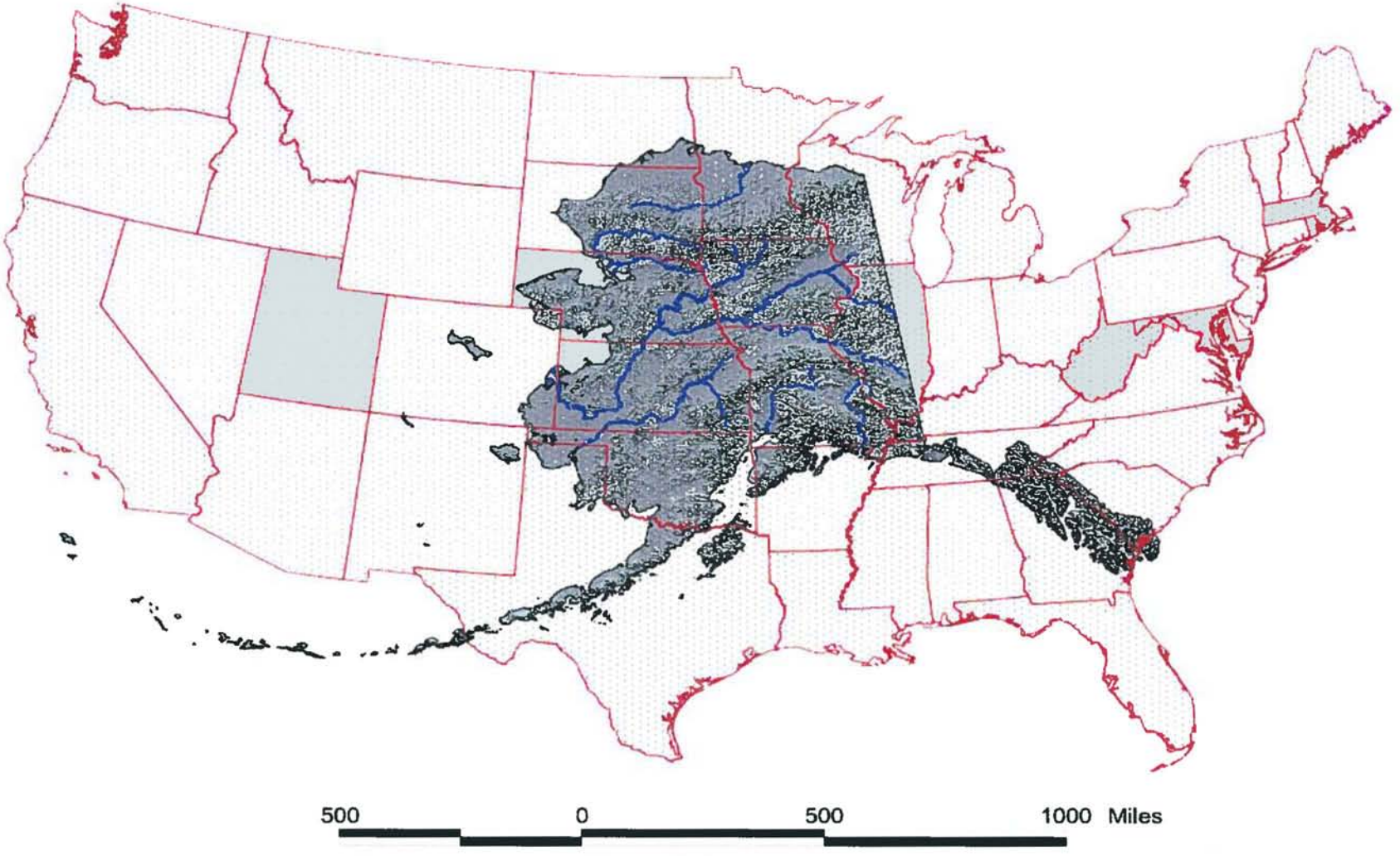
# Alaska is Unique

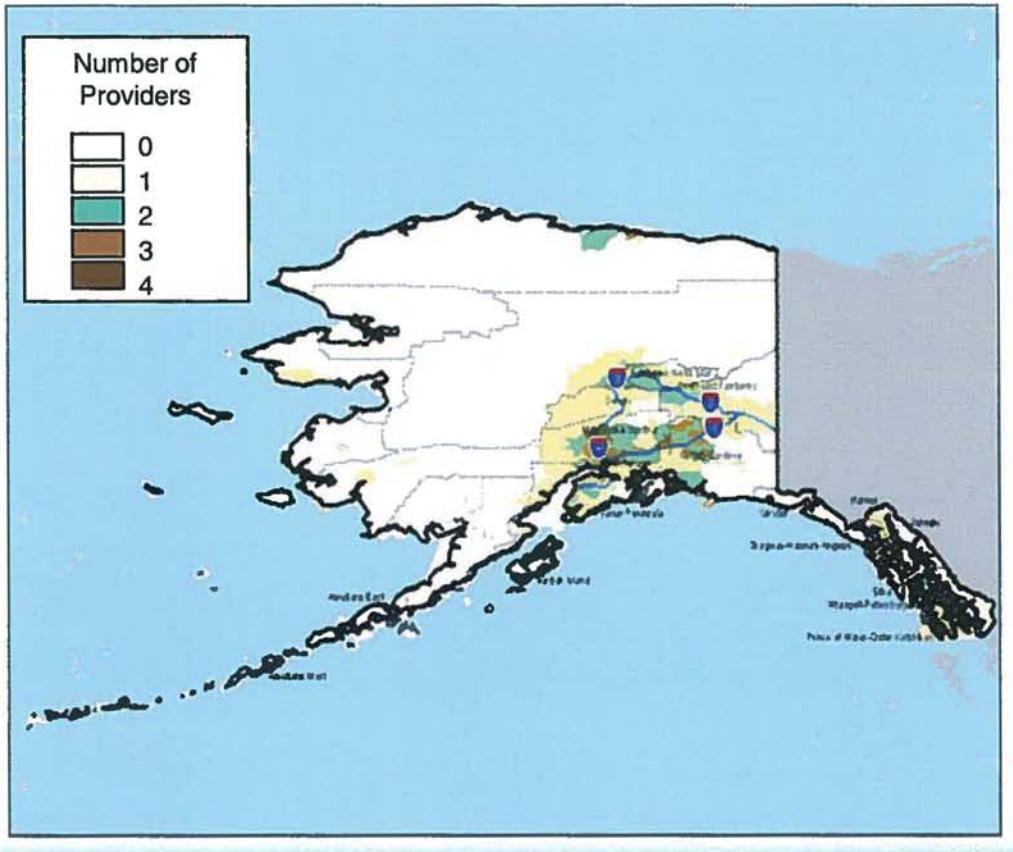
- Enormous
  - 586,412 Square Miles, roughly 1/5 the size of the lower 48
- Limited road system
- Sparse Population
  - 698,473 residents
  - Approximately 1.2 persons per square mile, compared to 103.8 persons per square mile in the lower 48
- Rough Terrain and Climate
  - Mountains, islands, rivers, and lack of roads
  - Short construction season (May to October)
- Rural areas rely on satellite middle mile

# Year-round Road System

## *Alaska Superimposed over the Continental United States*

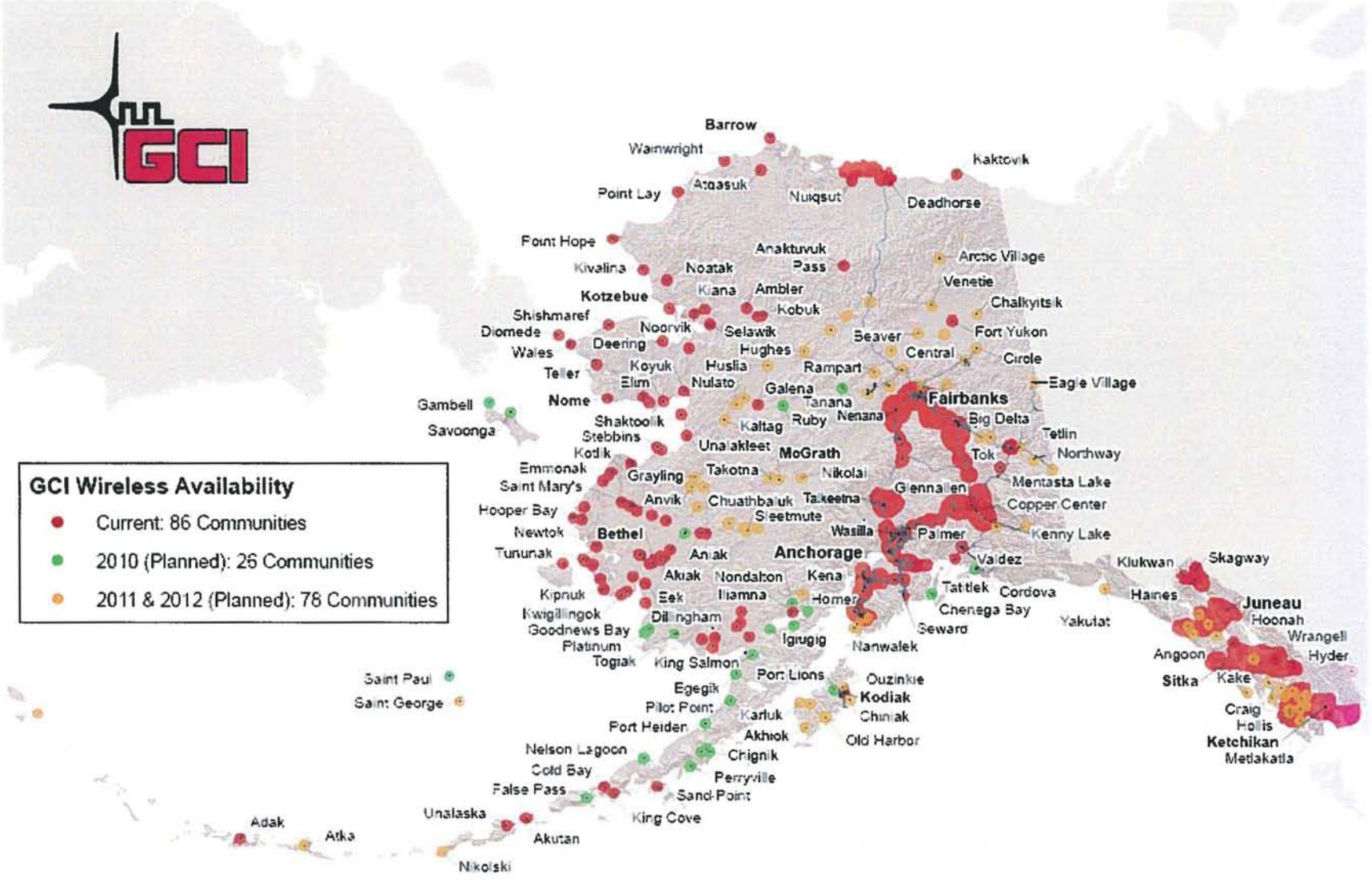


# Mobile Wireless Coverage by Number of Providers: 2009 CMRS Report




Source: *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to commercial Mobile Services*, Thirteenth Report, 24 FCC Rcd 6185, 6328 Map B-6 (2009).

# GCI: Deploying Wireless to Rural Alaska With USF Support (2007-2012)



# GCI, With USF Support, is Transforming Alaskan Communications

- GCI is the largest provider of telecommunication and information services in Alaska and is delivering wireless and data services and deploying infrastructure in rural areas that no other provider has done so.
- Only a statewide network can provide modern wireless networks for Alaska's rural areas and must be supported with revenues - including USF – sufficient to deploy and sustain both last and middle mile facilities.
- Through USF support, anchor tenants not only bring services to rural areas, but justify infrastructure deployment that benefits rural residents.
- Tribal Lands CETC support should track existing ILEC support. Consistent with treatment of Tribal Lands under the CETC interim cap, the FCC should not phase-down or eliminate USF support to Tribal Lands CETCs like GCI, which are still at the forefront of bringing comparable voice services to Tribal Lands.

# GCI Infrastructure Investment

- In the past four years, GCI has invested more than $700 million in infrastructure expansion and improvement.
- In the past three years, GCI has spent more than $100 million to deploy wireless infrastructure.
- Much of that went to provide the first modern digital wireless service in rural areas.

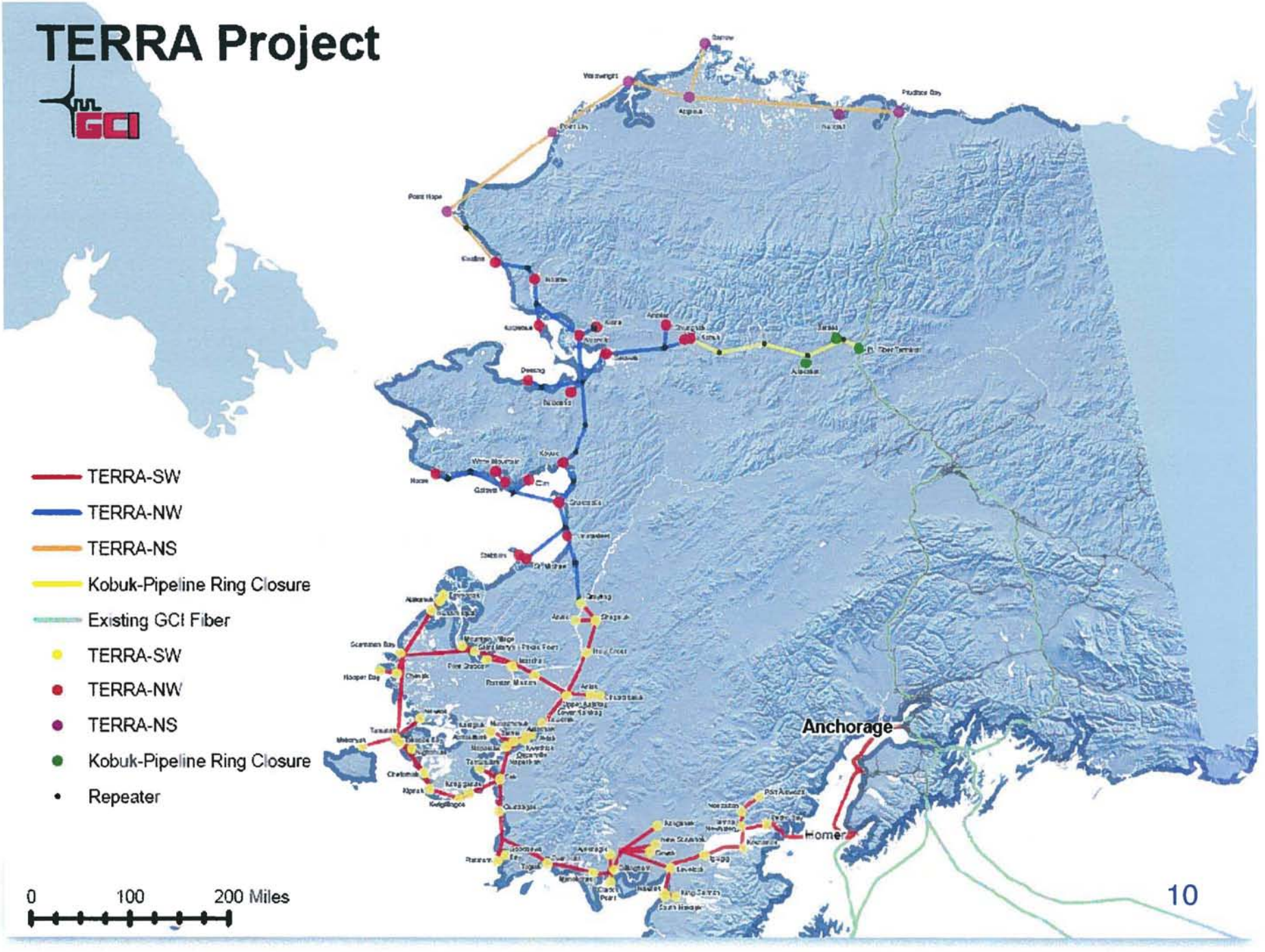
# Continuing Challenges to Expansion

- Recurring costs would exceed expected revenues in many areas without universal service support.
- Still in the midst of tackling 2G challenges in many areas of Alaska
- The lack of terrestrial middle-mile infrastructure
- Challenges in adopting 3G solutions
  - Technology choices made more difficult with the dearth of handset choices for smaller carriers
  - Ensuring roaming ability in rural Alaska, regardless of wireless technology

# The Middle Mile

- The primary broadband challenge is to bring terrestrial middle-mile facilities to rural Alaska given the state's unique challenges.
- Most rural communities in Alaska rely on satellite middle-mile facilities to connect to fiber in Anchorage and the Tier 1 Internet backbone POP in Seattle.
- Satellite service is expensive, has limited throughput capacity and inherent latency and, thus, is not ideal for widespread, intensely used broadband services for the mass market.
- Satellite links cannot deliver economically feasible, urban-quality residential broadband Internet service.
- Simply cannot meet the 4 mbps downstream and 1 mbps upstream National Broadband Plan target for a majority of Alaska's rural regional centers and villages.

# TERRA Project



# Rural Health Care in Alaska

- Alaska is 48th in the nation in "doctors to residents" ratio.
- 49% of all physicians in Alaska are primary care physicians, compared to a U.S. average of 28%.
- For rural Alaska, the situation is even bleaker, as 65% of all Alaskan doctors are located in Anchorage.
- Timely medical care is often an expensive, if not unattainable, airplane flight away.
- It is estimated that at least 59 percent of the state's residents are underserved.

# Anaktuvuk Pass Health Clinic

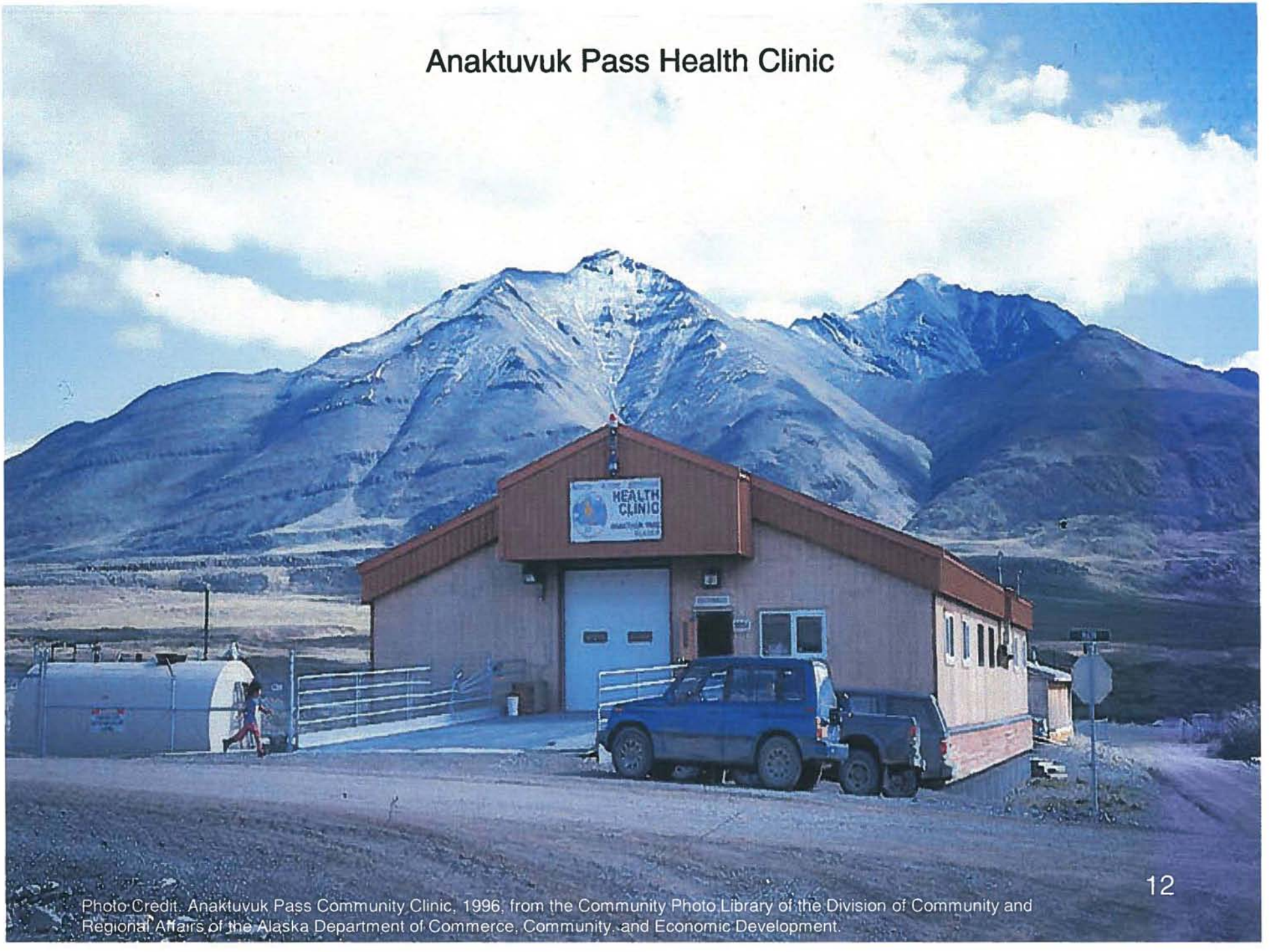



Photo Credit: Anaktuvuk Pass Community Clinic, 1996, from the Community Photo Library of the Division of Community and Regional Affairs of the Alaska Department of Commerce, Community, and Economic Development.

# Rural Health Care Success Stories

The Bristol Bay Area Health Corporation

- One of its physicians in Dillingham was able to demonstrate to a health aide how to relocate a toddler's dislocated elbow via videoconferencing – a procedure the aide had never done or been taught. The health aide was able to successfully relocate the elbow without having to call for an air ambulance to transport the toddler to Dillingham, which in this case would have been impossible in the near term due to prohibitive weather conditions.

# Rural Health Care Successes Stories

- The Yukon-Kuskokwim Health Corporation ("YKHC") manages a comprehensive health care system on behalf of 58 federally recognized tribes for 50 rural communities in southwest Alaska.
  - The system includes community clinics, subregional clinics, a regional hospital, dental, optical, mental health, and environmental health services, substance abuse counseling and treatment, and health promotion and disease prevention programs.
  - Advanced high-definition video services for telepsychiatry and ophthalmology
  - Remote radiology services
  - Broadband video teleconferencing network allows medical consults with specialists, family "visits" from the village to in-patients, and professional development for staff
  - Dramatically reduced travel costs for YKHC, and freed scarce budget dollars for other uses.

# Rural Health Care Success Stories

## The Maniilaq Association

- Technicians had to boat to the village of Noorvik in poor weather conditions to install video equipment. The technicians arrived to find a pregnant patient in labor, and were able to set up the equipment quickly enough to deliver the Association's first "telebaby" via videoconferencing.

# Rural Health Care
# Cost Savings

- AFHCAN estimated that annual travel savings generated by the use of its telehealth services equaled $3.3 million for 3,666 patients (based on 2009 data), with total travel savings amounting to approximately $20 million for 21,740 encounters with patients since 2001.
- YKHC found that the introduction of video technology has led to a direct savings of about $250,000 per year in travel alone across the organization, as well as a significant increase in productivity of its staff due to the decreased need for travel.

# The Mobility Fund

- One-time infrastructure grants without support for the often high operating and maintenance costs may be insufficient to produce sustainable mobile networks in many rural areas.
- Attempts to get the most "bang for the buck" may fund deployment that would have occurred even without support, while diverting available support to the most difficult to serve areas.
- Potential for anti-competitive behavior
  - Low-ball bids
  - Shutting out competition