# BIA Communications Infrastructure Committee
# 2019 Roadmap

According to the FCC's 2018 Broadband Deployment Report, 30.7% of Americans in rural areas and 35.4% of Americans in tribal lands lack access to fixed terrestrial 25 Mbps/3 Mbps broadband, as compared to 2.1% of Americans in urban areas. The comparatively lower population density of rural areas is likely a major reason why broadband is less deployed than in more highly populated suburban and urban areas. Particularly for wireline broadband technologies—such as cable modem and fiber—the greater the geographical distances among customers, the larger the cost to serve those customers

High-speed Broadband service is critical to Beaver Island's future. Improving the access and adoption of broadband increases economic activity, advances access to healthcare, provides far-reaching educational opportunities, and allows for the more efficient delivery of commercial and residential services.

The goal is to deliver robust, affordable broadband connectivity for Beaver Island's residents, businesses and anchor institutions. This is an ambitious but necessary endeavor that may take years to implement and will require the participation and financial commitment of a diverse array of island stakeholders and public institutions.

Due to the nature of island economics, the build out of broadband service on Beaver Island will be more challenging than extending broadband services to mainland rural America.

To be competitive with the mainland for tourist business, Beaver Island needs to build out fiber networks delivering symmetrical gigabit speeds to all residents, businesses, Anchor Community Institutions, and government agencies.

## Goal-Gigabit Broadband Fiber-to-the-Home (FTTH)

BIA Communications Infrastructure Committee (BCIC) has been exploring the feasibility of a near-term and long-term broadband strategy to bring Gigabit FTTH service to the island

### Near-term

Work to deliver 100 Mbps to St James Township and 25/10 Mbps to the island

- Use BI Public-School Funds acquisition of antennas to support 100 Mbps transmission to St James
- Extend Northern Michigan microwave spectrum connecting their campuses and the public schools on the UP to Beaver Island
    a. We are working with the United States Department of Agriculture Department Rural Utilities Service to secure a loan to build a tower at Front Lake to access NMU's EAN
    b. Northern Michigan University proposed access to the NMU LTE Educational Access Network (EAN), https://www.nmu.edu/lte with 25Mbps/10Mbps service to all the residents Beaver Island.
    c. Utilize the new Font Lake Tower for transport of the Great Lake Energy 25/3 Mbps service

### Long Term

Deliver Gigabit service to Beaver Island

- Fiber to the Home (FTTH)
- Fiber backhaul to the mainland to eliminate microwave single-point of failure.

## How Do We Get There?

Typically, municipalities have two options when it comes to building their own broadband network.

- **Go it alone:** Essentially, the municipality becomes the owner of the network and general contractor for the design and construction of the network.
- **Enter a Private-Public Partnership:** The municipality works with an ISP to build, and maintain their network.

### Go It Alone

Going it alone can be a real challenge for most municipalities. In addition to the hard costs in the budget, you need to add the cost of an engineering firm for design, and a company to build the infrastructure. Once it is built, you will have to pay the price of maintaining and the network, including upkeep, customer services, marketing and more. Unless your municipality already runs its own utility company, building, operating, and administering a broadband network is a tall order.

That said, there have been municipalities in Michigan that have successfully built out their own broadband networks.

- Only one other municipality in Michigan offers citywide fiber and that's Sebewaing, a town of about 1,000 residents according to a national Community Network Map by the Community Broadband Networks Initiative.

### Public/Private Partnerships

Public-Private Partnerships are beneficial because Internet Service Providers (ISP) already have the resources and expertise to build and run the network. A local-provider has the potential to save a township money because they may already own resources, such as utility poles or central office space, in your area. A Public/Private Partnership can help realize your community's broadband vision.

A Private/Public Partnership is a better alternative. Great Lake Energy (GLE), as a Rural Electric Cooperative, is the prime candidate for a public/private partner for Beaver Island.

The recent FCC's Connect America Fund Phase II Auction (CAF II) illustrates the advantages with partnering with a rural electric co-op.

Go to **FCC Connect America Fund Phase II (CAF II)** In the **Funding** section of this document for a description of the Rural Electric Cooperative Consortium $186M award to build fiber-to-the-home networks delivering gigabit speeds across rural America

GLE's Microwave Service offering 4 Gigabit Backhaul with 50/10 Mbps service to the home is a quantum leap over the current TDS DLS service. It's an excellent interim solution, but not enough to make Beaver Island competitive with the for the tourist dollar and the demands of the seasonal residents if there is Gigabit FTTH service on the mainland.

See **Addendum A** for **Minutes Great Lakes Meeting**

The BIA Communications Infrastructure Committee is exploring funding options for both a partnership or build your own options.

- USDA Rural Utility Service (RUS)
  - Secure USDA RUS $120,000 loan to install a tower on Font Lake to launch Northern Michigan University LTE Educational Access Network (EAN) to deliver 25/10 Mbps service to the home on Beaver Island
  - Explore FY 2019 USDA RUS Grant eligibility status.
- FCC Connect America Fund Phase II (CAF II)
  - The CAF II auction awarded $1.49 billion in Universal Service/ Connect America funding to 103 entities in 45 states to building out broadband to unserved or underserved areas over 10 years
  - Great Lakes Energy Cooperative is listed as a CAF II funding recipient. The CAF II funding for Charlevoix County was Rural Electric Cooperative for $464,731.

Assemble a Task force comprised of the BIA Communications Infrastructure Committee, Beaver Island Telecommunication Advisory Committee (BITAC), BI Chamber of Commerce, and Anchor Community Institutions (ACI), residents, businesses, schools, libraries, and public safety agencies. These planning activities should help establish a broadband planning team, assess the local access and adoption of broadband, and create and implement a plan of action for addressing local challenges and leveraging opportunities.

The first step in any successful, long-term project is to clearly articulate the project's concept. Community facility projects require input from a variety of stakeholders, accurate budgets, and effective communication with the public. It's important to engage with the impacted community during the concept development stage.

Form a group with expertise to focus on education and messaging. Education is an internal track to educate the community that broadband is essential to insure the continued viability of the Beaver Island. Messaging is an external track that high-speed internet access is a critical enabler to leverage the beauty of island life for a minority of professionals to relocate to locales traditionally viewed as vacation destinations.

## Path Forward

Improving Beaver Island's access to and adoption of broadband and technology is complex and ever-changing due to the nature of the telecommunications industry and rapid advances in technology. The goals may take years to implement and will require the participation of a diverse array of stakeholders at all levels of government. No one person, group, or entity can do this alone.

2019 just arrived and there are major changes in the state and federal funding programs. One positive, one negative.

The positive is launching of the USDA ReConnect Program which dovetails Beaver Island's broadband strategy.

The negative was the 2018 Michigan Legislative lame-duck session changed the trajectory of the Michigan Consortium of Advanced Networks (MCAN) program from the creation of public/private

partnerships to expand broadband in rural areas; to focusing on the funding for the service providers broadband buildout. Also, it appears the Connecting Michigan Communities (CMIC) $20M Grant funding is delayed to the ends of calendar 2019. It is necessary to track the MCAN 2019 roll out.

See **Addendum B** for **Michigan Consortium of Advanced Networks (MCAN)**

## Funding Options

Over the past five years, the FCC and the U.S. Department of Agriculture provided more than $22 billion in subsidies and grants to telecommunications carriers to sustain, extend and improve broadband in rural America. Despite these efforts, the country's adoption of broadband hasn't budged much since 2013. This inability to build out the last mile of the 21st century's digital infrastructure has exacerbated the country's growing prosperity and opportunity divides — divisions that often fall along urban and rural lines.

Without a proper broadband connection communities can't start or run a modern business, access telemedicine, take an online class, digitally transform their farm or research a school project online. You see this dilemma play out in the U.S. Bureau of Labor Statistics employment data, which shows the highest unemployment rates are frequently located in the counties with the lowest availability of broadband.

Navigating the byzantine state and federal grant/loan programs are not for the faint at heart. Access to tax dollars, changing political climate and competing stake holders make it difficult for communities to peel the onion to secure funding. It's a long and painful slog. Attention to detail, persistence and good luck are the main attributes to obtaining funding to deliver Gigabit broadband to Beaver Island.

Michigan ranks 29th in Broadband Now's list of most connected states. The state has 25 internet providers, but 1.1 million people in the state do not have access to a connection capable of 25 megabits per second for downloading, 1 million people only have access to one provider and 382,000 don't have any access.

The USDA ReConnect Program appears to a viable funding source to address Beaver Island unique broadband requirements.

## Federal Government

See **Addendum C** for **Federal Funding Programs for Rural Broadband**

**USDA ReConnect Program**

**What does this program do?**

The ReConnect Program is an innovative new pilot program that offers unique federal financing and funding options in the form of loans, grants, and loan/grant combinations to facilitate broadband deployment in areas of rural America that don't currently have sufficient access to broadband. This pilot program will generate private sector investment to deploy broadband infrastructure to provide high-speed internet e-Connectivity to as many rural premises as possible, including homes, community facilities for healthcare and public safety, schools, libraries, farms, ranches, factories, and other production sites.

**Who may apply for this program?**
Eligible applicants must be able to supply retail broadband to customers. Applicant types include:

- Cooperatives, non-profits, or mutual associations
- For-profit corporations or limited liability companies
- States, local governments, or any agency, subdivision, instrumentality, or political subdivision thereof

**What is an eligible area?**
For a geographic area to be eligible to receive federal funds from this pilot program, it must meet two criteria:

(1) it must be rural and (2) most households must currently have insufficient internet service.

WHAT IS CONSIDERED "RURAL"?

- Service areas shall not be located in a city, town or incorporate area that has a population greater than 20,000 or an urbanized area adjacent to a city or town with a population greater than 50,000 people
- Eligible areas must be completely contained within a rural area or composed of multiple rural areas. Visit the mapping tool at reconnect.usda.gov for additional eligibility information.

WHAT IS "CURRENTLY INSUFFICIENT SERVICE"?

- At least 90 percent of households in the proposed area must not have sufficient access to broadband service
- For this program, sufficient access is defined as fixed terrestrial broadband service at 10 Mbps (megabits per second) downstream and 1 Mbps upstream
- No part of the proposed area may overlap with the service area of a company that has received a broadband loan from the Rural Utilities Service (RUS) as defined in this Funding Opportunity Announcement

**How may funds be used?**
This program provides funding for:

- The construction, improvement, and acquisition of facilities required to provide service at a minimum of 25 Mbps downstream and 3 Mbps upstream
- An acquisition of an existing system not currently providing sufficient access to broadband, under certain circumstances and with restrictions
- Some pre-application expenses may also be eligible for reimbursement

**How do we apply?**
The online application portal is not yet open, but basic information may be viewed at reconnect.usda.gov. Detailed application guidelines are available at this site, and USDA will publish a notice in late February with more information about the online application portal's opening date.

**What kind of funding is available?**
The type and amount of award will depend on the type of financing or funding that best fits the applicant's business model, service area, and financial plan. An applicant may submit only one application, for one of the following three options

| Funding Type | Available Funds | Maximum Grant | Eligible Service Area | Match Requirement | Due Date |
|---|---|---|---|---|---|
| 100% Grant | $200 million | $25 million | 100% of households without 10/1Mbps | 25% | April 29,2019 |
| 50% Loan/ 50% Grant | $200 million | $25 million for loan/ $25 million for grant | 90% of households without 10/1Mbps | N/A | May 29,2019 |
| 100% Loan | $200 million | $50 million | 90% of households without 10/1Mbps | N/A | June 29,2019 |

**Scoring Criteria**

For the 100% grant and the 50% loan/50% grant categories of funding, nine areas will be scored for a maximum of 150 points. The nine categories and their weights are:

1. Rurality of Proposed Funded Service Area (25 points)

For population densities of six or less, 25 points will be awarded. For population densities greater than six, zero points will be awarded. The density calculation is as follows: Total Population of Proposed Funded Service Area / Total Square Miles of Proposed Funded Service Area.

2. Farms Served (20 points)

Applicants will receive 1 point for each farm that pre-subscribes for broadband service, up to a maximum of 20 points.

3. Performance of the Offered Service (20 points)

For projects that are proposing to build a network capable of providing 100 megabits per second (Mbps) symmetrical service (same speeds download and upload) to all premises, 20 points will be awarded.

4. Businesses (15 points)

Applicants will receive 1 point for each business that pre-subscribes for broadband service, up to a maximum of 15 points.

5. Healthcare Centers (15 points)

For every healthcare center served, 1 point will be awarded, up to a maximum of 15 points.

6. Educational Facilities (15 points)

For every educational facility served, 1 point will be awarded, up to a maximum of 15 points.

7. Critical Community Facilities (15 points)

For every critical community facility served, 1 point will be awarded, up to a maximum of 15 points.

8. Tribal Lands (5 points)

For applications where, at a minimum, 50 percent of the geographical area of the proposed funded service area(s) is to provide service on tribal lands, 5 points shall be awarded.

9. State Broadband Activity (20 points)

For projects that are in a state that has a broadband plan that has been updated within the previous five years, 10 points will be awarded. An additional 5 points will be awarded for projects located in states that allow any utilities service provider to deliver broadband service. An additional 5 points will be awarded for projects located in states that commit to expediting right-of-way environmental permitting.

**Mapping Tool**
The USDA provides an interactive mapping tool on their website that provides the following information:

- CAF II Winners
- Non-Rural Areas
- Pending Applications – This mapping layer will list service areas that are included as part of a Farm Bill Broadband or Infrastructure loan applications.
- Protected Broadband Borrower Service Areas – This layer includes providers that serve areas supported by a previous RUS programs. These borrowers are the only entities eligible to apply for ReConnect funds to serve those areas with upgraded service, but only if current service speeds are less than 10/1 Mbps at households in the area.

The USDA stated that when receiving applications for this pilot program, they "will use the best available tools and information" to gauge whether the proposed area already has 10/1 Mbps service. The standard process USDA currently engages includes consulting various sources of information about broadband service in the area, including data from the Federal Communications Commission (FCC), the National Telecommunications and Information Administration (NTIA), state governments, and others. USDA also will plan to notify service providers that are in the area regarding the application for funds, so they may challenge the coverage and conduct testing to determine the availability of service by sending USDA representatives to the proposed service area.

In addition to the ReConnect Program, the Farm Bill (H.R. 2) was signed in to law and adds $350 million in broadband-related funding over five years. The Farm Bill 2019 sets forth plans for the expansion of high-speed internet access to rural, unserved areas through three broadband funding mechanisms: Middle Mile Infrastructure Grants, Loans, and Loan Guarantees; Innovative Broadband Advancement Grants and Loans; and the Community Connect Grant Program.

Collectively, the Farm Bill and the USDA's ReConnect Program offer nearly $1 billion in new federal funding for enhanced broadband, which can significantly impact the prevalence of reliable, high-speed internet for rural America.

USDA ReConnect Program promotes:

- Funding of anchor institutions - educational and healthcare facilities
- Inclusion of local government and non-profit organizations
- Transition from working with Telco's to Rural Electric Cooperatives as the key stake holders to help the USDA connect rural America

The USDA ReConnect rural broadband pilot program will use a scoring system that awards points based on a range of factors, including the number of educational and healthcare facilities that would receive service – and for serving parts of states that have their own broadband funding programs. The latter criteria were included with the goal of leveraging funding from outside sources to maximize the use of very limited resources.

The USDA ReConnect rural broadband pilot will be open to a wide range of entities, including state and local governments and non-profit organizations, as well as for-profit corporations, limited liability companies, cooperatives and Indian tribes.

The USDA has a long history of working with rural Telco's. With the Reconnect Program the USDA has the opportunity to work with Rural Electric Cooperatives (REC). The USDA believes rural electric cooperatives are a key stakeholder–they successfully deployed electric infrastructure and are an entity that can help the USDA connect rural America via an opportunity to engage in ways they haven't had in the past.

The USDA's is asking for "skin in the game" from state and local communities for rural broadband to succeed validates forming a public/private partnership with Great Lakes Energy to secure USDA grants/loans.

The USDA grants/loans programs stipulates each applicant must have the legal authority necessary to own, construct, operate, and maintain the proposed facility. This responsibility shall be the applicant's even though the facility may be operated, maintained, or managed by a third party under contract or management agreement.

Great Lakes Energy would be the third party to own, construct, operate, and maintain the proposed facility.

One of the challenges in the Reconnect Program is eligibility requirements for a 100% loan or 50% loan/ 50% grant and for 100% grant that no more than 10% of locations have broadband at speeds of 10/1 Mbps.

Documenting that more than 10% of locations on Beaver Island have broadband speeds of 10/1 Mbps will be a difficult hurdle to attain ReConnect loan/grants.

The BITAC needs to get a definitive TDS report of the current DSL download/upload service levels to comply with their commitment to provide 20 Mbps upstream and downstream combined to the island.

| **Users** | **5/1 Mbps%** | **10/1 Mbps%** | **25/3Mbps%** | **100/10Mbps%** |
|---|---|---|---|---|
| Households | | | | |
| Businesses | | | | |
| Anchor institutions | | | | |

In 2009 Island Telephone Company Island Telephone Company: Broadband Project to Serve Rural Unserved Establishments Last Mile $2,001,528 Grant Island Telephone Company (Island Tel), a subsidiary of TDS Telecom, will bring high-speed broadband service to unserved premises in Island Tel's rural franchise service territory. Island Tel is the State-certified incumbent ILEC in Michigan. The project is designed to serve one PFSA, which has two communities that have no access to broadband service. The network will make services available to 283 rural unserved premises (245 households, 35 businesses, and 3 anchor institutions). Island Tel has built a broadband network that is capable of serving the majority of these premises in several of the core communities, but the surrounding area, much of which is sparsely populated, lacks broadband access due to the high cost of building such a network. In addition, facilities based terrestrial broadband service is unavailable to the premises in the PFSAs. This project will provide access to high-speed broadband service (20 Mbps upstream and downstream combined). The network is also engineered so that it can be easily upgraded to meet future needs. The project will create or save 53 jobs.
USDA, Advancing Broadband, January 2011 page 38

Notice the USDA is not operating (USDA website is offline) during the Federal Government shutdown.

## FCC Connect America Fund Phase II (CAF II)

The Connect America Fund Phase II (Phase II) is part of the Commission's reform and modernization of its universal service support programs. In 2018, the Commission conducted an auction (Auction 903) to allocate Phase II support to certain eligible areas across the United States. Auction 903 ran from July 24, 2018 to August 21, 2018. 103 bidders won $1.49 billion over 10 years to provide fixed broadband and voice services to over 700,000 locations in 45 states.

The 2018 Phase II auction followed an earlier allocation of Phase II support to price cap carriers based on a cost model. In 2015, ten price cap carriers accepted an offer of Phase II support calculated by this model in exchange for deploying and maintaining voice and broadband service in the high-cost areas in their respective states. The areas for which price cap carriers did not accept model-based support, as well as other areas, were made available in the Phase II auction.

**Budget**

$198 million in annual support (a total of $1.98 billion for 10 years). The Commission adopted a $2.15 billion total budget for the Phase II auction.

**Support Term**

10 years of support; support disbursed in equal monthly installments. Disbursements to winning bidders begin after the winning bidder submits a long-form application and becomes authorized to receive support.

**Deployment**

Phase II support recipients must:

- Offer commercially at least one voice and one broadband service meeting the relevant service requirements to the required number of locations in the following timeframe:
- 40% of the required number of locations in a state by the end of third year of support
- An additional 20% in each subsequent year
- 100% by the end of the sixth year of support
- The exact deployment schedule is determined by the carriers themselves, not the FCC.
- File with USAC annual reports and build-out milestone certifications, as well as the data on locations where service is available. Failure to meet the terms and conditions of support can result in increased reporting obligations and possible withholding and/or recovery of support.
- Offer at least one broadband and voice service at rates that are reasonably comparable to the rates for similar service in urban areas. The FCC uses its annual Urban Rate Survey to determine the range of rates that are reasonably comparable.

**Technology-Neutral Service Tiers**

Bids were accepted for four service tiers, each with varying speed and usage allowances, and two latency tiers, one high latency and one low latency. Winning bidders must offer the service associated with their winning bid.

See **Addendum D** for **Impact of FCC CAF II on Rural Electric Cooperative Service Delivery**

USDA ReConnect Program and the FCC CAM II validates the BIA Communications Infrastructure Committee strategy to form a public/ private partnership with Great Lakes Energy. The ReConnect Program scoring system awards points based upon funding of educational and healthcare facilities, inclusion of local government and non-profit organizations and partnering with Rural Electric Cooperatives.

### Private Funding

**Great lakes Energy Economic Development Loan Program**,
https://www.gtlakes.com/economic-development/
The purpose of the Economic Development Loan Program is to provide low-interest and zero-interest loans to promote economic development through job creation in or near rural areas served by Great Lakes Energy

- GLE administers two separate loan programs:
    - Revolving Loan Fund (RLF), (https://www.gtlakes.com/loan-guidelines/
    - Zero Interest Loan Program, (https://www.gtlakes.com/loan-guidelines/
- Loans are available to qualified applicants through one or more of the programs up to a cumulative maximum of $2 million.
- GLE partners with the United States Department of Agriculture (USDA) on the zero-interest loan program, with a pre-application submitted to GLE by the loan applicant and a subsequent full application submitted to USDA upon approval by GLE's Board of Directors. If USDA approves the application, they loan funds to GLE, who in turn loans funds to the ultimate borrower.
- GLE depends on the expertise of an outside consultant to ensure that loan applications meet program guidelines and are professionally presented. Applicants are required to retain the professional economic development loan services of Northern Lakes Economic Alliance (NLEA) at their expense for loan application purposes. Contact NLEA at 231-582-6482.
- GLE has provided business loans since the mid-1990s totaling in excess of $3 million dollars that have brought hundreds of jobs and economic growth to rural Michigan

## Take Away

- Consequences of inaction
    - Fiber-fed homes will be more valuable
        - There will be more economic activity in those communities
            - Jobs will be more prevalent
            - Housing prices will be overall higher
    - Eventually the communities without Fiber-to-the-Home will start to wither
    - Communities will have to decide whether they'll invest their own money in something that's comparable to and competitive with their neighboring communities.
- The one percent of the hardest to serve areas
    - FCC will distribute two billion dollars over 10 years to areas of the country that are hard to serve, although not the most remote.
    - Explore the possibility that Beaver Island's distance from the mainland and the correspondent increase cost of broadband service delivery makes Beaver Island part of the one percent because the island is an extremely high cost area
        - Extremely high cost meaning if you calculated the cost of construction, operation, maintenance of the network, these are the areas the one percent most expensive to build, to operate, and maintain

        - The construction cost alone to delivery of FFTH and Fiber backhaul to the mainland validates that Beaver Island is an extremely high cost area and deserves to be part of the one per cent
- Position Beaver Island to be a recipient of governmental loans/grants in 2019
    - FCC CAM II $198m
    - MCAN $20M – apparently MCAN funding has been delayed until the end of 2019
    - USDA ReConnect Program
        - $25M Grant/$25M Loan
        - 90% of households without 10/1 Mbps

The BIA Communications Infrastructure Committee recommends the Beaver Island Telecommunications Advisory Committee allocate the personal and financial resources to investigate hiring a consultant to develop a Gigabit broadband strategy. Leverage the relationships with Connect Michigan and Northern Lakes Economic Alliance to facilitate forming a public/private partnership with Great Lakes Energy

- Secure USDA RUS loan for the Font Lake tower
    - Deliver 100 Mbps service to St James
    - Deliver NMU LTE Educational Access Network (EAN) to deliver 25/10 Mbps service to the home on Beaver Island
    - Deliver GLE 50/10 Mbps broadband service
    - Partner with GLE for FCC CAM II grants
- Secure USDA RUS FY 2019 ReConnect Program Grant/Loan to fund Gigabit service to Beaver Island
    - Fiber-to-the-Home (FTTH)
    - Fiber backhaul to the mainland to eliminate microwave single-point of failure.

# Addendum A

**Great Lakes Energy Meeting Minutes**

On October 29, 2018 the BIA Communication Infrastructure Committee and Island stakeholders met with Bill Scott, CEO and Scott Blecke, VP Engineering Great lakes Energy to discuss Great Lakes Energy plans for True Stream build out on Beaver Island.

- Bill Scott President & CEO
    - Board approved a pilot for Petoskey Service area (Beaver Island is part of Petoskey Service Area)
    - 1200 Mile Service Are for Fiber
    - 14,000 Mile footprint (26 Counties)
    - Lit first fiber Thursday
- Scott _ Growth of housing based on where broadband is.
    - Large enough and Nimble.
- The Project
    - Cap Auction - if one person has access it is served
        - Participated and got some grants
    - Some plans in place
    - Two Stage
        - Microwave 4 Gigabit Backhaul by Spring
        - Fiber to home left out
        - Demonstrate need to gain Subscribers
        - 30 Mbps to 50 Mbps download to Start
        - Wireless Wi-Fi covering entire network (Hotspot)
        - Technology used at Nasca ½ the backhaul 2% of users.
        - October to March 2019.
        - Started December 1, with Blank sheet
            - Staff experienced
            - Built 110 Mile this summer (drop enabled)
            - Self-supporting no splicing for home connections
            - Hope to fiber to home in 2 - 4 years.
            - Service to include VOIP
            - Island Wide
            - Circle back on Marketing

  Backhaul could be Prioritized - not decided yet.
  15,000 customers - need 40 % (6,000)

# Addendum B

**Michigan Consortium of Advanced Networks (MCAN)**

Universal access to broadband is a clear and urgent priority for every Michigan resident, business, region, and community. Michigan, and its communities and businesses, must ensure that secure, reliable, and affordable broadband services are available across the state

The Michigan Consortium of Advanced Networks (MCAN) was created to develop a broadband roadmap for the state, the purpose of which is to identify gaps in service coverage and capacity, current efforts underway to address connectivity issues, and key strategies and recommendations for the public and private sector to pursue over the coming years to achieve ubiquitous connectivity.

The Community Broadband Planning Team should develop a strategy that incorporate the needs of Community Anchor Institutions (CAIs), residents, businesses, schools, libraries, and public safety agencies to improve broadband access and adoption to leverage MCAN's resources and Connecting Michigan Communities (CMIC) $20M Grant.

Continue the BIA Communications Infrastructure Committee's working relationship with Connect Michigan to navigate the MCAN roadmap for CMIC grant funds to be used to expand broadband service to homes and businesses to unserved areas through community planning, adoption programming, and infrastructure investment

Utilize MCAN's resources to facilitate the creation of a successful public/private partnership to improve broadband implementation on Beaver Island.

MCAN recommendation creation of public/private partnerships expanding broadband into sparsely populated areas often produces low or zero return on investment for the private sector due to significantly higher deployment costs, lengthier middle-mile networks, or challenging terrain.

Partnerships can bridge this gap by bringing multiple assets together to successfully expand broadband access and adoption. A partnership between entities of all types, public, private, and non-profit, can address economic challenges by sharing capital costs and enhancing revenue potential.

MCAN makes the following recommendations public/private partnerships for broadband expansion

- Work to remove barriers to residential, business, and institutional broadband adoption in coordination with infrastructure investments
- Encourage connectivity for Community Anchor Institutions. CAIs include schools, libraries, hospitals and other medical providers, public safety entities, institutions of higher education, community/region support organizations, and local government.
- Promote coordination, cooperation, and communication between private and public infrastructure owners, communities, schools, libraries, project partners, and local, regional, state, tribal, and federal governments, among others.
- Utilize existing and emerging funding sources and investments more effectively by targeting investments where needed most and leveraging a variety of public and private financing resources

Work with Connect Michigan to get insights in the MCAN Community Broadband Playbook to provide a template to proactively create a Beaver Island broadband proposal that achieves CMIC priority status to get first in line to insure grant award.

Develop a frame work for a BI MCAN Broadband Proposal that demonstrates a commitment to collaboration through partnerships with local and regional municipalities, broadband providers, community anchor institutions, non-profit organizations before release of the Community Broadband Playbook to achieve priority grant status

CMIC grant funds will be used to expand broadband service to homes and businesses to unserved areas through community planning, adoption programming, and infrastructure investment. Eligible entities will be limited to public and not-for-profit local and county governments and regional agencies, and private businesses that have established partnerships with one or more public or non-profit organizations in the grant impacted community.

Priority will be given to grant applicants who demonstrate that improving broadband service and adoption for homes and businesses is part of a comprehensive economic development strategy. This will be accomplished by:

- Applicants proving that the goal of improving broadband access has been incorporated into a long-term local or regional economic development plan, technology action plan, or similar
- Analyses of the potential economic benefit of connecting businesses and/or households in the region
- The existence of efforts already underway in the community to measure broadband access and/or determine ways to improve broadband adoption in the area
- Support from local businesses demonstrating that they have a strategy for how they would use and benefit from faster broadband service
- Private, federal, local, or philanthropic matching funds invested in the project to increase the impact of state investment
- Other rationale for improving broadband access that would be both demonstrable and measurable

# Addendum C

**Five Buckets of Federal Funding for Rural Broadband**

1. **CAF II Auctio**n

   *Amount:* up to $198 million per year over a 10-year period.
   *Geographic Area:* High cost census blocks unserved by 10/1 Mbps in price cap carrier (e.g., AT&T) study areas where either the price cap carrier turned down a statewide offer of funding, or a census block was part of the 1% of the country deemed too costly to fund through the offer to price cap carriers, or where a bidder in the rural broadband experiment auction provided the FCC with additional information demonstrating an interest in participating in the CAF II auction.
   *Process:* The FCC will conduct a national, multiple round, descending clock auction in two stages in which competing bidders commit to make available to locations in census block groups voice and internet service at a level ranging from 10/1 Mbps to Gigabit service.
   *Amount:* $600 million in loans and grants administered by RUS.
   *Geographic Area:* Areas where at least 90% of the households do not have access to 10/1 Mbps
   *Process:* TBD

2. **Remote Areas Fund (RAF)**

   Amount: TBD
   Geographic Areas: Census blocks unserved by 10/1 Mbps that do not receive a winning bid in the CAF II auction.
   Process: The FCC first identified the RAF as the 1% of census blocks that, according to the Connect America Cost Model, would be the most expensive to serve. To date, no funds and no concomitant obligation has been offered to any company for serving these areas. The areas were added to the CAF II auction, with the funding for the areas capped below the cost model calculation. These areas comprise the largest part of the auction in terms of reserve price (over $4 billion) and are the most likely to remain unserved, unbid, unfunded after the auction. The FCC's current intent is to take all areas that are unfunded in the auction and add them to the RAF. How the FCC will attract providers to areas that attracted no winning bids is the puzzle.

3. **CAF III**

   *Amount:* $1.6 billion per year.
   *Geographic Area:* High cost Price Cap Carrier service territories.
   *Process:* In 2015, the FCC offered price cap carriers six years' worth of funding over a five-year period to make available 10/1 Mbps throughout the high cost areas in each state. That funding ends in 2020, to be replaced by a competitive bidding process. The FCC may well use the CAF II auction format, adjusting the definition of unserved and lessons learned from the CAF II auction process.

4. **Rate of Return and ACAM-based High Cost Program**

   *Amount:* The FCC's largest rural program at over $2.2 billion annually for an indeterminate period.
   *Geographic Area:* Rate of return carrier study areas.
   *Process:* Still mostly a legacy program to support small rural telephone companies for the provision of voice service, the program has slowly been in transition as the FCC attempts various carrots and carrots approaches to tease out 4/1 or 10/1 or 25/3 Mbps service. The funding mechanisms are complex, closer to a regulatory accounting art form than a set of business decisions. In essence, this is a political program more than an economic program – more money per household than any other FCC program and more support from Congress than any other FCC programs.

# Addendum D

**Impact of FCC CAF II on Rural Electric Cooperative Service Delivery**

The FCC's Connect America Fund Phase II Auction (CAF II) illustrates the advantages with partnering with a rural electric co-op.

Rural Electric Cooperative Consortium (RECC) awarded $186M in FCC's Connect America Fund Phase II auction, becoming single largest Gigabit winning bidder.

RECC members will build fiber-to-the-home networks delivering gigabit speeds across rural America
Funding levels for the CAF II auction were calculated using the FCC's Connect America Cost Model (CACM). The CACM was first used in 2015 providing $10 billion in funding to the nation's largest telephone companies in exchange for those companies providing 10 Mbps download speeds and 1 Mbps upload speeds.

By comparison, the CAF phase II auction awarded the RECC and the other winning bidders less than one-third the support per home provided to telephone companies. In exchange for the support, the RECC members will build fiber networks delivering symmetrical gigabit speeds to residences and small businesses in their service territories – 1,000 times the speed for a fraction of the support. Bidding within a field of more than 200 approved entrants including telecom, cable, satellite, and fixed wireless companies and others, the RECC's involvement signals an important change in the goal of providing broadband across the country.

Federal Communications Commission Connect American Fund II (CAF II) reverse auction. Those winning electric cooperatives will collectively receive $225 million over ten years to help defray the costs of deploying broadband in unserved areas.

The RECC pledged to build low-latency gigabit service, giving its bid the most favorable weighting. Nevertheless, the amount of funding awarded was less than what the nation's largest publicly held price cap carriers were offered to build out service at minimum speeds of 10 Mbps downstream and 1 Mbps upstream.

Three reasons rural electric coop can afford the build out

- Utility companies have poles, conduit, rights of way and other infrastructure that helps minimize make-ready costs. In addition, rural electric coops have a lower cost of capital and are non-profit organizations
- The most important consideration is time horizon
    - The biggest reason rural electric cooperatives can build out gigabit service with a relatively low level of Universal Service/ Connect America Fund support is that their time horizon "is measured not in years but in decades."
- Covenant approach that rural utilities follow, which drives them to provide service to everyone in their service area, even those that are the costliest to reach. He noted that rural telecom cooperatives are similarly motivated.

**Analyzing the FCC CAF II Auction with Jonathan Chambers**

Jonathan Chambers has worked for over twenty-five years at start-up companies, large corporations and the U.S. Government. For the past four years, Jonathan was Chief of the Office of Strategic Planning for the Federal Communications Commission. Jonathan was part of the senior leadership at the FCC that

reformed $12 billion in annual federal spending, including the rural and high-cost fund, e-rate, telecommunications relay services and the lifeline programs. Jonathan also conceived of the Rural Broadband Experiment and was involved in the auction design for the Connect America Fund

- The areas in this auction were, by definition, the setup of the auction — the majority of the areas were the most remote areas in the country, considered by the FCC and their cost model that was produced years ago to be the very hardest and most expensive areas to serve in the country.
- This auction was addressing a question that the FCC and public policymakers across the country have grappled with for a long time, which is how do you get service to areas that are considered the most difficult to serve and are unserved today if the traditional incumbent telephone companies — the recipients of public funds in the past — if they are not providing service in those areas?
- The definition as used by the FCC — there were three categories of areas in this auction, most of the areas in most of the states was this category of remote areas, referred to as extremely high cost areas. That's under the cost model's calculation. Extremely high cost meaning if you calculated the cost of construction, operation, maintenance of the network, these are the areas [that are] the one percent most expensive to build, to operate, and maintain — **the one percent of the hardest to serve areas**.
- Telecom Act of 1996. There was debate on this point: the point of if you took away, through competition, the rich areas for telephone companies and as the telecommunications business became more and more competitive in populated areas, what would be left over would be unserved.
- For decades, the federal government and state governments have had a policy, a series of policies, supporting **universal service**, the notion that those who live in rural and high cost areas deserved the same. The words of the statute are reasonably comparable service at reasonably comparable prices.
- Because rural was left as a hard to serve place, and the debate came down to the incumbents largely [arguing] that they needed support. They needed sole support, that is they needed to be **the sole recipient of public support in order to maintain service in hard to reach areas**
- The contrary argument had always been (and this wasn't new — this argument went back to the 1990s) would competitors come to rural areas if competitors also had an opportunity to get the same types of public support as the incumbents?
- So, to the question of "Will folks go to rural high cost areas if funding is made available to them as well?" the answer is a resounding yes.
- This is bidding in areas that have been considered the hardest to reach, bidding in areas where multiple bidders — two, three, four, five, six, eight bidders in single census block groups — [were] all bidding for the right to get funding to provide service
- The budget for this auction was $**1.98 billion over 10 years — $198 million a year**. At the same time, **the FCC continues to spend over $4 billion,** close to **$4.5 billion, year in year out** on what? On the same thing: on the combination of Internet service and voice service in rural high cost areas
- The raging debate was whether four Megabits per second was possible or whether they might stretch at 10 Megabits per second. Know what you had in this auction? **Tens of thousands of homes will now get gigabit service,** not for the money that went to the telephone companies,

**but far less mone**y. A fraction of the support that has been going and goes today to the telephone industry is going to go to providers like **electric cooperatives to provide gigabit service**. The cooperatives will receive **$186 million over 10 years to build out gigabit service to all the homes and small businesses in the territories where they got funding.**

- And collectively the electric cooperatives not only will be getting I**$250+ million,** but that is the lion's share of gigabit service**.**
- Those are the companies that have agreed in this process largely **to build Fiber-to-the-Home networks.** The winners are the residents of those communities. The small businesses and the households in those communities are enormous winners because what they will get over the course of the next several years is **world class telecommunications service, unrivaled anywhere in the world**
- My theory is that the fiber-fed homes will be more valuable. There will be more economic activity in those communities. Jobs will be more prevalent. Again, the housing prices will be overall higher and eventually the communities without Fiber-to-the-Home will start to wither. And the communities will then have to decide about whether they'll invest their own money in something that's comparable to their neighboring communities**.**
- A lot of my time at the FCC was spent working with others in the commission to help reform programs that were **beset with fraud**: The Lifeline program, the E-rate program, the Telecommunications Relay Service program
- Here's what I mean by fraud: folks who were going to bid, who currently don't provide that level of service and who don't have a reasonable prospect of meeting their obligations**.**
- my concern that there would be bidders who bid outside of their capability, who strayed across their lane into somebody else's lane, who claimed to be able to provide something that they don't provide today and could not reasonably be expected to provide in the future**.**
- Every winning bidder, every bidder that is assigned a census block group, must produce long form application submitted to the FCC**, a** technology plan**,** and they must get ETC (Eligible Telecommunications Carrier) status from the states.
- You'll have to show that you can deliver to at least 70 percent **of** all the households and small businesses the speed that you bid for.
- if you're a citizen, a business owner, whatever, you should be communicating with your elected officials about this**.** You know, the state legislature can't make any decisions about this necessarily, but they can ask questions of the public utility commission or the public service commission to find out are they taking this seriously, how they are handling it, making sure that there's a light shined on it.
- We build Fiber-to-the-Home networks using GPON technology, GPON electronics. We build right to the home. There's like, there's nothing tricky about it. We just work with electric co-ops. We follow the electric system. We follow the electric lines all the way to the home. We can show that. If you're building a network that is spectrum based, you must identify where you backhaul is coming from. Maybe you're building fiber to your radio equipment. You must identify where are you placing the radio equipment, the spectrum you're using, the propagation of that spectrum, how you're getting use of certain spectrum, how you're overcoming the challenges of terrain and foliage.

- What is done now over the next six months will affect those future auctions. So, a **$1.98 billion budget today — a little less than $1.5 billion is being spent. $15 billion, $20 billion, $30 billion** will be spent in the future auctions in total, so an awful lot to get right here.