

INDUSTRY INSIGHTS

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Opportunities for Tribes to Bring Broadband Access to Their Underserved Communities

Insider's Insight

from TribalHub's Executive Officer, Mike Day



Access to dependable broadband is a topic that is near to my heart. Living in very rural northern Michigan, I could share many stories of frustration, disappointment and failure with satellite internet, integrated services digital network, cellular internet and a half dozen other inadequate "solutions". My children, and now grandchildren, think my wife and I live in a prehistoric cave when they come to visit, not understanding why YouTube videos or any streaming media won't work at our home. There is no cable tv available to us, so movies are still often played on a DVD player at our home. The future "promise" of fiber and internet broadband connectivity is still two years out from our local electric company cooperative.

When it comes to access to broadband, there have always been the "haves" and the "have nots". Urban communities were often prioritized by both the government and commercial industries for some fairly obvious reasons. Meanwhile, rural communities, which includes a great many Native American and Alaska Native organizations and trust land, have all too often been left with poor or non-existent access to broadband.

Broadband access has become a critical resource that can link a community to far greater prosperity. In recent human history, people built homes or businesses only where they had access to clean water and dependable electricity or energy sources. Today, we have to add dependable access to high speed internet to that list of requirements. Meanwhile, high speed broadband requirements continue to grow as communications and content have advanced from simple text and email messaging to bandwidth gobbling graphics, and streaming media.

Tribes located in rural areas have been working to improve their own telecommunication infrastructure for many years, but it is a costly project to build out, and additionally, to maintain. The COVID pandemic of 2020 brought the issue of inadequate broadband to the forefront as the majority of the world's population was forced to work or communicate remotely. While much of the nation's workers were able to make this transition, the communities with little to zero broadband access were unable to make the transition to remote work.

In this month's Industry Insights report, we focus on opportunities for tribes to finally bring broadband access to their underserved communities. The recent release of the 2.5Ghz spectrum to tribes presents an opportunity and a challenge. The increased federal, state and local funding that is pointed towards tribes to improve their own broadband infrastructure offers promise and opportunity. In 2021, there is a billion dollar fund from the National Telecommunications and Information Administration to be directed to tribes and broadband initiatives. In this Insights, TribalHub contacted a few tribal resources to find out their strategy and recommendations for tackling their tribe's broadband challenge.

Tips on Maximizing Your TribalHub Membership

Have you logged in to the TribalHub Industry Information Portal and checked out the library of data that is available exclusively to our TribalHub members? Here you will find:

- **Benchmarking Comparisons**- Check out deep-dive analysis from the Tribal IT Spending & Staffing Assessment completed in partnership with Gartner Inc.
- **Tribal Government Benchmarking Survey**- Deep Dive- Tribal Governance in partnership with Info-Tech Research Group.
- **IT Policy and Procedures Index**- TribalHub Members have access to a complete set of organizational technology and security Policy & Procedures- these can be utilized to help you quickly improve your security posture. Save yourself the hassle and headache of preparing these documents from scratch. We've provided you with ready-made Policy and Procedure templates available right now at your fingertips! We've made the process of building your Policy & Procedure Manual easy, simply download the samples and adjust to meet your own tribe's needs.
- **TribalHub's Industry Insights Reports**- Library of all previous reports offering of-the-moment tips, hot industry topic discussion points, and snip-its of industry data.
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Opportunities for Tribes to Bring Broadband Access to Their Underserved Communities

Insights from Industry Peers:

JASON DOXTATOR, Manager of Network Services, Oneida Tribe of Wisconsin



The Oneida Tribe of Wisconsin currently includes approximately 17,308 Oneida Tribal Members in total, roughly 4,471 which live on the Oneida Reservation plus an additional 3,351 tribal members living near the reservation within Brown and Outagamie Counties. The Oneida Nation Reservation consists of 65,442 acres residing in two counties (Brown and Outagamie). Oneida owns 26,368 acres of our reservation or 40.3%

with long term plans of regaining all of its reservation.

From Oneida's most recent Quality of Life Survey, 87.8% of respondents indicated that they have Internet access from a personal device. The quality of the internet service is up for debate. In working with MuralNet as well as their business partner GEO Partners LLC, they can more accurately ascertain the quality of internet service on Oneida's reservation. They are hopeful that the comprehensive broadband plan will help Oneida to better understand if the 25/3 standards are being met or not.

Oneida hopes to provide the essential Internet connections to improve the "Quality of Life" for their tribal membership. As technology continues to become more prevalent in our everyday lives, they want to ensure that Oneida is well positioned to fully leverage all types of technologies that are here now and emerging. To meet the technological needs of the Oneida Nation, quality Internet access must become a staple of everyday life.

Some of the current primary and immediate needs include telemedicine, distance learning, cloud technologies, and general internet access. Future needs will include 5G access to help implement Internet of Things (IoT) technologies such as automation for processes, smart home, smart agriculture, autonomous vehicles (farm tractors, casino shuttles, reservation transit services), augmented reality signage for cultural landscapes or iconic locations, tracking/monitoring of environmental sensors (water, air, land), waste water facilities, HVAC, roads, parking lots, medical devices, electricity and then apply the proper analytics and measurements.

To leverage all of the aforementioned life changing technologies, Oneida must have a quality high speed broadband infrastructure. Quality access to the internet for Oneida's tribal membership, businesses, services, programs, and the community at large has the potential to improve the lives of everyone.

Oneida has applied and was granted a 2.5 GHz license. Oneida has partnered with MuralNet to complete a comprehensive broadband plan for the Oneida Nation Reservation. Their short-term plan is to apply the 2.5 GHz license and potentially 3.5 GHz shared spectrum to existing vertical assets to meet the 50% and 80% requirements quickly. The longer range planning will look at the development of Fiber to the Home (FtTH).

Oneida currently has an extensive wireless and wired infrastructure that is more inward facing and is geared towards Oneida's employees, business units, and buildings. Oneida utilizes Cisco wireless Local Area Network controllers, access points, and systems to provide a robust wireless experience. A guest single sign-on ID is provided for anyone who is within range of Oneida's wireless coverage. Currently, they are working to place external wireless access points in key areas of the reservation that are more limited with internet access for anyone who may have needs for telemedicine or distance learning.

Oneida has an extensive fiber infrastructure that connects up a majority of Oneida's buildings and sites. Oneida is looking to add to their existing fiber infrastructure that will help better connect Oneida's business units as well as provide a robust infrastructure for future internet services such as 5G and Fiber to the Home (FtTH).

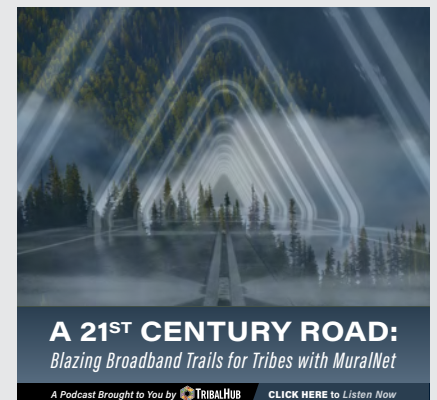
The comprehensive broadband plan will help Oneida to better understand the needs, requirements, and to develop a robust Community Area Network (CAN) for tribal members as well as for the community at large.

Oneida plans to apply for funding and to look at other funding opportunities for broadband initiatives. They have also provided feedback and comments to the National Telecommunications and Information Administration (NTIA) on the requirements for the Tribal Broadband Connectivity Program (TBCP).

Below are the priority uses for any broadband funding that Oneida may receive.

- Community Area Network (CAN) Development
 - Wireless - 2.5 GHz and/or 3.5 GHz Spectrum
 - Wired - Fiber to the Home and other remote locations
- Inventory of Current Fiber Plant
- Business Unit Connectivity
- Public Safety 800 MHz System Coverage and Upgrade
- Surveillance Systems Expansion
- Better network connectivity with local services/entities

Have you checked out the latest TribalHub podcast episode?



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Opportunities for Tribes to Bring Broadband Access to Their Underserved Communities

Insights from Industry Peers:

PHIL FOWLER, IT Director, Bishop Paiute Tribe



The Bishop Paiute Tribe is located in Bishop California. Currently there are approximately 1500 tribal members which live in about 600 homes that span across a roughly 1.5 square mile area. Approximately 20 percent of their tribal community currently does not have access to reasonable broadband. According to Mr. Fowler, the telecoms and Federal Communications Commission

claim that their area is fully covered with broadband availability, but that isn't actually the case. There are many homes on their reservation that don't have coverage and are either not profitable for the carrier to install a connection, in a 4G dead zone, or too far away from the Digital Subscriber Line hub.

Having access to broadband is important to the Bishop Paiute Tribe because it could potentially expand internet coverage to their entire reservation which in turn would create a big impact on the quality of life. Not only through distance learning and telemedicine opportunities, but also on connecting with extended family over zoom, (and let's be honest Netflix is going to be pretty high on the list too!). In this time of COVID, distance learning has become a norm and Mr. Fowler suspects that it's here to stay in some form. Internet service in their area can be out of reach for some families just because of cost, it's possible that this initiative might be able to provide the reservation with a cheaper, faster internet.

The Bishop Paiute Tribe applied early on for a 2.5Ghz license and they started immediately working on deployment plans and funding. Currently they are working on a couple of pilot projects in cooperation with the First Nations Institute, and with Facebook and are evaluating their coverage options and signal availability.

They have a few Long Term Evolution radios mounted to their radio station's antenna tower, and will be adding a few more in the effort to serve a neighborhood to the south, as part of their pilot project. They have secured funds for bringing in fiber optic cable from their main administration building, to our Radio Station, and finally on over to the Education Center. This cable will be built with expandability in mind, also in hopes to fully serve residential customers along the route.

The Bishop Paiute Tribe does plan to apply for broadband funding in 2021. Right now Mr. Fowler and his team are mainly looking for funding sources to help them light up the fiber with a high speed connection. Their second priority is to buy more Long Term Evolution base stations and customer units, and getting with a consultant to establish their business structure. The Bishop Paiute Tribe envisions a Community Internet Department similar to that of Public Works.

Insights from Industry Peers:

JOHN MILLER, IT Director of Government Services, Choctaw Nation of Oklahoma



The Choctaw Nation of Oklahoma, CNO, (commonly referred to as the Choctaw Nation) is a federally recognized Native American tribe with a tribal jurisdictional area comprising twelve tribal districts. The Choctaw Nation maintains a special relationship with both the United States and Oklahoma governments. As of 2011, the tribe has 223,279 enrolled members, of which 84,670 live within the state of Oklahoma. The tribal jurisdictional area is 10,864 square miles (28,140 km²), a total of 233,126 people live within these

boundaries, the majority of whom are not Choctaw.

Currently, they are conducting analysis on the unserved and underserved communities to gain a better understanding of the percentage of people in their tribal community currently who do not have access to reasonable broadband. "In my opinion I feel that the current standards set by the Federal Communications Commission for 25Mbps DS and 3Mbps US need to be readdressed. We have seen with the COVID pandemic the unprecedented "need" for teleworking, distance learning, and decentralized services. This only will reshape and redefine the minimum broadband standards going forward for our communities."

The Choctaw Nation did obtain a 2.5Ghz license. Currently, they are exploring all options to utilize this asset. Choctaw Nation has established a Broadband Steering Committee dedicated to this effort and broadband throughout their tribal boundaries.

They do not currently have their own wireless or wired infrastructure serving their tribal communities. They are currently partnering with strategic partners for those services. They do however have their own data centers and fiber rings serving numerous businesses.

However, their Choctaw Nation Housing LEAP, ARH II, and IE programs provide subsidized FTTH or a hybrid fiber / coaxial services. This provides services for broadband to those homes in the range of ~100Mbps to 25Mbps DS and 25Mbps to 10Mbps US.

Key vision: "Make broadband reliable and affordable to our tribal citizens and communities."

"The Choctaw Nation is currently exploring broadband funding opportunities in 2021 to bridge the gaps where our communities and businesses are underserved. "As you are aware, there are large gaps to broadband access across our tribal boundaries and Oklahoma. In my opinion, we will target middle mile fiber and areas with higher concentration of tribal members with "no or limited services" in our communities."

Choctaw Nation's position on broadband is that it is a "Return-on-Vision" to provide reliable and affordable broadband to their tribal citizens and communities. It's important to their tribe because of the opportunities it provides, it will also play a part in uplifting their communities, and decentralizing services. "We (I) feel that broadband should be treated as any other lifeline utility to our tribal members and communities."

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EnerTribe Interview:

EnerTribe is a Native American and woman-owned firm specializing in the planning, funding and building of broadband infrastructure for tribes and telephone companies. They provide project, program and grant management services and is comprised of wireless engineers, tower, network and fiber-optic engineers.

EnerTribe has helped acquire over \$250,000,000 in funding for tribal infrastructure over the past 12 years. They are also a equipment Value Added Reseller (VAR) for wireless, fiber and tower equipment with preferred pricing. EnerTribe sees projects from inception to completion.

EnerTribe projects for 2021 include over \$25,000,000 infrastructure:

- Lead engineering firm for the Klamath River Rural Broadband Initiative (KRRBI), a 104-mile fiber build for the Karuk and Yurok tribes. Responsibilities include senior project management, permitting/environmental, wireless and network engineering and grant compliance.
- Prime contractor for the Hoopa Broadband Initiative which will bring fiber-optics and wireless services to the Hoopa Reservation. Responsibilities include, tower, wireless and network engineering & installation, project management, funding & strategy.
- Wireless, and tower procurement, engineering and installation firm for the Yurok tribe building the nation's largest Cambium Educational Broadband Services network inclusive of licensed microwave, millimeter-wave and WiFi.

Resources to help tribes with their broadband strategy:

Ideally tribes should establish an ecosystem of contractors and departments capable of assisting with the broadband planning. At times this is the tribe's planning or IT department initially and should be integrated into the tribe's Comprehensive Economic Development Strategy if one exists.

Finding qualified contractors is important, especially ones who are there to solve a problem and are committed to helping implement the solution. EnerTribe has conducted dozens of broadband feasibility & market studies, business plans or a technology masterplan and ideally this is where you begin. Some state and federal agencies can offer support in various forms such as the State Public Utility Commission, USDA or even the Economic Development Agency's Technical Assistance program. EnerTribe uses this simple formula to ensure our planning results in "actionable" data. These bullet points should overlap considerably to ensure momentum.

- Identify technical assistance of planning funding (private, general funds, state or federal)
- Carry out broadband studies (what do we want to do, why and how much will it cost?)
- Complete technical engineering studies (what are we building?)
- Identify construction funds (private, general funds, state or federal)
- Begin construction (begin planning next project)

There are a number of resources to learn best practices from but EnerTribes has broken them down into three categories:

Contractors: A good contractor will be there long before proper engagement to help identify the critical problems needing solved. Like EnerTribe, there are contractors throughout Indian Country with proven records and reputations for adding to the resources to the tribes and communities they serve. Contractor partnerships are critical to successful planning efforts

Agencies and Nonprofits: There are dozens of agencies at the federal level who host workshops, training sessions, planning and funding seminars. Nonprofits like the First Nations Institute have regular engagement with indigenous communities with the sole goal of enabling tribes in their infrastructure efforts. Agencies like the FCC, NTIA, USDA and others can support with funding and some planning.

Broadband Providers: In some cases, it may make sense to identify a mutually beneficial project and partner with a local broadband provider in the region. Tribes should however always have a resource (technical assistance) to help guide the discussion to ensure the mutual benefit of the partnership. For instance, the tribe may be able to negotiate an interconnection agreement, IRU, joint-pole use, co-location, open access, new towers, rights-of-way, and other means to support the needs of the community. In some cases, the providers are willing to invest into infrastructure in the area making the most use of any infrastructure funding.

Contact EnerTribe for:

- Broadband planning
- Funding
- Engineering
- Equipment
- Construction

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Additional Resources:

- Federal Communications Commission broadband map: <https://broadbandmap.fcc.gov/#/>
- Also, be sure to check out this story on how the FCC broadband map is being updated due to overstating the access available in the United States. <https://www.cnet.com/features/millions-of-americans-cant-get-broadband-because-of-a-faulty-fcc-map-theres-a-fix/>
A fundamental flaw in closing the digital divide is not knowing where the problems actually are. We're finally about to see changes: <https://www.cnet.com/features/millions-of-americans-cant-get-broadband-because-of-a-faulty-fcc-map-theres-a-fix/>
- Building Indigenous Future Zones: Four Tribal Broadband Case Studies: <https://cdn.ilsr.org/wp-content/uploads/2021/02/IndigenousFutureZones-0221.pdf>