%
Total	121,650	100.0%	80.9	100.0%

Table 5

ESTIMATES OF POTENTIAL COAL RESOURCES IN ALASKA (Ref. 28)

Coal Field	Measured Million Tons	Identified Million Tons	Potential Million Tons
A Beluga	500	10,000	30,000
Nenana	175	6,200	9,500
Bering River	60	110	3,500
Wishbone Hill	40	120	350
Chickaloon	3	25	100
Anthracite Ridge	1	5	50

Figure 12

PAST, PRESENT AND FUTURE TRENDS IN PETROLEUM CONSUMPTION AND PRODUCTION IN THE UNITED STATES

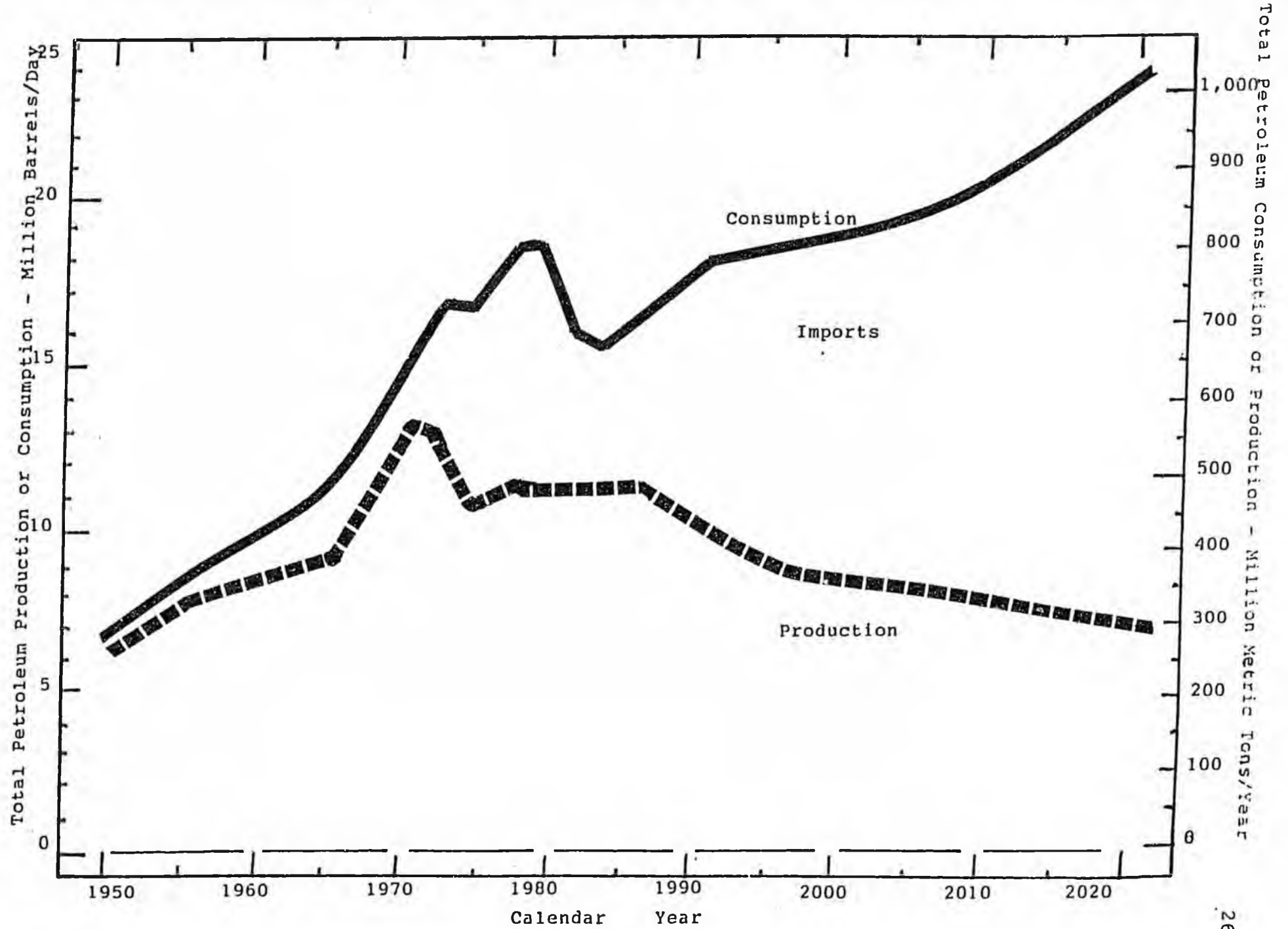
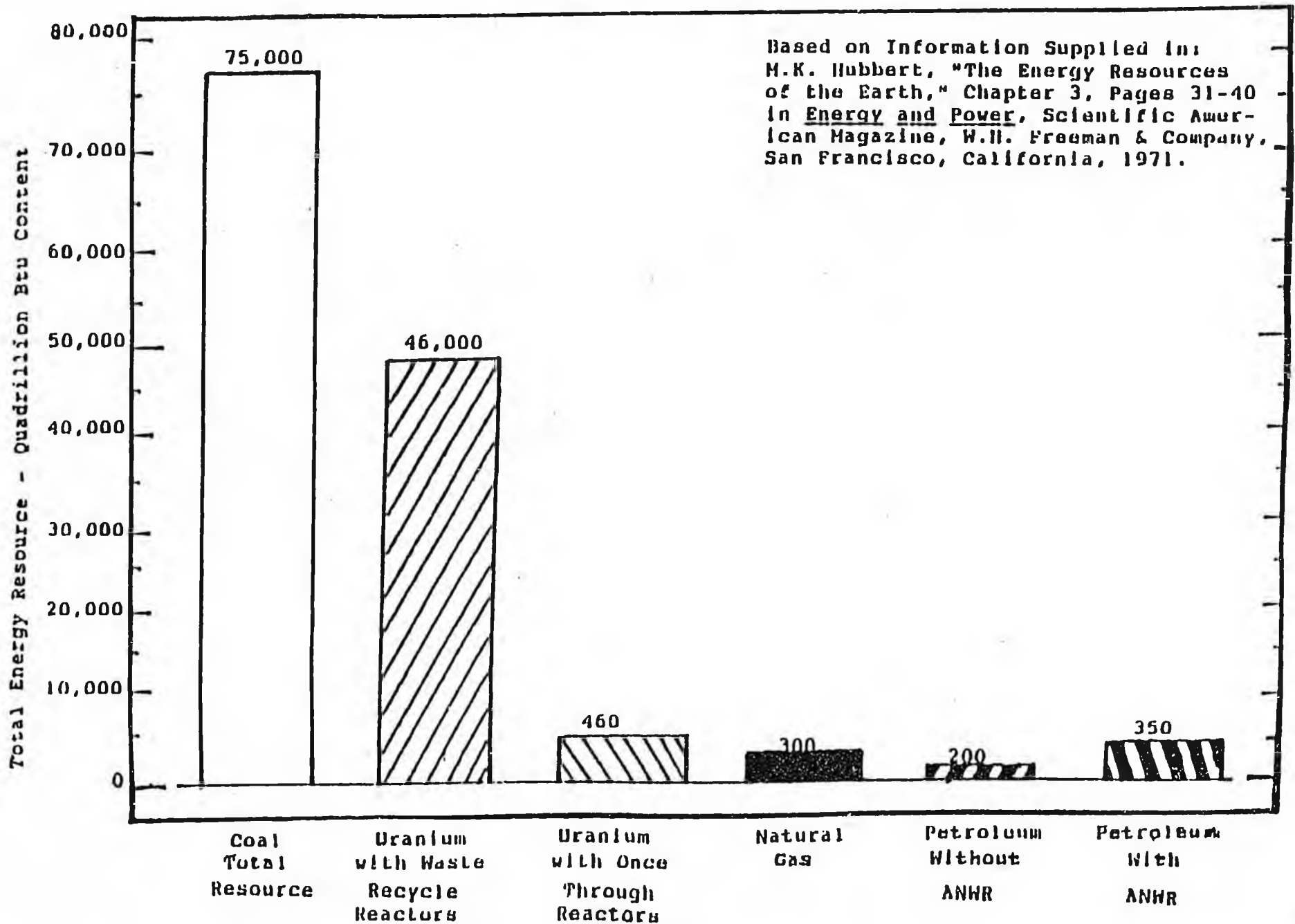


Figure 13

KNOWN TOTAL ENERGY RESERVES BY FUEL TYPE IN THE UNITED STATES IN QUADRILION BTU.



Japan, Taiwan and Korea. This amount of coal hauled is expected to decrease to 3.3 million short tons per year in 2000 (3.0 million metric tons) with a reduction in purchases for metallurgical coking coal for steel production in Asia. Other uses need to be found for this coal.

There is a good possibility that coal exports from Alaska could significantly increase in the future, as shown in Table 6 (Ref. 29). Coal exports from Alaska were projected to increase from 0.8 million tons in 1990 to 2.0 million tons after 1995 and to 5.5 million tons after 2000. This coal could be transported by means of the Alaskan and Canadian rail lines to Asia for use in Japan, Korea, Taiwan and elsewhere in Asia. It is possible that coal could be shipped by rail from Alaska or Northwest Canada to the Lower 48 States, but it is unlikely in the near term because of the large coal reserves available in the Rocky Mountain States. The amount of coal which could be shipped over the connecting Alaska-Canada railroad lines is estimated as 5 to 15 million tons per year which represents approximately 5 to 15 percent of the present U.S. coal exports to other countries, as shown in Table 7.

Crude oil is another bulk commodity that could be shipped in large quantities from Alaska or Canada via the connecting Alaska-Canada railroad project to the Lower 48 States of the United States for processing. The development of the new oil fields adjacent to the existing Prudhoe Bay field could yield a production of at least 1.5 million barrels per day (80 million metric tons per year) of crude oil. At least some of this crude oil could be hauled by rail to the Lower 48 States of the United States from Alaska by way of the new railroad line from Prudhoe Bay to Fairbanks.

The shipments of crude oil could be made by means of tanker unit trains from the producing fields to the refining centers. The development of oil fields near Prudhoe Bay and in the Peace River Basin and elsewhere in Alberta could lend themselves to long distance shipments of crude oil by tank car to the Lower 48 States of the United States. It might also be possible to ship refined products in the reverse direction or even petroleum products from the refineries in Alaska to online communities along the railroad line. Oil shales and tar sands could even be shipped by rail from deposits to refineries in Alberta, but are generally processed at the local mine sites.

The present level of petroleum-related shipments along the British Columbia Railway and the Alaska Railroad is approximately 4 to 5 million short tons per year for both crude oil and petroleum products in combination. It is estimated that the potential market for petroleum shipments is 5 to 10 million short tons per year using conservative growth projections. It is possible that as much as 10 to 15 million short tons per year of crude oil and petroleum products could be shipped over the connecting Alaska Canada railroad upon its completion if a higher growth rate assumption is employed as the basis for making estimates.

Another commodity which could be shipped by rail along the Alaska-Canada connecting rail line is natural gas. The natural gas could be liquefied at elevated pressures and very low temperatures and placed in tank cars for long distance shipment while avoiding the need for additional pipeline construction. There is a potential safety hazard in passing through the tunnel because of the possibility, however remote, of a leak and explosion. An alternative form of natural gas transport would be as a methane-hydrate complex where water and methane have been found to produce solid snow-like matrices at supercooled temperatures and very high pressures such as occurs in permafrost zones (Ref. 30). Pipelines are the more likely means of natural gas transport.

Table 6

EXPECTED COAL EXPORT TRENDS IN ALASKA (REF. 29)

Calendar Year	Freight Traffic Level - Million Net Short Tons/Year		
	Minimum	Medium	Maximum
1980	-	0.00	-
1984	-	0.15	-
1990	-	0.75	-
1992	-	0.65	-
1995	0.80	1.00	2.00
2000	0.00	5.00	5.50
2005	0.00	7.00	10.00
2010	0.00	11.00	15.00
2020	0.00	20.00	30.00
2030	0.00	30.00	30.00

Table 7

EXPECTED MARKETS FOR FUTURE ALASKAN COAL EXPORTS (REF. 29)

Coal Importer	Total Coal Exports - Millions Tons/Year				
	1990	1995	2000	2005	2010
Japan	-	1.00	1.60	2.10	2.60
Korea	0.80	0.80	1.20	1.70	2.20
Europe	-	0.20	0.50	1.00	1.50
Mexico	-	-	-	0.50	1.50
Lower 48	-	-	-	0.50	1.00
Synthetic Oil	-	-	2.00	4.00	6.00
Other	-	-	0.20	0.20	0.20
Total	0.80	2.00	5.50	10.00	15.00

There have been no estimates made of natural gas shipments along the proposed Alaska-Canada connecting railroad line. However, it is possible that the magnitude of these natural gas shipments could become equivalent to those of petroleum if it were to become economical to ship methane-hydrate supercooled solid materials in the future. Once a more realistic basis, the need for equipment for natural gas gathering systems with processing plants at the wellheads plus pipeline transmission could be substantially benefited by having access to transport by the proposed Alaska-Canada connecting railroad with parallel pipelines. The recovery of seam gas from coal fields is a logical part of coal development.

COMMODITIES

There are a large number of commodities which are or can be moved over the Alaska Railroad and the British Columbia Railway. The previous Alaska Transportation Systems Planning Study (Ref. 31) by the University of Alaska divided rail cargo movements into the six categories of bulk liquids, bulk solids, machinery and metal products, forest products, food products and general cargo. The major commodities moved over the Alaska Railroad were reported to be rock, sand and gravel plus coal and petroleum products, intermodal trailers and containers, and others. The major commodities moved over the British Columbia Railway include forest products, grain, petroleum products, food and machinery to provide a frame of reference.

The ultimate economic viability of the proposed Alaska connecting railroad project will be determined by its ability to move goods between Alaska and Canada and the Lower 48 States in a cost competitive and time efficient manner. The traffic levels for cargo movements into and out of the various marine ports in Alaska have been presented in Table 8 (Ref. 32). The movement of these commodities through these ports gives an indication of the types of movements of materials, which could be expected to be hauled on the Alaska to Canada connecting railroad line. The major commodities noted include petroleum, metals, fish, chemicals and forest products. The commodities, which can be moved, are separately categorized as bulk commodities and specialty materials.

The major commodities moved by the Alaska Railroad include petroleum, coal, gravel and intermodal freight. A study was previously conducted in 1979 by the University of Alaska to determine commodity movements if a railroad link were constructed from Alaska through Canada to the Lower 48 States (Ref. 30). The major commodities identified which could be transported included petroleum, coal, machinery, forest products, food products and general cargo, as shown in Table 9. The amounts of material, which could be hauled by means of this railroad link, were listed as being only on the order of one million tons per year, which alone would not be able to justify the cost of construction. However, the cargo traffic volumes reported in this study of approximately 1.2 million short tons per year (1.1 million metric tons) were well below the 5.1 million short tons per year in 1991 (4.6 Million metric tons per year).

This study also made a determination of the impact of building a railroad link from Alaska to the Lower 48 States upon road and rail traffic in Alaska upon its existing infrastructure. Without a rail link to the Lower 48 States, the rail traffic would increase from 435 million net ton-miles per year to 483 million net ton miles per year between 1992 and 2000, as shown in Table 10. The

Table 8

CARGO TRAFFIC LEVELS FOR THE ALASKAN PORTS (Ref. 32).

REGION	PORT	MILLION TONS/YEAR	MAJOR COMMODITIES
SOUTHWEST	Skagway	1.200	Copper, Lead, Zinc, Oil
	Ketchikan	2.200	Forest Products, Chemicals, Oil
WESTERN	Kodiak	0.600	Petroleum, Fish
	Unalaska	0.300	Petroleum, Fish
	Bethel	0.100	Petroleum, Fish
	Nome	0.075	Petroleum, Fish
SOUTH CENTRAL	Valdez	60.000	Petroleum
	Kenai	10.000	Petroleum, Chemicals
	Anchorage	2.000	Petroleum, General
	Whittier	0.300	Petroleum, Military
	Seward	0.150	Forest Products, Fish

Table 9

1979 ESTIMATES OF COMMODITY MOVEMENTS BY RAIL BETWEEN ALASKA AND THE LOWER 48 STATES (Ref. 31).

COMMODITY MOVED	TOTAL MOVEMENT - TONS/YEAR	
	1992	2000
BULK LIQUIDS (OIL)	110,000	152,000
BULK SOLIDS (COAL)	120,000	137,000
MACHINERY - METALS	159,000	213,000
FOREST PRODUCTS	52,000	59,000
FOOD PRODUCTS	221,000	315,000
GENERAL CARGO	293,000	401,000
TOTAL MOVED	955,000	1,277,000

Table 10
EXPECTED IMPACTS OF A RAIL LINK CONSTRUCTION
FROM ALASKA TO THE LOWER 48 STATES
ON ALASKA FREIGHT TRAFFIC AND POPULATION (Ref. 31).

CALENDAR YEAR	TRANSPORT MODE	NO RAIL LINK MILLION NTM/YEAR	WITH RAIL LINK MILLION NTM/YEAR
1992	Rail	435	877
	Highway	406	406
	Total	841	1,273
2000	Rail	483	974
	Highway	451	451
	Total	934	1,425
1992	Population	450,000	600,000
2000	Population	500,000	830,000

highway traffic would increase from 406 million net ton miles per year to 451 million net ton miles per year between 1992 and 2000 without this rail link. If the rail link were constructed the rail traffic would greatly increase from 877 to 974 million net ton miles per year between 1992 while the highway traffic would remain the same.

These results are based on information developed in 1979. In the meantime, the growth in traffic has raised the total shipments on the Alaska Railroad to above one billion net ton-miles per year in 1991. These values are well above the projected traffic figures even without a rail link on the Lower 48 States being completed. A major reason for this increase in traffic has been the growth in population of Alaska since the completion of the Alaska crude oil pipeline from Prudhoe Bay to Valdez. This population growth has resulted in an increase in economic activity with a resultant increase in freight traffic on the Alaska Railroad. There has also been a considerable growth in freight traffic on the British Columbia Railway over the past 10 years.

Forest products are one bulk commodity, which could be hauled by rail to the Lower 48 States from Alaska or Canada as either wood, pulp or paper. The amount of timber harvested in Alaska has been presented in Table 12, with values ranging from 5 to 22 million board feet per year (Ref. 33). The amount of timber harvested in Alaska could increase in the future to between 25 and 144 million board feet per year, as shown in Table 13. There has been a need for timber by lumber mills in Japan and Korea for many years because of their lack of available domestic resources. In addition, the decline of forest resources in the Pacific Northwest of the United States has given impetus to the need for importing outside timber from both Alaska and Canada by ship or rail to the Lower 48 States of the United States, especially to California and Texas.

The amount of forest products which could be shipped at least some segments of the connecting Alaskan and Canadian railroad system is estimated as much as 5 to 15 million tons per year. Alaskan or Canadian timber and partially finished lumber could be shipped to either the Lower 48 States by an all rail haul or to Japan and Korea in Asia from Seward or Prince Rupert. Timber or partially finished lumber from Alaska and Canada could be shipped to Japan, Korea, China and other countries in Asia and perhaps in limited quantities to the United States. There will also be large quantities of chips and wood wastes generated, which could be processed into pulp or used as fuel. The use of waste wood or even municipal refuse as fuel with rail shipments is also feasible, including burning in combination with coal in rural areas to provide electricity for local residences, businesses, and industries.

The problem with forest products in Alaska is that the proposed rail line would go through the northern interior while the main forests are located near the southeastern coast. The inland forests tend to be more slow growing and sparse in the colder drier climate, which could be readily harvested near the railroad. In British Columbia, the entire rail network is near forests, which tend to be faster growing in the more moist warmer climate. It is therefore suggested that the main emphasis on hauling forest products with the proposed new connecting railway line would be in Canada and not Alaska.

Mineral mining activities are a major concern for the construction of the proposed railway line between Alaska, Canada and the Lower 48 States. Gold mining is a matter of immediate interest, especially in the Pogo mining region near Delta Junction in Alaska. The amount of gold to be

TABLE 11
ESTIMATED FREIGHT AND PASSENGER TRAFFIC FLOWS
ON THE ALASKA RAILROAD AND THE BRITISH COLUMBIA
RAILWAY IN 1999

Transport Type	Commodity Hauled	British Columbia Railway		Alaska Railroad Company	
		Million Short Tons/Year	Percent of Total Use	Million Short Tons/Year	Percent of Total Use
Freight	Coal	5	25.0	2	18.0
	Petroleum	1	5.0	3	28.0
	Aggregate Rock	1	5.0	2	18.0
	Food Products	1	5.0	1	9.0
	Grain (Wheat)	2	10.0	0	0.0
	Metal & Machinery	1	5.0	0	0.0
	Forest Products	6	30.0	1	9.0
	Intermodal	2	10.0	1	9.0
	Other	1	5.0	1	9.0
	Total		20	100.0	11
Passenger	Passengers/Year	600,000	-----	160,000	-----
Distance	Haul Distance	305 Miles	----	205 Miles	---

Notes: 1. Data based on information from Reference 22.
2. Data based on information from Reference 19.

Table 12
ALASKA TIMBER HARVEST TRENDS
IN THE NORTHERN AND SOUTHEASTERN REGIONS (Ref. 33).

CALENDAR YEAR	TOTAL HARVESTED - MILLION BOARD FEET/YEAR ¹		
	NORTHERN ²	SOUTHEASTERN ³	TOTAL
1990	3.6	1.9	5.5
1984	10.9	11.6	22.5
1985	9.8	1.7	11.5
1986	5.0	5.4	10.4
1987	8.7	2.2	10.9
1988	8.9	1.5	10.4
1989	12.5	1.9	14.4
1990	10.6	0.5	11.1
POTENTIAL	320	240	560

* Notes: 1. 4.0 Board Feet = 1.0 cubic foot
2. Includes the Fairbanks, Delta and Toll areas
3. Includes the Southern and Panhandle areas

Table 13
PROJECTED TRENDS IN ALASKA TIMBER HARVESTING FROM 1990 TO 2030

CALENDAR YEAR	TOTAL HARVEST - MILLION BOARD FEET/YEAR		
	MINIMUM	MEDIUM	MAXIMUM
1990	--	11.1	--
1995	6.0	25.2	51.0
2000	33.7	79.5	127.2
2010	45.3	85.0	144.0
2020	44.0	82.9	140.7
2030	45.9	78.0	123.2

* Note: 1. Assume ratio of 1/3rd row logs and 2/3rds wood chips
2. Assume a development ratio of 60% Northern and 40% Southern

transported is not large, but chemicals are required for processing, equipment and materials are required for mining, and provisions of food and other items are required for mining. It is also possible that gold mined from deposits adjacent to the proposed railway line could be used as a form of security collateralization for project financing of its construction. The estimated amounts of materials, which could be hauled along the railway line for gold mining, are between one and three million short tons per year.

Other mineral ores and products can be shipped along at least portions of the proposed Alaska Canada connecting rail route. Cements can be shipped as a construction material along with sand, rock and gravel and limestone, although generally only for short distances. There will be a need for hauling a number of metal and mineral ores from mines to processing plants as these resources become developed in the future. The magnitude of this market is estimated as being from 2 to 6 million short tons per year for bulk mineral ore transport.

One specific mineral, which might have considerable interest along the proposed Alaska Canada connecting railroad line, is that large iron ore deposits exist in the Yukon Territory and the Northwest Territories. The iron ore could be mined and taken to a future small steel mill to be located along the railway line. The coal required for coking and the limestone for fluxing could also be transported by the railroad from mine to mill, and the steel products transported, also by rail to customers. One possible application for such a steel mill could be to produce railroad rails and construction beams to support future economic development along the railroad line corridor in Alaska and Canada (Ref. 23). The expected total iron and steel traffic on the railway would be one to three million short tons per year.

The hauling of metals on the Bering Strait railroad line is another specialty material, which can be transported. Fabricated steel products and steel products can be shipped in both directions from Seward to Alaska or from the Lower 48 to States to Canada as the needs develop. Construction steel can be shipped over intermediate distances or over the entire route depending on the specific need. Metallic ores can also be shipped along the railroad line over shorter distances for processing in smelting plants and others such as the Red Dog zinc mine. It is expected that much of this traffic will originate in the mineral-rich zones of the Yukon and Northwest Territories.

It is estimated that the shipment of metal products and ores will comprise 2 to 5 million tons per year. Equipment and materials will need to be hauled along the railroad line in order to foster mineral mining and other economic development. The possibility that new oil and gas development could occur within a reasonable time frame would necessitate the movement of large amounts of piping, pumps, compressors and other machinery. The possible development of natural gas production with coal bed gas recovery could occur separately from oil development would require large amounts of piping and equipment. The equipment and machinery hauling could generate 2 to 5 million short tons per year of rail traffic for the Alaska-Canada connecting railroad.

Grain is a bulk commodity, which can be shipped, in large quantities from the United States and Canada to China, India, Russia and other countries in Asia. The grains, which could be shipped, include corn, barley and wheat, depending upon the use desired. The grain could be shipped from the Peace River area of northeastern British Columbia or from Alberta to the west through Prince

Rupert or Seward and then to the points of use. Existing markets and cars could be utilized in an extension of existing services to primarily interior market locations. The amount of grain which would be expected to be shipped via the Alaska-Canada connecting railroad is 3 to 8 million tons per year. This amount represents 3 to 8 percent of the present U.S. grain exports of almost 100 million short tons per year, and could be greatly increased if the Bering Strait tunnel were to be built.

Other agricultural crops could be shipped by rail such as potatoes or hydroponically grown vegetables or farm fish. Such facilities could be located at periodic intervals along the line with greenhouses and used for enhanced crop growing with carbon dioxide enrichment. The hauling of these specialty crops could add one to two million tons per year to the railroad traffic on the Alaska Canada connector line in both directions, and would be useful for small villages.

Food products can be shipped in both directions along the Alaska-Canada connecting railroad route. A particular market in at least the immediate term is from the Lower 48 States of the United States to Alaska, where much of it must be refrigerated due to perishability concerns. Fruits and vegetables and meats can be shipped by means of these refrigerated cars to Alaska or Canada from the United States. Dried food products can also be shipped by means of the Alaska-Canada connector railroad line from the United States to Alaska, Alberta, British Columbia and elsewhere in northwest Canada. This market is estimated as being from 2 to 6 million tons per year in magnitude for food products shipments in a northbound direction.

One specific type of agricultural operation, which may become increasingly common in Alaska and Northwestern Canada in the future are hog farms for pork production. The States of Colorado and South Dakota have recently passed ballot initiatives to restrict hog farm operations in their states because of nitrate water pollution and odorous air pollution. The location of these hog farms in remote areas of the Far North would act to minimize adverse environmental impacts as as to create employment opportunities in depressed regions.

Hog farms need to have extensive grain feed shipments plus chemical supplies. They also have the need to process and remove wastes as well as to ship the pork product to distant markets. It is estimated that 10 to 15 hog farms could be located in these remote communities along the Alaska-Canada connector railway line. These hog farms could create as much as 3 to 7 million short tons per year of freight traffic, and would generate large amounts of wastes for recovery.

A number of chemicals can be hauled along the Alaska-Canada connecting railroad line. These chemicals include basic industrial inorganics such as sulfuric acid, nitric acid and caustic soda in the liquid form as well as dry bulk chemicals such as sodium carbonate, limestone and titanium oxide pigments. There are a number of organic chemicals which could be hauled along the Alaska-Canada connecting railroad line in either direction which include ethylene from the plant in Red Deer, Alberta. There will be a need for these chemicals to be shipped to support the mining and mineral processing industries plus other industries to be located in Northwest Canada and to a lesser extent elsewhere in Alaska. The estimated magnitude of this market is 2 to 5 million tons per year for chemical shipments of organic and inorganic materials.

A related material to chemicals is fertilizers, which are needed to assist agriculture in East Asia and elsewhere. Potash is one fertilizer material, which can be shipped in bulk from Saskatchewan along with potassium sulfate and potassium nitrate. The economics of shipping these materials depends on the haul distance involved and their value at the point of use. It is expected that these fertilizers shipments would be primary from America to Asia, and that the magnitude of the materials shipped would be from 1 to 5 million tons per year for fertilizer shipments. A particular route would be potash shipments from Saskatoon, Saskatchewan to Edmonton, Alberta and Prince George to Prince Rupert British Columbia by rail for export to Asia by ship.

Intermodal freight traffic has been a major component of the growth in railroad freight traffic over the past few years in the United States. Intermodal freight traffic includes truck trailers as well as single stack or double stack containers. Intermodal freight traffic is bi-directional in nature as it can move from the Lower 48 States to Alaska or from Alaska and Canada to the Lower 48. There is no specific description of the contents of intermodal freight except that it is material, which is time-sensitive in terms of equipment or goods where speed of shipment is a necessity. The Alaska-Canada connector railway route may make it possible to ship cargoes between the various inland destinations entirely by land routing without having to offload or onload containers at the marine ports or Seward or Prince Rupert or Haines to reduce overall transport costs.

The rail intermodal shipments in the United States now exceed 10 million trailer and container units per year for a net weight exceeding 200 million tons and is increasing at more than 5.0 percent per year. The level of cargo shipments at the various ports on the West Coast of the United States now exceeds 200 million tons per year exclusive of crude oil, and is increasing at a rate of greater than 3.0 percent per year. The Pacific Rim trade is now the most rapidly growing in the World. Intermodal freight traffic could go between the United States, Canada, Mexico and Latin America in the Western Hemisphere to Japan, Korea, Taiwan, China, Southeast Asia, Russia, the Newly Independent States plus Western and Eastern Europe in the Eastern Hemisphere. The growth of intermodal freight traffic along the proposed Alaska-Canada connector railway would become especially great if the Bering Strait, railroad tunnel between Alaska and Asia ever becomes a reality particularly. The development of large scale electronic commerce and internet shopping may greatly accelerate the need for this project.

The present total intermodal freight traffic on the combined Alaska Railroad and British Columbia Railway is estimated as 3 to 5 million short tons per year at the present time. This intermodal freight traffic could increase to between 5 and 10 million short tons per year with the completion of the Alaska-Canada connector railway from the Lower 48 States to Fairbanks without any significant impact of electronic commerce. This intermodal freight movement between Alaska and Canada and the Lower 48 States could increase to as much as 10 to 15 million short tons per year with extensive electronic commerce and internet shopping being utilized.

The final freight transport category for consideration with the proposed Alaska-Canada connector rail line are military cargoes as there are a number of Army, Air Force and Navy facilities located in Alaska. The starter cargo go justifying the entire construction of the 1,300 mile long (2,085 km) Alaska-Canada connector railroad line may be to develop a major missile base at Fort Greely near Delta Junction, Alaska. The initial rail line construction would be for 70 miles from Eielson Air Force Base to Fort Greely at Delta Junction and then for 200 miles to the Yukon border. The

expected military cargoes to be hauled over the Alaska-Canada connector railway are expected to range between 3 and 10 million short tons per year depending on construction.

CONCLUSIONS

The completion of the construction of the Alaska-Canada connector railroad line over the 1,300 mile distance from Eielson, Alaska to Dease Lake and Fort Nelson, British Columbia will make it possible to link the Alaska Railroad with the rest of the North American railroad network. It will then be possible to haul a wide variety of materials along this railroad line between Alaska, Canada and the Lower 48 States in both directions. In addition, it is also planned to have railroad passenger service along this rail line in order to serve the remote villages and communities.

There are a wide variety of commodities, which can be hauled along the Alaska-Canada connector railroad line, as listed in Table 14. The commodities identified, which can be hauled, include the categories of fuels, resources, metals, agriculture, chemicals, intermodal, military and other cargoes. It is estimated that between 45 and 120 million net short tons per year could be hauled over the Alaska-Canada connector railroad line. The starter commodities to initiate the railway operation would most likely be the military related cargoes to the new missile base. The largest quantity of cargoes to be moved over the railway line would probably be fossil fuels, including coal, crude oil and petroleum products.

The expected increase in total cargo movements along the 1,300-mile long Alaska-Canada connector railroad line is illustrated in Figure 14. Approximately 65 percent of the total railway freight traffic increase in Northwestern Canada and Alaska will be in Canada, primarily on the British Columbia Railway. Approximately 35 percent of this total railroad freight traffic will be on the Alaska Railroad. The total freight traffic movements to be expected along the planned 1,300 mile Alaska-Canada connector railroad line is expected to constitute about one-third of the total freight traffic movements to be expected in Northwestern Canada and Alaska.

The estimated freight traffic flow on the planned Alaska-Canada connector railroad is expected to increase from 5 million net short tons per year in 2006 as the startup to 20 million short tons per year in 2010. The freight traffic flows are expected to increase to 30 million net short tons per year in 2020 to 48 million tons per year in 2030, as shown in Table 15. The freight traffic flows are expected to increase from 1.4 billion net ton-miles in 2006 to 17.8 billion net ton-miles in 2030. The freight traffic revenues are expected to reach 222 million dollars per year by 2010 and increase to \$665 million per year by 2030.

The startup of the Alaska Canada connector railway in 2006 will result in a rapid initial increase in freight traffic revenues based on military cargoes. The expected freight traffic revenues are expected to reach \$222 million in 2010 and \$357 million per year in 2020 as shown in Figure 15. These expected freight traffic revenues are expected to be sufficient to allow the railroad to be operated on a profitable basis after the year 2010 within 5 years of beginning its service.

The above referenced railway freight traffic revenues are based on the cost, revenue and traffic data provided for the Alaska Railroad operation, as listed in Table 16. The total amount of freight moved in 1991 was 5.1 million net short tons to generate 1.05 billion net ton-miles of freight

TABLE 14

**ESTIMATED INCREASES IN FREIGHT TRANSPORT BY
COMMODITY FOR THE ALASKA CANADA CONNECTOR RAILROAD**

Overall Category	Specific Commodity	Amount Transported Million Tons/Year	Percent of Total	Freight Haul Direction
Fuels	Coal	5.1-15.0	11.1-11.3	Bidirectional
	Crude Oil	3.0-6.0	6.7-5.6	Southbound
	Petroleum Products	2.0-6.0	4.4-5.6	Southbound
	Subtotal	10.0-27.0	22.2-22.5	---
Resources	Forest Products	5.0-15.0	11.1-12.5	Southbound
	Gold Mining	1.0-3.0	2.3-2.5	Northbound
	Mineral Mining	2.0-6.0	4.4-5.0	Bidirectional
	Subtotal	8.0-24.0	17.8-20.0	---
Metals	Metallic Ores	1.0-3.0	2.2-2.6	Bidirectional
	Metal Products	2.0-5.0	4.3-4.2	Bidirectional
	Equipment and Machinery	2.0-5.0	4.3-4.3	Northbound
	Subtotal	5.0-13.0	10.8-11.1	---
Agriculture	Grain	3.0-8.0	6.6-6.8	Southbound
	Food Products	2.0-6.0	4.4-5.1	Northbound
	Hog and Pork	3.0-7.0	6.5-5.9	Bidirectional
	Subtotal	8.0-21.0	17.5-17.8	---
Chemical	Chemicals	2.0-5.0	---	Northbound
	Fertilizers	1.0-5.0	---	Bidirectional
	Subtotal	3.0-10.0	6.7-8.3	---
Intermodal	Intermodal Freight	5.0-10.0	---	Bidirectional
	Internet Shopping	3.0-5.0	---	Northbound
	Subtotal	8.0-15.0	12.5-17.5	---
Military	Military Cargoes	3.0-10.0	6.7-8.3	Bidirectional
Other	To be Determined	Unknown	Unknown	---
Total	Total Amount	45.0-120.0	100.0	---

Figure 14

ESTIMATED INCREASES IN TOTAL FREIGHT TRAFFIC VOLUMES ALONG THE ALASKA RAILROAD AND THE BRITISH COLUMBIA RAILWAY BETWEEN 1990 AND 2030 FOR THE ALASKA-CANADA CONNECTOR CORRIDOR

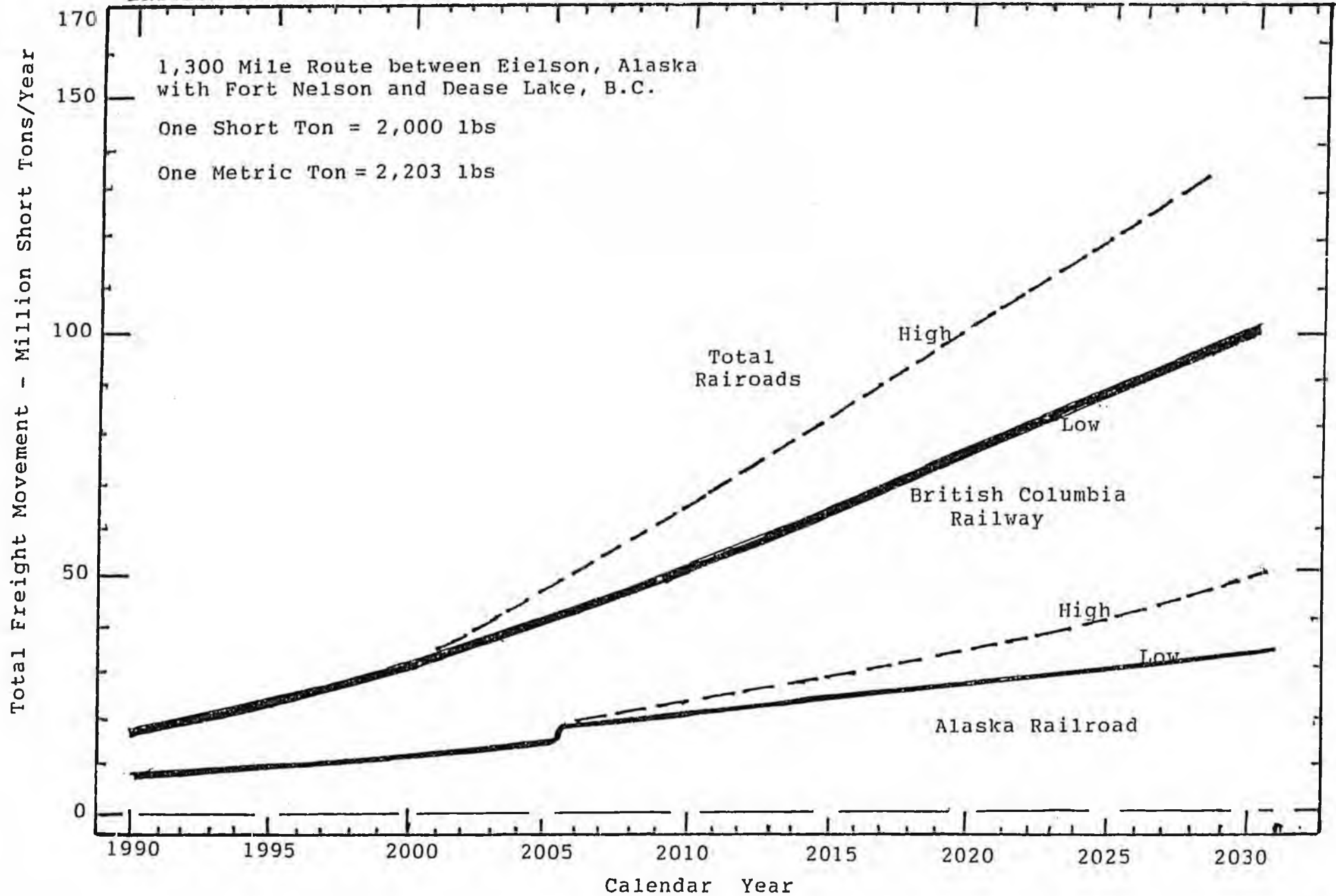


TABLE 15

**ESTIMATED INCREASES IN FREIGHT TRAFFIC AND
OPERATING REVENUES FOR THE ALASKA CANADA
CONNECTOR RAILROAD LINE³**

Calendar Year	Shipments iMillion Tons/Year	Haul Distance Miles	FreightTraffic Level ¹ Million NTM/Year	Rate ¢/NTM	Annual Revenue Million\$/Year
2000	0	----	0	4.05	0
2005	0	----	0	4.00	0
2006	5	275	1,375	3.95	55
2007	8	280	2,800	3.90	109
2008	13	285	4,275	3.85	165
2009	17	290	4,930	3.80	187
2010	20	300	6,000	3.70	222
2015	25	325	8,125	3.60	293
2020	30	335	10,050	3.55	357
2025	38	350	13,300	3.65	485
2030	48	370	17,760	3.75	665

- Notes: 1. Reported in million net ton-miles per year.
 2. Reported in cents per net ton-mile travelled.
 3. Reported in 1999 constant dollars.
 4. Tons are reported as short tons (2,000 lb/short ton)
 5. Metric tons are calculated by multiplying short tons by 0.909.

Figure 15

ESTIMATED INCREASES IN FUTURE FREIGHT TRAFFIC REVENUES ALONG THE ALASKA-CANADA RAILROAD CONNECTOR ROUTE BETWEEN EIELSON, ALASKA AND FORT NELSON AND DEASE LAKE, BRITISH COLUMBIA

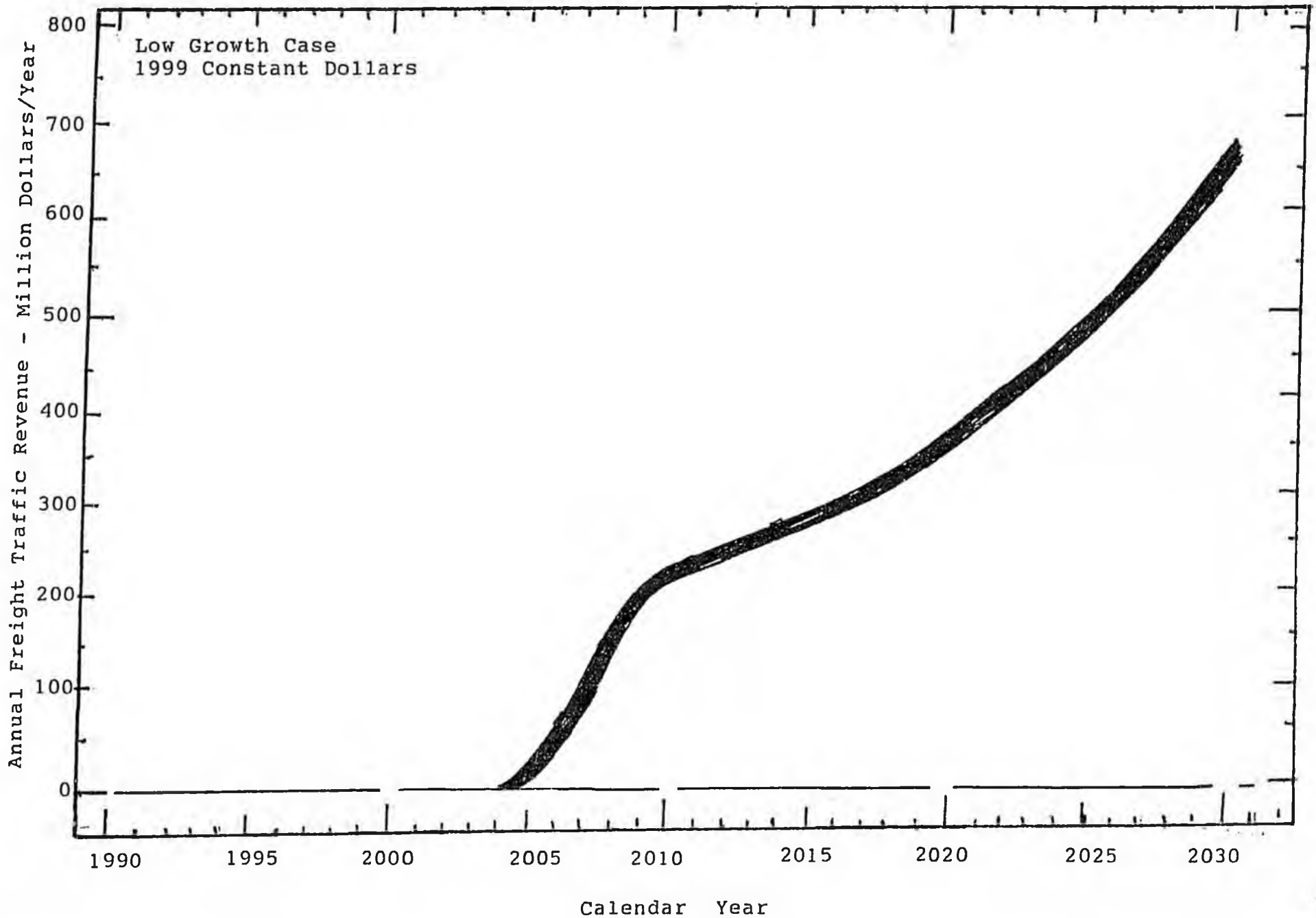


TABLE 16

**REPORTED FREIGHT REVENUE HAUL RATES ON THE
ALASKA RAILROADS IN 1991 (REFS. 18,19)**

Commodity Transported	Distance Miles	Amt. Hauled Net Tons/Yr.	Traffic Level Net Ton Mi/Yr	Annual Rev. Million\$/Year	Unit Rate ¢/Net Ton/Mi.
Petroleum Prod.	356	1,400,000	498,400,000	19,000,000	3.812
Coal-Local	120	800,000	96,000,000	3,000,000	3.125
Export	358	800,000	286,400	9,000,000	3.142
Coal Total	478	1,600,000	382,400,000	12,000,000	3.138
Gravel Total	35	1,800,000	63,000,000	3,000,000	4.762
Intermodal	356	200,000	71,200,000	6,500,000	9.129
Other Materials	356	100,000	35,600,000	5,500,000	21.067
Freight	535	5,100,000	1,050,600,00	48,000	4.569/NTM
Passenger	515	471,217	167,753,250	16,400,000	9.776/PM
Total	535.00	----	----	64,400,000	----

TABLE 17

**ESTIMATED PASSENGER SERVICE REVENUE ON THE ALASKA
CANADA CONNECTOR RAILROAD LINE (REF. 16)**

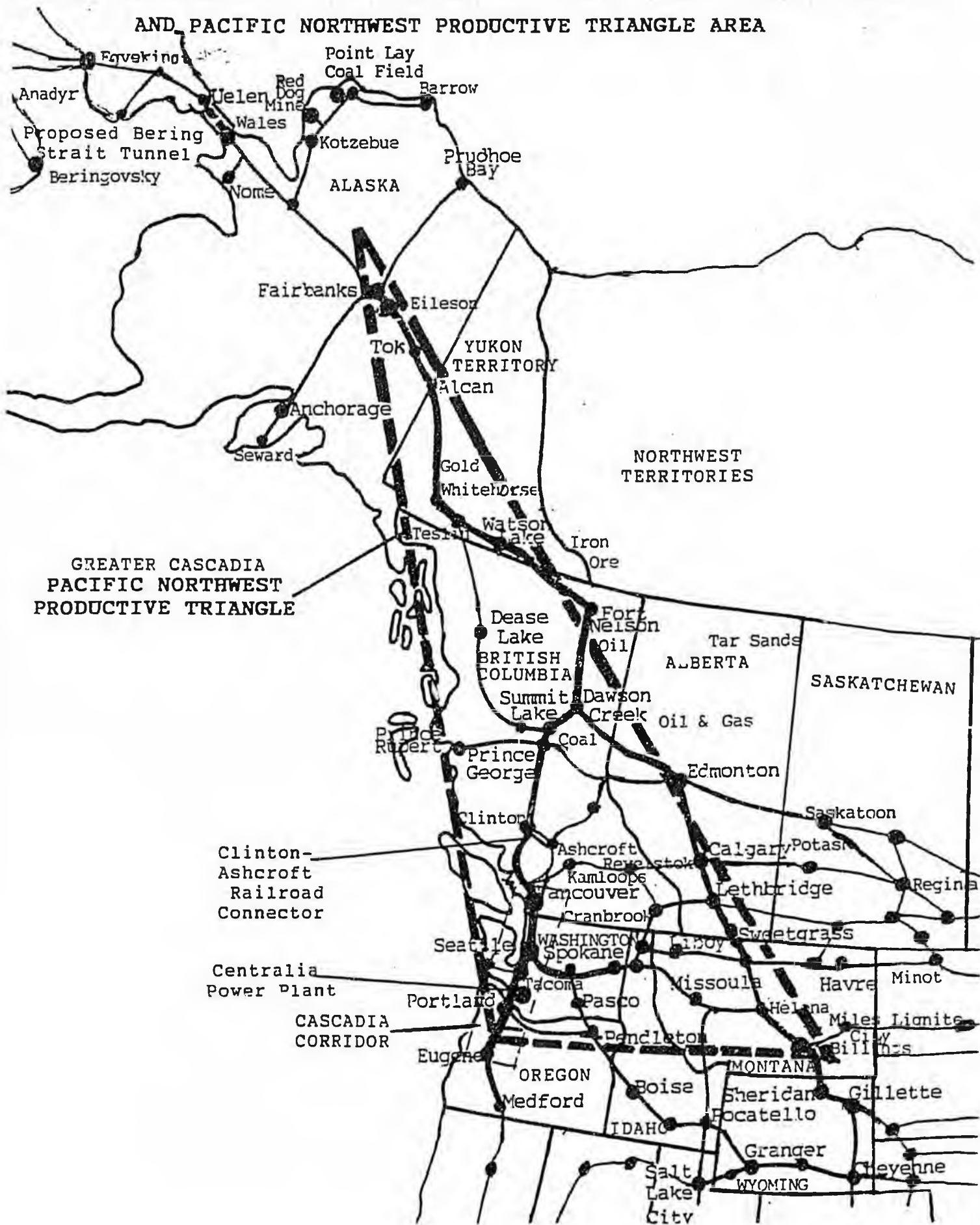
Passenger Travel Type	Unit Rail Fare ¢/Pass-Mile	Trip Distance Miles	Traffic Level Pass/Day	P. Movement Mil PM/Year	Annual Rev. Million \$/Year
Tourist Travel	6.5-7.5	3.00-500	250-500	27-91	1.8-6.8
Occup. Travel	4.0-6.0	100-550	750-1,000	27-200	1.1-12.0
Tourist & Car	8.0-10.0	300-900	250-500	27-164	2.2-16.4
Auto Transport	\$300-500/Veh	300-500	50-150	5-27	5.5-27.4
Organized Tours	10.0-15.0	250-900	500-750	46-246	4.6-36.9
Total Amount	4.0-15.0	100-900	1,800-2,900	132-728	15.2-99.5

traffic with an average haul distance of 205 miles, as compared to 305 miles for the British Columbia Railway. The total revenue generated from freight traffic on the Alaska Railroad was \$48 million in 1991, which was 75 percent of the total. The passenger traffic on the Alaska Railroad constituted 25 percent of the total system revenue with a total of \$16.4 million with 471,217 passengers in 1991 with an average trip length of 355 miles.

The proposed passenger service on the Alaska Canada connector railroad would have 1,800 to 2,900 passengers per day or 651,000 to 1,085,000 passengers per year with an average trip length of 435 miles. The rail passenger service would have revenues ranging from \$15 to \$100 million per year, as shown in Table 17. These passenger revenues would constitute 10 to 15 percent of the total for the proposed Alaska Canada connector railroad line.

The proposed Alaska Canada connector railroad line of 1,300 (1,805 km) from Eielson, Alaska to Fort Nelson and Dease Lake, British Columbia would have sufficient freight traffic to be economically viable with coal and oil, mineral and forest resources, intermodal cargoes and agricultural products the main constituents if proper development policies are implemented. There would be considerable freight traffic flows in both directions to serve to connect Alaska with the Lower 48 States. In addition, the future construction of this railway would serve as the vehicle to promote economic growth and development throughout the entire Greater Pacific Northwest productive triangle, as illustrated in Figure 16. This railway line could first be extended to western Alaska and ultimately to Asia and Europe by way of the Bering Strait tunnel, especially with the advent of electronic commerce.

RAILROAD NETWORK SYSTEM DEVELOPMENT IN THE CASCADIA CORRIDOR REGION AND PACIFIC NORTHWEST PRODUCTIVE TRIANGLE AREA



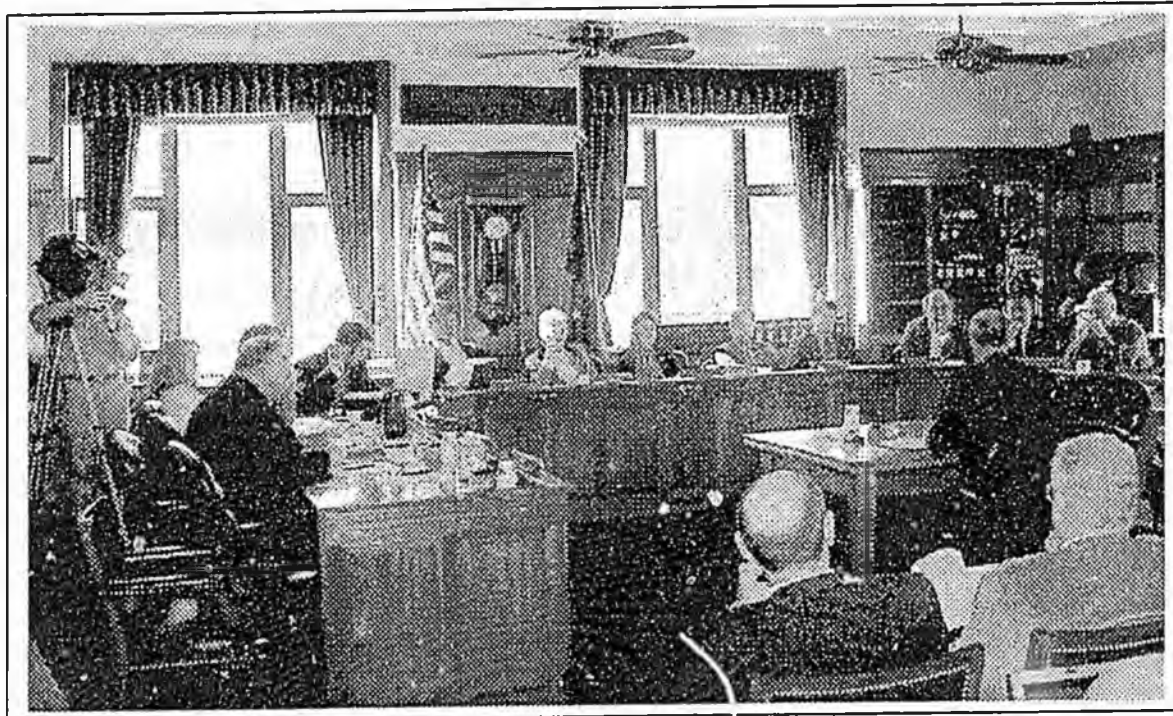
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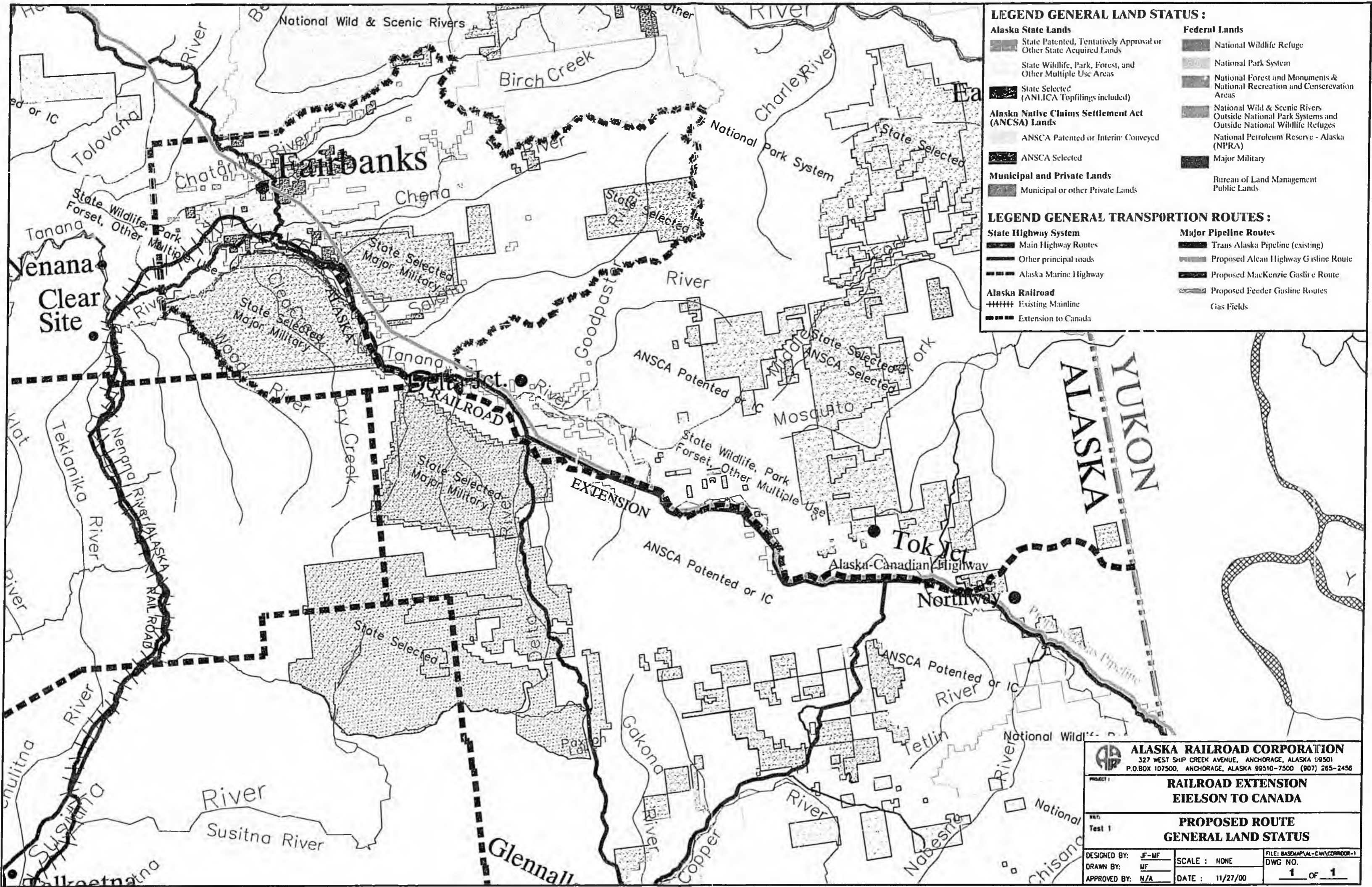
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LEGEND GENERAL LAND STATUS :

Alaska State Lands	Federal Lands
State Patented, Tentatively Approval or Other State Acquired Lands	National Wildlife Refuge
State Wildlife, Park, Forest, and Other Multiple Use Areas	National Park System
State Selected (ANLCA Topfilings included)	National Forest and Monuments & National Recreation and Conservation Areas
Alaska Native Claims Settlement Act (ANCSA) Lands	National Wild & Scenic Rivers Outside National Park Systems and Outside National Wildlife Refuges
ANCSA Patented or Interim Conveyed	National Petroleum Reserve - Alaska (NPRA)
ANCSA Selected	Major Military
Municipal and Private Lands	Bureau of Land Management Public Lands
Municipal or other Private Lands	

LEGEND GENERAL TRANSPORTION ROUTES :

State Highway System	Major Pipeline Routes
Main Highway Routes	Trans Alaska Pipeline (existing)
Other principal roads	Proposed Alcan Highway Gasline Route
Alaska Marine Highway	Proposed MacKenzie Gasline Route
Alaska Railroad	Proposed Feeder Gasline Routes
Existing Mainline	Gas Fields
Extension to Canada	

 ALASKA RAILROAD CORPORATION 327 WEST SHIP CREEK AVENUE, ANCHORAGE, ALASKA 99501 P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456		
RAILROAD EXTENSION EIELSON TO CANADA		
PROPOSED ROUTE GENERAL LAND STATUS		
DESIGNED BY: JF-MF	SCALE: NONE	FILE: BASEMAP\AL-C\W\CORROR-1
DRAWN BY: MF	DATE: 11/27/00	DWG NO. 1 OF 1
APPROVED BY: N/A		



State of Alaska Legislature

* Please distribute * → Loulaputo

Please enter my testimony into the record to the

HF IN Committee in regard to the
(Committee Name)

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

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

SIGNED AL KEECH
(PLEASE PRINT)

POB 362 TOK, AK 99780
ADDRESS AND PHONE NUMBER

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

ALASKA STATE LEGISLATURE

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Majority Leader
House of Representatives
House District 34

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

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

AGENDA

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

ALASKA STATE LEGISLATURE

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| 12 noon | ✓ Tom Brigham, speaking for (Alaska Department of Transportation and Public Facilities) Commissioner Joe Perkins |
| 12:15 p.m. | Colin Chapman, for Congressman Don Young, from Washington, DC. |
| 12:30 p.m. | Gavel out. |

Scott Kent

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

*MLA - Riverside
Yukon Liberal Party*



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

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

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

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

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

Mike McLarnon

Deputy Speaker

Chair of the Committee of the Whole House

MLA - Whitehorse Centre

Yukon Liberal Party



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

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

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

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

He is married to Jeannette McLarnon.

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

Cynthia Tucker

*Government House Leader
Caucus Chair*

*MLA - Mount Lorne
Yukon Liberal Party*



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

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

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

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

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

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

**EAST CENTRAL ALASKA GEOLOGIC
RESOURCES
AND
ACCESS CORRIDORS**

ALASKA DIVISION OF GEOLOGICAL AND GEOPHYSICAL SURVEYS

JUNEAU, ALASKA

FEBRUARY 20, 2001

EAST CENTRAL ALASKA GEOLOGIC RESOURCES



East Central Alaska includes the central portion of a regional international United State - Canada mineral trend that informally has acquired the designation of "Tintina Gold Belt"

Gold is not the only mineral commodity within the "Gold Belt." This region also contains significant coal deposits, and copper, lead, zinc, nickel, and platinum group metal prospects.

The proposed extension of the Alaska Railroad is located within a highly mineralized portion of the Tintina Gold Belt.



The area shown in the following graphics represents about 78,000 square miles. As an indication of scale, it is about 100 miles (165 km) between Fairbanks and Delta Junction.

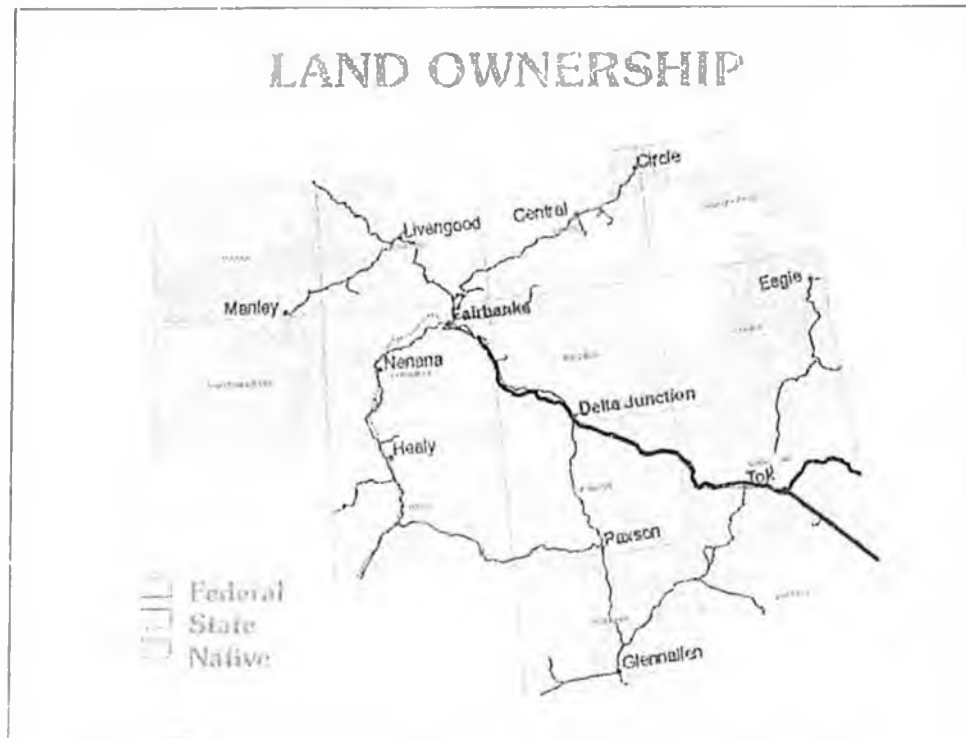
The existence of a road and railroad transportation network has been a significant positive factor in fostering mineral exploration and development in East-Central Alaska.

The Fairbanks commercial center, serviced by the Alaska Railroad, the Parks Highway, and the Alaska Highway, disburses equipment, supplies, and services to regional towns and villages that serve as staging areas for mineral exploration and development ventures.

Fairbanks is a world-scale mining center. Delta Junction is the terminal supply point for developing the recently discovered Pogo gold deposit. Tok serves the Fortymile and Delta mineral districts. The town of Healy supports the states largest active coal mine and is a local supply center for mineral exploration in the Bonnifield and Chulitna district.

A large percentage of East Central Alaska lies within fifty miles of an existing road.

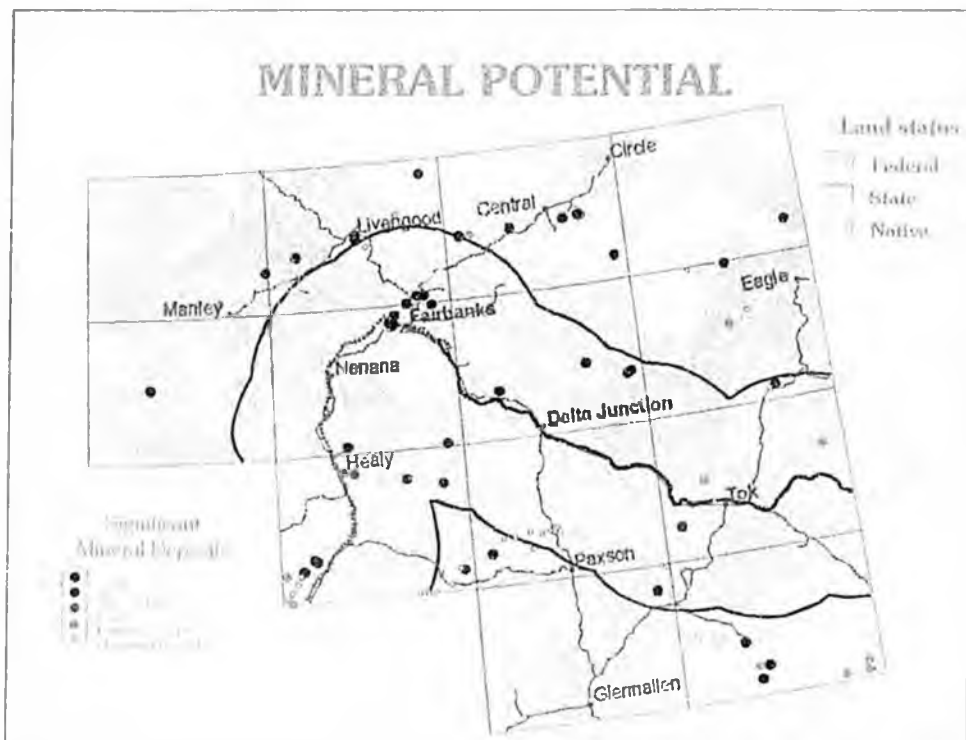
LAND OWNERSHIP



There are three major classes of land owners in Alaska: 1) the federal government; 2) the state of Alaska; and 3) Alaska Native Regional- and Village-Corporations. Other private land owners are a small minority when measured by acres in private fee-simple ownership.

The majority of known significant mineral deposits in East-Central Alaska are located on state or Native controlled land.

Much of the land selected by the state of Alaska and the Native Corporations was purposely chosen because of perceived high mineral potential. In spite of the existence of several known significant mineral deposits, these lands are under-explored. A fact amply demonstrated by the discovery of a gold deposit by sampling the road cuts of the Alaska Highway near Tetlin Junction last summer.



A majority of the most valuable known mineral deposits of East-Central Alaska are located within fifty miles of the proposed or existing Alaska Railroad, e.g., Usibelli Coal Mine (1.4 billion tons), Fort Knox Gold Mine (6 million ounces), Pogo Prospect (5.2 million + ounces), True North Prospect (1.3 million ounces), Ryan Lode (0.8 million ounces).

The region hosts several other significant prospects and mineral districts, e.g. the Bonfield gold and massive sulfide copper-lead-zinc district east of Healy; the copper-lead-zinc Delta District southwest of Tok; the Richardson gold district northwest of Delta Junction.

There is growing interest in a series of nickel-copper-platinum group metal prospects north of Paxson.

There are brief references for some of these deposits in the appendices of the *Alaska Mineral Industry - 1999* annual report published by the Alaska Division of Geological and Geophysical Surveys.

Using a non-quantitative definition of "significant," there are about thirty significant mineral deposits or prospects within the existing and proposed 100-mile wide rail-belt corridor.