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NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
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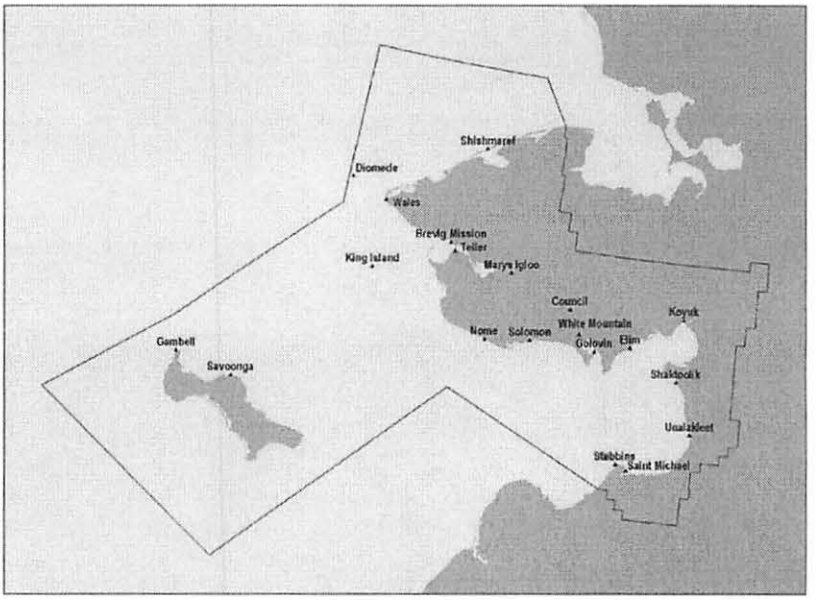
Comments of Kawerak, Inc. – October 29, 2014

Melanie Bahnke, President
Robert Keith, Board of Directors Chair
Prepared and presented by: Pearl Mikulski, Planner

Kawerak, Inc.
P.O. Box 948
Nome, Alaska 99762



Introduction

Kawerak, Inc. is a regional non-profit tribal consortium that serves the 20 tribes and 15 communities in the Bering Strait region of Northwest Alaska. The Bering Strait has a population of about 9,400, and 75% are Alaska Native. The region is about the size of West Virginia and not connected to the rest of Alaska by roads. Primary access is by air service. Nome is a rural hub community of about 3,700 residents; the region's village population ranges from 145-900 residents. The region faces many economic, infrastructure and technology challenges.

Kawerak, Inc. appreciates the intent of the National Broadband Plan which is designed to reform and increase the effectiveness and efficiency of communication systems in un-served and underserved areas. Kawerak is grateful the recent development of the National Strategy for the Arctic Region and for this opportunity to provide comment to help identify challenges and establish reforms that will help tribes gain effective access to modern communication systems. The following recommendations and comments are non-technical information provided from a regional nonprofit communication user and from a residential communication user point of view about the 18 questions listed in this docket regarding the challenges, limitations, and usage of currently available communications technology in our hub of Nome and our 15 surrounding rural communities.

20 Federally Recognized Tribes in the Bering Strait region

1. Native Village of Brevig Mission
2. Native Village of Council – in Nome
3. Native Village of Diomede
4. Native Village of Elim
5. Chink Eskimo Community – Golovin
6. Native Village of Gambell
7. King Island Native Community – in Nome
8. Native Village of Koyuk
9. Native Village of Mary's Igloo – in Teller
10. Nome Eskimo Community
11. Native Village of Saint Michael
12. Native Village of Savoonga
13. Native Village of Shaktoolik
14. Native Village of Shishmaref
15. Native Village of Solomon – in Nome
16. Stebbins Community Association
17. Native Village of Teller
18. Native Village of Wales
19. Native Village of White Mountain
20. Native Village of Unalakleet

Communication users in the Bering Strait region

- Norton Sound Regional Hospital located in Nome serves the people Nome and the surrounding villages. Each village has a clinic staffed by health aides and a few may have a physician's assistant.
- Law enforcement within the region consists of the City of Nome Police, Alaska State Troopers, Kawerak's Village Pubic Safety Officers (up to 14 positions) and community Village Police Officers.
- Some communities may have volunteer fire fighters and volunteer search and rescue workers. Five communities do not have a volunteer fire department.
- Nome Public Schools serves the community of Nome and the Bering Strait School District serves the other fifteen villages. Northwestern Alaska Career and Technical Center (NACTEC) serves high school students in the region for vocational training. Anvil Mountain Science Academy serves middle school students from Nome.
- The University of Alaska Fairbanks, Northwest Campus serves Nome and the surrounding villages.
- Nome has a local preschool and child care center. Kawerak operates Head Start programs in 11 communities (Brevig Mission, Elim, Gambell, Golovin, Koyuk, Nome, St. Michael, Shaktoolik, Shishmaref, Teller, and White Mountain). RuralCap operates Head Start programs in Savoonga and Stebbins. All of these entities pay full commercial rates for internet and phone access. The Bering Strait School district provides preschool support to Diomede, Unalakleet, and Wales.
- Businesses – grocery, liquor and hardware stores, airlines, barge companies, Native corporations, seasonal construction projects, commercial fishermen, small and medium sized mining companies (on and off shore), restaurants, and other small businesses (taxi cab companies, local air carriers). One private newspaper owner.
- Service providers – tribal organizations (tribes, village and regional corporations), clinics, researchers, state and federal government agencies, and non-government organizations like Nome Community Center and Bering Sea Women's Group (domestic violence shelter).
- Church and religious affiliates. Two religious groups operate two local radio stations.
- Residents – students, households, and subsistence users.

Communication systems used in the region

- Commercial and public radio - The region has access to about three of four radio stations based out of Nome, Kotzebue, or Fairbanks (via local repeater).
- Television - There is only one non-cable TV channel (ARCS) available if you have a modern digital TV and adequate rabbit ear antennas. Nome has a cable TV provider and a few of the

tribes, cities, or corporations are set up to provide a few cable channels to rural communities. Dishnet offers Satellite TV service in Nome and the surrounding villages, but set up and monthly fees are high.

- Landline phones and faxes or cell phones – Lifeline is available and helps some obtain access. Cellular coverage varies depending on tower placement, but usually does not extend beyond 15 miles of a community.
- Internet – All schools have access to the internet. Only a few villages have access to a public library or public use computer access center. Only about 15-20% of village residents have internet access. Adoption is higher in the hub community of Nome, but only about 20% can afford the higher speeds and have to choose between TV, cell, landline phone and internet options.

The poverty level in most villages makes obtaining access to modern communications technology difficult. Only in recent years have landline phones and faxes become reasonably reliable. Improvements like the Telemed program, satellite phones, wider availability of cell phones, and internet access have brought many opportunities to our region, but there are still many barriers to overcome.

Nome Communication costs	Average cost for low to moderate use
Landline phone	$45 per month
Internet	$40 per month (other packages range from $70-300/month)
Cell phone (basic package)	$37 per phone number/per month
Cable or Satellite TV	$80 per month

- Total average communication cost in Nome is $202/mo. and U.S. Census 2010 average wage in Nome was $16.87/hr., so average percent spent on communications is over 15%. Village costs can be much higher. While some are opting to discontinue landline phones, others are cautious because of dropped calls, dead zones, and poor reception.

Recommendations and Comments about Telecommunications Services and Technologies in Arctic Alaskan Communities and the Pan-Arctic Region

1. **Existing and Potential Networks and Services in Arctic Alaska:** Nome and most villages have at least partial access to landline phones, faxes, cell phone services, ARCS television, cable or satellite television, radio, satellite and internet capability, public or commercial radio stations, and various other types of radio or satellite communication systems. All public schools have internet, as so do most city and tribal offices. Due to a poor economy, many Alaska Native families have access to buy these services but cannot afford to access all the available communication services. Lifeline subsidies help some low-income residents with either landline or cell phone access. Many Alaska Native customers disconnect phone/television/internet services during the peak subsistence harvest season to save money. Remote communities depend on access to communication systems for all vital aspects of their daily lives. Access to reliable communication systems can be a matter of life and death. In rural our villages, even access to the U.S. Postal Service and printed news sources is dependent on delivery by small commuter aircraft and can be delayed by bad weather for days and even weeks.

   Recommendation 1: Continue to provide Lifeline support to landline and cell phones in rural Alaska as it is the only line of communication some low-income families/elders can

afford. The benefits outweigh the costs, as Lifeline may be the only means of summoning medical assistance.

Recommendation 2: Head Starts in Alaska receive State and federal funds, but are predominately operated by non-profits like Kawerak. The Alaska State statute was changed to define preschools as eligible for E-rate funding. As yet no Head Starts in Alaska have obtained E-rate subsidies due to the complex application process. Kawerak recommends that trainings for E-rate funding be held in Alaska to allow rural communities to obtain the information and training needed to access E-rate subsidies.

2. **Wireline-Based Broadband Services**: Internet speeds are improving (offering 4 Mbps download and 1 MBPS upload) in Nome, Shaktoolik, and Unalakleet due to recently improved infrastructure development via microwave and fiber combination links. Adoption is limited by the costs barrier. Some villages still rely on satellite and have speed limitations well below acceptable broadband speeds. Schools in the villages use a large portion of the available bandwidth, and business users and residential users pay extremely high rates for access and suffer from slower access speeds. Despite advertised speeds of the providers in Nome, average speed tests done by users online rarely match the advertised rates. In a village like Diomede it can take 2 hours to download a small PDF file from an email. Important documents are often sent on commuter airlines as a hand carry because of poor download speeds.

   Recommendation 3: Subsidize basic internet access for low-income households. Internet access should be available to all regardless of income. Rural Alaska is remote and depends on the outside world for access to vital information.

   Recommendation 4: Subsidize internet access for tribal service providers, city and tribal police or public safety officers, rural fire departments, and search and rescue. While schools and libraries get a subsidy, vital service providers such as law enforcement and public safety personnel do not. These entities and service providers pay full commercial rates for communication.

3. **Fixed Wireless Broadband Services**: Most communities have some access to wireless services, but suffer reduced speeds due to the satellite dependence. WISP antennas are old technology and still being used by GCI in the villages. Local Commercial Satellite providers like Hughes Net or Starband charge expensive set up fees and often have no local technician to install or trouble-shoot the systems. Latency and outages are a chronic issue.

   Recommendation 5: Make it easier for rural providers to access funding to update and improve internet communication infrastructure in underserved areas. If a funding formula is used, do not base the funding formulas on population size or our rural Alaskan communities may never have access to technology.

4. **Mobile Wireless:** Most villages have access to cell service and its usage due to availability and access is becoming more widespread. However usage is mostly for local

calls and texts, because using cells phones for extensive internet or long distance calls is costly and slow. Many village residents replace their landline phone with a cell phone. However, families need to monitor this activity or will be hit with large bills. Rural cell phones are usually only effective within 7-15 mile radius of a village or from high mountaintops. Even Nome-based cell phones do not always work when staff travels to the surrounding villages. There are dead zones where cell phones do not work, poor reception and dropped calls.

Recommendation 6: Make it easier for rural providers to access funding to update and improve cell phone communication infrastructure in underserved areas. Basing the funding formulas on population will result in our rural communities not having access to modern communication technology and decrease ability to aid in implementing the National Strategy for the Arctic Region.

5. **Public Safety Services:** Most village public safety workers have access to some of the following: SAT (satellite) or Ingenious phones (a voice over internet protocol VOIP phone) and use landline phones, email, faxes, cell phones, VHF radios, and Telemed (health care workers). Communication improvements in rural Alaska lag way behind in comparison to urban areas.

   Recommendation 7: Provide assistance to the entire nation to improve 911 services so that it is reliable and compatible with cell phones. In our region, only GCI cell phone subscribers have access to 911 which dials the Alaska State Troopers in Nome. If other cell phone subscribers call 911, there is no way to know if the call will be answered by the agency most able to respond. Very few local users are aware of the ten digit toll free number to get routed to the Alaska State Troopers in Nome. After hours the toll free number calls are forwarded to the Nome Police Department. Also there is no way to insure the cell phone calls are traceable, which is important in a crisis if the call is cut off.

6. **Emergency Communications and Search and Rescue:** Some of the public safety communication services above are used for health care workers, law enforcement, search and rescue, and to communicate with Alaska State Troopers. There are dropped calls, dead zones, and periodic outages. Not all methods are legal secure methods of communication for confidential data. Some village residents are licensed operators and have access to HAM radios as a backup. The Bering Strait region experiences severe fall and early winter storms that have the potential to knock-out communication systems. Having alternate forms of communication during emergency situations is vital.

   Recommendation 8: Continue to support rural medical personnel in the development of improvements to the Telemed access and data management systems, and assist healthcare workers, the Alaska State Troopers and the U.S. Coast Guard with providing secure ways to transfer confidential data from health and public safety personnel in rural communities. Fund or subsidize the infrastructure required to aid in emergency communication.

7. **Satellite Communications Services**: Satellite orbits have caused some issues for access in some communities or at certain times of the year. This issue is improving over time, and we are seeing fewer outages than in years past.

   Recommendation 9: Encourage the launching of more satellites to provide more coverage in arctic regions. This will improve television and radio access and support internet and mobile cell phone support until land based systems can be built in the rough terrain in rural Alaska.

8. **Broadcasting and Broadcasting Satellite Services**: Very few communities have access to TV or commercial or public radio stations.
   - Some village businesses operate cable TV companies, but subscribers are few due to costs and there is only access to a limited number of channels usually less than six.
   - Some local residents have access to Dish television networks, but this has an expensive set up cost and monthly fee.
   - Commercial radio stations are based in Nome, Kotzebue, or Fairbanks (via local repeater). One or two communities in the Bering Strait have local radio broadcast ability for public service type announcements. Radio reception is very poor in some villages. The two radio stations in Nome are owned and operated by religious entities and therefore subsidized by public donation to operate. They provide an important means of communication to the public when emergencies come up due to natural disasters or weather issues.
   - A few communities have access to ARCS, but accessing it is a challenge because the recent upgrade to digital systems means many impoverished families lost access using older analog televisions. To resume access users must order newer model televisions from stores in Nome or Anchorage or beyond and also obtain stronger rabbit ear antennas to access the ARCS signal.

9. **Submarine Cable Networks:** A combination of submarine, land based, and microwave links have recently been developed up the Alaska coast to Nome. Quintillian Networks is currently laying trans-Pacific fiber cable which will greatly improve access to hub communities like Nome. It is not certain if this will help access to rural communities.

   Recommendation 10: Continue to fund innovative projects that will bring backbone internet support to rural Alaska. This will assist in implementing the three lines of effort described in the National Strategy for the Arctic Region.

10. **Aeronautical and Maritime Communications**: Some communities have access to Automated Information Systems (AIS marine vessel tracking system) information, but not all vessels are required to use it. Also only a few communities have the capability of tracking AIS traffic.

Recommendation 11: Continue to support the improvement of aeronautical and maritime communication. Support strict international codes to insure better maritime vessel tracking and communication.

11. **Aeronautical and Maritime Radio navigation**: Large maritime vessels and commercial aircraft have access to systems for communication. Their biggest challenges are access to accurate weather forecasting and uncertain sea floor mapping. Small boats often do not have equipment or know the protocols for communication with larger sea vessels. The Bering and Anadyr Straits represent some of the biggest risk areas for vessel accident in the Arctic, due to it being narrow.

    Recommendation 12: Support efforts to regulate maritime traffic and funding to conduct bathometric surveys of the ocean floors in the Arctic. Help smaller commercial vessels and subsistence users obtain technology and learn the protocols to communicate with larger vessels in Arctic waters. Continue to support international search and rescue agreements and communication systems in the Arctic waters. Reliable communication is needed. Closest USCG base is 800 miles away. The USCG would be notified for vessels in distress and/or environmental disaster.

12. **Weather and Other Information Services**: Most local hunters and travelers access weather information on commercial radio or by calling the weather service.

    Recommendation 13: Support improvements to the weather data access and the communication systems that provide information in the Arctic. There is more vessel traffic in the ice free season, and increasing storm activity due to climate change. This means vessels and coastal communities are vulnerable and need swift accurate information.

13. **And 14. High Frequency Radio Communications (3–30 MHz) and Very High Frequency Radio Communications (30–300 MHz):** Travelers, hunters, and emergency personnel use VHF. They use it to convey weather or sea ice condition, to alert other hunting crews to come help in the harvest, to let people know they are safe in a storm, and to help SAR teams during search efforts. Other uses include taxicabs, and government services (including Police, Fire, EMT's FAA, etc). Range is quite good and in most cases repeaters are allowed.

    Ham radio use: Travelers, hunters, and emergency personnel use this. They use it to convey weather or sea ice condition, to alert other hunting crews to come help in the harvest, to let people know they are safe in a storm, and to help SAR teams during search efforts. Hunters, recreational travelers and local residents utilize HAM radios for social and recreational communications. There are 2 HAM clubs in Nome that raise funds and apply for grants to improve the repeater infrastructure in the region and test new users so they can obtain a Ham license. HAM operators volunteer to serve as checkpoint observers for various snowmachine or sleddog races. Nome has regular commercial providers for internet access, but a few HAM operators in Nome are able to use the internet services available on Ham systems. Internet speeds in the villages are marginal

for accessing these services via Ham systems. Speeds in Nome are improving and acceptable for this purpose, but could be better. Any limitations are usually caused by poor weather condition or dead zones not covered by repeaters.

15. **Unlicensed (License-Exempt) Systems**: Info from a local radio expert. "It seems that these questions refer to unlicensed services in the area villages, particularly for DATA. There is no difference here vs. what can be achieved in the lower 48. There are three spectrum areas: The 900 mHz, seldom used for DATA, but popular for cordless phones a few years ago. 2,500 mHz or 2.5 gHz which is the most common WiFi spectrum, and the 5.8 gHz which has many more channels, but is more expensive and the range not as great. However, that is relative because a bit of interference in the 2.5 makes it a poor performer compared to 5.8. However, 5.8 is hard to find; a few laptops have it. I have not seen smartphones with it."

    A few use C.B. and UHF radios for limited range communications. Local uses in Nome include communication between the courtesy van drivers for a regional conference in Nome. A few local residents know how to use WiFI systems to use a home computer as a base and laptops and smart phones as clients to access data. One local user says. "With attention to detail, an unlicensed router can serve a surprising distance OR area (not both). For instance, I have a high-speed internet connection from my house to town, 5 miles, and it accommodates anything GCI can throw at it."

16. **Existing and Potential Networks and Services Across Pan-Arctic Region:** Rural Alaska communities are seeing more vessel traffic in Arctic waters. Due to our close proximity to the International Date Line, we receive mysterious visitors, adventure tourists, and questionable maybe even criminal guests. Rural villages do not have local customs officers and may not have local police to address security issues with visitors.

    Recommendation 14: Provide communication systems to relay critical national security issues and problems from rural areas. Provide information and training on how to address unknown guests that arrive in rural communities.

17. **18. and 19. Fostering Deployment of Advanced Communication Networks and Adoption Barriers:** While the rest of the world is seeking advanced communication, rural Alaska is just now beginning to obtain the most basic communication systems in all areas (phone, radio, television, mobile access, and internet). Technology development is costly in Alaska due to the limited labor pool for technicians, limited number of commercial communication providers, vast distances between rural communities, limited rural infrastructure, lack of road systems, rough terrain, complex land ownership issues, high cost of energy, labor and freight, severe weather, and spare rural populations.

    Recommendation 15: Make it easier for providers in rural Alaska to access funding to upgrade communications systems. Ease processes and regulations to encourage more tribal organizations to become communication providers.

Conclusion: Funding for communications improvements always seems to be given where it will be the most cost effective and serve the most people. This means our tribal members in rural villages are left in worse than Third World living conditions lacking even the most basic of needs with little hope of improvement. Implementing communication improvements have great potential to improve the delivery of vital services, improve public safety and healthcare, help tribes become more self-sufficient, and allow rural residents to become part of the flow and access to information worldwide. Kawerak appreciates the opportunity to provide input that will help the federal government support telecommunication development that will allow access to all underserved regions in the United States. The Arctic region is critically situated as more development takes place in our region. Vessel traffic is increasing in Arctic waters and leaves small communities vulnerable. Improving communications systems will help rural Alaska be team players in the implementation of the National Strategy for the Arctic Region. This will allow the United States to be a strong Arctic nation, improve the quality of life for all Alaska residents, protect our nation from threats, help protect our environment, and increase economic opportunities for the future.