

**Southwest Alaska Broadband Strategy  
“Planning for Opportunity”**

**DRAFT**

Prepared by  
Southwest Alaska Municipal Conference (SWAMC)

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### Southwest Alaska Broadband Strategy

Table of Contents:

- Terminology ..... 2
- 1.Southwest Alaska Broadband Strategy: Expanding Opportunity ..... 3
- 2.Some Broadband Facts ..... 4
- 3.Broadband in Southwest Alaska ..... 4
  - A. Current Broadband Internet Situation in Southwest Alaska
  - B. Efforts to Expand Broadband in the region
    - i. GCI Terra Project
    - ii. Kodiak Kenai Cable Company – Northern Fiber-Optic Link
- 4. National and State Broadband Strategies..... 8
  - A. The National Broadband Plan
  - B. State of Alaska: *Connect Alaska*
- 5. User Experiences..... 10
- 6. Potential Applications for Broadband Expansion ..... 12
  - A. Economic Development
  - B. Health care
  - C. Education
  - D. Public Safety
  - E. Government
  - F. Tribal Entities
  - G. Quality of Life
  - H. Other Possibilities
- 7. The Future of Southwest Alaska & Broadband ..... 16



Southwest Alaska, as referred to in this document

*The Southwest Alaska Municipal Conference (SWAMC) is a non-profit regional economic development organization for Southwest Alaska. SWAMC serves three sub-regions of Southwest Alaska: the Aleutian/Pribilofs, Bristol Bay, and Kodiak. Find out more at [www.swamc.org](http://www.swamc.org).*

## TERMINOLOGY

ARRA: American Recovery and Reinvestment Act, or Stimulus Act

Bandwidth: Represents the amount of data that can be carried from one point to another in a given time period (usually a second). This kind of bandwidth is usually expressed in bits of data per second (bps)

Broadband: Telecommunication, in which a wide band of frequencies is available to transmit information that allows high-speed Internet access, at download data transfer speed of *at least* 256 kbps

Broadband Penetration: The amount of the Internet access market that high speed or broadband Internet has captured

Cable Modem: A technology that enables Internet access through a coaxial television cable. Typical transmission rates vary between 368Kbps and 6Mbps

Download: The act of transferring data to a nearby computer or device from a distant computer or device

Digital Subscriber Line (DSL): A technology that enables Internet access through a telephone line. Typical transmission rates vary between 128Kbps and 6Mbps

eGovernment: A technological platform which creates a comfortable, transparent, and cheap interaction between government and citizens, government and business enterprises, and relationship between governments, through primarily electronic communication over the Internet

Fiber-Optic Communication: A method of transmitting information from one place to another by sending pulses of light through an optical fiber. Fiber provides advantages over traditional copper wire by being effective over long distances, and by having high data-carrying capacity.

Kbps: Kilobit per second, a data transfer rate unit

Mbps: Megabit per second, a data transfer rate unit

Telemedicine/Telehealth: Telemedicine generally refers to the use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration.. Telehealth is an expansion of telemedicine, and unlike telemedicine (which more narrowly focuses on the curative aspect) it encompasses preventive, primitive and curative aspects of electronic health

Upload: The act of transferring data from a nearby computer or device to a distant computer or device.

Voice over Internet Protocol (VoIP): Also called Internet telephony, refers to communications services — voice, facsimile, and/or voice-messaging applications — that are transported via the Internet, rather than the public switched telephone network.

## 1. Southwest Alaska Broadband Strategy: Expanding Opportunity

In the 21st century, we can no longer afford to deny our residents' access to high-speed Internet. Currently, Alaska ranks 50th in the nation for Internet speed and broadband coverage. Few communities and villages in Southwest Alaska have access to the broadband services as defined by the Broadband Stimulus Act<sup>1</sup>, leaving the region at a competitive disadvantage regionally and globally. Progress is being made, however, as several proposed and existing projects will extend high-speed Internet access to people and businesses in the region in the coming years. This expansion of service will open doors in many fields including education, health care, commerce, public safety, and government, improving the overall quality of life in the region. Nonetheless, the question arises: how can we effectively utilize these advantages to better serve Alaska, and particularly Southwest Alaska? This strategy outlines trends in broadband development and identifies stakeholders at the state and regional level who may benefit from expanded coverage to Southwest Alaska, for the purpose of moving forward with a unified plan to coordinate opportunity.

*Advances in computer technology and the Internet have changed the way America works, learns, and communicates. The Internet has become an integral part of America's economic, political, and social life.  
~Bill Clinton*

The Southwest Alaska Broadband Strategy will outline broadband efforts nationally, statewide, and regionally, to analyze current Internet use and anticipate future benefits of broadband expansion. The two main projects to expand high-speed Internet access to the region are GCI's Terra Project and the Kodiak Kenai Cable Company's Northern Fiber-Optic Link, both fiber based systems. Current Internet services are covered by satellite. This strategy presents an outline of the Federal Government's National Broadband Plan and the State of Alaska's *Connect Alaska* project to demonstrate the corresponding regional and national efforts to increase availability of broadband. Future applications for expanded capacity and speed are analyzed with regard to various sectors of the economy. Finally, the document will outline how this strategy can be used to continuously encourage economic development through upgraded technology, and make recommendations for the future of broadband planning in the region.

Coordinating obtainable objectives is especially important when dealing with collaborative technology such as the Internet. A key component of Internet use is that it is more valuable as the user population is expanded. Another valuable aspect of the Internet is the speed at which vast distances and data transfers can be covered. These two strengths of the Internet are markedly varied from the challenges faced in Southwest Alaska, where geographical separation has traditionally been a barrier for individuals with strong cultural and economic ties. A great need then arises to coordinate economic activity, and the opportunity to utilize the Internet for collaborative economic activity is then strengthened. While each of the various stakeholders groups will find benefit in adapting to a new, connectivity environment, it is much more likely that creating a synergy between the groups will enhance those strengths. The objective of creating synergy between regional partners is an underlying theme of this strategy.

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<sup>1</sup> <http://www.broadbandusa.gov/>

## 2. Some Broadband Facts

### Basics of Broadband<sup>2</sup>

- Broadband has no single accepted definition, but is typically defined as download transfer speeds exceeding 256 kilobits per second (kbps), at a minimum.
- Broadband services provide higher-speeds of data transmission.
- Broadband provides access to the highest quality Internet services. Many current and newly-developed services and applications require the transfer of large amounts of data and require access to the full range of services and opportunities the Internet can offer.
- Broadband is “always on” with no blocking of phone lines or reconnecting, and less delay in transmission.
- Broadband is transferred through five mediums: DSL, cable modem, fiber, wireless and satellite.
- Broadband is almost exclusively met through a satellite connection in Southwest Alaska.

### Facts about the US and the World Internet use<sup>3</sup>

- Internet speeds in the US are slower and prices are higher when compared to other industrialized nations.
- The median US download speed in early 2009 was 4.8 megabits per second (mbps) – a fraction of that enjoyed by consumers in other developed countries.
- In the 10 years between 1998 and 2008, US Internet usage expanded from 30.7% to 75.9% of the population.
- The US currently ranks 23rd in Broadband Development according to the 2010 Broadband Composite Index.

### Alaska and the US

- The average US download speed is 4.8 mbps.
- Alaska’s has the slowest average download speed in the US of 2.3 mbps.
- The state with the fastest download speed in the US is Delaware at 9.9 mbps.
- 45% of Alaskans have download speeds of 768 kbps or less.

## 3. Broadband in Southwest Alaska

### A. Current Broadband Internet Situation

Hughes Net and Starband Satellite Services currently provide nearly all the coverage in Southwest Alaska. These telecommunication services are popular (and necessary) due to the sparsely populated area and vast geography of the region. This statement applies to the greater portion of rural Alaska in general. According to GCI, Alaska's largest telecommunications company, dial-up service is nearly obsolete, and no *village* in the Southwest region has access to broadband service as defined by the Broadband Stimulus Act.

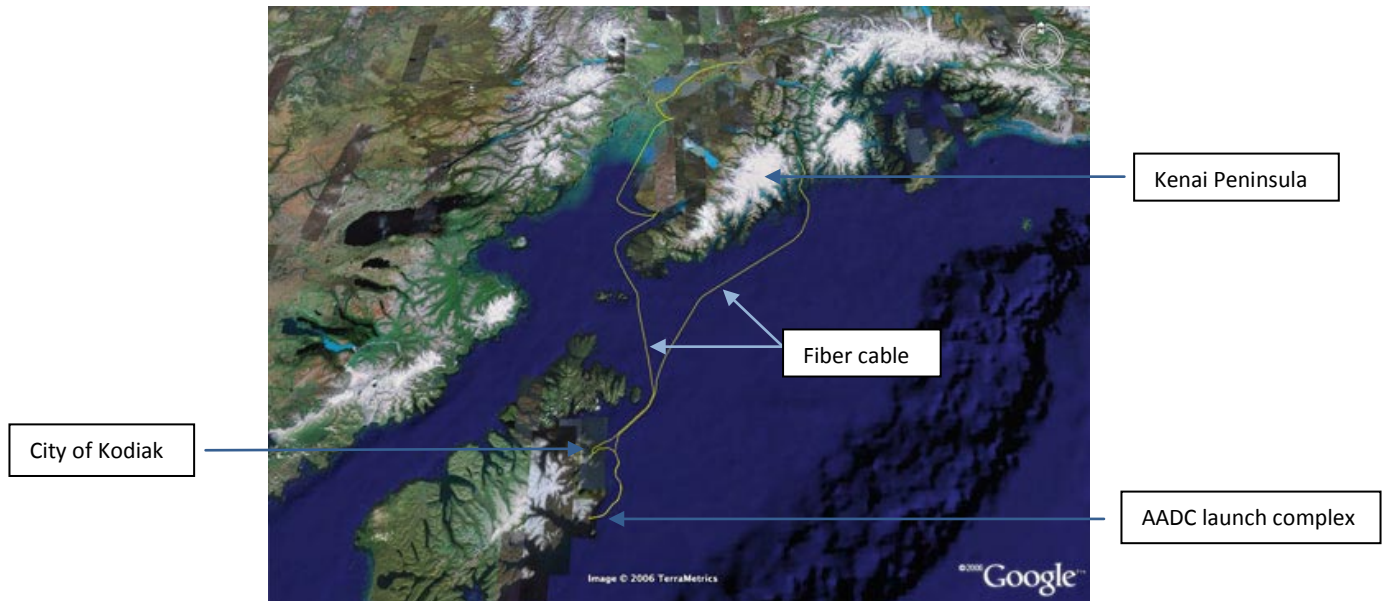
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<sup>2</sup> [http://www.broadband.gov/about\\_broadband.html](http://www.broadband.gov/about_broadband.html)

<sup>3</sup> Information taken from: *Universal Broadband Strategy for the State of New York* (March 2009)

The exception in Southwest Alaska is Kodiak, where in January 2007 the Kodiak Kenai Cable Company completed connection of a submarine fiber-optic telecommunications system between the Island and the Kenai Peninsula. The fiber only provides service to Kodiak's urban area, generally referred to as the "road system," to include the Alaska Aerospace Development Corporation's launch complex.

Kodiak Island's fiber connection



## B. Efforts to Expand Broadband in the Region

### i. GCI Terra Project

TERRA-SW is being funded with a \$44 million grant from the USDA Rural Utilities Service in coordination with the American Recovery and Reinvestment Act (ARRA) and a \$44 million loan to United Utilities Inc. (UUI). UUI is a wholly owned subsidiary of GCI. The project will develop the first ever high-speed fiber-optic and microwave connection to Southwest Alaska. The network will provide a direct land-based connection to Anchorage and the Internet backbone. The project will extend terrestrial broadband services to 65 communities and 9000+ households in the Bristol Bay and Yukon Kuskokwim Delta regions. Approximately 20 of these communities served reside in the Southwest Alaska Municipal Conference (SWAMC) region.

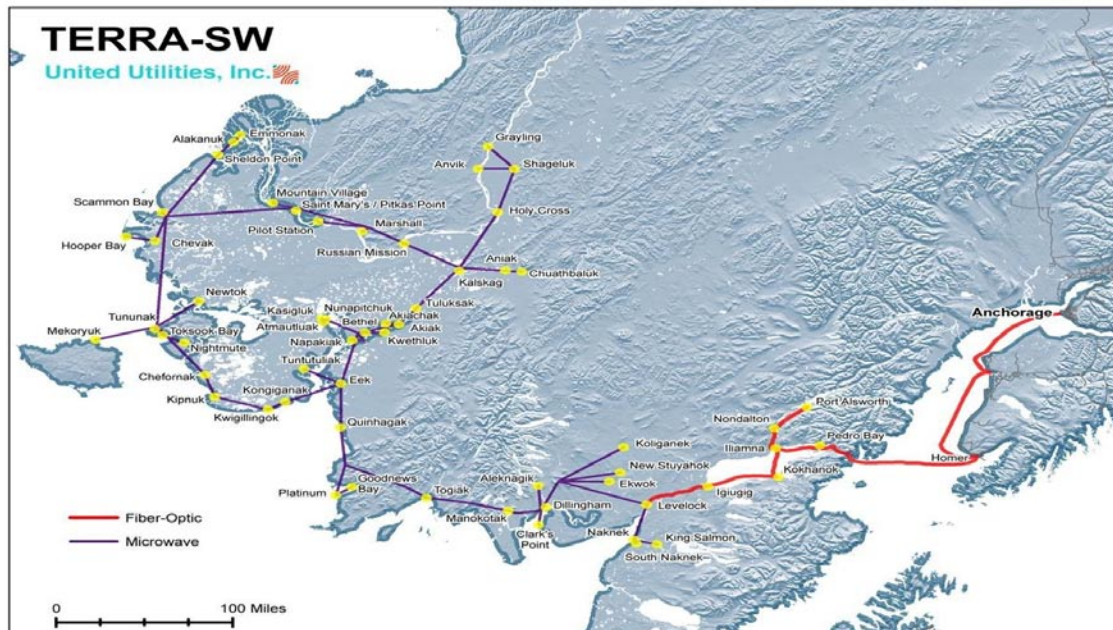
The TERRA-SW project will include:

- 9 fiber segments totaling 290 miles of submarine and land-based cable.
- 7 cable landing stations.
- 14 new microwave towers.
- Capacity upgrade to existing YK DeltaNet network.

Expected Timeline:

- 2010: Site survey; permitting; site acquisition; upgrade of existing microwave sites; equipment and fiber manufacturing.

- 2011: Construction of microwave sites, cable landing stations, and majority of fiber network.
- 2012: Construction of remaining microwave sites and remaining fiber segment.
- 2013: Project completion.



Proposed Terra route

## ii. Kodiak Kenai Cable Company and the Northern Fiber-Optic Link

The Kodiak Kenai Cable Company (KKCC) hopes to provide fiber-optic cable service to the region by constructing the Northern Fiber Optic Link (NFOL), potentially extending the existing Kodiak Kenai Fiber Link from Kodiak Island to the Aleutian Islands, Western Alaska and the Arctic. The proposed route will include landing points at King Cove, Unalaska (Dutch Harbor), Naknek (King Salmon), Dillingham, Bethel, Nome, Kotzebue, Barrow, and Prudhoe Bay (Deadhorse).

KKCC will operate as a neutral "carrier's carrier" open to all carriers on an equal and non-monopolistic basis. This will allow opportunity for further investments in new innovation, competition and increased service for Alaska's Western frontier. The system will support critical fisheries research, climate and oceanic data collection, marine vessel monitoring and tracking, Coast Guard activities, national defense, Homeland Security, health care, education, residential use, commerce, business, government and individuals.

The NFOL will be implemented in two phases. Phase 1 extends from Narrow Cape to Nome, while Phase 2 extends from Nome to Prudhoe Bay. According to the project website, the schedule for implementation of the NFOL is:

### Phase 1 (Narrow Cape to Nome):

- Marine Survey: September – November 2009

- Cable System Design and Manufacturing: November 2009 – April 2010
- Landing Site Construction: September 2009 – July 2010
- Fiber Optic Cable Installation: June 2010 – September 2010
- System Testing and Commissioning: September 2010 – November 2010

Phase 2 (Nome to Prudhoe Bay):

- Marine Survey: July – September 2010
- Cable System Design and Manufacturing: September 2010 – April 2011
- Landing Site Construction: July 2010 – November 2010
- Fiber Optic Cable Installation: May 2011 – August 2011
- System Testing and Commissioning: August 2011 – September 2011



Proposed NFOL route



## 4. National and State Broadband Strategies

### A. FCC National Broadband Plan<sup>4</sup>

In 2009, Congress mandated the Federal Communications Commission (FCC) to create a plan to ensure every American has “access to broadband capability.” To fulfill Congress’s mandate, the National Broadband Plan seeks to ensure that the entire broadband ecosystem, networks, devices, content and applications, is healthy. It makes recommendations to the FCC, the Executive Branch, Congress and state and local governments. The four main components of the plan included

#### 1. Establishing competition policies

Policymakers, including the FCC, have a broad set of tools to protect and encourage competition in the markets that make up the broadband ecosystem: network services, devices, applications and content. The plan contains multiple recommendations that will foster competition across the ecosystem.

#### 2. Ensuring efficient allocation and use of government-owned and government-influenced assets

Government establishes policies for the use of spectrum and oversees access to poles, conduits, rooftops and rights-of-way, which are used in the deployment of broadband networks. Government also finances a large number of infrastructure projects. Ensuring these assets and resources are allocated and managed efficiently can encourage deployment of broadband infrastructure and lower barriers to competitive entry. The plan contains a number of recommendations to accomplish these goals.

#### 3. Creating incentives for universal availability and adoption of broadband

According to the plan, three elements must be in place to ensure all Americans have the opportunity to reap the benefits of broadband. All Americans should have access to broadband service with sufficient capabilities, all should be able to afford service, and all should have the opportunity to develop digital literacy skills to take advantage of broadband.

#### 4. Updating policies, setting standards and aligning incentives to maximize use for national priorities

Federal, Tribal, state and local governments play an important role in many sectors of our economy. Government is the largest health care payer in the country, operates the public education system, regulates many aspects of the energy industry, provides multiple services to its citizens and has primary responsibility for homeland security. The plan includes recommendations designed to unleash increased use, private sector investment and innovation in these areas, and with a large government presence in Alaska, this could have major implications for delivery of services in the state.

### B. Connect Alaska<sup>5</sup>

In 2010, Connect Alaska, a subsidiary of Connected Nation and operates as a nonprofit in the State of Alaska, was commissioned by the State to work with the broadband providers to create detailed maps of broadband coverage and to assess the current state of broadband adoption, community-by-community, across Alaska. Through the tool Broadband Stats, users will be able to:

- **Visualize** broadband coverage areas
- **Analyze** types of existing coverage
- **Locate** broadband providers in specific areas

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<sup>4</sup> <http://www.broadband.gov/>

<sup>5</sup> <http://connectak.org/>

- **Evaluate** the impact of proposed broadband projects
- **Track** broadband growth
- **Analyze** barriers to broadband adoption

Connect Alaska will continue to develop and update the broadband data over time, ensuring that state policymakers and citizens alike are equipped with this important information. Connect Alaska's efforts are funded by the United States Department of Commerce, State Broadband Data & Development Grant Program through the National Telecommunications and Information Administration, via the State of Alaska. In the summer of 2010, Connect Alaska surveyed Community Anchor Institutions such as libraries, health clinics, schools and other user groups. A public launch of the broadband map and Broadband Stat tools occurred on September 1<sup>st</sup>, 2010. A preliminary map of broadband service is shown below. As indicated on the map, the overwhelming majority of Alaska is un-served by broadband service. Visit [www.connectak.org](http://www.connectak.org) to learn more.

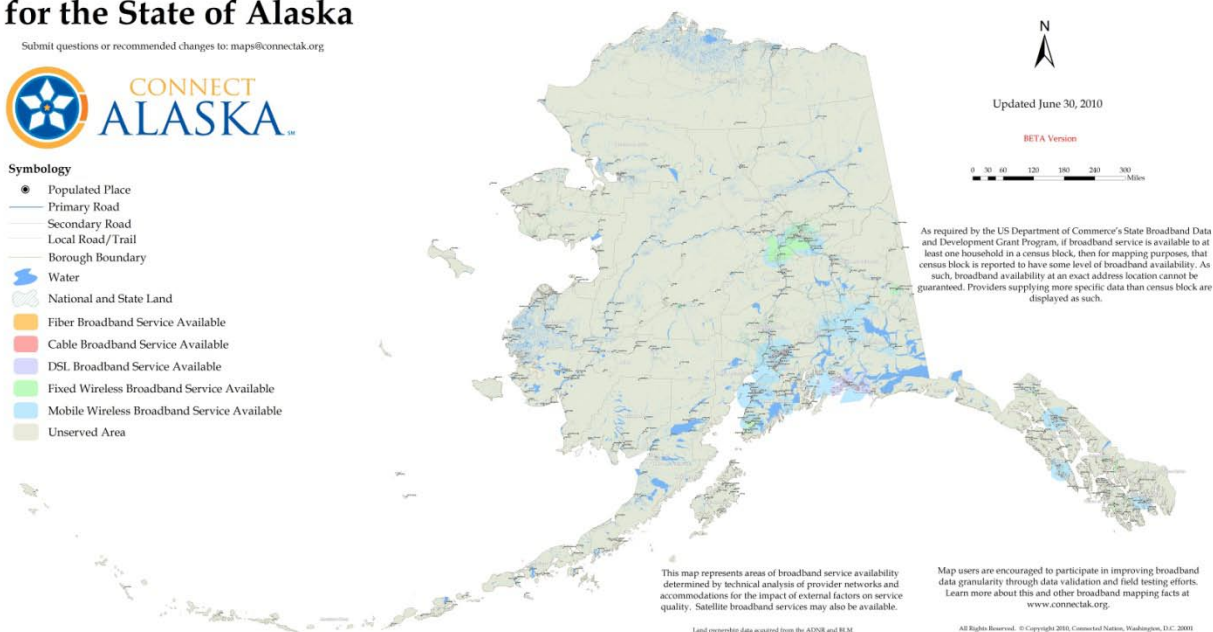
## Broadband Service Inventory for the State of Alaska

Submit questions or recommended changes to: [maps@connectak.org](mailto:maps@connectak.org)



### Symbology

- Populated Place
- Primary Road
- Secondary Road
- Local Road/Trail
- Borough Boundary
- Water
- National and State Land
- Fiber Broadband Service Available
- Cable Broadband Service Available
- DSL Broadband Service Available
- Fixed Wireless Broadband Service Available
- Mobile Wireless Broadband Service Available
- Unserviced Area



In addition to the Connect Alaska efforts, Alaska State libraries received \$5.4 million in September 2010 to create a broadband network aimed at linking Alaska communities through Internet access at 104 public libraries statewide. Those libraries with the slowest Internet speeds were targeted for system upgrades. Through a combination of federal stimulus legislation and private funding, the University of Alaska also received \$4.5 million to improve Internet literacy and usage in the State's rural communities. It is estimated that the University funding will create nearly 90 jobs and help 88,000 rural Alaskans improve their access to technical training and to information they can only obtain in their communities by going online.<sup>6</sup>

<sup>6</sup> <http://www.adn.com/2010/09/14/1454757/state-gets-10-million-for-internet.html>

## 5. User Experiences

While the rollout of broadband connectivity to the region has been slow, the Internet still plays an important aspect of everyday business and life in Southwest Alaska. SWAMC collected testimony from residents working in the region on how they currently use the Internet and how a faster and more reliable Internet connection can improve their work quality and efficiency. We distributed a survey to our membership through newsletters and our website, and sent emails and made phone calls to gain first-hand accounts from residents of the region. Below are examples of some of the responses:

*Reliable, consistent, and cost effective Internet would have a huge impact on a position like mine. We were in contact with one of Bristol Bay Native Corporation's subsidiary companies and would have had the perfect opportunity to create jobs in villages where there aren't any. \$15 an hour positions in some of the highest cost of living communities in the region would realize great employment and educational opportunities with better Internet connectivity. It's easier to e-mail documents than to fax back and forth. Our region has four different phone line carriers and it can be very difficult to get faxes to work to places like Ugashik, Egegik, and the Chigniks.*

–Cathy Reamey, Workforce Development at Bristol Bay Native Association (BBNA)

*The Internet makes my job easier as I work with the 31 federally recognized Bristol Bay Native Association tribal members in marine mammal research, marine mammal Native traditional ecological knowledge projects, as well as represent the Bristol Bay Marine Mammal Council and the Qayassiq Walrus Commission on their marine mammal and walrus issues of concerns directly with state and federal agencies in co-managing our marine resources. The Internet is an excellent resource as it provides instant business transactions necessary to research Alaska Native tribal council leaders on important issues of concerns including Endangered Species or Threatened marine mammals and related information.*

–Helen M. Chythlook, Marine Mammal Coordinator BBNA

*I use the Internet for research regarding child protection issues, for trainings I develop, to help locate family members in Indian Child Welfare Act (ICWA) cases, for email, for researching inexpensive activities that staff could do in the villages, and much more.*

–Stacy Bai MS, ICWA Team Leader BBNA

*The Temporary Assistance for Needy Families (TANF) program relies on the Internet on a daily basis. We must access the State of Alaska's system in order to verify unemployment income, TANF months used and penalties for Bristol Bay residents who are applying for TANF. We also utilize Ingens to verify resources. TANF staff in Manokotak, New Stuyahok and Togiak need Internet to access our data system in Dillingham. Without the use of the Internet our families who are applying for TANF would see a long wait before their application is approved/denied.*

–Marlene Andrews, Tribal TANF Program Manager BBNA

*Internet is so important in our work because it gives us up-to-the-second information, whether it be through Google or communication with coworkers or supervisors. It also helps our work to be organized*

*Our Children's Services Division is involved in a national child welfare project that involves accessibility online to conduct meetings, teleconferences, and resource sharing across the nation. An Internet system that can handle such duties on a regular basis would be a dream for us. It has improved over the years, but it can stand further improvement.*

~ Lucille D. Johnson MSW,  
BBNA Director of Social Services

*and its good for planning or for meetings and you can reach several or the whole building and even anyone in the US or in a different country within seconds.*

*–Sarah Catalone, Tribal TANF Case Worker BBNA*

*The Social Services Department administers about 20 grants for its programs and every one of those grants require one or all of the following: grant uploading; report uploading; and/or data input onto a web-based data system. We have been required to have Internet capabilities for several grants for several years- 4 data systems that are web-based, grant uploading, report uploading, and more recently we have been required to have the capabilities for the State of Alaska grants that we administer- which affects 5 grants. At times, during the early years, the accessibility has been strained at best and today we have accessibility issues that aren't as crucial, but still can be very stressful. Our Children's Services Division is involved in a national child welfare project that involves accessibility online to conduct meetings, teleconferences, and resource sharing across the nation. An Internet system that can handle such duties on a regular basis would be a dream for us. It has improved over the years, but it can stand further improvement.*

*–Lucille D. Johnson MSW, BBNA Director of Social Services*

*The Internet helps me to stay in communication with the parents of the children I teach at Head Start. This year, we are doing most of our assessments online, as well as lesson planning.*

*–Alyssa Roy, BBNA*

*In my position as a TANF Case Worker, I utilize the Internet every day, all day, in order to perform verifications to determine eligibility for our program. Internet is a vital tool in my job function. If we did not have access to Internet it would hardly be possible to process our applications in a timely manner. Of course, faster Internet would make our job that much more functional.*

*–Kristy Peters, BBNA*

*Our thoughts on Broadband/Internet and our business here in Bristol Bay/Ugashik Village: We are a small but growing business. We have been in business almost 50 years and have done the whole 'have to be in Anchorage' to get services to back out here to our village. The Internet has let us do that as a whole and a good reason why we can be located in the 'bush'. If the bandwidth rates are reasonable, and at various levels, we would figure our usage would increase. It also has to be reasonable. We have a web site that has incoming business from and then direct business.*

*–Victoria Briggs, Ugashik Wild Salmon Company*

*Our fishcamp operates from a remote location, where we often need immediate information. We use the Internet to receive fishing updates from the processor and Fish & Game; technical advice to keep our machinery and operation running; marketing our product and monitoring news and trends. The Internet is also a great way for us to keep in touch with friends and family that we often do not see for periods of time while we are working.*

*–Erik O'Brien, Fishermen, Larsen Bay*

From these accounts, the current scope of Internet usage becomes apparent. Most people use the Internet for communication, mostly through email. Grant and application programs are being used but are not always reliable, according to respondents. Different sectors use the Internet for marketing and websites but these are usually rudimentary due to slow connection speeds and download capability. Also, the Internet is widely used for research and following news from the region and around the state.

## 6. Potential Applications for Broadband Expansion

In an extensive study of Broadband in Rural America, a Washington DC law group describes the promise of broadband and what it means for America as thus:

*Broadband is a distribution system, a personal tool for interacting with the world, and a catalyst and enabler of an endless array of other products, processes, and services. Broadband will increasingly become integrated into virtually everything that we do at work, at home, and at play. From economic development to entertainment, from education to health care, from environmental sustainability to public safety and homeland security, from our smallest hamlets to our largest cities, from our young people to our senior citizens, almost everything and everyone will come to depend directly or indirectly on affordable and ubiquitous access to broadband.<sup>7</sup>*

The Internet is enhanced by its network effect, whereby the service is made more valuable for every user that is connected. Most urban areas of America have integrated broadband Internet into their home and business life, and the benefits have been far-reaching and measurable. In fact, broadband penetration is now considered a key economic indicator.

While the Internet is not something new to the communities of Southwest Alaska, its true potential will only be reached with faster speeds, greater capacity and better reliability. Empirical evidence shows that broadband activity enhances economic advancement and increases a regions competitive advantage. These advances are expected to occur in nearly every economic sector across the region.

### A. Economic Development

In today's global marketplace, broadband is becoming a necessity to stay competitive, especially in rural areas where increased transportation costs and travel time have traditionally been a strain on business. Where once considered a luxury, the Internet is now an essential component of a community's infrastructure. E-commerce applications greatly reduce barriers to entry by reducing initial capital outlays, which allows people throughout the region to start small businesses and target a much larger client base than what is available within the physical confines of their community. New marketing techniques become available through improved websites and social network, creating closer communication with others on the global network. Businesses will find it easier to communicate with their customers, colleagues, distributors, and suppliers through faster email, online conferencing, and video capabilities, reducing the cost of doing business. Residents of the region will be exposed to telecommuting options, opening up the labor market for jobs almost anywhere in the world, while allowing the added flexibility to live in their home communities.

*If you have a web site, it makes your small business look big.*

*~Natalie Sequera,  
Spokeswoman for Claris Corporation*

Various studies have shown that employment growth is greater in communities that have adopted broadband systems. For every one percentage point increase in broadband penetration rate, employment is projected to increase by 0.2 to 0.3 percent per year.<sup>8</sup> Another case study involving counties with similar economies in Florida found that the average growth rate of Lake County was double that of neighboring districts, after installing an Internet broadband network. Examples like this

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<sup>8</sup> Brian Dabson. (2008, December 8). Rural Broadband. A RUPRI Policy Brief, p. 4

one in Florida and others across the country provide strong support that communities in Southwestern Alaska will experience similar, expanded economic growth rates after implementation of broadband infrastructure. In short, broadband flattens the playing field for many existing and budding entrepreneurs by making it easier to build a global presence, create e-commerce websites, interact with customers, and take advantage of new technologies.<sup>9</sup>

### B. Healthcare

In an environment of aging population and government austerity measures, healthcare is an easy target for reducing costs and improving service; in Southwest Alaska those advantages are even more pronounced. A lack of connected road systems, inclement weather and the need for fast, reliable and affordable medical assistance showcase challenges of providing care in the region, but also expose a great need to implement a more efficient system. Telehealth is the electronic exchange of data, images, and video to aid in the practice of medicine. Patients will have access to specialists at their local clinics, without the need for travel; doctors will also be able to remotely monitor patients' progress between visits; medical education will also be more easily accessible to rural doctors, keeping them up to date on medical advances and techniques without ever leaving the region. In rural areas throughout the country, the savings will be enormous; in our sparsely populated and disconnected region, adapting to new technology in health will be a necessity. According to Health Care IT News, as States race to implement the most comprehensive Telehealth network, substantial savings include total reduction of overall care and substantial savings on follow-up care, with happier patients who retain the ability to stay home instead of the hospital.<sup>10</sup>

### C. Education

Education is no exception to the impending changes coming to rural America, benefiting from greater broadband penetration. While new ideas are often met with at least some resistance, a paradigm change in education could be most valuable to Southwest Alaska. The cultural connection to the region is strong, but demographic shifts provide evidence that young people tend to leave the region soon after secondary school. Some depart for adventures in new lands, others because opportunity is not provided in their home community. Today, a student can access content from the greatest educational institutes in the world over the Internet, without ever leaving home. Not only can distance learning be used to allow remote communities access to regional education, but also to global education sources. With reliable high-speed access, students have the ability to connect to ever-growing digital educational content. Learning that once required relocation, can now be offered by streaming content from accredited institutions of higher learning, to the classroom in local communities.

On the management and analytical side, broadband connectivity will provide a much clearer picture for funding agencies, meeting the needs of rural students. Student achievement can be analyzed by providing accurate real time data of test scores, grades, progress over time and other tools necessary to assess learning capabilities of communities. These records can be easily accessed when students change teachers, grades or even schools. In order to best utilize these benefits, structures should be in place to

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<sup>9</sup> Baller, J., & Lide, C. (2008). *Capturing the Promise of Broadband in NC and America*. Washington DC: Ballard Herbst Law Group.

<sup>10</sup> *Health Care IT News*. (2010). Retrieved October 2010, from Health Care IT News: [www.healthcareitnews.com](http://www.healthcareitnews.com)

make sure that it is easy to obtain course credit for online *classes*, allow accreditation for teachers out of state, in subjects not offered in Alaska and make sure to educate communities on the expanding digital educational content growing on the web.

An in-depth crosscutting analysis of nearly 1000 schools across the country conducted by the Project RED (Revolutionizing Education) initiative identified several key findings of implementing and using broadband Internet in the classroom. Identified areas of advancement were found in disciplinary action needed, dropout rates, paperwork, paper and copying expenses, teacher attendance, high-stakes test scores, AP course enrollment, college attendance plans, course completion rates (HS only), dual/joint enrollment in college (HS only) and graduation rates (HS only). In addition to the learning benefits, technologically integrated schools are revenue-positive at the State level. Technology investment in the classroom can reduce overall costs of education by enhancing online courses, professional development, concurrent enrollment in college courses, data mapping, or any number of special needs programs; plus the savings of having a better educated workforce, as measured in future revenue through higher income, further add to State coffers.<sup>11</sup>

#### D. Public Safety

According to the American Government's roadmap for the future of the Internet, as described in the National Broadband Plan, public safety will be enhanced with three primary structural changes: 1) Create a Nationwide Interoperable Public Safety Wireless Broadband Communications Network; 2) Improve Cybersecurity and Critical Infrastructure Survivability and 3) Leveraging Broadband Technologies to Enhance Emergency Communications to and from the Public. As reported by [recovery.org](http://recovery.org), early phases of the new national safety initiative have been rolled out with funding from the American Recovery and Reinvestment Act of 2009.<sup>12</sup>

What this means for Southwest Alaska is that public safety personnel will be connected to the nationwide first responders network, providing real-time support and information to the local authorities. The increased national safety net protecting our vital infrastructure will be enhanced to easily mobilize support to protect our regional interests. Next Generation 911 (NG911) is working to incorporate greater input and communication between the public and first responders, and feedback from actual infrastructure, such as electronic devices and infrastructures. The outcome will be quicker responses and better services from the institutions we rely on for safety and protection. Beyond the faster response times for personalized protection, greater crime prevention techniques will also save lives and prevent injuries with ever-greater efficiency.

In addition, more traffic is expected to pass through the Northwest Passage as sea ice continues to retreat, and exploration and development of off-shore resources will lead to more vessels navigating along western Alaska. This will put additional pressure on safety officials and communications systems, particularly the US Coast Guard. Broadband will enhance response times in cases of spills, vessel accidents, and other safety hazards common along western Alaska's rough seaboard.

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<sup>11</sup> Project RED

<sup>12</sup> <http://www.broadband.gov/issues/public-safety.html>. (2010, September).

### E. Government

The E-Government Act of 2002, in coordination with the Government Paperwork Elimination Act of 1998, aims to implement web-based technologies with the goal of (1) enhancing the access to and delivery of Government information and services; and (2) bring about improvements in Government operations. As described by the World Bank, “these technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions.”<sup>13 14</sup>

Due to the large government presence in the region, Southwest Alaska is well positioned to reap great benefits from a streamlined eGovernment. Where each of the noted areas described above will benefit all aspects of government, the efficiency to the Southwest region will be even greater. Applications will be simplified and processes streamlined, expediting business with the government, while most importantly cutting costs. These efficiency gains will be especially important for low-income families, who will benefit from reduced application and processing times before services can be provided. Other citizens will benefit through greater transparency of public funds and greater efficiency of meeting the needs of its citizens. In addition to enhanced service, support can be offered seven days a week, 365 days a year, addressing the large time delays in dealing with the government.

### F. Tribal Entities

Tribal entities stand to reap great benefits from expanded broadband capabilities by bundling the many benefits into a package for their stakeholders. The economic expansion of Alaska over the past 50 years has been impressive; however, many tribal regions remain depressed relative to the rest of the State. This disappointing reality can be interpreted as opportunity for rapid growth offered by implementing fast and reliable Internet. Education, health care, government services and general quality of life are all fields that tribal entities are well positioned to bring back to their communities, especially the well-funded regional organizations that have the cultural connection and resources to understand both the shortcomings of life in the village, and the potential that well-connected villages could provide for its residents. In addition to the cultural opportunities that the Internet can import through tribal entities, exporting Native culture could be just as valuable. Native Alaska culture may be little known around the world, providing a huge market to fill that void and share history, beliefs, lifestyle, arts and the wonders that until now, one could only understand by visiting traditional tribal villages.

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<sup>13</sup> *E-Government act of 2002*. (2002). Retrieved 2010, from <http://thomas.loc.gov/cgi-bin/bdquery/z?d107:HR02458:@@L&summ2=m&|TOM:/bss/d107query.html>

<sup>14</sup> *The World Bank, Definition of eGovernment*. (n.d.). Retrieved September 2010, from <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTINFORMATIONANDCOMMUNICATIONANDTECHNOLOGIES/EXTEGOVERNMENT/0,,contentMDK:20507153~menuPK:702592~pagePK:148956~piPK:216618~theSitePK:702586,00.html>



### G. Quality of Life

It is difficult to imagine a future where a high-speed Internet connection will not vastly improve quality of life. Being able to keep in touch with family and friends across Alaska and outside of the State will be much less expensive and more reliable with options such as email, VOIP (voice over Internet protocol), and increased use of video chat. Soon, merely talking will not provide enough personal connection for separated family and friends, as video options become widely available for streaming live content. Social networks will continue to expand, allowing long lost acquaintances to stay in touch. Broadband will provide more reliable access to entertainment such as movies, music, and television. By expanding the global consumer market, residents will continue to have greater freedom for their consumer choices, as more innovative methods are developed for online shopping. This is especially true of online “auction sites,” which require a fast and reliable Internet connection to ensure the latest up-to-the-minute bids.

*We have technology, finally, that for the first time in human history allows people to really maintain rich connections with much larger numbers of people.*

*~Pierre Omidyar,  
Founder/Chairman of EBay*

One of the greatest additions to quality of life in the region will come from the importing of ideas. The Internet provides an invaluable source for the transfer of knowledge leading to a greater global understanding, consisting of both imported and exported ideas. No longer is it only the affluent businessperson living on Wall Street who has up-to-the minute data on financial information. No longer is the world traveler the only one to know the favorite dishes of the Swahili plainsmen, or that Perok, “salmon pie”, is a specialty amongst Russian-Aleut culture. Broadband Internet opens up the world, and the two-way street of knowledge trade, soon turns into a freeway.

### H. Other Possibilities

Broadband availability opens up a whole range of uses that couldn't even have been imagined just years ago. Broadband will make banking easier through mobile applications and digital literacy; allow for more accurate, real-time research and data collection; create better efficiencies in energy through smart grids; allow for remote monitoring and operation for everything from greenhouses to windmills; generate the opportunity for stronger public computer centers; monitoring of more accurate fish counts and create more efficient crew data collection. Beyond the many potential jobs that will be created, an entire support industry of professionals will be required to maintain the new network which will support broadband Internet. The physical infrastructure will have to be supported, the servers and databases will need to be updated, knowledge workers will develop services in each new field, web pages will need to be created and maintained. All in all, a new and fast-growing society will develop due to the implementation of broadband Internet.

## **7. The Future of Southwest Alaska & Broadband**

An interesting aspect of implementing broadband connectivity in Southwest Alaska is that we can make stronger interpretation of how our economy will change by observing those who came before us. Alaska's constitution and fisheries management are envied across the world in large part because the policies and ideas were created in hindsight. Alaska needs to remain open minded and creative to how its economy may be affected by implementing a broadband strategy and embrace the ensuing change. An eye to the future can help us determine what strategies worked well, and which ones needed adjustment. With so many models to analyze, we have the ability to embark on policy which will align resources that will make us stronger and more competitive.

A recent study by Michigan State University shows that through the use of Internet and better communication networks even smaller communities and less dense states can compete economically in areas where it was impossible before. The report found that “although America’s largest cities once had the most sophisticated economies, today that honor goes to cities with many connections to other places, regardless of their size<sup>15</sup>.” In the past, rural Alaskans used their cultural and traditional networks to form connections across our vast State. More recently, villages depended on their roads, airports and marine highway systems to keep them connected; however, we have entered a global era where people, goods and services are interconnected with the simple click of a button. In turn, there is a new highway rural Alaska can use: broadband.

This document is meant as a starting point in the pursuit of broadband applications, but it should not be taken as a final decree of all the opportunities that will be become available. It will be up to the entrepreneurship and innovation of businesses and residents in Southwest Alaska to create sustainable economic development; broadband will only provide one of the stepping stones for these opportunities. However, we should not be focused solely on the Southwest region. The entire State of Alaska is behind the nation and the world in broadband access; this strategy can provide one piece of a statewide effort to raise Alaska’s quality of life and competitiveness in the global economy.

*National borders aren't even speed bumps on the information superhighway.  
~Tim May, Engineer at Intel*

Alaskans have always been an independent group, proud of where they have come from, and where they are going. The ties that bind us and make us unique in our own eyes can now make us stronger as we unite behind policies that allow regions to work together and develop new clusters of business activity provided by our global connection to the Internet. This philosophy maintains that clusters of economic activity are all intertwined, where certain aspects work closely together, transferring money and information between participants, where various clusters combine to create the regional, state, national, and world economy. The SWAMC region has prospered as a unified group in a diverse setting for many years; however, by binding our collective enterprises and ideas through a linked Internet connection, we will be stronger and more competitive than if we remain as separate entities.

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<sup>15</sup> Zachary P. Neal, *From Central Places to Network Bases: A Transition in the U.S. Urban Hierarchy, 1900–2000*, <http://www.physorg.com/news202387228.html> (August 2010).