



# **The Obligation of Ownership is Leadership**

**A Roadmap to Alaska's Transportation and Energy  
Infrastructure Development**

**A STUDY REPORT  
BY  
COMMONWEALTH NORTH**

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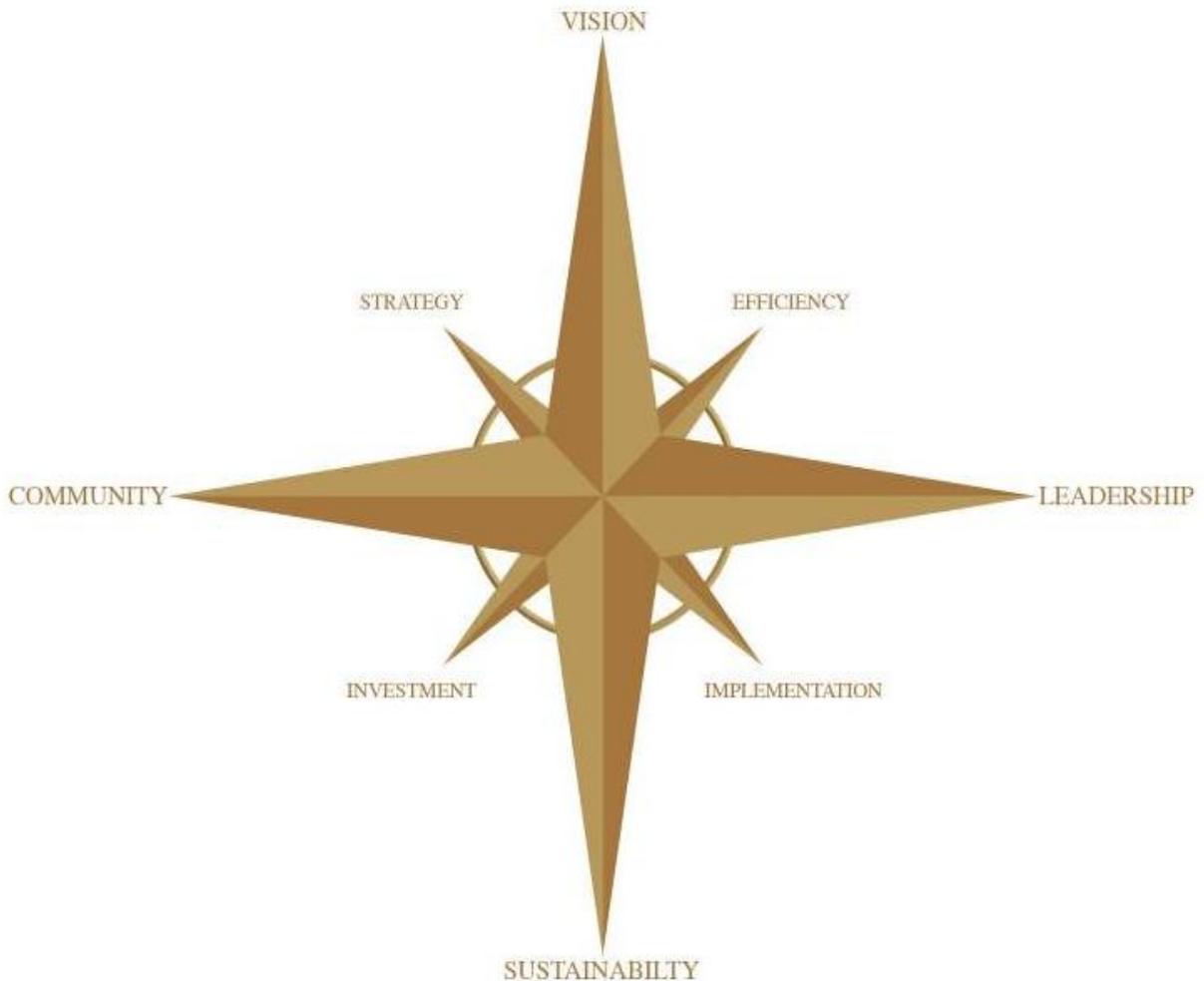
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## ***Preface***

This study defines the responsibilities of Alaska for two critical public infrastructures: transportation and energy. Commonwealth North's recommendations urge government, private sector organizations, and individual Alaskans to take collective action toward a single desired outcome: reliable transportation and energy infrastructure for all Alaskan communities.

In many ways Alaska's present reflects the American past. The first half of the nation's history proved that economic development is directly tied to transportation infrastructure. Year-round roads and bridges, rivers connected with canals, and the construction of river and coastal port facilities connected disparate population centers. The movement of goods and services, including coal and timber for steam engines, promoted trade and spread prosperity across vast open spaces. Transportation and energy infrastructure brought diverse cultural, linguistic, and political entities into an awakening of shared interests and identity. The new nation vaulted into a position of significance in the world.

The second half of the nation's history was dominated by the evolution from a subsistence society to a largely urban society that would become the world's primary economic and military superpower. This evolution was facilitated by the private and public sector leaders who collaborated to develop the nation's transportation and energy infrastructures. This collaboration resulted in an interstate highway system, a national system of ports, harbors, locks and dams, a national rail system tied to urban mass transit, a national power grid, and a national aviation system. These national transportation and energy systems knitted the nation into one synergistic whole. It is time for Alaska to follow suit.

Unlike the terms upon which other territories became states, Congress granted Alaska not only the right to select 103 million acres of land, it gave the state ownership of the subsurface rights underlying those 103 million acres. Thus, at statehood, Alaska became a one-of-a-kind-state – an owner state. The purpose: to provide the new state with a solid economic foundation.<sup>1</sup> This ownership of Alaska's subsurface wealth is the driver requiring solutions for the major public policy transportation and energy infrastructure issues facing Alaska today.

Commonwealth North has provided a continuous forum for discussion on the opportunities and challenges facing Alaska as an owner state thanks to the vision of co-founder, Governor Walter Hickel. This report is dedicated in his memory.

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<sup>1</sup> Compass North, 1985 Commonwealth North Report

## ***Executive Summary***

Transportation and energy infrastructure development in Alaska is at a crossroads. The vitality of the economy and the well-being of Alaskans are at stake. Decisive action must be taken now to develop integrated systems. This report focuses on proposals designed to trigger public understanding, discussion and decision making on Alaska energy and transportation infrastructure projects.

The State's reliance on oil revenues has hindered both the development of other resources and the transportation and energy infrastructures necessary for development. Whether the development is of oil, gas, methane gas hydrates, minerals, geothermal, or other renewable resources, the creation of a statewide infrastructure plan is necessary and timely. Further, the State's policy should encourage the development of jobs and economic growth through the creation of a statewide transportation and energy infrastructure system. A comprehensive plan would consider people, roads, mines, ports, airports, rail, and oil fields – all inter-connected, all demanding resources to accomplish their goals.

The Alaska Constitution, recognizing Alaska uniquely as an owner state, expressly places responsibility for managing Alaska's resources on the people. In adopting that constitutional provision, Alaskans accepted a shared duty to learn about the issues and challenges collectively faced, to identify policy alternatives, and to choose a suitable course of action that will have the best possible outcome today and in the future.

Two critical paragraphs from the Alaska Constitution set the stage for responsible development to ensure a self-sufficient state. Article VIII is probably the most often quoted section as it relates to the owner state.

- 1. It is the policy of the State to encourage the settlement of its land and the development of its resources by making them available for maximum use consistent with public interest; and*
- 2. The legislature shall provide for the utilization, development, and conservation of all natural resources belonging to the State, including land and waters, for the maximum benefit of its people.<sup>2</sup>*

No sustained environmentally sound resource development can happen without an adequate transportation and energy infrastructure. Currently, no single state governmental entity is

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<sup>2</sup> Alaska State Constitution, Article VIII

charged with the integration of transportation and energy infrastructures. Consequently, Alaskans have never created a comprehensive plan setting forth criteria to select among competing infrastructure projects. The result is a disconnect between public transportation and energy needs and public funding.

A comprehensive plan is needed. At its core, the purpose of transportation infrastructure is to promote commerce - specifically the movement of people, goods and services from one point to another. The purpose of an energy infrastructure is the movement of energy from one point to another. This requires a vision greater than a single road, port, or pipeline. It requires a comprehensive plan that looks at opportunities, resources and geography concurrently and applies an integrated approach in planning. It must seek cooperation and coordination not only across the state but also between local communities so that statewide solutions match local problems. If these goals are met, a comprehensive plan for development of a transportation and energy infrastructure system by the state will be a vehicle of economic development resulting in job growth and economic diversification.

Such a plan is necessary because infrastructure represents a significant expenditure ranging from a third to one-half of public investment in most states.<sup>3</sup> Much of the research done on linkages between infrastructure and development has found a significant, positive impact on economic output and growth.<sup>4</sup> Alaskans' quality of life depends on the state's ability to transport raw materials, deliver goods, as well as provide reliable power. Infrastructure also contributes to the diversification of the economy – in rural areas, for example, by facilitating growth of alternative employment and consumption possibilities.

Today's global challenges must be addressed collaboratively, marshalling the diverse sectors of the economy and the population to ensure Alaska's strategic transportation and energy infrastructure renewal. Alaskans need to think of new and different ways to approach infrastructure development. This report describes in detail the transportation and energy infrastructure considerations Alaska needs.

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<sup>3</sup>Alaska's economic potential is hampered by significant transportation and energy infrastructure needs. Alaska needs to invest for the next 50 years to upgrade the existing system to a state of good repair and create an advanced surface transportation system to sustain and ensure strong economic growth.

<sup>4</sup>The Contributions of Infrastructure to Economic Development: A Review of Experience and Policy Implications, World Bank Discussion Paper 213, Christine Kessides

## ***Infrastructure Decision Making Framework***

Infrastructure is the physical and organizational component needed for the society or enterprise to operate or to provide for the services and facilities necessary for an economy to function.

All infrastructure projects in Alaska should incorporate the interests and meet the demands of local communities while supporting a statewide vision of economic development. Infrastructure projects should capture the entrepreneurial energy of the private sector to move the project forward. At the same time, any infrastructure project should speak to “maximum benefit,” and translate that into revenue to the state and jobs for Alaskans. The result will be increased economic opportunities for communities and sustained community development.

The State should address the standard three dimensions of public infrastructure investments: **financial stability, social interests, and environmental responsibility**. Among the many decisions to be made in selecting transportation and energy infrastructure projects, these three considerations must always be a part of the decision-making process.

Expanding upon the three basic decision-making criteria, the following matrix is a way to prioritize transportation and energy infrastructure projects throughout the state. It is intended not to select specific projects, but acts as a process for engaging the public in creating a license for development. Policy makers and administrators must be able to explain their answers to these questions.

<b>Three Primary Considerations For Public Infrastructure Projects</b>	
Financial Stability	<i>Will this project result in, or facilitate, revenue to the state? Is this project financeable and the best use of public funds?</i>
Social Interests	<i>Will this project result in jobs for Alaskans and improve the quality of life of those this project affects?</i>
Environmental Responsibility	<i>Will this project cause as little harm to the natural environment as technically possible both at inception and over its sustained, useful life?</i>
<b>Four Key Factors</b>	
Communication	<i>Does the development of infrastructure support the effective, efficient and appropriate movement of information</i>
Logistics	<i>Has the complete logistical system been considered (road, marine, aviation) in moving goods and services throughout the State?</i>
Security	<i>Does this infrastructure support a secure and safe Alaska (medical, emergency response, evacuation)?</i>
Access	<i>Has this project been designed for access by all Alaskans?</i>
<b>Principles</b>	
Leadership	<i>Is there a local champion for this project? What community or state leaders support this project?</i>
Efficiency	<i>Does this project align/address multiple infrastructure needs and solutions?</i>
Implementation	<i>Is there a clear path to implementation of this project? What are the anticipated hurdles? Are they surmountable?</i>
Sustainability	<i>Does this project result in increased sustainability of existing infrastructure and current ways of life?</i>
Vision	<i>How was the project vision arrived at and how does it complement the state's vision?</i>
Community	<i>Has the community been included in identifying the need for this project? Has the community taken responsibility for implementing this project?</i>
Strategy	<i>To what extent have various sectors been aligned - environmental, industry, Alaska Native, youth, etc. - in support of this project?</i>
Investment	<i>Describe the state's return on investment in this project. This should reflect its short to long term return, as well as the social, environmental and financial returns.</i>

These factors are expanded upon below.

1. **Communication** – The movement of knowledge and information throughout the State. A strong communications network is important to bring communities together and share ideas and best practices. Telecommunications and broadband is a critical

component in the development of a diversified economic and utility infrastructure in Alaska.

2. **Logistics** – The movement of goods and material in and out of the state as well as throughout the state. Logistics is a multimodal process that includes roads, rail, marine transportation, and air. Separately each of these components is simply a method of transportation with a set of strengths and weaknesses. On their own, these may limit their effectiveness, but by utilizing only the strengths of each method, a streamlined approach can be developed. This logistical approach drives the movement of goods and services and manages those interfaces that result in greater efficiencies and effective movement of supplies and products.
3. **Security** – The movement of any goods, services or utilities via a coordinated infrastructure system must also provide for the protection of its citizens. Access to medical treatment, emergency broadcasts, and emergency response must all be considered.
4. **Access** – All citizens and businesses must have access to the infrastructure system. Designing for access is a crucial component.



## Principles

Given this infrastructure decision making framework, the following principles are necessary to consider given Alaskans owner-state responsibilities.

**Leadership** – A project is led on a number of levels. Alaska’s Governor, with more authority than any other in the nation, should have a firm grasp of owner state responsibilities to convince the Legislature of a project’s importance. At the same time, projects should be identified by the people as having significance and local impact. In this, the people must demonstrate their leadership by engaging with government and with each other.

**Efficiency** – Infrastructure is the backbone upon which community and economic development takes place. Therefore, the goal is not always to provide an economic justification for infrastructure projects, but to design them to take into account best practices that mitigate cost overruns and produce the most lasting results.

**Implementation** – All projects should have a clear path to implementation. Resources should be available, public-private partnerships secured, workforce development needs identified with university or job-training programs in place, and a project manager identified. Also included should be a clear demonstration of accountability and transparency. Alaskans should always know the status of a project and who is accountable if it is not on track.

**Sustainability** – Infrastructure development should meet common concern for completed-project sustainability.

**Vision** – To meet the infrastructure needs of all peoples of Alaska the citizens, as well as its leaders, must agree upon a vision for the future of Alaska. The vision should boldly recognize the challenges and embrace the rewards of acting together to build a better Alaska.

**Community** – One of the key features of any planning effort is the inclusion of stakeholders in its development. Certainly this means community members, issue experts, social and cultural leaders, policymakers, academics, industry partners, Alaska youth, and emerging leaders must be a part of the planning process.

**Strategy** – Interests must be aligned to reflect the interests of resource development, the environment, state agencies, communities and Native Corporations. Strategy should also include ample public input.

**Investment** – Infrastructure development is an investment in Alaska’s future. Decisions cannot be made based on short term goals, nor should they be made according to political agendas or for private profit. Alaska’s infrastructure is critical for economic and community development and must be viewed in terms of the needs of future generations to sustain themselves, their communities and the state. This requires a more strategic, risk-based approach to investment decisions.



decisions. Investment will take leadership, but is necessary to maintain upward economic development. The state must take a strategic approach and invest in Alaska's transportation infrastructure. Indeed, the inter-connectedness of the state's transportation system – roads, airports, ports, railroads – is an asset that must be strengthened.

## **Roads**

Maintenance of the state's roads is a vital component of Alaska's transportation infrastructure. Apart from carrying citizens to and from their communities, the state's roads support the shipment of goods between communities. In addition: Trucking employs over 32,924 people in Alaska, 1 out of every 9 workers.

- Trucking pays over 1 billion dollars in wages annually.
- Trucks move more than 34,725 tons of freight each business day of essential goods such as clothing, electronics, food and household necessities.
- Many Alaskan communities depend exclusively on trucking to supply their goods.
- Over 85% of merchandise goods freight for the state enters through the Port of Anchorage, trucking delivers 90% of that freight.
- Alaska truck operators pay \$115.1 million annually in state and federal taxes and fees, this equates to \$2.2 million weekly.<sup>7</sup>

One of the more recent studies done on transportation infrastructure includes the idea of roads to resources, ultimately revenues to the state. In fact, many Alaska resources cannot be developed because they are "stranded" outside the existing state infrastructure. "The last major road built in the state was the 52-mile road from the Red Dog Mine to the DeLong Mountain Transportation System port near Kivalina in 1988."<sup>8</sup> If Alaska takes a leadership role in opening up access to valuable state resources by expanding the road system more economic wealth in rural Alaska will be created.

## **Airports**

For many rural communities airports are vital for success and survival. Airports are the only means of year round access for 169 Alaska communities. Of these, it is estimated that rural airports will need nearly \$1.5 billion for runway improvements, buildings, and equipment. Alaska has the largest airport system in the U.S. with 258 state airports (173 of these are gravel,

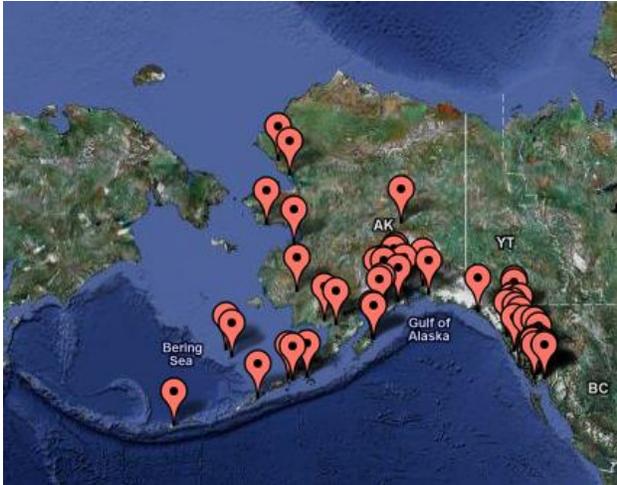
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<sup>7</sup> [http://www.aktrucks.org/servlet/content/facts\\_about\\_trucking\\_in\\_alaska.html](http://www.aktrucks.org/servlet/content/facts_about_trucking_in_alaska.html)

<sup>8</sup> Quoted from the Report of the Alaska Minerals Commission 2004

45 are paved, and 37 are seaplane).<sup>9</sup> Aviation needs to remain integral in the state transportation infrastructure planning and be further integrated into the overall transportation system to ensure improved access for all regions of Alaska. The Alaska Aviation System Plan, as part of the Alaska Statewide Transportation plan, goes some way toward accomplishing this goal, but more can be done.

## Ports



There are fifty two ports in Alaska.<sup>10</sup> Recent legislation introduced by Senator Murkowski and Representative Young call for the identification of Arctic port options. “Ports likely to be considered include Nome, which recently spent close to \$90 million renovating its port; Kotzebue, which would propose to build a deep-water port a few miles from the town; and Barrow, which has hosted cruise ships and Coast Guard patrol boats, but would need to significantly upgrade its

docking facilities. A port could serve industry, local emergency responders, and the U.S. Coast Guard. The Arctic Marine Shipping Assessment, completed by the Arctic Council in April, found that more than 6,000 ships now transit the Arctic waters.”<sup>11</sup>

The Port of Anchorage Intermodal Expansion Project is a major transportation infrastructure project that includes the development of an additional 135 acres of land for industrial commercial use and to support rapid military deployment from Alaska’s bases via rail by expanding that capacity at the port.

As shipping increases in Arctic waters and development occurs in more remote areas there will be a need for more flexible, technically innovative solutions in transportation. Alaska is well-suited to build into its transportation infrastructure the latest innovations and technological best practices.

## Railroads

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<sup>9</sup> Christine Klein, DOT&PF Deputy Commissioner, Airports & Aviation, Legislative Update 2/2/09

<sup>10</sup> World Port Source, [http://www.worldportsource.com/ports/USA\\_AK.php](http://www.worldportsource.com/ports/USA_AK.php)

<sup>11</sup> <http://www.mondaq.com/unitedstates/article.asp?articleid=92530>

Leadership can be found in the history of the Alaska Railroad, which has been an integral part of the territory and state transportation infrastructure since its completion in 1923. The railroad connected tidewater in Seward and Anchorage, moving passengers and freight to the Interior. Railroad construction camps were the genesis for many communities on the railbelt, where 70% of the state's population resides. The railroad was seen as a tool for economic development by the federal government serving the coal mines in the Mat-Su Valley and the gold fields in the Interior.

Few events in the railroad's history can equal the importance of the sale of the federal railroad to the state of Alaska in 1985. The Legislature's decisions to accept the railroad from the federal government and to establish a self-sufficient, business-based model of ownership are equally important. The railroad is required by the state to act like a business. It must build a sustainable budget, justify that budget before its Board of Directors and then execute that budget with a high degree of certainty. The railroad's Board of Directors is involved in ensuring that the railroad meets not only its expense budget but that it reinvests the necessary capital dollars to sustain the railroad into the future. At the same time, the railroad must be responsive to its customers and flexible in anticipating changing markets as they occur.

The railroad primarily moves refined petroleum products, bulk products, gravel, and coal. It also moves heavy equipment, steel, tubular pipe, and other products to sustain the on-going activities on the North Slope. The railroad supports the mining operations at Fort Knox Gold mine in Fairbanks; provides critical logistical support to the military; helps the Department of Transportation and Public Facilities build roads; supplies the state's international airports with jet fuel; and provides coal for power generation in the Interior as well as coal for export to overseas markets. The railroad continues to be an integral part of the state's economy.

As development of natural resources is absolutely critical to the future of Alaska, the proposed rail spur from the railroad's mainline to Point MacKenzie in the Mat-Su Borough would open a bulk export port that will not only serve the south central region but also the Interior. With the development of Port MacKenzie, vast mineral resources such as the lime deposits near Fairbanks and anticipated world-class mines near the Canadian border can become economically feasible. The low cost transportation provided by the railroad and the space available for storage and materials staging found at the port are a great combination.

Transportation infrastructure in Alaska is not only about resource development. A significant impact of a strong transportation infrastructure would be felt by tourism development. Alaska Regional Development Organizations have identified tourism as a viable and vital tool for economic development and have declared it a common objective.

# Alaska's Energy Infrastructure

No discussion of the development of energy projects in Alaska is complete without a discussion and understanding of sustainability. In exploring the concept of a sustainable Alaska energy project, eight key topics must be examined and addressed.



**Policy** - Policy decisions, even more than technical capabilities, have a large influence on the selection of technology, economics, and funding as they relate to the development of energy projects. Policy determines energy security, land use, emissions, project economics, fuel prices and, in some cases, which communities survive amongst these challenging problems. The development of Alaska as an energy province will be determined by development of a comprehensive, integrated energy policy.

**Human Resources** - The development and operation of energy facilities in Alaska will require simultaneous development of human resources in Alaska, including provision of those skill sets necessary to bring the next generation of energy projects to fruition. Specific attention must be focused on the energy systems required for rural and remote communities. Achieving this new level of competency will require an entirely new curriculum addressing the breadth of Alaska energy including engineering, design, operations, maintenance, management, economics, and all aspects of care of the environment. For any technology the key required skill sets must be determined in conjunction with the appropriate training and competency program.

**Rural Energy** - The electric paradigm in rural Alaska is unique in the United States. There are more than 200 small communities with populations ranging between 40 and 1,200 people. Very few are interconnected. There are no roads and no electric transmission grid. Each community has its own stand-alone generation plant. The vast majority are diesel-fired with a very few using other fuel sources. Barrow has local natural gas and a few communities in southeast Alaska have some or most of their electricity from hydropower.

The capital cost of village electric systems is extremely high – four to five times that in the contiguous United States. This is because generating capacity at each location must be at least

three times the size of the peak load. Reliability can only be assured if there is generating capacity to meet the load with one generator down for scheduled maintenance and another disabled due to an unexpected breakdown.

Electricity costs in rural Alaska are astronomical. Non-fuel costs in many villages are about 25 cents a kilowatt/hour (kWh). Fuel costs average 37 cents a kWh. That is more than seven times the average cost of electricity in the rest of the country. This highlights the severe challenges faced by energy consumers in rural Alaska. Extremely high-cost electricity and heating fuel cripples economic enterprise and commands 10 – 40% of household income. Consumers are forced to make impossible choices between heat, electricity, food, and clothing.

Modest progress has been made to interconnect villages. By interconnecting, power plants can be shut down, fuel can be consolidated, generation efficiencies improve and larger loads make alternative energy options more viable. But even with combined loads, the village demand is extremely low. A small supermarket in the Lower 48 will exhibit an electrical load equal to five or six larger villages rolled together.

The challenge to meet the electrical needs for rural Alaska is ever exacerbated by oppressive regulations promulgated for Lower 48 conditions. Ultra low sulfur diesel regulations have added almost a dollar a gallon to retail fuel costs – 8 cents a kWh. Clean air regulations and the imminent cap and trade carbon requirements will likely cost rural consumers another 5 – 10 cents a kWh. Wind turbines and interties have to run the gauntlet presented by inimical Endangered Species Act constraints and wetlands limitations.

Two programs that have made tremendous positive impact on rural Alaska's energy systems are the Denali Commission and the Rural Utilities Service's High Energy Cost Grant Program (USDA's RUS). The Denali Commission alone has invested more than \$400 million in bulk fuel and generating facilities in the last ten years. USDA's RUS has pumped about \$100 million over the same period into critically needed utility infrastructure. And the job is only half done. The U.S. government has not built up critical infrastructure like roads, bridges, power projects, and transmission systems in Alaska as they have in the Lower 48, nor has the State invested adequately. The difference is stark. Alaska communities are inaccessible, citizens have exorbitantly priced yet still unreliable energy, and rural families are forced to make untenable choices between necessities that are taken for granted elsewhere.

Indigenous people living a subsistence life style suffer crippling energy costs threatening their very existence. New approaches are needed to prevent the extinction of these communities and to moderate energy costs for electricity, heating, and transportation, using both extractive and renewable energy sources. While seemingly redundant, the development of any Alaska

energy resource as an export must first begin with the identification of how that energy source may be used in rural communities in the area.

**Shipping and Transportation Options** - The ability for Alaska to emerge as a global energy province will be both driven and constrained by transportation. Climate change, while potentially opening new sea routes, is also changing the structure of seasonal river shipping, weakening existing road systems, affecting runways and shortening tundra travel season. More open sea travel will necessitate increased air support (search and rescue). The basic logistics paradigm for Alaska is changing and shipping and transportation options will have to change as well. The discussion must include the impacts on the entire transportation system (marine, ground, and air) that extractive and renewable energy development will present.

**Environmental Concerns** - Alaska is home to some of the world's most fragile environments. It is imperative that any development endeavor protects the environment. This includes air and water quality, impacts on permafrost and wildlife issues as detailed in any permitting activity, as well as attention to the carbon footprint. Increased offshore exploration and the potential for increased shipping will continue to emphasize the need for improved spill response and for an understanding of the impact these increases will have on fisheries. Renewable energy (battery storage, geothermal impacts, hydro-turbines, and wind turbines) also presents a variety of environmental challenges.

Exploration activities which have long depended on the frozen tundra to operate machinery are also being forced to work within limited time windows due to the shortening of the winter seasons. Less obvious impacts include increased northern route shipping and the resultant environmental impact as well as reduced access between rural communities which depend on frozen rivers and tundra for transportation.

With regard to carbon footprint, Arctic energy projects must consider carbon dioxide (CO<sub>2</sub>) capture and sequestration. This is an interesting and at present unexplored option. In oil and gas fields, CO<sub>2</sub> is a powerful enhanced oil recovery opportunity. Coalfields provide excellent sequestration capabilities and in those seams where natural gas is available, CO<sub>2</sub> has even been shown to help increase gas production. Work is currently being done to examine how CO<sub>2</sub> can be sequestered as a hydrate in deep Arctic waters, displacing methane hydrates while maintaining the integrity of the hydrate structure.

**Climate Change** - Infrastructure development should take into account the possible future positive and negative effects of climate change on the present condition of critical infrastructure and future investments. Though the impacts of climate change will vary by region in Alaska, it is certain they will be widespread and costly in human and economic terms, and will

require significant changes in the planning, design, construction, operation, and maintenance of critical infrastructure. Local governments and private infrastructure providers have to identify critical infrastructure that is particularly vulnerable to climate change. Its factors will likely lead to vulnerabilities in urban and coastal area transportation systems in particular.

Alaska should expect energy infrastructure costs to go up over the next fifty years. As an Arctic state, with unique needs, energy infrastructure development is already more costly than in most places. These substantial increases will most certainly impact the cost and feasibility of future projects.

**Impacts of Development on the People of the North** - The development of energy projects in the Arctic has had and will have significant impact on the people of the North, specifically those native or indigenous peoples living a subsistence lifestyle in remote communities. Likewise, energy development will have both positive and negative impacts on a community. Extractive development could bring wealth and jobs, but impact a subsistence lifestyle. High energy costs drain community resources, but the development of new lower cost energy facilities could require a differently trained workforce for operation and maintenance. The total costs of energy development in Alaska must include the impacts that development will bring to the people of the North

**Security** - Different and changing shipping and transportation routes, advocacy by various stakeholder groups, technological advancements, changes in the global geopolitical situation, and efforts to protect sensitive arctic environments all will have an impact on defining regional and global energy security. The examination of the changing face of energy security and the role played by the emergence of the Arctic as an energy province must be considered.

## ***Funding and Financing Infrastructure Projects***

Any infrastructure project will be challenged first and foremost by the state's ability to finance such a project and by the project's return on investment. Although the initial costs of any transportation or energy infrastructure project are substantial such projects are generally understood to have returns on investment realized in long term horizons.

The state must apply a system model or network approach to circumvent short-term decision-making. Infrastructure projects are investments and not expenses. They enhance economic competitiveness, increase safety, and enhance quality of life as long as there is no imbalance between system use and capacity. When it comes to funding and financing infrastructure projects in a time of fiscal uncertainty, it is important to bear in mind the huge up-front costs of infrastructure projects and the potential resistance of the generally tax-averse state attitude.

### **Federal Funding**

Federal funding has provided a substantial portion of the funds used for infrastructure investment in Alaska in such projects as roads, railroads, airports, clean water and wastewater projects. On a per capita basis, Alaska has consistently ranked among the top states in respect of federal funds received,<sup>12</sup> but Alaska cannot expect this funding to continue at these levels.

With respect to transportation, the Government Accountability Office has predicted that federal funding of transportation will decline. From 1999-2004, the national average for revenues used by states for highways derived from payments from the federal funds was 26.8%. During that same period, Alaska's percentage was 54.1%.<sup>13</sup> Alaska has been more reliant on federal funding for highway spending than any other state except Montana and Wyoming. The majority of states receive less than 30% of their highway funds from the federal government.

In addition to the prospect of reduced federal funding for transportation, the federal appropriations appear to be moving away from formula allocations and earmarks to a system that encourages states to price transportation more like a utility than a public good. This policy would require users to be charged for the cost of the service through tolling or other user fees. In the future, federal funding may provide an advantage to states that have implemented user

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<sup>12</sup> "Federal Taxes Paid vs. Federal Taxes Received by State, 1981 – 2005", The Tax Foundation, [www.taxfoundation.org](http://www.taxfoundation.org).

<sup>13</sup> "Alaska Transportation Finance Study – Final Report," prepared for Alaska Municipal League by Cambridge Systematics, Inc., January 2009, page 59.

fees to fund a substantial portion of their transportation costs. Alaska would suffer under such a policy as a result of its significant reliance on federal funding and the difficulty of raising significant revenues from user fees.

The Transportation Infrastructure Finance and Innovation Act (TIFIA) of 1998 established a credit program to provide federal credit assistance to major surface transportation programs of national and regional significance. The TIFIA program is designed to leverage limited Federal resources and stimulate private capital investment in transportation infrastructure by providing credit assistance in the form of direct loans, loan guarantees, and standby lines of credit (rather than grants) to projects of national or regional significance. As of July 13, 2009, over 6.5 billion of credit assistance was provided through the TIFIA program, supporting projects costing over \$24.4 billion.

## State Funding

Nationally, states have traditionally looked to the following sources for funding transportation: state taxes, tolling, state general fund, and state credit assistance.

**State Taxes:** Many states fund a substantial portion of their transportation funding through the imposition of a transportation-related tax<sup>14</sup> which is dedicated to funding transportation. Alaska has no state income tax or sales tax. The imposition of such taxes, however, can be politically unpopular and difficult, and may not raise enough revenue to meet the funding requirements.

**Tolling:** Collection of tolls for use of a bridge or roadway imposes a “user fee” on a person for the use of the facility. With respect to toll roads, electronic tolling can avoid the time delay and congestion at traditional toll booths. Tolls can also be structured to charge motorists tolls for using roads or bridges during peak driving hours, or higher tolls during such peak hours. Congestion pricing is a smart and environmentally sound solution for reducing traffic in urban centers and busy corridors. It can ease gridlock in the central districts and cut pollution at the same time. The idea of congestion pricing is simple: use price to signal when drivers should consider taking mass transit, reschedule their trip or pay a higher fee for driving. Like airline ticket prices, prices can be cheaper at off-peak times. However, such a system has to be supported with a highly reliable public transport system. So the introduction of it would need to be coupled with investments in public transport including rail and the upgrading of local bus systems and bicycle roads.

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<sup>14</sup> Transportation-related taxes include: fuel excise tax, motor fuel sales tax, excise tax on sale of car batteries or tires, increased fee for driver’s licenses and/or vehicle registration, rental car tax, vehicle ownership tax, and weight-mile truck tax.

For the period from 1999 – 2004, Alaska received 3.2% of its total revenues used for highways from tolls, as compared to a national average of 5%. In the case of Alaska, the tolls are attributable to collections on the marine ferry and at the Whittier Tunnel.

**General Fund:** In Alaska, as in other states, the state general fund provides funding for transportation and other infrastructure projects. This has been a particularly important source of funding for infrastructure in Alaska because of the unconstitutionality of dedicating tax revenues to pay for infrastructure. Financing infrastructure projects from the general fund, however, requires that infrastructure financing compete with other funding requirements such as education, health care, and corrections among others. Thus, it can be difficult to obtain the necessary monies to meet the infrastructure funding needs. For the period from 1999 – 2004, the national average for revenues used by states for highways derived from appropriations from general funds was 4.0%, as compared to Alaska’s percentage of 19.5%.

**State Credit Assistance:** State infrastructure banks (SIBs) are state or multi-state revolving loan funds that provide loans, credit support, and other financial assistance to surface transportation projects. SIBs are established with seed capital from the states and are administered by the states. Repayments of loans from borrowers go back to the SIB to fund future projects.

## **Other Infrastructure Projects Funding Approaches**

Recently, states have increasingly looked to new approaches to fund infrastructure including debt financings, public-private partnerships, and new funding innovations.

### **Debt Financings**

States can borrow money for infrastructure projects. Borrowing permits the state to accelerate project completion, rather than waiting until necessary funds are available. Financing also permits the cost of the project to be paid back over the life of the project; thereby imposing the project costs on the users of the project over the period of use. This approach is sometimes called pay-as-you-use, rather than pay-as-you-go.

The most common type of debt financing is bonds sales: general obligation bonds and revenue bonds. Both are issued as tax-exempt bonds, i.e., the interest on the bonds is not taxable as income to the holder of the bonds for federal income tax purposes. General obligation bonds are bonds backed by the full faith and credit of the state. In Alaska, an issue of general obligation bonds must be approved by the voters. Revenue bonds are bonds the repayment of

which comes from a specified source of revenue that is pledged to the repayment of the bonds. Revenue bonds are used to finance projects that generate revenue, such as toll roads, so that the revenues from such projects are used to pay debt service on the bonds. Anticipation notes, which are paid from the revenues from a specific source (such as federal grant monies or revenues from a designated tax), can also be used to fund a project in advance of receipt of such revenues. Alaska has historically used general obligation bonds to fund transportation projects.

### **Public-Private Partnerships**

Public-private partnerships can be used to finance infrastructure projects. Alaska may sell to a private entity the rights to operate a road, bridge or electrical generation/transmission system for a period of time (often 25 – 50 years), in exchange for an upfront payment and an obligation to operate and maintain it. The private party will charge a toll or service fee, the proceeds of which cover operation and maintenance costs and provide a return on capital to the private party. The state is relieved of day-to-day operations of the facility, but also loses control over it. Care must be taken to protect the public interest through the terms of the contract with the private party.

In the case of a new project, the private party may undertake to design, build, and operate it in exchange for the right to operate it for a term of years. If the projected revenues are not sufficient to pay operating and maintenance costs and provide a return on capital, the private party may seek financial support from the state. State support may be a guarantee of a minimum level of revenues, usage of the infrastructure, or as availability payments (payment to the private party to the extent that the infrastructure is made available, subject to specified standards and requirements, for use by the public).

Frequently, the private sector can develop, operate, maintain and/or improve an infrastructure feature more efficiently and cost-effectively than the public sector. The private sector may employ innovative technologies, such as electronic fare collection or congestion pricing, to enhance operations and improve services. The governmental entity will, however, lose control of the operations and may be subject to other restrictions, such as non-compete provisions restricting the ability of the governmental entity to construct or improve alternatives. However, because of the inability to predict future conditions, the contract may not permit the governmental entity to adapt to all unanticipated circumstances.

## New Funding Innovations

Many states are considering and/or implementing new tax regimes.

**Impact Fees** – Developers are levied a one-time charge to pay for infrastructure improvements needed to address the growth resulting from the new development, such as roads, water, sewer and other infrastructure needs.

**Motor Fuel Tax** – One way to associate users with paying for road maintenance is the motor fuel tax. In 1961, Alaska set the rate at 8 cents per gallon and it has not changed. This is the lowest in the nation.<sup>15</sup> The tax could be increased as long as the new revenues are dedicated to road maintenance.

**Rental Car Taxes** – Many states have implemented rental car taxes. In several states, all or a portion of the tax is dedicated to fund roads.

**Sales Tax on Motor Vehicles** – Several states collect vehicle sales tax, levied as a percentage of the sales price of a vehicle, with such revenues dedicated to funding transportation.

**Severance Tax** – Several states have dedicated a portion of severance taxes, levied on the extraction of natural resources, to funding transportation and other infrastructure improvements needed to support the development and movement of those resources.

**Vehicle-Miles Traveled (VMT) Fee** – A charge is imposed on drivers based upon the miles driven within the state. The fee can be flat or variable, based upon time of day, congestion, or cost of improvements. Typically, VMT fees are considered as an alternative to motor fuel taxes. Oregon has conducted a pilot project examining VMT fees.

**Weight-Distance Fee** – Heavy vehicles are charged a fee based upon weight, number of axles and distance traveled in the state. Weight-distance fees for heavy vehicles are being collected in several states. Several other states have repealed such fees, largely as a result of opposition from the trucking industry.

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<sup>15</sup> The median rate is 17.4 cents per gallon

## ***Recommendations***

- 1. The State of Alaska should create a comprehensive statewide Transportation and Energy Infrastructure Plan*
- 2. The State of Alaska should establish and provide long-term funding for a Transportation and Energy Infrastructure Commission to oversee the implementation of a statewide Infrastructure Plan*
- 3. The State of Alaska should create a fund for transportation and energy infrastructure planning, development, and maintenance*
- 4. The State of Alaska should fund currently deferred transportation and energy infrastructure maintenance needs to support and sustain its communities*

### ***1. The State of Alaska should create a comprehensive statewide Transportation and Energy Infrastructure Plan***

Alaska needs a balanced, sustainable, and consistent framework for guiding state policy and funding decisions relating to transportation and energy infrastructure projects. Steps to accomplish this framework include:

- Develop a comprehensive and balanced 20-year statewide transportation plan that reflects the priorities of government and addresses local, regional, and statewide needs*
- Coordinate state transportation planning with national transportation policy and with local/regional land use and transportation plans*
- Establish a statewide outreach program to gather input into state transportation policy, to promote transportation education, and gain a better understanding of local and regional transportation needs and challenges*

The public outreach component should include meetings held in localities throughout the state each year. Meetings focus on local and regional transportation and energy issues and challenges, receiving information from local officials, public agencies, and other entities. In addition to regular meetings, periodic regional forums should be convened to gather citizen input on various transportation and energy issues.

An independent Alaska Transportation and Energy Infrastructure Commission should develop this statewide transportation plan. The plan should include an analytical framework by which elected officials and policy makers can effectively evaluate the impact of major transportation

and energy infrastructure projects on state and local economies. This framework should identify the project's economic benefits and to whom they will flow (i.e. private sector, local governments, individual employees, etc.); identify a project's direct and indirect costs to state and local governments which includes additional costs or lost revenues due to a change in population; and identify how costs will be paid.

## ***2. The State of Alaska should establish a Transportation and Energy Infrastructure Commission to oversee the implementation of a statewide Infrastructure Plan***

The State of Alaska needs a Transportation and Energy Infrastructure Commission to oversee that the comprehensive plan is carried out. Alaska can build upon the experiences of almost every other state in the Union from Florida to Washington, starting with the national leader in effective transportation planning, development and sustainability: California.<sup>16</sup>

The Commission could offer policy guidance and recommendations to the Governor and the Legislature in key issue areas including but not limited to:

- Transportation and energy finance and funding
- Preserving, maintaining, and operating the statewide transportation and energy systems
- Transportation and energy infrastructure needs
- Transportation and energy efficiencies that will improve service delivery and inter-modal coordination and connectivity
- Improved planning and coordination among transportation and energy agencies and providers
- Use of intelligent transportation and energy systems and other technology-based solutions
- Climate change initiatives and challenges facing energy transportation

A Commission could provide oversight for comprehensive planning and a forum for publishing benchmarks and bringing forward best practices. Part of the concept is that no community goes unrepresented. The Commission would need to be held to strict performance measures, which also provide for greater transparency in decision making. These performance measures would be developed during the public discussion of its charter and involve quantifying the links among

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<sup>16</sup> <http://www.catc.ca.gov>

infrastructure investments, the availability of essential services, and other statewide imperatives.

The Commission would be charged with integrating and sustaining statewide systems, and implementing rational decision making in a more systematic manner. Under a Commission the focus would shift to providing essential services and outcomes rather than piecemeal projects. A Commission would make recommendations and provide a voice on behalf of the public at large. A Commission could help the public benchmark “best practices” against which to assess a particular project. A Commission could also foster innovative thinking and solutions to provide essential services in the most efficient and sustainable manner.

### ***3. The State of Alaska should create a fund for transportation and energy infrastructure planning, development, and maintenance***

An Alaska Transportation and Energy Fund is an important component of the state’s economic well-being and is necessary for adequate, sustained funding of Alaska’s transportation and energy infrastructure. An Alaska Transportation Fund has been a Department of Transportation and Public Facilities (DOT&PF) legislative priority for many years.

With such a Fund in place, projects could be delivered faster and at lower costs with continuous community involvement. At the same time, it allows the state to be more responsive to community needs without having to meet the federal regulations that come with federal money. Recent legislation<sup>17</sup> calls for the creation of an Alaska Transportation Infrastructure Fund which Commonwealth North’s Infrastructure Study Group supports in concept believing it represents many of the principles and the framework the group has laid out. However, it should be expanded to include energy infrastructure as well.

### ***4. The State of Alaska should fund currently deferred transportation and energy infrastructure maintenance needs to support and sustain its communities***

Given the state of transportation and energy infrastructure in Alaska, an investment now in maintenance determines Alaskans’ quality of life for years to come. One of the Alaska Department of Transportation and Public Facilities’ goals is to preserve and protect Alaska’s transportation and energy infrastructures that support economic development in the state.

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<sup>17</sup> <http://www.housemajority.org/spon.php?id=26hb329> by Representative Wilson

However, expectations of project development, implementation, and maintenance are not matched by funding. Currently Alaska's deferred maintenance needs total \$458.6 million. This includes \$26.8 million for facilities, \$83.5 million for aviation, \$305.9 million for highways, \$19.1 million for harbors, and \$23.3 million for the Alaska Marine Highway System.

Commonwealth North's infrastructure study group believes that the central role of an owner state is to sustain its communities. The development of resources on these lands has brought the state great wealth. However, that wealth should be reinvested in, among other things, critical maintenance of transportation and energy infrastructure in the state, thereby providing economic development opportunities for Alaska's citizens. Alaska has crossed the threshold of global competitiveness. If Alaskans fails to recognize the importance of attending to infrastructure now and if Alaska fails to plan, Alaska is simply planning to fail.

In November 2009, Governor Sean Parnell announced a proposal to include \$100 million for deferred maintenance projects in the capital budget each year for the next five years. He states that "Deferred maintenance funding is necessary to preserve the State's significant investment in infrastructure and will provide Alaskan contractors and laborers with jobs they can depend on, each and every year."<sup>18</sup> This study group agrees with this statement and believes Alaska should act now to mitigate this problem.

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<sup>18</sup> [http://www.legis.state.ak.us/basis/get\\_jrn\\_page.asp?session=26&bill=HB325&jrn=1404&hse=H](http://www.legis.state.ak.us/basis/get_jrn_page.asp?session=26&bill=HB325&jrn=1404&hse=H)



“The Obligation of Ownership is Leadership; A Roadmap to Alaska’s Transportation and Energy Infrastructure Development” was written by the members of the Commonwealth North Infrastructure Study Group. Commonwealth North is a non-profit corporation, organized and existing under the laws of the State of Alaska. Non-partisan in nature, its purpose is to inject enlightened vitality into the world of commerce and public policy. For additional copies of this report write: Commonwealth North, 711 M Street, Suite 104, Anchorage, Alaska 99501. Tel (907) 258-9522