2012 Legislature TPS Report 58436v2

Agency: Commerce, Community and Economic Development

Grants to Municipalities (AS 37.05.315)

Grant Recipient: North Slope Borough **Federal Tax ID:** 9200042378

Project Title: **Project Type:** New Construction and Land Acquisition

North Slope Borough - Arctic National Broadband Network

State Funding Requested: $20,000,000 **House District:** 40 / T

One-Time Need

Brief Project Description:

This project will provide high speed access to the national broadband network that will enhance access for health, education, national security, Arctic research, and support to the oil industry for both onshore and offshore operations.

Funding Plan:

Total Project Cost:	$40,000,000
Funding Already Secured:	($0)
FY2013 State Funding Request:	($20,000,000)
Project Deficit:	$20,000,000

Funding Details:

Because of cost and distance, this system cannot be built without governmental assistance. To date, $300,000 has been spent by ASRC on permitting and engineering activities. In a past federal funding project application, ASRC committed $12 million (30% match) to move this project forward. If $20 million is received from the State, there will be a 50% match from ASRC and it's private sector partners.

Detailed Project Description and Justification:

The North Slope Borough is requesting $20 million for the Arctic National Broadband Network to provide a sub-award to the Arctic Slope Regional Corporation and competitively chosen telecommunications providers. This project will provide high-speed access to the National broadband network that will enhance the health, education, National security, Arctic research, and on and offshore oil support and spill response. The State of Alaska funds will be coupled with private capital from the Arctic Slope Regional Corporation and telecommunications providers to complete the up to $40 million project from Prudhoe Bay to two or more North Slope communities. When complete, Nuiqsut, Barrow, and likely Atqasuk, will all have high speed terrestrial broadband service.

The ultimate goal of this project would be to complete the terrestrial broadband connectivity journey west along the Chukchi Coast, through Wainwright, Pt. Lay, Pt. Hope, Kivalina. At that point the project could connect with the terrestrial build-out envisioned in the Kotzebue region; completing a ring of high-speed internet service to six regional health corporations, over 18 school districts, and numerous industrial projects, including on and offshore oil development, Red Dog Mine, and the Ambler Mining District.

The Arctic coast is and will continue to be an important nexus of industry, research and government agency activity. Barrow and Nuiqsut are now connected to the internet only via satellite earth stations. Only the North Slope, out of all of remote rural Alaska, is currently left out of a planned expansion of modern connectivity. Today's satellite service is unsatisfactory due to limited bandwidth and inherent transmission delay. Satellite is not adequate to foster economic growth, provide for

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$4,000,000 Approved

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modern health care through tele-medicine and tele-psychiatry, supply a platform necessary for education through video classes, or to provide vital support to the United States National interests, Arctic research, and new offshore development, as well as the National Petroleum Reserve -- Alaska. See attached letter re: options.

Project Timeline:

The NSB, with financial and technical support from ASRC, will begin permitting as soon as a grant agreement is signed. It is anticipated that permits for construction will be in hand by March 2013. After the funds are secured, the NSB will finalize an agreement with ASRC and private sector partners to provide a grant for construction of the project in the winters of 2013 and 2014. Construction should be finished by March 2014.

Entity Responsible for the Ongoing Operation and Maintenance of this Project:

telecommunications provider

Grant Recipient Contact Information:

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Has this project been through a public review process at the local level and is it a community priority? ☐ Yes ☒ No

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Arctic National Broadband Network

A broadband telecommunications project in the North Slope Borough

In partnership with the Arctic Slope Regional Corporation and Arctic Slope Native Association

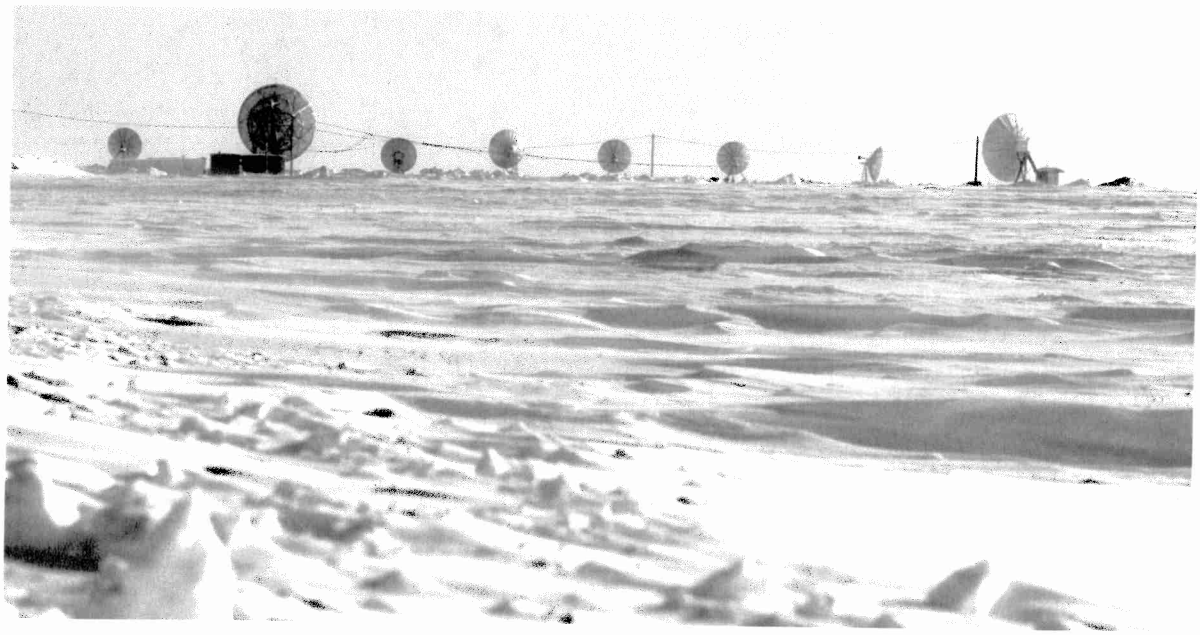
February, 2012

Telecommunications on the North Slope

Not many years ago, the North Slope was a national leader in rural telecommunications. In 1990 the North Slope Borough School District installed the first video conferencing network, linking schools in eight locations with a private video network with bandwidth reaching 448 kbps per site.

Since that time, data requirements for the Borough, School District, and Hospital have greatly increased. Other changes, such as increased traffic through the "Northwest Passage," and the establishment of a major arctic science laboratory point to increasing needs for broadband internet. Service to all of the North Slope Borough communities is via satellite. Satellite bandwidth is limited, and subject to application-affecting latency and periodic solar outages.

The Arctic National Broadband Network will replace satellite middle mile links to Barrow with broadband microwave and fiber.



Satellite earthstations at Barrow.

The Project: Arctic National Broadband Network

- The project being proposed is a high-speed microwave and fiber network connecting Nuiqsut and Barrow to the GCI fiber network at Prudhoe Bay.
- Total cost of the project is estimated at ~$39M

Construction Schedule

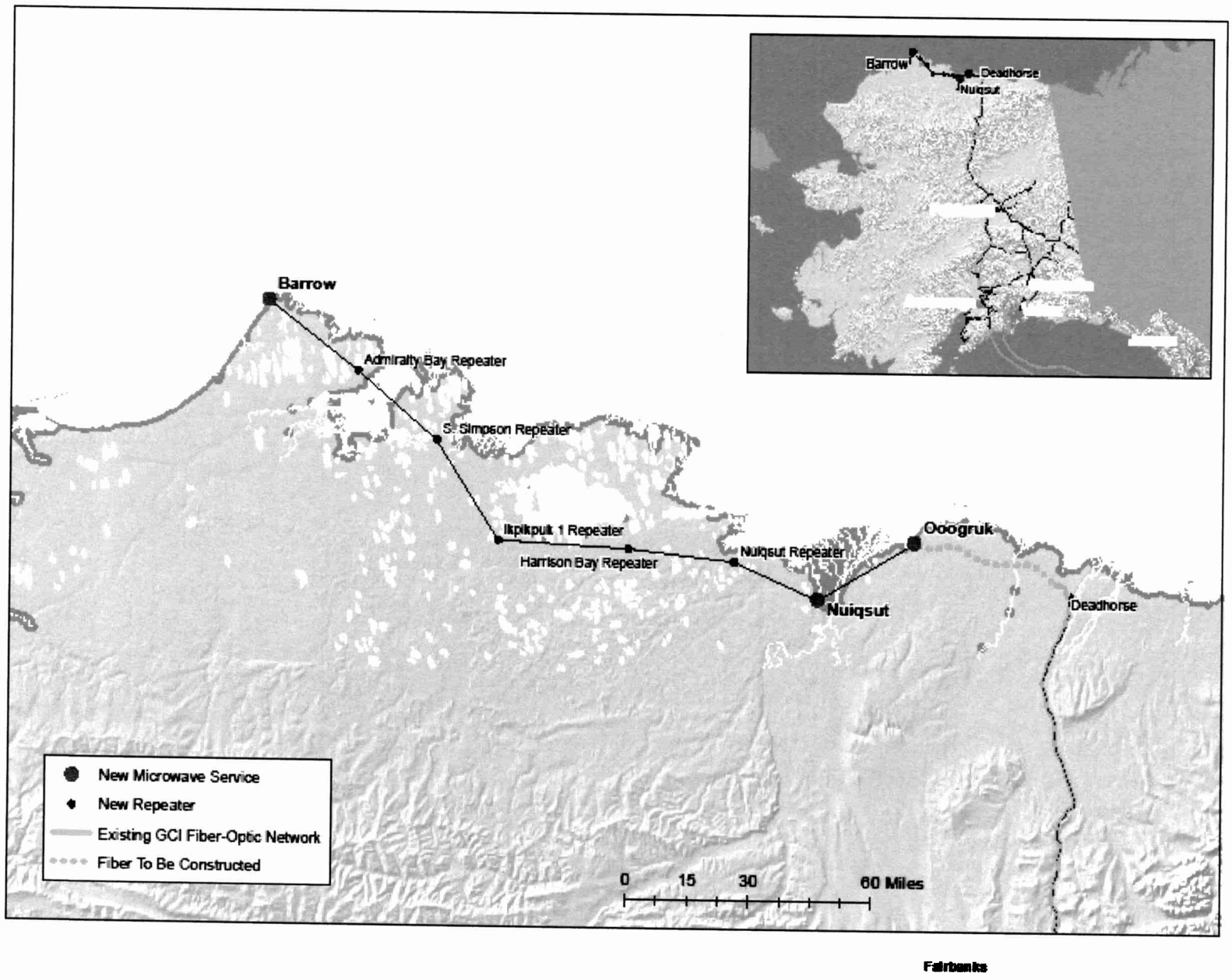
This project could be in operation within two years of funding. Year one would see the completion of design, permitting, and material acquisition. Construction would take place in year two, with a substantial amount of winter construction using Rolligon transporters and mobile camps.

Network Route

The microwave network will provide the needed 21st century telecommunications network needed. A map of the route is on the following page.

The microwave route will provide service to Nuiqsut and Barrow via a network of sites. Five sites are remote repeaters and three are microwave communication sites located in developed areas (Nuiqsut, Ooogruk and Barrow). This system is similar to the TERRA-SW system completed by GCI earlier this year, and the TERRA-NW currently under construction. These similar systems provide a good level of comfort in estimates to build the ANBN.

Also under study for cost competitiveness is a fiber-on-pole alternative, which would offer increased capacity and lower operating costs.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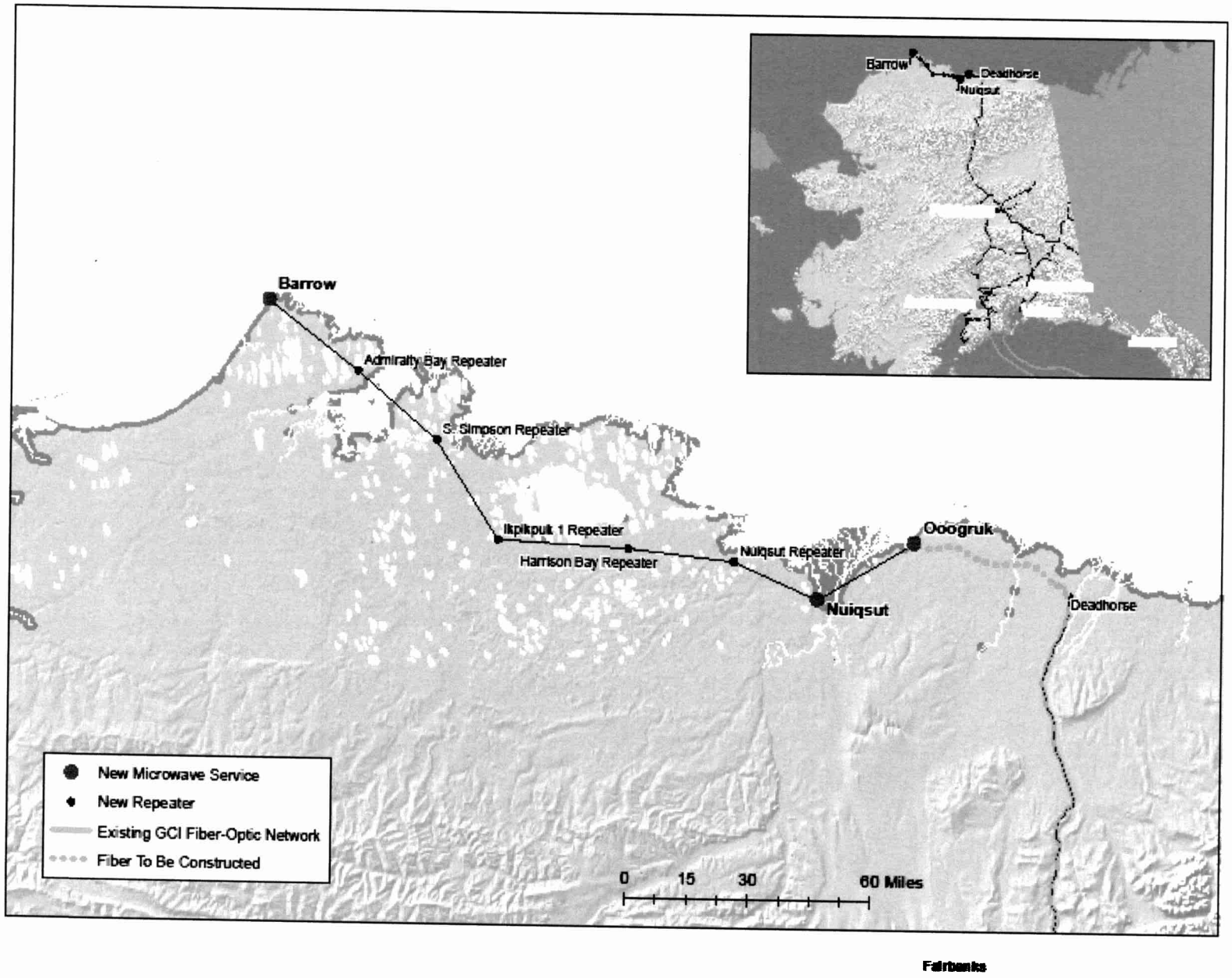
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Fairbanks

Permitting

Arctic National Broadband Network will require State of Alaska, federal and local government permits and other regulatory approvals. The primary regulatory approval for this project would come from the Bureau of Land Management (BLM). BLM is the landowner at all 5 remote repeater sites. BLM will require NEPA review prior to issuance of right of way (ROW) at these 5 sites. An Environmental Assessment (EA) is expected to be the appropriate NEPA review for these sites. The EA and issuance of a ROW permit for the BLM sites is expected to take 9 months - 1 year from start to completion. Overall cost of the EA and BLM permitting activity is estimated at $200,000.

The project will also need State Historical Preservation Office (SHPO) approval, possible Corp of Engineers Wetlands approval, and North Slope Borough Development Permit. All of these activities are secondary in time and cost compared to the BLM EA. These activities can be completed in less than 6 months (less time than the BLM EA). Wetlands delineation and SHPO approval do require summer field work that must be scheduled. Total cost for these activities is $150,000.

Project Benefits

- The project area is now served only by highly latent, satellite-based internet.
- On-shore and off-shore oil development in the region will benefit from improved communications infrastructure. Development of the National Petroleum Reserve—Alaska and the Chukchi and Beaufort off-shore areas will be enhanced through spill response, development, and production with ANBN.
- The opening of the Northwest Passage makes Barrow a focus for national security issues. Any military or civilian security facilities will benefit from terrestrial communication.
- The Barrow Environmental Observatory is a world-class science facility studying climate change and Arctic research will continue to expand on the North Slope with this project.
- NOAA is currently looking to place two 13 meter antennas in Barrow to serve the U.S, which would displace a system currently contracted in Norway.
- The establishment of terrestrial-based service will bring major improvements to health care, education, public safety and consumers. The remote locations of the regions' schools and medical facilities means that broadband will dramatically improve the availability of services while reducing costs. High Definition video teleconferencing is widely used for medical care, often for consultations between generalists and specialists. This link reduces stress on medical care providers who feel less isolated and anxious about providing specialty care.
- Education improves with more content delivery and receiving options. Students will be able to take live-streaming courses at the secondary or collegiate level in their home communities.

Jobs

- ~40 in-region construction jobs on the project
- ~60 jobs in manufacturing and transportation of materials for construction
- ~230 indirect jobs in region during construction
- ~120 indirect jobs within 20 years after project is complete

Project Economics

- Total capital cost of the project is estimated at ~$39M.
- Construction and operating costs for a telecommunications network in rural Alaska are high. The weather, terrain, and distances are challenging. Fuel must be flown periodically to remote prime-power sites, and maintenance and repair can be difficult in winter.
- A business case is impossible that would justify a private company pursuing this investment and have it returned within a commercially-reasonable payback period.
- This project will be built with proven technology and in a cost-efficient manner, with strong financial and technological partners.
- This project only becomes commercially feasible with the addition of external funds. Some potential sources could be:
    - A $20 million State grant to the North Slope Borough
    - Commitment of equity partners, including Arctic Slope Regional Corporation.
    - The commitment by project customers for large scale, long-term, purchases.

Levelock microwave tower

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