

Our Present — Our Future: Northwest Alaska — Prosperity Opportunity

Researched by
Norman Stadem, MA Economics
Formerly
Resource Conservation and Development Coordinator
U. S. Department of Agriculture
Natural Resource Conservation Service

Contact:
Norman Stadem, MA Economics
1826 E. 26th Ave., Anchorage, AK 99508
(907) 272-0908
normstadem@aol.com
© Norman Stadem, 2011
December 2011

(This page intentionally left blank.)

Our Present — Our Future: Northwest Alaska — Prosperity Opportunity

Table of Contents

Preface to December 2011 Paper.....	1
Hypothetical Value of the Bering Strait Tunnel	2
Introduction	3
The Eskimo Legacy.....	4
Rails to Opportunities	5
Paradigm Shifts Driving Changes in Arctic Commerce	6
Geophysical Changes	6
Bering Strait Tunnel Vision.....	7
Isolation and Poverty	8
Economic Opportunity for a Neglected, Impoverished Region:	8
InterBering a Promoter of the Bering Strait Rail Tunnel	9
Are Sovereign Tribes Key to Motivating U.S. Funding?	10
Tribes Have Sovereign Nation Negotiation Status.....	10
Federal Transit Administration – Tribal Transit Program	10
U.S. Plans to Inject \$US53-Billion into High Speed Rail	11
Anticipating Future Uncertainties.....	11
Who or What Motivates the Bering Strait Tunnel Vision	12
Bering Strait Railroad Tunnel and Arctic Ocean Shipping.....	12
Climate Trends in the Arctic Affecting Ocean Shipping.....	15
Limited Involvement in Arctic Shipping	16
Half Century to Plan for the Future	16

Our Present – Our Future: Northwest Alaska — Prosperity Opportunity

Alaska's Involvement in the Arctic.....	17
Limiting Factors.....	17
Arctic Ocean is Relatively Shallow	22
Alaska Railroad a Critical Link to the Northwest	22
Airplanes, the Work Horse of Rural Alaska.....	22
Northern Sea Route Opened to International Commerce	23
2000 Little Diomede Harbor Proposal	23
Extension of Alaska Railroad Critical to Alaska's Future.....	24
In Support of the Arctic Sea Routes.....	24
In Support of the Bering Strait Rail Tunnel.....	25
Motor Vessel (MV) Nordic Observer	25
Developing a Rail Corridor into Northwest Alaska	26
Concluding Remarks.....	27
General References.....	33

Our Present — Our Future: Northwest Alaska — Prosperity Opportunity

Table of Contents

Figures

Table #1: Comparative Fuel Efficiency of Three Modes of Freight Transport.....	3
Table #2: Income Levels in Northwest Alaska by Borough and Census Area	8
Illustration #1: Superimposed Rail Tunnel Sketch (Not to Scale)	14
Illustration #2: Plan for a Tunnel Under the Bering Strait Between Siberia and Alaska	15
Photo #1: The Small Boat Harbor at Nome, Alaska	18
Photo #2: Port Clarence and the Villages of Brevig Mission and Teller, Alaska	19
Figure #1: Sea Ice Concentration in the Arctic Ocean	20
Figure #2: Popular Northwest Passage Sea Routes	21
Table #3: Alternative Arctic Ocean Shipping Routes	26
Illustration #3: The Rail Route From London to New York Through Bering Strait Tunnel	30
Photo #3: Diomede Island.....	31
Photo #4: Siberian Coastal Village Uelen	32

Our Present – Our Future: Northwest Alaska — Prosperity Opportunity

(This page intentionally left blank.)

Our Present — Our Future: Northwest Alaska — Prosperity Opportunity

Researched by
Norman Stadem, MA Economics
Formerly
Resource Conservation and Development Coordinator
U. S. Department of Agriculture
Natural Resource Conservation Service

Contact:
Norman Stadem, MA Economics
1826 E. 26th Ave., Anchorage, AK 99508
(907) 272-0908
normstadem@aol.com
© Norman Stadem, 2011
December 2011

Preface to December 2011 Paper

This project started as an attempt to identify causes for the high cost of living in off-the-road system villages of the Yukon-Kuskokwim (Y-K), i.e., Northwest Alaska, and identify possible actions to reduce or at least stabilize the rising cost trend. The suspects were inefficient freight transport mode and inefficient market sizes in the scattered roadless villages/communities.

The obvious first point of focus was to reexamine a project first proposed by the U.S. Army Corps of Engineers (USACE) in the early 20th century: A barge canal connecting the rivers at their closest approaches, a distance of some 35 miles, to integrate these two major waterways. This region is the general route of ancient portages used by Indigenous tribes. The closest point occurs on the Yukon at Paimute and on the Kuskokwim down river from Kalskag. At that time the Corps concluded that the benefit-cost did not justify the investment by the federal government. Later, in the early 1980s, the Alaska Department of Transportation and Public Facilities (DOT&PF) developed a study for a gravel haul road essentially transiting the same vicinity. Further consideration showed that the canal would encounter tremendous

environmental resistance and the haul road would require additional handling of cargo, driving costs up.

A third option suggested by the study was a railroad line originating from the existing Alaska rail system at Nenana (for sake of argument) and running proximate to the communities of the Yukon and Kuskokwim rivers westward to Bethel, then on to Bristol Bay. Bethel has a developed industrial port for distribution to villages within the region.

It quickly became clear that this localized solution would only provide marginal, if any, benefit to solving the high cost problem. In order to make a significant impact on reducing costs, a broad and comprehensive solution needed to be considered. World freight transport has achieved substantial increase in efficiency and reduction in costs primarily through multimodal integration of containerized rail and ocean shipping — i.e., roll-on-roll-off. It is clear that trucks make sense for local and short-haul transport. Airplanes are important for “just-in-time” shipping requirements in spite of their high relative cost. (Table 1, page 3)

It has become clear that the remote, rural regions of Alaska need access to a modern, multimodal, efficient freight transport system. A piecemeal system, such as exists in most of rural Alaska, is not adequate to serve the needs and to support modern dynamic economic needs of this vast region. To achieve lower cost from efficiencies, rural Alaska needs to emulate solutions that have evolved through experience in international commerce.

2011 seems to be a watershed year in freight transport in many ways. According to the Anchorage Daily News (ADN) the Russian Duma approved \$US100-billion to begin work on the Russian side of the Bering Strait Railroad tunnel (10/8/11); the number of sailings through the Arctic Ocean was the highest ever (11/7/11); the bypass mail subsidy program, at \$70-million per year, is under review by the U.S. Postal Service (11/29/11); and in the South 48 airlines are mothballing small aircraft, under 50 passengers, cutting service to 27 small towns, some close to the size of Anchorage (approximately 261,400 population), for example (Oxnard, Calif. and St. Cloud, Minn., both approximately 190,000 population), as fuel prices climb from \$0.78 per gallon in 2000 to \$3.16 per gallon in 2011. (11/26/11).

Hypothetical Value of the Bering Strait Tunnel

In a research paper by Elias and Susan Short, CU-Boulder's Institute of Arctic and Alpine Research, C. Hans Nelson of the U.S. Geological Survey, Menlo Park, Calif., and Hilary Birks of the Botanical Institute in Bergin, Norway, reported by Cyberwest Magazine, July 31, 1996, we learn that the estimated area of the Bering (Beringia) Land Bridge is some 580,000 square miles.

By what metric can we compare the economic value of a 580,000-square-mile Bering Land Bridge that submerged some 21,000 years ago at the beginning of the Holocene Period with an international Bering Strait Railroad Tunnel today? Clearly there are no economic records to guide us. The Bering Land Bridge extended some 1,000 miles from Barrow in the north to the Aleutian Peninsula in the south. It provided a bridge for plants and animals, including humans, to communicate between Asia and North America. And they did.

If we assume that the \$US100-billion proposed by Prime Minister Vladimir Putin to the Russian Duma in 2011, and approved by them, is a measure of the economic cost of the Bering Strait Railroad bridge, and assume that this tunnel is a stand-in for the Land Bridge, then we could argue that the tunnel has an economic value equivalent to \$US172,413 per square mile. Furthermore, the \$US7-billion estimate of global freight can be argued is equivalent to \$US12,069 per equivalent square mile for each year of operation. This dollar equivalency estimation demonstrates the effectiveness of the quad-rail Bering Strait Railroad tunnel as an efficient, stand-in for the potential effectiveness of the Beringia Land Bridge.

Table #1. Comparative Fuel Efficiency of Three Modes of Freight Transport

Freight Transport Mode Used	Number of Miles that One Ton of Freight can be shipped using One Gallon of Fuel	Total Gallons of Fuel to Ship One Ton of Freight 1,000 Miles	Cost to Ship One Ton 1,000 Miles at \$5.00 per Gallon of Fuel
Class 1, Railroad	457 Miles	2.2 Gallons	\$ 10.95
Heavy Truck	137 Miles	7.3 Gallons	\$ 36.50
Air Freight	14 Miles **Note: It takes 80% of fuel to keep the aircraft and cargo aloft	71.4 Gallons	\$357.15

There remain some redundancies in the paper and I request your tolerance in putting up with them.

Introduction

At times, there is a convergence of social and economic conditions matched by environmental and political paradigm shifts that portend unique opportunities — if all goes according to what is a continuation of seemingly obvious trends. For the people of Northwest Alaska, that region that borders the Bering Strait, the time for alertness to these potential parametric changes is now.

Two such world-changing opportunities need to be closely monitored by regional leaders in order to have influence on the trajectory of changes and to maximize opportunities for local and regional economic development. Both these evolving opportunities presently appear to be outside the scope of active planning by the United States. They are driven by long-held Russian and American interests and motivated by a century-old goal of unifying the east and west hemispheres by land-based transport, and assure a certain amount of political hegemony over the region. This vision dates back to the Gold Rush era of the late 19th century and stimulated several related ideas, most relegated to antiquity.

One is a century-old idea recently resurrected by the Russian government. First proposed by Tsar Nicholas II in 1905, a railroad tunnel under the Bering Strait connecting Trans Siberian Railroad in Russia with Alaska in North America. This long-delayed vision was approved by the Russian Duma in 2011. \$US100-billion was appropriated for the project. Northwest Alaska stands to benefit the most from this far-reaching approach in terms of new jobs and long-term commerce.

The other is brought on by climate warming in the Arctic Ocean. The Arctic Ocean ice cap is receding rapidly, at an increasing rate, and the expectation is that it will be seasonally ice-free (July-October) by around 2030. That will allow seasonal shipping between Europe and Asia over a much shorter ocean route than exists today — e.g., via the Suez Canal.

The economic significance, especially of the Bering Strait Railroad Tunnel, holds great economic promise for the Northwest region of rural Alaska. But in order to benefit from either industrial opportunity, people of the rural regions must work pro-actively to have the Alaska Railroad extended into the Northwest region. There is no way for this impoverished region of rural Alaska to thrive without the extension of the railroad. A seemingly efficient route would start at Nenana and run proximate to the villages of the Yukon and Kuskokwim rivers to the coast and then north to Wales. This hypothetical route would create a promising economy in an otherwise impoverished, high-cost region of the state.

The Eskimo Legacy

The Eskimo peoples who chose the Arctic as their home, since time immemorial have embraced one of the harshest — if not the harshest— environments on earth to call home. It is an ice-encrusted homeland that yields no quarter to its inhabitants. Deviate from the rules of survival and the results can be catastrophic to individuals and entire villages. A large part of the year is dark, cold and ruled by harsh fall and winter storms. Summers are a brief window of quasi-benign conditions, a time for people to take advantage of seasonal relative abundance to prepare for the long winter to follow. People are constrained by the constant need to prepare for the long winters, i.e., the “seasonal rounds” of a subsistence lifestyle. Summer is that time — food, fuel, shelter, clothing, weapons, and transport equipment need to be prepared in a constant cycle of building new and repairing the old (i.e., Annual Rounds of Subsistence). It baffles the imagination to realize that the ancients could have thrived as successfully as they did with tools made of bone, sinew, stone, wood and animal parts, against the harsh, unforgiving environment of North and Northwest Alaska.

Survival often depended and depends on hunting large and dangerous animals in dangerous ocean conditions. But hunting often puts the hunter in as much, if not more, peril than the quarry. This hunter-quarry relationship has shifted somewhat in favor of the hunter with new mechanized equipment — rifles, helicopters, motorized boats, GPS, two-way radios, weather reports and many others. But successful hunting is often still a precariously balanced outcome.

“Native Foods” are culturally acquired tastes for foods with a limited market. It is unfortunate that these traditional foods, highly nutritious, are not more broadly in demand to generate a market beyond local barter. Except for the very remote villages, trends among youth seem to be favoring goods and services (products) of the international money-driven market and away from the demanding and often dangerous work of traditional subsistence. Gradually, people are becoming involved in the worldwide, money-based economy. Ergo, increasing demand for money-earning jobs, which are scarce in most villages. Most “good paying” jobs with benefits are supported by outside sources such as state and federal government and non-local businesses. One result of the high cost of living and substandard wages is an out-migration of young families to the larger population centers that offer more diverse opportunities.

Rails to Opportunities

Therefore, economic development is handicapped by a regional economy that is a combination of money wages and subsistence barter that generates very little money-income based production demanded by the worldwide market economy. Thus, significant cash flow into the region is insufficient to support a robust local economy. With limited money, most locally

provided jobs pay substandard wages. This seriously limits economic opportunity for regional growth. This is further constrained by the abysmal state of freight transportation infrastructure in the region. There is no low-cost and simple solution to this chronic lack of efficient freight transport support.

Some 150 years ago the Transcontinental Railroad demonstrated what efficient transportation infrastructure can do to support economic development. Estimated time and cost of getting from New York to San Francisco in 1865 (prior to Trans Continental Railroad): several months en-route and up to \$1,000 (a lot of money in the 1860s). Estimated time and cost of getting from New York to San Francisco in 1870 (post Trans Continental Railroad): seven days en-route and as little as \$65 for a ticket on the transcontinental line. Southwestern and Northwestern Alaska are locked in a straightjacket of enforced inefficient freight transport. Little investment has occurred in Northwest Alaska, other than to construct airports, since the dog team and airplane were the freight carriers of choice. However, there is a world of difference in terms of the nature (amount, size, weight, bulk) of the cargo shipped today — a world requiring modern railroad in support of development. Nothing else makes sense from the perspective of long-term efficiency in an inflationary world of increasing competition for resources.

Paradigm Shifts Driving Changes in Arctic Commerce

The forces driving the conditions that have led to the north becoming the preferred freight transport route could not be more unrelated. One is driven by natural geophysical forces of climate change — i.e., climate warming is melting the Arctic Ocean Ice Cap. The other is a human vision, an engineered stand-in for the Beringia Land Bridge which submerged some 21,000 years ago: That is the wished-for 64-mile-long Bering Strait Railroad Tunnel.

Geophysical Induced Change

For several centuries Northern explorers have searched for a navigable route over the top of the world via the Arctic Ocean. Even with powerful steel ships of recent decades, this route has eluded shippers as well as intrepid northern explorers in their wooden sailing ships. Climate warming has turned the tables on the Arctic Ocean. Within the past few years shipping through the Arctic, on a seasonal basis, is becoming almost routine.

One force for change is driven by globally induced forces of climate change. Climate warming is causing the Arctic Ocean ice cap to recede on a dramatic scale leaving what heretofore has been an impenetrable Arctic ice cap, open for seasonal shipping (July to October in 2011). Climate change is opening the Arctic Ocean to international freight transport, on a seasonal basis (July to October) over the Northern Sea Route, the Northeast Passage and the Northwest Passage. What is known as the Northern Sea Route has been in use seasonally by the Russians

for decades to supply its northern communities and industry. In a reprint of the [Guardian.co.uk](#), the Anchorage Daily News of October 8, 2011, [Arctic Shipping Route is Nearly Ice Free – and 100 percent Pirate Free](#), cites the importance of the cost savings of the Northern Sea Route. “It can save even a medium sized bulk carrier 18 days and 580 tons of bunker fuel on a journey between northern Norway and China. The voyage would normally take upward of 40 days.” In another story on October 11, 2011, on page A-1, [US Confronts Cold Reality For Costly Icebreakers](#), they report that “more than 325 vessels crossed the Bering Strait between Russia and Alaska in 2010, a third more than just two years before.”

Bering Strait Rail Tunnel Vision

The other force for change is driven by the inspired vision of connecting the Eastern Hemisphere (Europe, Asia, Africa, and Australia) and the Western Hemisphere (North and South America and Oceania) through the Bering Strait Rail Tunnel. This vision has been around since the turn of the 20th century when a syndicate of American railroad magnates proposed a Siberian-Alaskan railroad from Cape Prince of Wales in Alaska under the Bering Strait to Irkutsk via Cape Deshnev and Yakutsk. Russian Tsar Nicholas II approved the concept in 1905 with an estimated cost of \$US300-million including all the railroads. It was finally officially turned down on March 20, 1907, by officials of that time.

Now, after two World Wars, the Communist paranoia-induced Cold War, and a dozen or so less significant wars — including Korea, Vietnam, Serbo-Croatia, Afghanistan and Iran to name the more prominent skirmishes — Vladimir Putin recently proposed to the Russian Duma to approve funding of £65-billion (\$US100-billion) to begin the planning for the 64-mile tunnel under the Bering Strait, connecting Russia (Asia) and the United States (North America).

Supporters argue that it would be a cheaper, faster, and safer way to move goods around the world than container ships, estimating that it could carry about 3 percent of global freight (100-million tons) and make about \$US7-billion a year. (re., [The Time and the Sun of London, Bering Strait Tunnel in British Press](#), August 22, 2011, p . 1).

Alert, early responders will be prepared to capture the economic benefits from the evolving economic opportunities. It behooves the Alaska Regional Native Corporations and village Tribes to keep apprised of both these potential developments. Those who delay will lose their place in this evolving opportunity. Richard Freeman and Dr. Hal Cooper, in a September 21, 2007, paper, [Bering Strait Tunnel, Alaska-Canada Rail Infrastructure Corridors Will Transform Economy](#), estimate that the Rail Tunnel and rail connections will generate 35,000 to 50,000 jobs

to build the infrastructure. Surely this will contribute substantially to the local job market throughout southwestern and northwestern Alaska.

Isolation and Poverty

The Northwest Census Areas and Boroughs demonstrate concrete evidence that there is a correlation between proximity to industrial jobs and poverty. A comparison of the six Census Areas/Boroughs that make up the Northwestern tier of Alaska demonstrates this.

Table #2. Income Levels in Northwest Alaska by Borough and Census Area

	<u>Population</u>	<u>Median Household Income</u>	<u>Percent Below Poverty</u>
North Slope Borough	9,430	\$75,057	7.8 % (Prudhoe Bay Oil)
Northwest Arctic Borough	7,523	\$52,272	15.0 % (Red Dog Mine)
Yukon-Koyukuk Census Area	5,588	\$32,125	22.7 % (On the Haul Road)
Nome Census Area	9,492	\$48,174	21.3 % (Regional Center)
Bethel Census Area	17,013	\$41,810	20.7 % (Regional Center)
Wade Hampton Census Area	7,459	\$30,238	30.9 % (Coastal Villages)
State of Alaska	710,000	\$66,712	9.1% (State-wide)

Statewide, the number of persons below the poverty level is estimated to be 9.1 %. The lowest poverty level among the census areas/boroughs in Northwest Alaska is the North Slope Borough, which benefits from oil production at Prudhoe Bay. The highest poverty level is the Wade Hampton Census Area, which has no commercial/industrial opportunities. Villages in the Wade Hampton Census Area are largely dependent on traditional Yup'ik SUBSISTENCE activities. The other four Census Areas are government centers and/or transportation hubs. (Source: 2010 Census Area Quick Facts from the US Census Bureau.)

Economic Opportunity for a Neglected, Impoverished Region

It has been a century since the federal government began construction of the Alaska Railroad, essentially integrating several small, local startups into the quasi statewide Alaska Railroad. Give or take a few miles, the track extends approximately 600 miles — Fairbanks to Seward. That's an investment of about 6 miles of mainline track per year over the past century. If the Alaskan extractive-based economy is to grow to maintain state per capita GDP, there is no question that expansion of the statewide rail network is needed to "open" the country to efficient growth.

An efficient transport network is not a cost to society. It "opens" new opportunities and it drives efficiency of commerce. Reducing cost of exploration and development, and subsequent operating and maintenance costs, is an important first step in developing the Alaskan resource

exporting economy. The demand-driven escalating trend in resource costs demand nothing else. How can statewide growth continue (after depletion of oil) when the primary mode of freight transport is aircraft that moves one ton of freight 14 miles on one gallon of fuel? Compare this time-critical but inefficient mode of transport to the railroad that moves one ton of freight 460 miles on a gallon of fuel. The by-pass mail subsidy program is part of the answer. But the future of by-pass mail is in question.

Can this explain why the cost of living in Western and Northern Alaskan villages is three to four times that of the Railbelt cities in Alaska? Exacerbating this is the imbalance of substandard income in rural villages, generally from part-time jobs, with no fringe benefits, and the need for proactive action by local and regional leaders is obvious. The current development menu for the state will continue the legacy of poverty of rural Alaska. The role of the state in a private sector economy is to induce general economic development by supporting favorable transport infrastructure development. Considering the rudimentary stage of transport infrastructure development in Alaska, there must be projects that generate a higher benefit-to-cost ratio than the Knik Arm Crossing Bridge promoted by KABATA. But the reality is that the “squeaking wheel” gets the legislative grease and preference on funding.

InterBering a Promoter of the Bering Strait Rail Tunnel

InterBering brings forward an obvious answer to long-term economic opportunities for Southwestern and Northwestern Alaska. As they acknowledge in their fact sheet, About InterBering, “InterBering is a privately held agency registered in the State of Alaska ... We plan to actively bring about an historic agreement between the governor of the State of Alaska, the Premier of the Yukon Territory, and the governors of Chukotka, Yakutia and the Magadan region making this proposed Quad-Rail link (Bering Strait Railroad Tunnel) a future reality.”

Given the Russians’ demonstrated interest in the proposed Bering Strait Rail Tunnel, what does the future look like, and what will it mean to Northwest Alaska? The immediate impact will be mobilizing the work force, which includes personnel and equipment and support activities in remote areas. This will probably involve multiple stages beginning with establishing the right of way for the transportation corridors and the associated surveying of the route segments. As the project gains momentum, construction camps will be developed calling on the local villages to supply the labor force. The preliminary mobilization — including engineering, establishing and surveying right of way and the construction of camps — will likely take several years to complete. Over time, the construction phase labor force will grow to an estimated 35,000 to 50,000 jobs on the North American side of the tunnel and a similar number on the Russian side during the multi-year construction phase. Construction of this mega project will likely take a decade or more to complete depending on the urgency to get the system operational.

Are Sovereign Tribes Key to Motivating US Funding?**Tribes Have Sovereign Nation Negotiation Status:**

It is a well-known fact that the roadless areas of Northwestern Alaska experience the highest rates of isolation and poverty (page 8 of this report) in the state. This could motivate an interest in supporting the development of the Bering Strait Tunnel and the associated expansion of the Alaska Railroad given the long-term jobs to be generated. This is the estimate of the new construction jobs that will be generated on the North American side of the Bering Strait Tunnel. Of course, all the jobs will not be in Alaska, but also in Canada and the South 48. And the limited access controlled by the railroad at the behest of the land owners will allow the villages and the regional corporations to maintain absolute control of trespass and other negative aspects of increased population and economic growth.

The Tribal government of the villages has a unique relationship with the federal government — they have sovereign nation status in negotiating with the federal government. A quote from the [2010 White House Tribal Nations Conference](#), December 16, 2010: “Because Alaska Native Tribes are sovereign nations, the Federal Government should consult with the Alaska Native Tribes on a Nation-to-Nation basis, before consulting with states.” (11:p. 7)

Federal Transit Administration — Tribal Transit Program:

Federal Transit Administration, Capital Investment Grants found at Catalog of Federal Domestic Assistance #20.500 is a source of competitive grants available to Tribes.

The national Rural Transit Assistance Program (RTAP) is a program of the Federal Transit Administration dedicated to creating rural transit solutions through technical assistance, partner collaboration and free training and other transit industry products.

“The national RTAP proudly serves tribal communities residing in rural areas. Tribes are encouraged to access all of the National RTAP best practices, reports, training videos, workbooks, surveys and direct one-on-one technical assistance through our resource center.”

Furthermore, tribal transit agencies may utilize RTAP funds to support training and/or conference scholarships. For training or scholarship contacts, call a RTAP Resource Specialist at: 888-589-6821.

As authorized by the Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Uses (SAFETEA-LU), the Federal Transit Administration makes funds available to federally recognized Indian tribes or Alaska Native villages, groups or communities as identified by the Bureau of Indian Affairs.

U.S. Plans to Inject \$US53-billion For High Speed Passenger Rail

In the February 8, 2011, issue of Reuters Business and Financial News, an article by David Warner reported that Vice President Joe Biden announced an ambitious \$US53-billion program to build new high-speed rail networks and make existing ones faster over the next six years. This includes \$US8-billion for the plan, which is included in the 2012 fiscal year budget.

Several states have turned down the federal funding for high-speed rail because the ongoing cost and liability falls on the state and is considered too expensive by these states. Given the projected freight revenues (\$US7-billion) from this project, it may be possible to use the sovereign nation negotiating power of the tribes to negotiate to have these funds allocated to the Bering Strait Railroad Tunnel project.

Anticipating Future Uncertainties

In an August 31, 2011, article "[The Ruskies are Coming! Russia Approves Bering Strait Underwater Tunnel to Alaska](#)," in [Anticlown Media](#), we learn that the Russian government has given the go-ahead on an ambitious new tunnel project that could connect Siberia with Alaska via an under-sea rail line. Aside from being a civil engineering marvel, (twice as long as the 34-mile European tunnel under the English Channel, connecting England and France) the tunnel would also provide an efficient way to move (3% of world shipping) 100-million tons of freight per year. It also has high potential for high-end tourism.

Another article in Wikipedia, The Free Encyclopedia, (14: pp. 1-6) reported that on 22 August 2011, the Daily Mail reported that the Russian government has approved a £60-billion (\$US100-billion) tunnel across the Bering Strait. The perception, in addition to the technical challenge of constructing a 64-mile tunnel, in 180 feet of water with moderate tides and currents, is that as of 2011, there is nothing on either side of the Bering Strait to connect the tunnel and railroad to. (I.e., presently considered by some as "a tunnel to nowhere?")

The Russian side, in particular, is severely lacking in infrastructure, without any highways for almost 1,200 miles (2,000 kilometers) and no railroads or paved highways for over 2,000 miles (3,200 kilometers) in any direction from the Strait.

On the North American side, at least 500 miles (800 kilometers) of railroad would have to be constructed to connect the European/Russian railroad to the American rail transport network in Alaska. The cost of this link with the Alaska Railroad network is estimated to be \$US5-million per mile. This \$US2.3-billion to \$US2.7-billion price tag has discouraged this much-needed

extension of the Alaska Railroad to facilitate domestic economic development and support a neglected region of the state. Please see Developing a Rail Corridor Into Northwest Alaska on page 27 for my ballpark estimate of total cost.

Russian Prime Minister Vladimir Putin approved a plan to build a railroad to the Bering Strait area as part of the development plan to run until 2030. An article in The Blaze, “World Bering Strait Tunnel to Connect U.S. and Russia?” September 13, 2011, by Tiffany Gabbay, (r.e., pp. 1-4): “The project is already underway,” said an official from the Russian Ministry of Economic Development, Viktor Razbegin. “The rail track to Yakutsk that we have been building for the past 15 years has always been seen as the first part of the (rail)road. It will be finished in just about a year. However, the most important is the political decision which hasn’t been taken yet. There are multiple countries involved, and it will be hard.”

Clearly, much hard work remains to be accomplished on both sides of the Bering Strait. It seems that member tribal villages of the Bering Straits Native Corporation, with government-to-government negotiating authority, have considerable authority and influence to provide direction and influence the final outcome.

Who or What Motivates the Vision of the Tunnel?

According to the Wikipedia article, “Bering Strait Crossing” in late August 2011, at a conference in Yakutsk in eastern Russia, the plan was backed by some of President Dmitry Mededev’s top officials, including Aleksandr Leventhal, the deputy federal representative for the Russian Far East (r.e., pp. 1-6). Supporters think it would be a cheaper, faster, and safer way to move goods around the world than container ships, estimating it could carry about 3 percent of global freight (100-million tons annually) and generate about \$US7-billion of commerce a year. The tunnel would be the first dry connection between the two hemispheres since a land bridge some 21,000 years ago. Shortly after the conference, the Russian government approved the construction of the £65-billion Siberia-Alaska rail and tunnel across the Bering Strait.

Additionally, Russian Prime Minister Vladimir Putin approved a plan to build a railroad from the Trans Siberian Railroad to the Bering Strait area, as a part of the Russian development plan to run until 2030. Other supporters of the plan include: George Koumai, president of the Interhemispheric Bering Strait Tunnel & Railroad Group; TKM-World Link (Transcontinental Railway); ICL-World Link (Intercontinental Link); and Stephen Dalziel, head of the Russo-British Chamber of Commerce.

Bering Strait Railroad Tunnel and Arctic Ocean Shipping

There is no doubt that the real economic opportunity for Northwest Alaska will be development of the Bering Strait Rail Tunnel. It will also be the costliest option to develop and will take more time to complete. But it stands to generate the greatest economic benefit to the region and to gross domestic product in the long run. It will also require serious commitment of public sector investments and private sector investments.

Agreeing to the final structure of the International governing and operational treaties will add to the complexity of the project moving forward and may end up being the make or break element of the final outcome — go or no go.

The Arctic Ocean Shipping option will allow major shipping companies to cut shipping costs by saving labor costs and fuel costs on a much shorter route than presently exists. The benefit to the Northwestern Alaska will likely be limited to emergency and other services provided to the existing shipping companies.

Nevertheless, the importance of early active involvement by Alaska/America is to establish a presence in the region as an active participant in this evolving international commerce. Failure to be actively involved in the ongoing development may undermine Alaska's future involvement in the planning and development of other national interests. This may allow control of development to flow to non-local interests.

**Illustration 1. Superimposed Railroad Tunnel Sketch (Not To Scale)**

Conceptual schematic of the proposed Quadrail tunnel under the Bering Strait from Siberia to Alaska. The 64-mile tunnel would run from Cape Prince Wales on the Seward Peninsula in Alaska (top left) under the Bering Strait to Cape Deshev on the Chukotka Peninsula in Russia. This tunnel would be twice as long as the 34-mile English Channel Tunnel.

Source: Google Map.

Plan for a tunnel connection under the Bering Strait between Siberia and Alaska**Illustration 2. Plan For A Tunnel Connection Under The Bering Strait Between Siberia And Alaska.**

A graphic illustration of the expansive network of potential economic impact of the Bering Strait Tunnel. This illustration only covers the west coast of Canada, America, and Mexico and the east coast of Russian Siberia and eastern China and Japan.

Source: InterBering.com

Climate Trends in the Arctic Affecting Ocean Shipping

(Please refer to Figures #1 and #2)

In surveying the literature on the Northeast Passage (NEP), Northwest Passage (NWP) and, Northern Sea Route (NSR), the latter used by Russians to service its Arctic communities and industries, there is no mention of Alaska as a player in the discussion on the future of this rapidly developing opportunity that is evolving right under our noses as the Arctic Ocean sea-ice recedes. The Arctic Ocean routes all pass through the 80-plus-mile-wide Bering Strait within

“shouting distance” of Wales on the western shore of the Seward Peninsula and the strategically located Little Diomede Island. The route through the Bering Strait is proximate to the jurisdiction of the Bering Straits Native Corporation, Inc. The 20 Indian Reorganization Act (IRA) Tribes that are members of the Bering Straits Native Corporation, Inc., have government-to-government negotiation relationship with the federal government. Even though Bering Straits Native Corporation does not have governmental authority over the tribes, it does possess influence in decision-making by virtue of its ownership of the sub-surface estate. It also has government-to-government relationship with the federal government. Aware of this future opportunity and assessing its role as a significant player, it appears that the time for serious planning has arrived.

Limited Involvement in Arctic Ocean Shipping

Fully loaded ships bound for Asia or Europe will likely have no reason to call in at the Northwest Alaska port except for emergency repairs or other unexpected reasons such as medical emergencies. But cargo from Northwest interior mainland U.S. or Canada loaded on trains will likely find it expeditious to deliver their load to ships on the coast. The ships, custom built for transiting the Arctic Ocean, are specially reinforced to accommodate travel in ice. Loading them at this point will increase their efficiency in shorter travel through the Arctic Ocean. This will allow the shippers to maximize the use of these specially designed ships during the main transit season July to October. It doesn't make sense to use these specially designed and reinforced, shallow-draft ships for moving freight in the Pacific Ocean.

Half Century to Plan for the Future

According to Joe Romm, “[Arctic Ice Thinning 4 Times Faster than Predicted by IPCC Models, Semi-Stunning M.I.T. Study Finds](#),” August 11, 2011, Arctic sea ice is thinning, on average, four times faster than the (IPCC) models say, and it's drifting twice as quickly. (9: p. 1) and later Romm cites a study by Mark Serreze (9: p. 2): “The extent of the ice cover is going down (in square meters/miles), but it is also thinning (cubic meters/miles). So a weather pattern that formerly would melt some ice, now gets rid of much more. There will be ups and downs, but we are on track to see an ice-free summer by 2030 (*ibid.*). 2030 may be a bit premature, but according to recent studies, the Arctic Ocean is forecasted to be seasonally ice-free by the turn of the 22nd century (8: p. 10). And it will more than likely remain ice-free for several centuries before the warming cycle reverses. Whether it is 2030, 2070 or 2100, that commerce through the Arctic Ocean becomes seasonally common place, it will take a quarter to half a century, or more, to plan and prepare for the certainty. Planning and negotiating rights of way for a railroad transportation corridor will likely take the better part of a decade. If the Alaska Native Tribes can negotiate a government-to-government agreement with the Federal Government to

assist in funding the planning and construction of the rail corridor and port, the process could be accelerated.

Alaska businesses should be in position to make a significant contribution to the national product (GNP) of the United States. The Regional ANCSA corporations benefiting from this development will increase their “bottom line” as well as increase their ANCSA § 7(j) payments — Mandatory Payments by Regional Corporations to Village Corporations and At-Large Shareholders.

Alaska's Involvement in the Arctic

In her February 28, 2010, article in Alaska Dispatch, entitled “Who Owns the Arctic?”, Alice Rogoff asks the question: “Why are Alaskans not part of the planning?,” and she makes the statement: “The time has come to take a leadership role in how and where Arctic infrastructure and commerce will be developed in our state.” Right now extremely difficult ice conditions have existed in the NSR/NEP/NWP, and development is slow and costly, but a growing number of reliable research reports indicate that the polar ice cap is shrinking at an unprecedented rate, and some research reports indicate that the pace is dramatic. Recent research has shown that the ice thickness in the Central Arctic Ocean has been reduced by 15% per decade since 1958, and the extent of multi-year ice has been reduced by 14% in the period 1978–98. If these trends continue, the entire Arctic Ocean will become ice-free during summer before the end of this century. (10: p. 10) This implies promising opportunities for the northwest coastal regions of Alaska, and in particular the regional for-profit ANCSA corporations in this region. Clearly, Northwest Alaska can have a leadership role to play by virtue of its involvement as a major ANCSA for-profit corporation, with 20 member tribes. The villages of at least two ANCSA for profit regional corporations will be impacted, the Bering Straits Native Corporation and the Calista Corporation.

Limiting Factors

But getting involved in this industrial opportunity will require some basic industrial infrastructure development in the region — for example, a deep-water harbor at Port Clarence, the only sheltered port with depth of 6 to 7 fathoms on either side of the Bering Strait. The sheltered port at Nome, depth of 10 feet, would require extensive dredging. Also, and perhaps more important, Alaska Railroad access to the region from the Canadian and United States mainland is needed to complete the world-class freight terminal/port. Under current conditions of sea ice in the Arctic, a seasonal Northeast or Northwest Passage route is deemed marginal, at best. But Alaska need not become involved in actual shipping to become involved. There are many opportunities in support of shipping that Northwest Alaska could become a significant player in. From its strategic location, emergency communication to emergency repairs and

rescue of ships; towing stranded ships out of harm's way; transferring cargo from the western United States and western Canada brought in by train, for shipment through the Arctic Ocean or the Pacific Ocean, from and to Europe and Asia. The efficiency of shipping over the Arctic routes would be greatly increased if turnaround could be accomplished at Port Clarence, for example. Freight from Europe bound for the Northwest of the United States or Canada could be shipped by rail from the Port Clarence harbor. Freight from the Northwest of Canada and the United States mainland could be shipped by rail for trans-shipment by ship through the Arctic Ocean.



Photo 1. The Small Boat Harbor at Nome.

Nome Harbor has an average depth of 10 feet at Mean Low Low Water (MLLW). The Nome Harbor would require dredging to a depth of at least 41 feet to accommodate the 12.5 meter draft of ships transiting the Northern Sea Route or the Northeast or Northwest Passages (assuming that ships maintain this as standard loaded draft).

Source: Photo courtesy of City of Nome Harbor.



Photo 2. Port Clarence and the Villages of Brevig Mission and Teller.

Port Clarence, and the villages of Teller and Brevig Mission. A protected harbor with access from the Bering Sea. The village of Teller is located just below the passage into Grantley Harbor. Port Clarence has a depth of around 6 to 7 fathoms which should be able to accommodate a 12.5 meter (42 feet) draft vessel. A rail freight terminal at Port Clarence would allow ships to load cargo and expedite transit through the Arctic routes during the main shipping season, April to October.

Source: Photo courtesy of NASA.

Figure 1. Sea Ice Concentration in the Arctic Ocean.

August 22, 2007, sea ice concentration showing the open Northwest Passage (red) and routes for the Northeast Passage (green),

Source: Image Credit: modified from NASA's Earth Observatory and NSIDC.

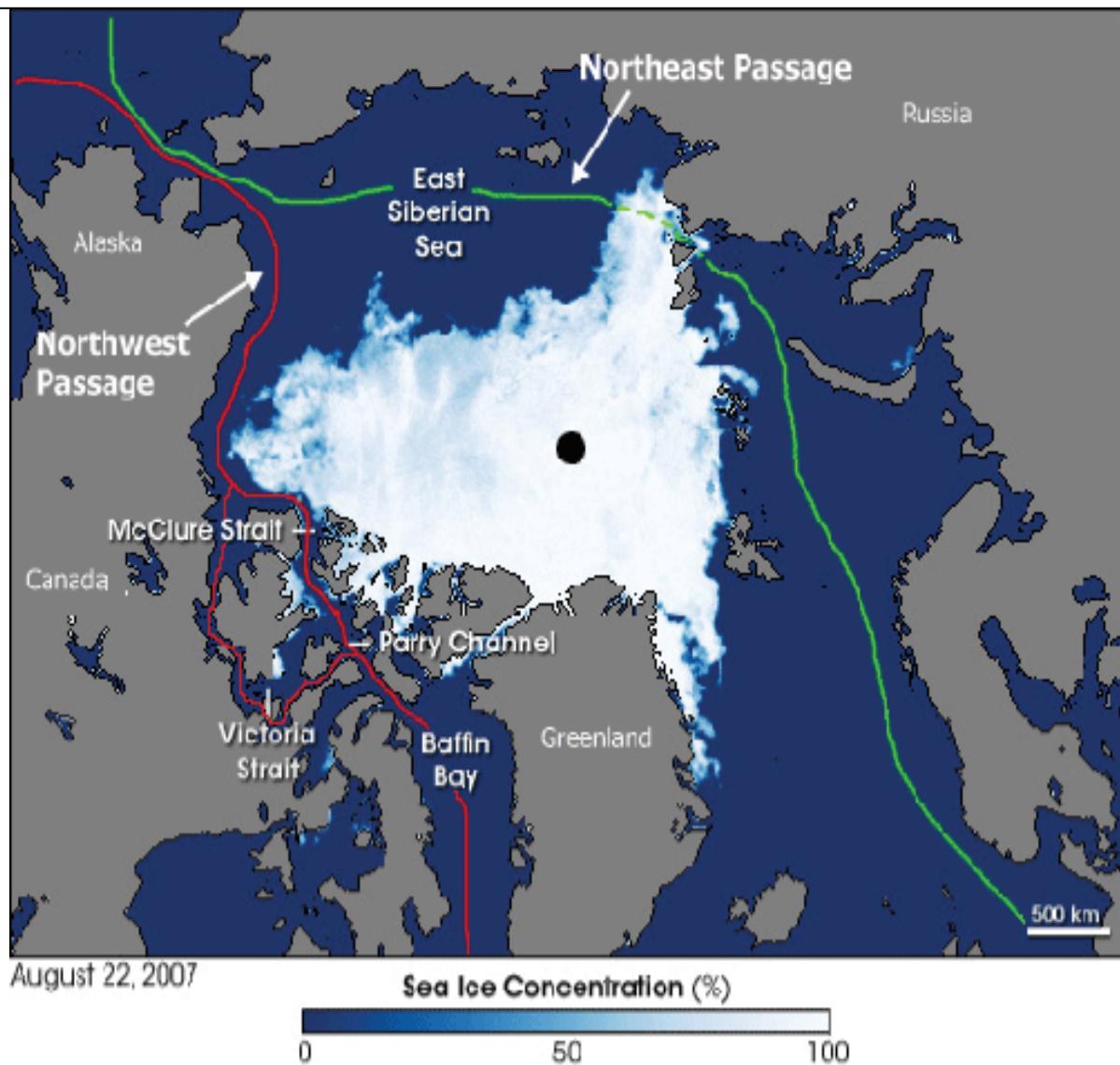


Figure 2. Popular Northwest Passage Sea Routes.

Source: Popular Northwest Passage routes. Based on a NASA image at
http://earthobservatory.nasa.gov/Newsroom/NewImages/images.php3?img_id=16340.



Figures 1 and 2 show that the anticipated NSR/NWP/NEP routes currently bypass Alaska. The bifurcation of the routes to Asia or to North America could benefit from a port on the Norton Sound (Port Clarence) for loading or offloading cargo or to undergo emergency repairs. Distress communications is covered by the Global Sea Salvage Distress System (GSSDS). (3: p. 93) A likely location for communication is Point Barrow or Nome.

Arctic Ocean is Relatively Shallow

A distinct feature of the Russian Arctic, and the Arctic Ocean in general, is the shallowness of its seas and straits along most of the route. As a result, ships are limited to 12.5 meters of draft. In the Dmitri Laptev Strait, draft is limited to 6.7 meters. This shallowness also makes it difficult for ships to seek shelter and repair in emergency situations. Vessel beam is limited to 30 meters since vessels often need to follow behind ice-breakers, which are 2 meters narrower, and this includes the largest Russian Arktika Class ice-breakers. Ships range in size from 20,000 deadweight tons with an absolute maximum size of 50,000 deadweight tons. (8: p. 7)

Alaska Railroad a Critical Link to Northwest

Anticipating that the main cause of the high and rapidly rising cost of living in the roadless villages of Alaska is driven by limited transport mode, I recently (April 2011) conducted a survey of modes of freight transport into western and northern Alaska. We all know that for year-round transport, the roadless villages depend almost exclusively on airfreight, albeit some airfreight qualifies for the bypass mail subsidy program. The report, Our Present—Our Future: The Imperative for Action, concludes that among the known modes of freight transport, the one that will likely result in lower cost is the railroad. Railroad as opposed to gravel roads into this remote, sparsely populated region makes sense for a host of reasons: The region is characterized by low populations, but rich in mineral and other resources that are expensive to develop with Alaska's existing freight transport infrastructure. The high cost of commercial development impinges on state royalties from resource development. Safety and reliability of year-round travel; fuel efficiency; efficiency of initial roadway infrastructure construction; efficiency of maintenance; flexibility of moving freight; support of tourism; control of trespass on private (Regional Native Corporations) and public lands; control of littering along the roadway; mitigation of the dramatically rising costs in the villages; potential to reduce travel and freight costs and, finally; support of resource development in remote regions of the State. And there is a public safety issue with people driving the roads in poorly maintained private autos, especially during inclement and winter weather conditions.

Airplanes, the Workhorse of Rural Alaska

Airplanes have been the workhorse of this part of Alaska for decades. And the airplane will continue to provide its unique passenger and time-critical freight services to the scattered villages of rural Alaska. But the freight requirements of rural Alaska have changed dramatically over time, which requires access to more diverse and flexible and efficient mode of land transport capable of handling unwieldy and heavy cargo. This, in turn, restricts and distorts the choices available to residents. For example, the need to inventory an eight- to nine-month supply of fuel increases the cost of electricity, heating fuel and local transportation. Rail access

would make supplying fuel a more time-flexible option and reduce the cost of living in the villages.

Northern Sea Route Opened to International Commerce

The Northern Sea Route, which runs from the Bering Strait in the east to the Novaya Zemlya Islands in the west, has been developed by the Russians to service its Arctic settlements and resource regions. The Northeast and Northwest Passages have a broader, undefined reach that envisions a more general shortcut between Europe and East Asia. In terms of participation by Alaska, a railroad to a deep water port on the Norton Sound/Bering Sea, for example Port Clarence, would be critical. This would provide an opportune and welcome port of refuge in case of an emergency or other unexpected misfortune. The Russians opened the sea lanes in the Arctic Ocean to non-Russian transit in 1991. Presently, the regular shipping season in this heretofore ice-choked ocean runs from July to October. As the global warming trend continues, the shipping season is sure to lengthen. If the present warming trend continues, the entire Arctic Ocean will become ice-free during summers well before the end of this century. (8: p. 10)

2000 Little Diomede Harbor Proposal

In January 2000, while working for Kawerak, Inc., I developed a proposal for a harbor at Little Diomede. That research paper, Navigation Improvement Boat Harbor at Diomede, Alaska: Assumptions Regarding Net Benefits, generated a positive benefit/cost ratio of 2.49:1.00 in support of the project. A harbor on the island would allow people to travel the 42 miles in safer conditions, in larger more seaworthy boats, than in overloaded, open, 20-foot aluminum skiffs. Life jackets, should a skiff founder, would probably not have been of much value in the choppy, frigid ocean water. Residents of the village were forced to make the perilous journey with their families in dangerous, overloaded, open aluminum skiffs. Even a small enclosed launch would have been an improvement in comfort and safety. But a sheltered harbor would have been needed to shelter the vessel from the storms that hit the island.

A marine harbor would not only allow the village to harbor a larger and safer vessel to travel from and to the mainland (Wales and Nome) and the village, but the village could potentially work with Department of Defense (DOD) to monitor vessels transiting the Bering Strait, and provide a site for staging search and rescue operations, assist stranded vessels from grounding and reduce cost of retail goods in the village store, which are flown to the village by helicopter, or fixed wing aircraft in winter when the ocean-ice runway is active. The U.S. Army Corps of Engineers (USACE) also gave it a positive benefit-to-cost ratio, but it never got Congressional funding. A copy of their report should be available at the Kawerak, Inc., office in Nome, Alaska.

An alternative to crossing the Strait to Wales or Nome in open aluminum skiffs is helicopter in summer and fixed wing aircraft in winter. Both aircraft options are too expensive for most residents of Little Diomede village, who are on limited income. One expeditious solution suggested for quickly developing the harbor was to beach a mothballed aircraft carrier to provide harbor services including a runway, electric power, storage and even living quarters. The hull, in the frigid, salty Arctic Sea water would likely last at least a century.

Extension of Alaska Railroad Critical to Alaska's Future

In Support of the Arctic Sea Routes

When we observe what is developing with freight transport via the Northern Sea Route, the argument in support of extending the Alaska Railroad from the existing Railbelt system (for sake of argument, Nenana is one point) to the western/northern regions of Alaska becomes an obvious decision. We need access to the Bering Sea and Norton Sound coast to access the NSR/NEP/NWP routes as this opportunity evolves. To ignore this opportunity would allow an important economic opportunity, in an otherwise economically depressed region, to be foregone. The extension of the Alaska Railroad to a port servicing ships transiting the Northern Sea Route would effectively open the interior of North America to the European/Asian markets. Trains could stockpile shiploads of freight that would expedite ocean transit over the Northern Sea Route. The ships could shuttle the cargo over the NSR/NEP/NWP sea routes during the shipping season (July–October) and avoid the longer journey to southern year-round ports. Port Clarence is a deep water site on the Norton Sound. Nome has an established harbor, but probably would need expansion and dredging to service medium draft, ocean-going ships transiting the Arctic Ocean.

But how would extending the Alaska Railroad to the northwest make sense unless the Canadian link from the Canadian National Railroad (e.g., vicinity of Prince Rupert) is also extended? And based on recent comments from British Columbia Prime Minister, Dennis Fentie, that extension is not a foregone conclusion (12: p. 1). As an intra-state railroad, the benefits to the region would still be tremendous. The Alaska Railroad has connection to ocean freight at Anchorage and Whittier, so that industrial goods, bulk fuel, heavy and bulky construction materials can be shipped from warehouses and suppliers in the South-48 states and Canada on rail-to-ship-to-railroad and then on to its destination, efficiently. And this can be done year-round, instead of waiting for the summer barges. Non-perishables, which don't qualify for bypass mail, could be shipped into the villages at much cheaper rates than by unsubsidized airfreight.

To reiterate, of concern to many private sector landowners and public sector managers in rural regions is control of trespass on their controlled lands. The main issues of trespass are unauthorized hunting and fishing and cutting timber on private lands, which impacts the esthetic integrity of the natural lands.

In Support of the Bering Strait Rail Tunnel

Long after the Ancients witnessed the submergence of the Bering Land Bridge (Beringia), Joseph Strauss, in 1901, put forward a proposal for a Bering Strait railroad bridge. A Bering Strait crossing is a hypothetical bridge or tunnel spanning the relatively narrow and shallow Bering Strait between the Chukotka Peninsula in Russia and the Seward Peninsula in Alaska. Recently, on August 22, 2011, the Daily Mail reported that the Russian government had approved a \$US100-billion tunnel across the Bering Strait (5: p. 1).

As of 2011, the railway Amur Yakutsk Mainline connecting Yakutsk (1,700 miles from the Strait) with the main rail network is under active construction; the estimated completion date is 2013 (5: p. 4). Once completed this rail system would be a faster, safer, and cheaper way to move freight around the world than container ships. It is estimated that this rail/tunnel system could carry about 3% of global freight (100-million tons) and make about \$US 7-billion a year. Just the rounding error would be an economic bonanza to western Alaska villages (5: p. 4).

This whole process of planning, arranging rights of way and construction, and gearing up for operation will likely take, at a minimum, a decade to complete.

Motor Vessel (MV) Nordic Observer

Thomas Nilsen, Editor, Barents Observer.com, in an article titled “The Future History of the Arctic is Now,” asserts “The Motor Vessel (MV) Nordic Barents voyage over the top of the world is of course happening because shipping companies involved want to save money.” (6: p. 1) To illustrate the significance of the Northern Sea Route from Hamburg, Germany, to Vancouver, Canada, via NSR the distance is 6,635 nm, whereas, through the Suez Canal the distance is 15,377 nm. Distance savings would be even greater for traffic between ports in Northern Europe (e.g., Norway) and in the Northern Pacific area (e.g., Alaska). (8: p. 1, Northern Sea Route) Also enormous reserves of various ferrous and non-ferrous metals, oil, gas, timber and coal are located close to the shores of the Russian Arctic Ocean or along the rivers that flow into it.

Table 3. Alternative Arctic Ocean Shipping Routes

Alternative Shipping Routes to Ports in the Pacific and Atlantic via the North Sea Route, Suez Canal, Cape of Good Hope, Panama Canal:
(in nautical miles (n.m.))

(Source: 8: p. 1)

	From Hamburg, Germany to:			
Shipping Routes via:	Vancouver, Canada	Yokohama, Japan	Hong Kong, China	Singapore, China
Northern Sea Route	6,635	6,920	8,370	9,730
Suez Canal	15,377	11,073	9,360	8,370
Cape of Good Hope	18,846	14,542	13,109	11,846
Panama Canal	8,741	12,420	12,920	15,208

The Russian and international shipping industries see the ongoing climate changes and the retreating of the summer ice-cap in the Arctic as a new opportunity. The distance from Europe to Asia is much shorter when sailing north instead of using the Suez Canal or sailing around Africa. Shorter sailing route saves time and saves fuel, i.e., saves money. Also, the Arctic is free of pirates (6: p. 1).

According to Editor Thomas Nilsen, “2010 has proven that the Northern Sea Route is the new sea highway between Europe and Asia. As it looks now, this year has been the kick-off of what will increase even more next year. ... In 2011 there will be far more voyages along the Northern Sea Route. ... The commercial shipping industry has this year proven that the Northern Sea Route is no dream of the future. It is a reality and it can develop fast” (6: p. 2).

Developing a Rail Corridor Into Northwest Alaska

In 2009 Congress passed the Stimulus Bill which included a six-year expenditure of \$US53-billion to upgrade track to high-speed rail, of which \$US8-billion is set aside for fiscal year 2012. Once the ongoing costs and the associated liabilities of high-speed rail were known to some

states targeted for high-speed rail, several declined to accept the funding. For example, cost to upgrade track to accommodate high speed trains in California was discovered to run at \$US30-million per kilometer, i.e., \$US48.27-million per mile. Comparatively, this high capital cost is in the ballpark with the French and Belgian experiences. Retrofitting existing rail to high speed requires that the track be totally free from of all obstructions. So some sections have to be elevated and some run underground, obviously inflating the cost.

An estimate of capital cost to develop the railroad corridor into Northwest Alaska, at Port Clarence from Alaska Railroad at Nenana (hypothetical take-off point) is outlined here. The estimated distance westward to the Yukon-Kuskokwim Delta, to Bethel, is approximately 720 miles. An estimate to Teller (at Port Clarence) is another 500 miles and on to Wales 100 miles, for a total of 1,320 miles. The [Rails to Resources to Ports](#) comprehensive study estimated that the average (mean) cost of the rail link between British Columbia, Canada and Delta, Alaska was \$US7.2-million per mile (3: p. 15). Using this rate over the 1,320 miles from Nenana to Teller, the total estimated cost is \$US8.64 billion. Amortized over 50-year project life, the annual capital cost is \$172.8 million per year at zero discount rate.

Given the lack of efficient transportation infrastructure in western and northern Alaska, with the critical need for economic development, it is worth the effort for local organizations to lobby to have some of the \$53-billion high-speed rail appropriation reassigned to developing Alaska transport infrastructure. The regional tribes, supported by their federal government-to-government negotiating authority, may be able to use their Tribal negotiating option to lobby for reallocation of a portion of the money for needed infrastructure in western and northern Alaska. After all, this is critically important investment in the rural Alaska's and the nation's future.

Industrial development in the Arctic will continue to be challenged by the inability to ship heavy industrial material in and products out, on a year-round basis. This means that it is hard, if not impossible, for business to compete in the future.

Concluding Remarks

This review shows that the Arctic is likely on the verge of dramatic and transformative link in the North America to Asia-Europe-Africa-India shipping routes. Receding Arctic ice cap holds promise of new, seasonal (July–October) ocean shipping routes that will likely dramatically cut ocean shipping time and costs. At the same time, and more important but longer and somewhat more expensive to complete, the Bering Strait Rail Tunnel will functionally restore the Beringia Land Bridge that submerged some 21,000 years ago.

The actions taken by the Russian government to fund a railroad extension connecting the Trans Siberian Railroad to the Chukotka Region — to connect to a tunnel under the Bering Strait between Siberia and Alaska — will open the Eastern and Western hemispheres to land-based world commerce. The estimate is that, once operational, the tunnel will generate \$US7-billion in annual freight traffic. It is estimated that the 10 to 20-year construction phase will generate 35,000 to 50,000 jobs on the North American side and a similar number on the Asian side. That holds promise to eliminate poverty and create wealth in Western and Northwestern Alaska. A once in a lifetime opportunity for the people of the western regions of Alaska.

What does this mean to the Northwest region of Alaska? It could mean very little or it could mean a whole lot, depending on what Alaskans decide to do about either or both opportunities. To quote Richard Freeman and Dr. Hal Cooper in their September 21, 2007, paper Bering Strait Tunnel, Alaska-Canada Rail Infrastructure Corridors Will Transform Economy: “As a leading vector for enabling a World Land-Bridge, the Bering Strait rail-tunnel project would facilitate the proliferation of rail-spines development corridors of high economic growth, ending Third World’s enforced backwardness and poverty in Northwest Alaska. A critical feature of the overall Bering Strait project would be the development of a 3,030-mile Alaska-Canada rail connector, which will contribute to moving the United States and Canadian physical economies from a deepening collapse process of several decades onto an alternative path of growth.”

The Bering Straits Native Corporation, Inc., is the likely organization to provide the leadership. Bering Straits Native Corporation is an Alaska Native Claims Settlement Act (ANCSA) for-profit corporation representing 20 Tribal villages on the Seward Peninsula, including Little Diomede Island, Saint Lawrence Island, and the Chukchi Sea and Norton Sound Coastal areas. It owns the subsurface mineral estate. The village corporations own the surface resource estate, including gravel and timber.

Bering Straits Native Corporation could consider establishing an umbrella organization that can smoothly and efficiently negotiate agreements to establish working contracts that will carry out all required rights of way and to carry out projects.

Tribal governments may be able to work with the federal government on a government-to-government basis to seek funding and other federal support. Some of the funding allocated to high-speed rail may be available to develop rail access to high potential resource development.

At any rate, the important first step is to convince the Alaska Railroad to extend its track into the region — if it hasn’t already made that decision. This will involve developing a transportation corridor from Wales, the landing site of the tunnel, to the connection with the existing Alaska Railroad system.

The trend is obvious. Increasing world demand for natural resources, mainly consumables — fuel, food — will continue to drive prices higher. The imperative is to offset this with efficient transportation technology, i.e., rail-based, long-distance freight transport. People in the villages, including the hub communities, are facing a cost of living that is three to four times that in the metropolitan areas. These are punishing prices for families to have to pay. Alaska ignores this reality at its own socio-economic peril.

A dramatic storm and freeze-up (December 1, 2011, Anchorage Daily News) prevented the 2011 fall fuel barge from delivering the winter supply of fuel to Nome. This is unusual for Nome on the Bering Sea coast. It is more likely for low water to prevent fall fuel delivery to villages up river. What is Nome's alternative? Essentially the same as other villages: fly fuel in by prop or jet aircraft at around \$10, or more, a gallon retail. Or, in the case of Nome, charter an ice breaker, usually from a foreign national, to deliver fuel at close to that same retail price. Railroad service would accomplish two benefits. First it would allow Nome and other villages to have their winter fuel delivered more frequently, thus reducing inventory costs. It would also allow villages the flexibility of having construction materials, and non perishables to be shipped routinely by rail to village stores.

Also, the significantly important program of U.S.P.S. Bypass Mail service is under threat of elimination or dramatic cuts in 2012 under the federal government's austerity programs. (Anchorage Daily News, December 2, 2011) This threatens not only mail rates, but also partially subsidizes passenger seat fares. This will all have a dramatic impact on the cost of living in rural Alaska, and especially the non-hub villages.

London to New York by Rail? Russia ‘Approves’ US\$100-billion Bering Strait tunnel.

By Wil Longbottom, Mail Online, August 22, 2011.

If you're keen on visiting the Big Apple (New York) but not on air travel, making the journey by rail could one day be a possibility. Russia has given the thumbs up to a £60-billion (\$US100-billion) project which would see a 65-mile tunnel dug under the Bering Strait, connecting Asia with North America. If plans go ahead, the journey from London to New York could take a mere three weeks, covering three continents along the way.

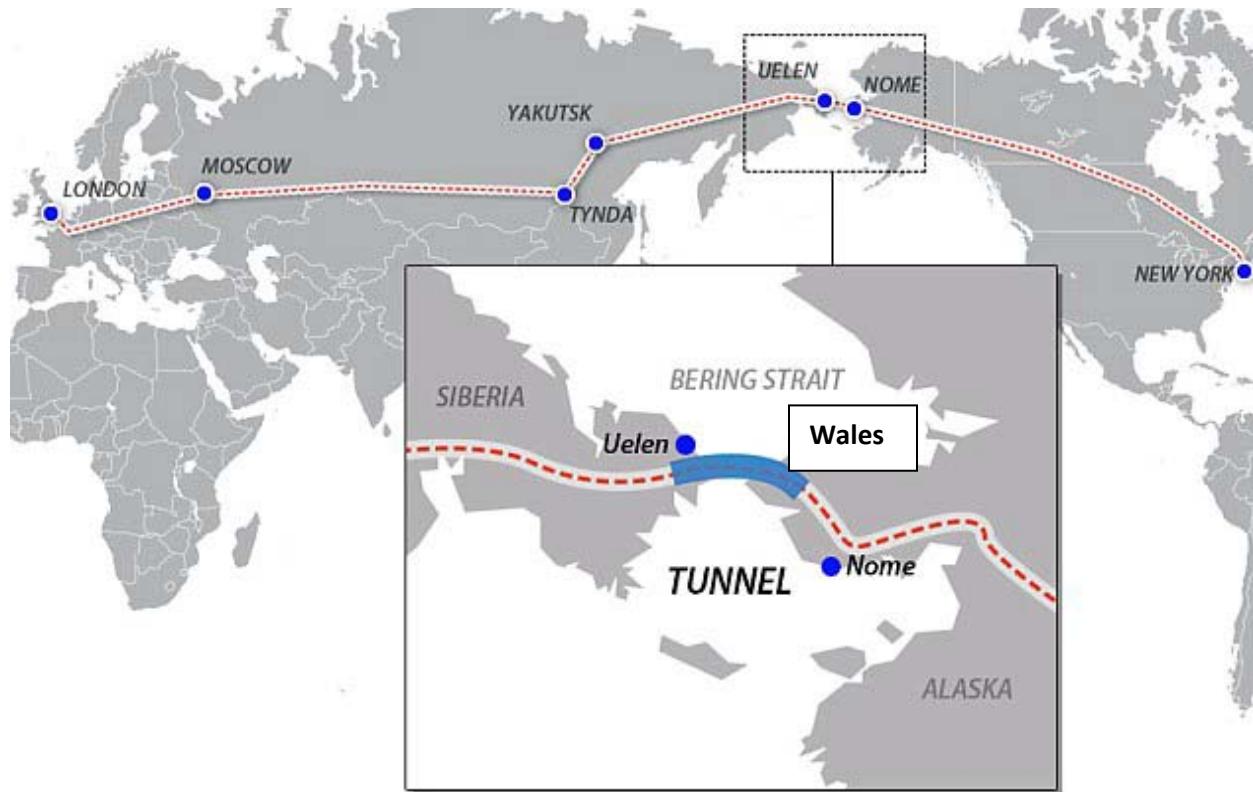


Illustration #3: The Rail Route From London to New York Through Bering Strait Tunnel.

Source: www.dailymail.co.uk/travel/article-2028891/East-West-rail-link-step-closer-Russia-approves-60bn-Bering-Strait-tunnel.html

Russia has given the thumbs up to a £60-billion project which would see a 65-mile tunnel dug under the Bering Strait, connecting Asia with North America.

If plans go ahead, the journey from London to New York could take a mere three weeks, covering three continents along the way (Europe, Asia, North America).

If you're keen on visiting the Big Apple but not on air travel, making the journey by rail could one day be a possibility.

Russia has given the thumbs up to a £60 billion project which would see a 65-mile tunnel dug under the Bering Strait, connecting Asia with North America.



Photo #3: Diomede Island in the Bering Sea. The proposed Bering Strait Rail Tunnel will pass through both Little Diomede (United States) and Big Diomede (Russia).

Trip of a lifetime: The Kremlin has given the green light for a £60-billion tunnel linking Siberia to Alaska through the Bering Strait.

Better wrap up warm: If the tunnel is ever built, the train journey would probably take the best part of three weeks in sub zero temperatures.

The proposed tunnel would pass underneath the Big Diomede and Little Diomede islands and straddle the international dateline to link East and West.

Engineers have said there is no technical reason the tunnel could not be completed and it could provide a cheaper way of shipping freight around the world.

The idea was first raised by Tsar Nicholas II in 1905, but was this week endorsed by Aleksandr Levinthal — deputy federal representative for the Russian Far East — at a conference on developing infrastructure in the country's remote north-east.

A dream too far? The plans would see a 65-mile tunnel, twice that of the Channel Tunnel, bored through the international date line in the Bering Strait (pictured).

Source: www.dailymail.co.uk/travel/article-2028891/East-West-rail-link-step-closer-Russia-approves-60bn-Bering-Strait-tunnel.html



Photo #4: Located where the Bering Sea meets the Chukchi sea, Uelen is the easternmost settlement in Russia and all Eurasia. Uelen also is also the closest Russian settlement to the U.S.

Source: Google Chrome

Uelen is a small native coastal village in Chukotka, on the Siberian side of the Bering Strait, south of Cape Dezhnev. Also known as Ulyk or Olyk (in Yupik Eskimo , “the land’s end”), Uelen has a population around 700 inhabitants. It lies on the northeast corner of the Uelen Lagoon, a roughly 15-by-3-km lagoon separated from the ocean by a sandspit.

General References

1. Guardian.co.uk, [Anchorage Daily News](#), Arctic Shipping Route is Nearly Ice-Free – and 100 Percent Pirate-Free, October 8, 2011.
2. Song, M. Kyung, [Anchorage Daily News](#), US Confronts Cold Reality for Costly Icebreaker, October 11, 2011.
3. Alcan RaiLink, Inc., [Rails to Resources to Ports, The Alaska Canada Rail Link Project, Phase 1 Feasibility Study](#), July 2005.
4. Klein, Ezra, [Is California's High Speed Rail Really a Boondoggle?](#) The Washington Post, August 8, 2011.
5. Longbottom, Wil, [MailOnline](#), London to New York by Rail? Russia 'Approves' £60-billion Bering Strait Tunnel, 22 August 2011.
6. Nilsen, Thomas, Editor, [The Future History of the Arctic is Now](#), BarentsObserver.com, September 2, 2010.
7. Pettersen, Trude, [Future Bases for the Northern Sea Route Pointed Out](#), BarentsObserver.com, December 17, 2010
8. Ragner, Claes Lykke, [Northern Sea Route Cargo Flows and Infrastructure – Present State and Future Potential](#), The Fridtjof Nansen Institute, 2000.
9. Romm, Joe, [Arctic Ice Thinning 4 Times Faster Than Predicted by IPCC Models, Semi-Stunning M.I.T. Study Finds](#), August 11, 2011.
10. Rogoff, Alice, [Who Owns the Arctic](#), Alaska Dispatch, February 28, 2010.
11. Synopsis of the 2010 White House Tribal Nations Conference, [Working with Tribal Nations to Build a Brighter Future](#), December 16, 2010.
12. Thompson, John, [Fentie Makes WikiLeaks Appearance](#), Yukon News, May 11, 2011.
13. USACE/DOT&PF, [Alaska Deep-Draft Arctic Ports Planning Charrette](#), Anchorage, Alaska, RISE Alaska, LLC, May 16-17, 2011.
14. Wikipedia, the Free Encyclopedia, [Bering Strait Crossing](#),