UCLA School of Law
Native Nations Law & Policy Center

TRIBAL BROADBAND

Tribal Legal Development Clinic, UCLA School of Law

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IMMENSE
GRATITUDE

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TRIBAL LEGAL DEVELOPMENT CLINIC

This project is possible due to the generous grant from the San Manuel Band of Missions Indians in support of the UCLA School of Law's Tribal Legal Development Clinic. The Tribal Legal Development Clinic is a live-client experiential course, offering law students the opportunity to work directly with tribal leaders, officers, and attorneys to provide direct services to tribes. The Clinic hosts non-litigation projects designed to strengthen tribal legal institutions, are driven by tribes, and cover a wide variety of legal subjects and processes.

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FOREWORD

Aiy-ye-kwee'

I am incredibly honored to write the foreword to this much-needed resource for Tribes. The Yurok Tribe has greatly benefited from ongoing projects with the UCLA School of Law Tribal Legal Development Clinic—Professor van Schilfgaarde and her students have helped the Yurok Tribe with special projects and legal research that proactively address some of our most pressing issues.

Right now, we are seeing an unprecedented opportunity for Indian Country with an incredible amount of funding now available for broadband infrastructure and broadband use and adoption projects. Creating and improving internet access has been a decades long project for the Yurok Tribe. In addition to the motivation of our community and staff—we have benefitted from the generosity of other Tribes, policy experts, funding experts, and folks within federal and California government working to bridge the digital divide.

Information sharing and collaboration have been key ingredients to our success and we are happy to share our story and experience for the benefit of other Tribes working to create internet access in their communities. We are fortunate to have many expert staff that are passionate about their work for the Yurok Tribe in addition to their work to support Indian country more broadly. That passion and generosity is shared by our leaders; the Yurok Tribal Council unanimously approved this collaboration with the Clinic and donated Yurok Tribe staff time to the effort.

The Clinic and its students have brought so much value to the Yurok Tribe, we are happy to play our small part in supporting their efforts to develop an approachable publication that demystifies broadband and highlights valuable resources for Tribes.

Wok-hlew'

Joseph L. James
Chairman, Yurok Tribe

YUROK TRIBE BACKGROUND

The Yurok Tribe is a sovereign nation and federally recognized Tribe, the largest within California with over 6,400 enrolled members. The Yurok Tribe's rural reservation is approximately one hour south of the Oregon border and spans approximately forty-five (45) miles from the Pacific Ocean along both sides of the Klamath River to the convergence of the Klamath River and Trinity River near Weitchpec. The Yurok Tribe's aboriginal lands extends for more than 200 square miles and includes large portions of Del Norte and Humboldt counties. The Yurok Tribe government is organized under the Yurok Constitution to, in part, "provide for the health, education, economy, and social wellbeing of our members and future members" and to ensure "peace, harmony, and protection of individual human rights among our members and among others who may come within the jurisdiction of our tribal government."

The Yurok Reservation is in one of the most technologically disadvantaged parts of the state. The Yurok Tribe operates Yurok Connect, a Wireless Internet Service Provider ("WISP"), that provides broadband services to Reservation residents within Del Norte and Humboldt counties. The Yurok Tribe also wholly owns the Yurok Telecommunications Corporation.

Forming Yurok Connect

Yurok Connect is one of only a handful of tribally operated Wireless Internet Service Providers and is operated as a program of the Yurok Tribe under its IT Department. Yurok Connect was established with funds from 2009 USDA Community Connect Grant.

Yurok Connect purchases bandwidth from a national telecoms provider and draws a wireless connection that begins in Crescent City and travels approximately 18 miles over the ocean to Requa on the Yurok Reservation; the signal is then sent over a six-tower network to bring internet services to the area. While this connectivity provides crucial internet access, the signal is weak and dependent on line-of-sight from tower to tower. Since its inception, Yurok Connect has secured several grants to gradually expand its coverage on the reservation, where the steep, forested terrain makes it particularly challenging and expensive to install broadband equipment.

Once the infrastructure was built, Yurok Connect officially Launched in 2013 and offers inexpensive broadband internet to Yurok Reservation locations. In the years since the tower network was constructed, the Yurok Tribe has conducted several tower upgrades to improve speeds and expand their services area. In 2020, the FCC Tribal Priority Spectrum Window opened and the Yurok Tribe applied for a 2.5 GHz spectrum license which is now being used to improve Yurok Connect service.

Yurok Connect serves approximately 30% of Yurok Reservation homes, including many that would not otherwise have internet access. In total, Yurok Connect has approximately 175- 200 customers, including 25-30 businesses and government customers. Yurok Connect participated in the Federal Communications Commission (FCC) Emergency Broadband Benefit (EBB) Program. The Emergency Broadband Benefit Program offered eligible Yurok Reservation households a reduction of up to $75 per month on monthly internet bills and a Wi-Fi-capable Android tablet. The EBB received more funding and became the Affordable Connectivity Program (ACP) which is currently administered by Yurok Connect.

Frontier Settlement

In spring of 2020, Frontier Communications and its subsidiaries filed for bankruptcy. As part of its emergence from bankruptcy, Frontier was required to receive approval from the California Public Utilities Commission (CPUC) through a formal administrative law proceeding. In December of 2020, the Yurok Tribe successfully petitioned to become a party to the CPUC proceeding which allowed the Tribe to file an opening brief and submit evidence relating to its experience of Frontier's service among other issues. The case was the first time the Yurok Tribe formally participated in a CPUC proceeding and was led by the Yurok Tribe's Office of the Tribal Attorney with assistance from outside counsel who provided expertise on practice before the CPUC.

In spring of 2021, The Yurok Tribe and Frontier reached a settlement agreement that was approved by the CPUC and resulted in Frontier's emergence from bankruptcy court. According to the settlement agreement, Frontier is to contribute up to $5 million dollars to a Yurok Tribe-led project involving the installation of a fiber optic cable between Orick and Klamath and "fiber to the premises" connections on the Yurok Reservation. The Tribe will own a minimum of 50 percent of the fiber and will receive half of all profits generated from the strategically located line. In addition to investing in this much-needed infrastructure, the company was ordered to compensate the Yurok Tribe $500,000 as reimbursement for lengthy internet outages occurring before and during the COVID-19 crisis. Chairman Joseph L. James was interviewed about the Yurok Tribe's involvement and stated:

Yurok Connect currently purchases bandwidth from Frontier and distributes it to reservation homes that would otherwise be unserved. Yurok Connect also serves the Tribe's headquarters and ancillary tribal government offices as well as several privately owned and tribally owned businesses. However, Frontier's network has experienced regular interruptions, which has been particularly problematic since the beginning of the COVID-19 crisis. Residing hours from the nearest doctor's office, Yurok Reservation residents depend on the internet to participate in virtual health appointments, to sign up for vaccination services and much more. The constant disruptions in service during the pandemic were a major factor contributing to the Tribe's decision to join the CPUC Frontier Transfer Proceeding. We joined this case to protect our people, whose daily lives are impacted by Frontier's operations. From now on, we expect to receive reliable internet services from the company. We applaud the California Public Utility Commission for hearing our concerns and taking action on this timely issue. Based on the terms of the settlement, it is clear that the Commission understands the significant disparity of service on the Yurok Reservation compared to Frontier's other customers and the importance of further investment for the benefit of the Yurok Reservation.

Frontier has become an engaged collaborator and is working closely with the Yurok Tribe to implement the terms of the settlement agreement. The CPUC has several funding programs available to Tribes and the Yurok Tribe has used these funding sources for many of its broadband planning efforts, including implementation of its settlement with Frontier.

CREATION OF YUROK TELECOMMUNICATIONS CORPORATION

In July of 2021, the Yurok Tribe launched a telecommunications company, the Yurok Telecommunications Corporation (Yurok Telecoms) to improve communication services and expand economic development opportunities within Yurok ancestral territory. Yurok Telecoms was formed under Yurok law and is wholly owned by the Yurok Tribe. At the time of this writing, Yurok Telecoms is awaiting a determination on its Tribal Broadband Connectivity Program application to build middle-mile and last-mile infrastructure that will bring the first high-speed internet to the Yurok Reservation.

1 | OVERVIEW

A. INTRODUCTION

Tribal nations disproportionately lack access to reliable and affordable broadband service. Broadband, the term coined as high-speed internet connection, is critical to the health, wellbeing, and economic development of Tribal nations. The Federal Communications Commission ("FCC") found that while 98 percent of the population in urban areas have access to wired broadband service, only 65 percent of the population on tribal lands have the same access, and many tribal areas lack broadband access altogether.[1] Barriers to broadband access has developed into a human rights violation particularly as it relates to the ability to pursue economic development. Article 3 of the United Nations Declaration on the Rights of Indigenous Peoples states:

> ***Indigenous peoples have the right to self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.***[2]

Without broadband, tribal communities are unable to equally access adequate education, employment, health, or emergency services. Internet companies and their regulators could have created broadband access for all. Instead, these companies—driven by profit motivations—have created barriers and left many in Indian country unserved. Thus, Tribal Nations must take it upon themselves to create broadband access for their members.

And Tribal Nations have. In 2020, the FCC created the 2.5 GHz Rural Tribal Window,[3] which is a unique opportunity for tribes in rural areas to directly access unassigned spectrum over their tribal lands. The application window overlapped with the emergence of the COVID-19 pandemic which had exacerbated the issues created by lack of connectivity on tribal lands.[4] In that window, the FCC received four hundred applications, demonstrating the continued resiliency and willingness of tribal nations to fight for the basic needs of their citizens and community members.

The COVID-19 pandemic has magnified the need for access to remote health care, education, work, and emergency services. However, high costs create barriers to access even where broadband is available. In turn, Tribal nations are challenged with deploying sustainable broadband infrastructure in unserved rural areas.[5] Ultimately, Tribal nations who take on the task of broadband will strengthen sovereignty and achieve socio-economic objectives.[6]

B. ABOUT THE PUBLICATION

This publication is designed for tribal in-house counsel and tribal leadership. It provides an introductory overview of common wired and wireless internet technologies and considerations for Tribal nations seeking to create or increase internet connectivity. It also contains an illustrative example of how the Yurok Tribe has been working to bring complete connectivity to the Yurok Reservation, so readers can see how the ideas discussed within this resource could be applied. The goal of this publication is to help in-house counsel expand broadband access to their Tribal nation to, improve educational opportunities, promote economic development, and facilitate the delivery of essential services to tribal citizens.

C. WHAT IS BROADBAND? A PRIMER ON COMMON INTERNET TECHNOLOGIES

Colloquially, the term broadband has become synonymous with "internet." However, there are a variety of technologies and equipment that can be used to create internet access. The following descriptions are a brief primer on some key terms.

Copper

Historically, many people have used a copper-based internet connection. It is the standard connection type that operates by sending an electrical signal down a copper cable. Copper cabling is generally cheaper to produce per unit of distance which makes deployment cheaper.[7] Copper offers advantages for those in rural areas because it already exists and is less expensive when used to connect network devices.[8] Those in rural areas where no fiber optics have been run may find copper the most cost effective, because they do not have to pay to run new cabling. The copper phone wire is perfectly adequate for a voice signal. However, fiber optic cabling is much faster than copper in terms of internet speed.

DSL

DSL stands for Digital Subscriber Line. It uses existing 2-wire copper telephone line connected to one's home service and is delivered at the same time as landline telephone service. Customers can still place calls while using the Internet.[9]

Fiber optics

Fiber optics, or simply "fiber" refers to technology that transmits data through thin strands of a highly transparent material that usually is either glass or plastic. Fiber optic communications began gaining popularity in the mid- 1980s.[10] Fiber's bandwidth and distance capabilities made it significantly less expensive than other communication mediums.[11]

Differences between Fiber and Copper Wiring

Fiber optic is much faster than copper wire transmission. Copper cannot generally keep up with the typical household need of simultaneous conference calls, video streaming, and online gaming. The difference between the two boils down to the speed of photons versus the speed of electrons.[12] Photons travel at the speed of light, whereas electrons (as used in copper wire) occurring in nature travel at less than one percent of the speed of light. While fiber optic cables do not travel at the speed of light, they come very close — only about 31 percent slower.[13] Additionally, when

traveling over a long distance, fiber optic cables experience less signal loss than copper cabling, known as low attenuation. One source estimates that fiber loses only three percent signal strength going over 100 meters (approximately 320 feet) in distance. [14] By contrast, copper loses 94 percent over the same distance. Repeaters or boosters can improve those rates, but in its native state, fiber beats out copper when it comes to avoiding signal loss. Fiber optic cables are impervious to electromagnetic interference: Copper wires, if not properly installed, will produce electromagnetic currents that can interfere with other wires and wreak havoc on a network. An added benefit of fiber optic cables is that they are not a fire hazard. (Fiber optic cables, unlike copper cables, do not conduct electricity.) Fiber optic cables do not break as easily as copper wiring meaning you have to replace them less frequently.

Wireless BROADBAND

Wireless broadband (or 4G, which stands for 4th generation wireless), a method of broadcasting an Internet connection over radio waves, is a broad term that represents many different technologies.[15]4G requires infrastructure to be built out so that coverage can reach remote areas, and it is becoming more widespread with each passing year. [16] When it comes to fiber optic or copper cables, expenses run the gamut from purchasing the cabling, getting permits signed, paying for work crews and insurance and remunerating the IT wizards who make the network function properly. Wireless network alleviates much of this cost.

One of the biggest problems, however, is that wireless signals degrade with distance: the further away the user is from the broadcast station, the weaker the signal. Fiber optics can convey a clear signal much farther. Additionally, there are still parts of the United States without wireless coverage or with spotty coverage, such as in rural areas. Without sufficient wireless towers to broadcast the signal throughout rural areas, wireless may not be a viable choice in remote areas. However, provided the 4G infrastructure reaches your area, it can be a good choice.

This high-speed Internet connection is provided through either cable or telephone companies. One of the fastest options available, broadband Internet uses multiple data channels to send large quantities of information. The term broadband is shorthand for broad bandwidth.

WIFI HOTSPOTS

Wifi Hotspots are sites that offer Internet access over a wireless local area network (WLAN) by way of a router that then connects to an Internet service provider. Hotspots utilize Wifi technology, which allows electronic devices to connect to the Internet or exchange data wirelessly through radio waves. Hotspots can be phone-based or free-standing, commercial or free to the public. Wireless or Wi-Fi connection works without the use of telephone lines or cables to connect to the internet. Instead, it makes use of radio frequency and can be accessed from anywhere. It is really a common network around the United States and can be found growing in coverage areas every minute. The speed generally ranges from 5 Mbps to 20 Mbps.

Satellite Connection

As one of the most widely accepted internet connections, it does not rely on ground-laid infrastructure like cables, cellular towers or line-of-sight antenna connections. It works through the connection with satellites orbiting overhead. If you have a clear view of the sky, the connection will be better so it is better to get the connection on the terrace or ground facing upwards. It is also best suited for rural areas with bad weather conditions and obstructions which are not in your control. The speed ranges from 12 to 100 Mbps, which makes it perfect for smaller households where people wish to stream, play games or upload files online. This service is a bit on the expensive side, because it reaches areas where is does not have to compete with other technologies. Because of the enormous distance between the signal from earth to satellite, it provides a delayed connection compared to DSL.

Network Types:

Institutional networks create infrastructure that provides broadband capacity and service to Community Anchor Institutions (“CAIs”)—schools, libraries, government agencies, medical and health care providers, public safety entities, and other community institutions. Institutional networks allow Tribal nations to run a network on another service provider’s broadband network. Tribal nations can buy services from a broadband provider, freeing them the responsibility of managing equipment, networks, or construction duties. Inhouse counsel must enter a contract with a broadband service provider. Contracts may range from ones where the broadband provider provides all services and equipment to where the Tribal nation purchases capacity, provides equipment, and manages the network service it offers.

Middle-mile networks provide broadband service from an internet point of presence to one or more centralized facilities (i.e., the central office, the cable, the wireless switching station or other centralized facility), which allows a last-mile provider to provide Internet access to a home, business, or CAI.[17] Inhouse counsel should investigate whether existing broadband network providers are able to expand the capacity and/or reach of existing networks to build out to CAIs or to unserved and underserved areas. Inhouse counsel is then tasked with encouraging other broadband providers to increase supply by building or expanding their networks. Inhouse counsel can enhance buying power by aggregating the broadband demand of several government departments. For example, all departments could collectively form one long-term customer contract for the broadband network.[18]

Last-mile networks are the segments that provide service to end-user devices such as home computers. Last-mile connection typically connect to a middle-mile network on one side and end at the user’s device in a home, business, or CAI. These networks are often optical fiber networks in which the cables are either buried in underground conduit or strung on utility poles through an aerial deployment. In remote rural areas, such as tribal lands, or across difficult terrain, equipment for microwave and wireless broadband networks[19] are mounted on towers so that broadband signals can reach homes, businesses, institutions, and government facilities. Extension/creation of fiber networks require feasibility surveys.

2 PLANNING

A. OVERVIEW

Significant planning should occur when a Tribal nation decides to create internet access in their community. Initial network planning should result in the Tribal nation having a better sense of:

1. **Project Type:** The kind of network or internet service the Tribal nation is seeking;
2. **Community Readiness:** the needs and wants of the local community
3. **Technology:** The technology option(s) best suited for the network;
4. **Entity Planning:** The type of legal entity that will manage the network; and,
5. **Sustainability:** Plans for ongoing operations and maintenance of the physical network. and the legal entity managing the internet service and customer relations

Each of these broad planning areas will have their own legal considerations and may happen concurrently or in phases depending on the staffing and resources allocated to the project. Once the planning phase has begun, the assigned in-house counsel or tribal attorney should begin to forecast the legal research and work that may be needed. Further, in-house counsel will want to have a handle on the legal implications of the main project types and entity options—as this may have a big impact on the technology needed and project sustainability. The steps described below will help Tribal nations identify the technologies, partners, organizational models, and financing options for broadband projects. Assessment of local broadband resources informs inhouse counsel of current broadband providers, digital training programs and other resources serving the community, including potential partners, future users, or competitors. Once network planning is complete, it should be clear what technology, or combination of technologies, works best for the Tribal nation in light of the physical environment, funding limitations, environmental resource impacts, and cultural resource impacts. Further, legal, regulatory, and tax considerations will also need to be considered during the planning phase.

Project Type

In terms of **Project Type**, Tribal nations have many options, this resource will highlight three, which will be referred to as: community networks, customer model, and tribally owned and operated. Intertribal consortiums or collaborations that result in a shared network—joint ownership and operation—are also an option. Jointly owned and managed projects will add a political component that is difficult to predict and are outside the scope of this resource. Public-private partnerships are another option, but we were unable to find a Tribal nation that has publicly championed such an approach. Further, collaboration with a larger internet provider may result in unequal bargaining power that limits tribal sovereignty.

Community networks can help bridge the connectivity gap within isolated communities and works well for small populations that are not too spread out. This model focuses on local communities building and managing the network, likely through wireless technologies. Community networks provide a sustainable solution to address connectivity gaps in underserved and rural or remote areas. A community network is usually deployed in communities where traditional market-based solutions don't exist.[20]

The **customer model** supports Tribal nations with barriers to access or who lack resources to build or manage their own network. Essentially, the Tribal nation would be a customer to an internet provider—whether that be a nearby Tribal nation or non-Indian provider. In Indian country, it's not uncommon for a tribal community to be relatively close to internet infrastructure but the owner has not deemed it worthwhile to make the investment in "last-mile" service to actually connect to tribal homes.

A **tribally owned and operated** network provides the most options for a Tribal nation. Because this resource is focused on helping Tribal nations that wish to build and manage their own network, much of this publication presumes tribal ownership and management is the goal. This model best preserves sovereignty because the Tribal nation is the owner, operator, and service provider of its network. In addition to exerting sovereignty over an important resource, this model can generate additional profits if the Tribal nation leases its infrastructure or otherwise contract parts of its network to non-member entities or individuals. Tribal government staff may want to have an initial discussion with Tribal leaders to get a sense of the possibilities, but the community readiness assessment described in the next section will also help narrow the options.

Community Readiness

The objective of a community needs assessment is to identify existing broadband facilities and infrastructure, and the needs and resources of the community through community surveys, meetings, and focus groups.

First, the Tribal nation should determine what local infrastructure and service exists and whether new infrastructure or services are needed to meet community needs. Depending on the infrastructure currently in place and areas lacking high-speed connectivity, Tribal nations may need to build or expand a middle-mile network or last-mile network.

If feasible, tribal staff should conduct internal pole field and fiber surveys. Internal surveys will give in-house counsel negotiation power with third-party utility companies. After internal surveys, can submit applications with a utility company, pay for individual applications to all utilities, have the third-party utility company conduct independent surveys, and negotiate/prepare a quote for "make-ready"[21] construction.

Second, tribal staff should take inventory of providers currently servicing residents, businesses, government agencies, and community anchor institutions (e.g., schools, libraries, hospitals).[22] Figure out price, speed, and whether discounted or low-cost subscriptions are offered to low-income residents.

Third, tribal staff should take inventory of community resources. Does your Tribal nation have a public computer center? What hours do they operate? What assistive technology is available? Is public Wi-Fi available? Does your Tribal nation offer digital literacy training?

Tribal staff could also consider whether the Tribal nation wishes to create a "Connected Community." Tribal nations can and will generally face challenges getting connection into households, so a focus on increased access in public spaces could help alleviate needs while the Tribal nation plans and implements its long-term strategy. Connected Communities ensure connectivity by adding wi-fi access to buses, parks, community centers, and government buildings. Of course, this option only works if there is some internet access nearby and may not work for all tribal members, especially those in remote portions of a tribal reservation, for example.

Creating optimism and clearly explain the Tribal nation's broadband planning goals may be necessary in some communities. Consider an example from a tribal broadband advocate of the Nez Perce Tribe. The advocate found residents wanted to be "off the grid," so much that broadband structures suffered vandalism and destruction in attempts to disrupt the service.[23]

Technology

The technology portion of the planning phase should be handled by subject matter experts, either internally or via outside consultants. Tribal nations likely already know where they wish to have internet service but it may take some research to figure out what kind of network works best, then comes evaluation of feasibility; will the "best" technology option be feasible considering the Tribal nation's resources, bandwidth needs, cultural and environmental concerns, interconnection options, etc.

Technology planning is outside the scope of this resource, other resources are listed in Section ___ and may be a good starting point. For in-house counsel, contracting with outside consultants, procurement assistance, business non-disclosure agreements, and interpreting tribal land use ordinances or federal easement regulations are likely the only contribution that may be needed at this stage—these topics are discussed in other sections of this resource. Further, in-house counsel and tribal attorneys should review Section ___ of this resource for a primer on common broadband technologies. While not initially intuitive, the basics of broadband technology is not as daunting as it may seem.

Entity Planning

One of the larger legal components of a tribally owned and operated network will be determining the type of legal entity that will be used to own and operate. In broad terms, the network can be owned and operated by: a government, a for-profit corporation, a non-profit corporation, or public-private partnership with more than one entity type. Of course, each of these categories have a multitude of options within them and there may be added complexity if more than one tribe is part of the endeavor. And, each option will come with its own unique benefits and tradeoffs to consider. Entity planning will be discussed more in depth in Section ___ of this resource.

Sustainability

Network and service sustainability should be the goal and may determine which technology type, entity type, and business model a Tribal nation chooses. Ongoing operations and maintenance, customer service, upgrades to new technologies, regulatory burdens, potential climate change impacts on infrastructure, size of conduit used, expected demand for the service, and staffing availability are all part of sustainability considerations. During the planning phase, be sure to consider future contexts and plan accordingly. For example, California's wildfire season has had a negative impact on utilities infrastructure. Attaching fiber to existing power utility poles can be ideal because it cuts construction costs and it can be easier to "piggy-back" on an existing easement than create a new one. However, with the increased risk of fire, California is prioritizing underground fiber, made possible by trenching, laying conduit, and running fiber through the conduit---more expensive now but little risk of losing the infrastructure to wildfire. At the same time, underground conduit may not make sense on the coastline or other places made vulnerable by rising sea levels and other flooding. Like seemingly everything in the broadband space, sustainability is a complex set of tradeoffs and should be incorporated into the planning phase.

B. LEGAL PLANNING

Once broader network technology planning is close to complete, in-house counsel should already be evaluating the legal aspects of the proposed network. From construction planning to final operations, there are many legal considerations that in-house counsel should have on their radar, even if they are outsourcing the legal work to outside counsel. In terms of legal planning, some of the bigger items to consider are:

- Ownership;
- telecommunications entity options;
- Regulatory implications of the project's funding source(s) and location of infrastructure;
- Intra and intergovernmental collaborations;
- Potential for public-private partnerships;
- Network interconnection agreements; and,
- Co-location agreements;

Further, in-house counsel should be aware the planning stage for Tribal nations without a project manager or robust in-house network development expertise will generally requires contracting, feasibility studies, and funding applications.

C. FUNDING OPTIONS

Choosing funding options is dependent on connectivity deficiencies identified in the community. Deficiencies could include, but are not limited to, information and communication services, remote learning opportunities, remote workforce functionality, virtual medical care, and basic online internet access. Tribal nations should research and apply for funding sources after determining what type of telecommunication entity best serves their Tribal nation, entity type will impact eligibility for certain funding sources.[24] For example, tribal governments may be eligible for federal funding that a tribal corporation is not. While entity type is important to figure out early in the process, there are work arounds. For example, if Tribal governments are eligible for infrastructure funding and tribally chartered for profit corporations are not—the tribal government might still be able to apply for the infrastructure funding and contract the project management to the corporation and lease the infrastructure to the corporation once it's complete.

This section is organized by funding type, and roughly corresponds to the progression of funding that will likely be needed if a Tribe is starting from square one.

Planning & Design Funding

The longest and most expensive task item is the feasibility assessment or feasibility study. Because of this, Tribal Governments should apply for funding in this area first.

Tribal Governments should consider partnering with a non-profit who specializes in Broadband planning and deployment. Another option for tribes within California is the tribal technical assistance grant program administered by the California Public Utilities Commission ("CPUC"). This grant is fairly simple to apply for, can be used for broadband planning, and tribes are eligible for $150,000 per fiscal year.[25] The CPUC's Local Agency Technical Assistance program was established in 2022 and allows for up to $500,000 of funding that can be used for a variety of technical assistance, even big-ticket items like environmental reviews needed for a project.

Federal

The National Telecommunications and Information Administration's (NTIA) Tribal Broadband Connectivity Program is a $980 million program directed to tribal governments to be used for broadband deployment on tribal lands, as well as for telehealth, distance learning, broadband affordability, and digital inclusion.

Provides grant funds for the following purposes:

(A) Broadband infrastructure deployment projects, including support for the establishment of carrier-neutral submarine cable landing stations; and

(B) Projects that promote the adoption and use of broadband services, including

(i) affordable broadband programs, such as free or reduced-cost broadband service and preventing disconnection of existing broadband service;

(ii) distance learning;

(iii) telehealth;

(iv) digital inclusion efforts; and

(v) broadband adoption activities.[26]

Department of Commerce's Connecting Minority Communities (CMC) Pilot Program: provides grants to eligible Historical Black Colleges and Universities, Tribal Colleges and Universities, and Minority-Serving Institutions in anchor communities for the purchase of broadband Internet access service or any eligible equipment, or to hire and train information technology personnel: (1) to facilitate educational instruction and learning, including through remote instruction; or (2) to operate a minority business enterprise; or (3) to operate a tax-exempt organization described in section 501(c)(3) of the Internal Revenue Code. Grant funds may be used to: (1) purchase broadband internet access service, including the installation or upgrade of broadband facilities on a one-time, capital improvement, basis to increase or expand broadband capacity and/or connectivity at the eligible institution; (2) purchase or lease of eligible equipment and devices for student or patron use, subject to any restrictions and prohibited uses; and (3) hire and train information technology personnel who are a part of the eligible anchor institution, MBE or Tax Exempt Organization.[27]

Department of Agriculture's Rural Economic Development Loan and Grant Programs (REDLG): provides funding for rural projects through local utility organizations. USDA provides zero-interest loans to local utilities which they, in turn, pass through to local businesses (ultimate recipients) for projects that will create and retain employment in rural areas. The ultimate recipients repay the lending utility directly. The utility is responsible for repayment to USDA.[28]

Department of Agriculture's Rural Business Development Grant Program (RBDG): provides funding designed to support targeted technical assistance, training, and other activities leading to the development or expansion of small and emerging private businesses in rural areas that have fewer than 50 new employees and less than $1 million in gross revenues. Programmatic activities are separated into enterprise or opportunity type grant activities.[29]

Department of Agriculture's Business and Industry (B&I) Guaranteed Loan Program: bolsters the availability of private credit by guaranteeing loans made by lenders to rural business.[30]

California

As was mentioned previously the CPUC runs funding programs that are available to tribes, wholly-owned tribal corporations, tribal non-profits, and tribal utilities. Rural and Urban Regional Broadband Consortia Grant Account (California Advances Services Fund (CASF)): provides grants to facilitate the deployment of broadband services by assisting infrastructure grant applicants in the project development or grant application process.

Eligibility: representatives, of organizations including, but not limited to, local and regional government, public safety, elementary and secondary education, health care, libraries, postsecondary education, community-based organizations, tourism, parks and recreation, agricultural, business, workforce organizations, and air-pollution control or air quality management districts.[31]

Infrastructure Funding

Federal

Department of Commerce's Broadband Infrastructure Program provides grants on a competitive basis to covered partnerships for covered broadband projects. The term "covered partnership" means a partnership between: (A) a State, or one or more political subdivisions of a State; and (B) a provider of fixed broadband service. A covered partnership may include more than one provider of fixed broadband service as part of its application. Additionally, a provider of fixed broadband service may participate in more than one covered partnership. A provider of broadband service that is part of a covered partnership is not required to be designated as an eligible telecommunications carrier pursuant to section 214(e)of the Communications Act of 1934 (47 U.S.C. 214(e)). The National Telecommunications and Information Administration encourages municipalities, nonprofits, or cooperatives that own and/or operate broadband networks to participate in this program as part of a covered partnership.[32]

Department of Agriculture's Rural Broadband Loan and Loan Guarantee Program (Broadband Program) furnishes loans and loan guarantees to provide funds for the costs of construction, improvement, or acquisition of facilities and equipment needed to provide service at the broadband lending speed in eligible rural areas.[33]

Department Of Agriculture's Community Connect Grant Program: funds broadband deployment in rural communities where it is economically viable for private-sector providers to deliver service. The grants offer financial assistance to eligible service providers that will construct, improve, or expand broadband networks in rural areas.[34]

California

Broadband Infrastructure Grant Account (CASF) provides grants for infrastructure projects that provide last-mile broadband access to households to which no facility-based broadband provider offers broadband service at speeds of at least 10/1 (10 megabits per second (Mbps) downstream and 1 Mbps upstream). Preference is given to projects in areas where Internet connectivity is only available through dial-up service that are not served by any form of wireline or wireless facility-based broadband service or areas with no Internet connectivity.

Projects that only deploy middle-mile infrastructure are not eligible for grant funding. Projects that are already funded by the Connect America Fund program or other similar federal public program that funds infrastructure, except for funding from the federal high-cost support programs that support operations, including High-Cost Looping Support, Connect America Fund-Broadband Loop Support (CAF-BLS), or the Alternative Connect America Cost-Model (A-CAM), are not eligible.[35]

Smart Communities

Developing smart communities[36] can greatly bridge the digital divide. The most challenging issue within your Broadband project is household connectivity. The solution consists of connecting the rest of the community to address the immediate community needs while simultaneously developing Broadband.

Healthcare

- Telemedicine
- Enables remote monitoring, testing, and diagnosis
- Better more affordable health care for Tribal families

Education

- Distance learning
- Dual enrollment in higher education
- Computer-based assessments

- College and scholarship applications
- Gives Native children the same opportunities as other children

Public Safety

- Fast response times
- Better coordination with outside agencies

Tribal Library

- Community computing centers
- Lifelong on-line learning
- Bill pay, federal benefits, etc.
- Job searches
- Filing taxes

Housing

- Increases value of Tribal homes
- Protects Tribal Homes:
- “Smart grid” utilities
- Control HVAC fire alarms, security systems, etc.

Federal

Department of Agriculture’s Telecommunications Infrastructure Program provides financing for the construction, maintenance, improvement and expansion of telephone service and broadband in rural areas.[37]

Department of Agriculture’s Rural eConnectivity (ReConnect) Program offers three types of funding options for broadband infrastructure to connect rural families, businesses, farms, ranches, schools, libraries, and public safety facilities to modern, high-speed internet. A rural area is eligible if it currently does not have sufficient access to broadband. The ReConnect grants, grant and loan combinations, and low-interest loans can be used to construct, improve, and acquire facilities that provide internet services to customers’ premises, with reliable technologies that are suitable for the type of rural community and the type of high-speed internet use.[38]

Department of Agriculture’s Rural Community Development Initiative (RCDI) Grant Program grants are awarded to help non-profit housing and community development organizations, low-income rural communities and federally recognized tribes support housing, community facilities and community and economic development projects in rural areas.[39]

Department of Agriculture’s Distance Learning and Telemedicine (DLT) Grant Program helps rural communities use the unique capabilities of telecommunications to connect to each other and to the world, overcoming the effects of low population density. The program focuses on broadband infrastructure deployment, broadband adoption/digital literacy/tech support, digital skills training, devices/equipment, and telehealth.[40]

Department of Agriculture’s Community Facilities (CF) Direct Loan and Grant Program provides affordable funding to develop essential community facilities in rural areas. An essential community facility is defined as a facility that provides an essential service to the local community for the orderly development of the community in a primarily rural area, and does not include private, commercial, or business undertakings. The program covers devices/equipment, public connectivity/computer access, smart communities, and telehealth.[41]

California

The Line Extension Program (CASF) allows individual household and/or property owners to apply for an infrastructure grant to offset the costs of connecting a household or property to an existing or proposed facility-based broadband provider.

A representative, including a facilities-based broadband provider, may apply for a service on behalf of an eligible applicant or a group of eligible applicants. An “Eligible Applicant” is the customer residing at the location to be served, who qualifies for the California LifeLine or CARE Program’s qualifying income threshold.[42]

Broadband Adoption Account (CASF) provides grants to increase publicly available or afterschool broadband access and digital inclusion, such as grants for digital literacy training programs and public education to communities with limited broadband adoption.

Eligible applicants include local governments, senior centers, schools, public libraries, nonprofit organizations, and community-based organizations with programs to increase publicly available or after school broadband access and digital inclusion, such as digital literacy training programs are eligible to apply for grants.

Eligible projects include digital inclusion projects, which can include digital literacy training programs and public education to communities with limited broadband adoption, including low-income communities, senior citizen communities, and communities facing socioeconomic barriers to broadband adoption. Additionally, publicly available or after-school broadband access projects can include free broadband access in communities training rooms or other public spaces, such as local government centers, senior citizen centers, schools, public libraries, nonprofit organizations, and community-based organizations. It can also include funding community outreach, such as analysis, comparison of Internet plans with the community, and call centers that will increase broadband access and adoption.[43]

For information about resources available in other states, click here.

D. REGULATORY FRAMEWORK

In California and some other states, broadband operation is governed by state Public Utility Commissions (“PUCs”) or similarly functioning state government entitites. PUCs are government agencies charged with ensuring that utility services are reliable, resilient, and available. Broadband suppliers, including cable and wireless companies, are subject to limited oversight by the states[44], primarily to ensure that they provide adequate 911 emergency services. On the federal side, broadband has been defined as an interstate service, so the Federal Communications Commission[45] (“FCC”) has primary jurisdiction over broadband. Tribal nations should be aware of any possible regulation required by their funding sources, location of infrastructure, etc.

Tribal nations that decide to own or operate a broadband network are arguably required by the FCC to operate an “open-access network[46].” Open-access networks are facilities that are made available to all requesting parties at reasonable rates and on reasonable terms. This policy applies to all middle-mile and last-mile networks.[47] The primary element of an open-access broadband network policy is that network operators must offer interconnection to any party and offer wholesale broadband services and capacity at reasonable rates and terms.[48]

Tribal nations have the authority to create local policies and regulations that can promote broadband deployment. After clearly identifying which infrastructure[49] might be available or developed for use by outside broadband providers, inhouse counsel should create requirements/regulations for use.[50]

In terms of infrastructure development, the general considerations include (A) infrastructure ownership; (B)

3 INFRASTRUCTURE DEVELOPMENT

contracts; (C) easements; (D) environmental review; and (E) cultural/THPO review. Infrastructure development generaly requires leasing equipment, creating contracts, and ensure the Tribal nation is following governmental regulations for easements, environmental review, cultural review, and construction activities. Infrastructure development also requires planning for vandalism or destruction of broadband equipment. Because of this, Tribal nations should consider working monitoring and securing infrastructure.

A. INFRASTRUCTURE OWNERSHIP

Tribal ownership should be the goal of any Tribal nations broadband project, it allows for the

most flexibility and control, creates more economic development opportunities, and creates certainty for the tribal internet service provider. Of course, tribal ownership is not always feasible, and in some cases undesirable due to ongoing operations and maintenance needs.

Tribal nations can develop infrastructure that can be leased or contributed to a broadband partnership. Broadband infrastructure can include:

Conduit: typically, plastic tubing that is placed within a trench.[51] Tribes can opt to lay extra conduit that can be leased to other providers or even lay extra large conduit so there is room for more fiber or other utilities. “Dig once” has become the motto in California, and tribes should consider this approach, trenching and laying conduit as part of a road project may save a lot of money and time in the future when the tribe is ready to deploy a fiber infrastructure project.

Fiber: Fiber-optic cable technology, commonly referred to as “fiber,” mainly works via use of cables converting data transmission which includes images, text, video, and emails into a torrent of light and this flood of light passes via cable. Fiber can be laid in conduit underground or attached to poles or towers above ground—it can even be attached to the same pole or tower infrastructure used for electricity. Tribal nations can sell or lease excess fiber strands from an existing institutional network or other government-owned fiber.[52]

Real estate: Offer broadband providers land on which to locate Network Operations Centers[53], satellite antennas, towers, hubs, and other equipment.[54]

Pole attachments: Using traffic lights and government owned utility poles for fiber runs, wireless routers, antennas, and other associated equipment.[55]

Public structures: Sell or lease space—existing buildings, water towers, tower farms, rooftops, or buildings—to locate antennas and other equipment on public structures.[56]

Hardened facilities and alternative power generation facilities: offer to share these types of facilities to help broadband providers meet their network resiliency and disaster-response requirements.[57]

Inhouse counsel and tribal attorneys may be needed to assist with asset sales or leases, capacity-sharing agreements, and schedules of fees for use. Inhouse counsel should draft associated financial arrangements for each fee schedule or lease.

B. CONTRACTS

As a Tribal attorney assisting with broadband development, there will be many instances that require drafting and negotiating contracts. Broadband-related contracts are not entirely different from other types of contract review, so be sure to stick to the basics—clear, enforceable contracts that protect the Tribe’s interests are always the goal. Documents that you will interact with as a Tribal Attorney tasked with a broadband project may include: Pole Attachment Agreements, Construction Contracts, Service Level Agreements (SLA), Operator Agreements, infrastructure leases, site leases, indefeasible right of use (IRU), co-location agreements, and maintenance agreements.[58]

When drafting or reviewing these types of documents, ther are certain steps you can take to avoid pitfalls. First, it is important for tribal attorneys to clarify key terms such as: timelines; progress check points; construction, maintenance, and removal responsibilities; designs and aesthetics; service requirements; ownership; indemnity; insurance. Not unlike every other contract, tribal attorneys need to watch out for one-sided agreements from industry participants and make sure the agreement is consistent with oral and written representations. Tribal attorneys should be wary of contracts that have unrestricted assignments or transfers of agreements to third parties.[59] Time and materials contracts should be unambiguous, hourly rates per type of staff deployed and hours allotted per project task. If the Tribal nation requires a competitive bid process, be wary of any bid that is much lower than other competitors and ask why. While a low bid can seem promising, it may signal an unexperienced contractor or worse, one that may attempt to adjust pricing significantly mid-project.

A few best practices for contracts that detail labor, materials, costs, and methods for constructing a fiber network, tower, or other telecom infrastructure include:

1. Ensure the scope of work and procedure for change orders is clearly defined to controls costs.
2. Performance metrics such as a build schedule, qualifications for personnel, payment schedules, and more are within the contract to ensure quality and timely build. And,
3. When accepting an offer from an industry partner make sure to include inspections and warranty clauses so that the Tribe gets what they expected. [60]

There are at least a few best practices to consider for agreements with a third-party to operate a network, these include:

1. Ensuring that the scope of work and oversight clauses within your agreement are incentivized to meet the tribes’ goals;
2. There are clear and set terms and privacy protections for end-users and customers; and,
3. have a transition plan in place for the contracts laps or early termination—the contract should stipulate the third party’s cooperation to a new operator.[61]

Finally, for lease agreements that set the terms and consideration required for use of existing conduit or fiber:

1. Make sure that there are clearly defined routes and facilities with regards to assets to avoid future disputes;
2. Consider allowing cash or in-kind consideration for these types of agreements to maximize benefits; and,
3. Be clear on access, the “who, when, and how” of access is important to protecting network security and integrity. [62]

C. EASEMENTS

Internet sevice in any given area requires infrastructure. In rural areas where there is no existing broadband infrastructure, it will likely be necessary to develop land and install the required structures such as above ground poles, wireless equipment, underground wires, and more to achieve internet connectivity. As we have seen in previous sections, land development is highly regulated by tribal, federal, state and local laws—usually depending on the status of the land in question. One issue that crops up in the development of broadband infrastructure across tribal land is whether or not an easement and/or right of way is needed and when and if that right of way requires approval by the Bureau of Indian Affairs.

Whether a right-of-way needs approval by the Bureau of Indian Affairs (BIA) will largely turn on what type of Indian land is being developed and who owns that land.[63] If the land is held in trust solely for the tribe, the tribe may, as project proponent, consent to a right-of-way over or across their own land without any further steps.[64] The issue becomes trickier for other types of tribal lands where there is not 100% ownership by the tribe, for example Indian allotments, especially allotments that do not have a majority owner. In some instances, broadband infrastructure may need to stretch across several types of tribal land, so it is imperative that tribal attorneys know when a right of way is needed. The BIA issued the following graphs to help determine when a right of way is needed and if there are additional steps.[65]

If you are . . .	then you must obtain a right-of-way under this part . . .
(1) A person or legal entity (including a Federal, State, or local governmental entity) who is not an owner of the Indian land	from us, with the consent of the owners of the majority interest in the land, and the tribe for tribal land, before crossing the land or any portion thereof.
(2) An individual Indian landowner who owns a fractional interest in the land (even if the individual Indian landowner owns a majority of the fractional interests)	from us, with the consent of the owners of other trust and restricted interests in the land, totaling at least a majority interest in the tract, and with the consent of the tribe for tribal land. You do not need to obtain a right-of-way from us if all of the owners (including the tribe, for tribal land) have given you permission to cross without a right-of-way.
(3) An Indian tribe, agency or instrumentality of the tribe, or an independent legal entity wholly owned and operated by the tribe who owns only a fractional interest in the land (even if the tribe, agency, instrumentality or legal entity owns a majority of the fractional interests)	from us, with the consent of the owners of other trust and restricted interests in the land, totaling at least a majority interest in the tract, unless all of the owners have given you permission to cross without a right-of-way.

You do not need a right-of-way if you are . . .	but the following conditions apply . . .
(i) A parent or guardian of a minor child who owns 100 percent of the trust or restricted interests in the land	We may require you to provide evidence of a direct benefit to the minor child and when the child is no longer a minor, you must obtain a right-of-way to authorize continued possession.
(ii) Authorized by a service line agreement to cross the land	You must file the agreement with us under § 169.56.
(iii) An independent legal entity wholly owned and operated by the tribe that owns 100 percent of the trust or restricted interests in the land	The tribal governing body must pass a tribal authorization authorizing access without BIA approval and including a legal description, and you must submit both documents to BIA for our records.
(iv) Otherwise authorized by law	You must comply with the requirements of the applicable law.

D. ENVIRONMENT REVIEW

Environmental review is a necessary component of bringing broadband to tribal areas. Native people have been stewards of their lands since time immemorial and are likely inclined to ensure that potential impacts to the environment are assessed and minimized. As sovereign governments, many Tribes have codified their own environmental and cultural protections codes that apply on reservation and other tribally held lands. Beyond tribal law, the federal government and some state governments have introduced policies that reduce environmental harm; however, these policies may only apply to Tribes when a Tribe has accepted federal or state funding for a project—depending on the location of the project in question.

If a Tribe has accepted federal funding for an infrastructure project such as broadband, the National Environmental Policy Act (NEPA) will likely be triggered for off-reservation projects.[66] NEPA was passed into law in 1969 and "requires the preparation of an environmental impact statement (EIS) for any proposed major Federal action that may significantly affect the quality of the human environment."[67] If a tribe has accepted federal funding, the tribe needs to be cognizant of the timelines and restrictions set forth in NEPA. Visit the Environmental Protections Agencies website for more information on how to stay in compliance with these regulations.[68]

If a Tribe in California has accepted state funding, the California Environmental Quality Act (CEQA) may apply.[69] "CEQA requires public agencies to "look before they leap" and consider the environmental consequences of their discretionary actions.[70] CEQA is intended to inform government decisionmakers and the public about the potential environmental effects of proposed activities and to prevent significant, avoidable environmental damage."[71] Tribal counsel should review CEQA guidelines through the process of building broadband infrastructure to stay in compliance with the regulation. CEQA guidelines can be found on California's Environmental webpage: https://opr.ca.gov/ceqa/guidelines/.

Environmental review can be a lengthy and expensive process, be sure to find out which regulation will apply to the project as soon as possible and plan accordingly. Some infrastructure routes may be off limits entirely, others may be feasible but have limitations on construction periods to reduce negative impacts on endangered species.

E. CULTURAL/THPO REVIEW

When deciding where to place broadband infrastructure, it is important to consult with the cultural resources department throughout the process to make sure that the implementation of broadband infrastructure is culturally appropriate and permissible. For instance, if a tribe is placing unsightly poles within view of a place of cultural or spiritual significance to the tribe. In some instances, a camouflaging paint may be all that's necessary. In other instances, the placement of such infrastructure in certain areas may need to be avoided entirely.

In addition to working with the tribe to ensure that their wishes are adhered to with respect to maintaining the integrity of a particular area of land, the federal government has its own regulations regarding the protection of culturally relevant sites. "The National Historic Preservation Act of 1966 was passed primarily to acknowledge the importance of protecting our nation's heritage from rampant federal development."[72]

"Some key elements from the Act[73]:

- Sets the federal policy for preserving our nation's heritage
- Establishes a federal-state and federal-tribal partnership
- Establishes the National Register of Historic Places and National Historic Landmarks Programs
- Mandates the selection of qualified State Historic Preservation Officers
- Establishes the Advisory Council on Historic Preservation
- Charges Federal Agencies with responsible stewardship
- Establishes the role of Certified Local Governments within the States"

In 1992, the National Historic Preservation Act was amended. The amendments included provisions for Indian tribes to assume the responsibilities of the State Historic Preservation Officer (SHPO) on tribal lands and establish the position of a Tribal Historic Preservation Officer (THPO).[74] "The regulations implementing Section 106 of the NHPA use the term "THPO" to mean the Tribal Historic Preservation Officer under Section 101(d)(2) of the NHPA. Tribal lands are defined in the NHPA and the Section 106 regulations (36 CFR Part 800) as, 1) all lands within the exterior boundaries of any Indian reservation; and 2) all dependent Indian communities."[75]

The state of California has also passed laws on cultural preservation through increasing regulations on development through the Native American Historic Resource Protection Act (AB 52). The Commission has provided information to assist in the implementation of AB 52 – CEQA Tribal Consultation. AB52 is intended to "minimize conflict between Native American and development interests.[76] AB 52 adds "tribal cultural resources" ("TCR") to the specific cultural resources protected under CEQA, and requires lead agencies to notify relevant tribes about development projects. It also mandates lead agencies to consult with tribes if requested and sets the principles for conducting and concluding the required consultation process."[77]

4 INTERNET SERVICE DEPLOYMENT

For successful internet service deployment, tribal attorneys will likely need to handle or oversee the drafting, negotiations, and finalizing of agreements with telecommunication carriers. In this section, we will discuss (A) Network Interconnection Agreements; (B) Backhaul Purchase Agreements; (C) Internet Use Policy (Consumer); and (D) Internet Service Agreements.

A. NETWORK INTERCONNECTION AGREEMENTS

A network interconnection agreement typically refers to a contract between telecommunications carriers for the purpose of interconnecting their networks. Importantly, if internet is down in one area, it can be transferred to the outage area from another area so long as an agreement exists among two or more parties. Thus, Tribes should try to partner with other network providers to establish such an agreement. It is important to remember that telecoms regulators, either at the federal or state level, will likely require companies to "play nice" and enter such interconnection agreements, however the pricing and the terms is likely left to the parties.

These agreements need to be considered very early on in the broadband planning process if possible. That is because interconnection points will need to be discussed and incorporated into the engineering plan. Tribe will want to discuss with network partners the most cost-effective, technically feasible interconnection points. "For example: If network interconnections with NOCs and POPs (Points of Presence) are planned, it may be possible to purchase low-cost broadband capacity and join a wider network that pools demand (e.g., through construction, IRUs or other agreements). If the network is designed to interconnect with a variety of data centers, customers have the option to select the data center that best meets their needs."[78]

National Telecommunications and Information recommends several best practices to engineer successful middle-mile and institutional networks:[79]

1. Build in capacity for future broadband demand, network designers should always plan for the future by adding fiber and conduit that exceeds the plan's initial estimates; The expense of adding fiber and conduit during the initial construction phase will be far less than adding it later.
2. Add structural supports on towers during construction will open up future revenue opportunities from other network operators that are willing to lease tower space for their equipment.
3. Anticipate community expansion—broadband networks are always growing.
4. Ensure the network design accommodates locations where future development may occur, such as proposed sites for new housing, industrial parks, government offices, healthcare facilities and other community buildings. Access points should be located where network connections will most likely be needed in the future.

H. BACKHAUL PURCHASE AGREEMENTS

"Backhaul refers to the part of a satellite network that serves as an intermediate between the main network and the small networks used for distribution to other smaller channels. The backhaul is the link between the network serving as the backbone for other networks and other sub-networks."[80]

Essentially, tribes can purchase internet coverage from providers such who do not want to expand into rural areas because it does not generate enough profit revenue to bother. Tribes have an interest in getting coverage for tribal member in rural areas, so they can purchase internet from these providers "wholesale" and be able to bring coverage to the areas that were not covered before. For example, the Yurok Tribe has purchased backhaul bandwidth from a national internet service provider in the area. That backhaul lands on the westernmost portion of the Yurok Reservation from a copper wire that runs north-south between the Yurok Reservation and the closest city. From the backhaul landing point on the western Yurok Reservation, the Yurok Tribe then spreads the signal further into the reservation by using its own wireless network.

I. INTERNET USE POLICY (CONSUMER)

Inhouse counsel must, depending on entity model, develop internet use policies. If the Tribal nation decides to implement a community network or customer model, inhouse counsel should meet with these institutions, reach agreements to aggregate their collective broadband demand, and incorporate important policies of the Tribal nation. Such a policy should address a multitude of issues; from acceptable internet usage to prohibition of using the network for illegal activities including child pornography, human trafficking, sexual harassment, and several others.

J. INTERNET SERVICE AGREEMENTS (CONSUMER)

Further, inhouse counsel should develop a service plan identifying services that may be offered by either the wholesale and/or retail broadband network. These include fixed-price service contract, price according to bandwidth used, client premise contracts, and ad-on services (e.g., network engineering, cloud services).[81]

Again, for Tribal nations who are implementing the community network or customer model, inhouse counsel should reach agreements with other service providers to negotiate best rates, speed capabilities, and services for tribal members and customers.

5 SUSTAINABILITY AND FUTURE-PROOFING

Tribal nations should develop broadband projects that will provide long-lasting connectivity for members. Broadband projects can be used for future economic development. Commercial entities typically first inquire about broadband capabilities and cost of electric. Therefore, expansive broadband projects will entice commercial development. Further, build into network design dark fibers that can leased in the future. Leasing fiber or other infrastructure equipment will create income for Tribal nations.

Tribal nations should plan to create future opportunities for broadband ownership. For example, if a Tribal nation only has the resources to lease equipment and hire a service provider, the Tribal nation can plan to develop their own corporation and become a service provider. Further, Tribal nations should develop training programs to train people for positions in the corporation or IT department. This will in turn create employment, allow company growth, and safeguard from loss of employees. As discussed in the planning section, Tribal nations should implement connected community tactics to ensure immediate connectivity while simultaneously building broadband infrastructure.

Beyond economic development, Tribal nations should consider such things as climate change, sustainability, and community growth. For example, consider avoiding flood or fire zones when building infrastructure. Additionally, Tribal nations could implement environmentally friendly equipment like solar panels for future sustainability. Lastly, when planning your broadband project be sure to think of where the Tribal nation will be in fifty-years in terms of economic, community, and departmental growth.

OTHER BROADBAND RESOURCES

For a more in-depth discussions on broadband project planning and implementation in a tribal community, we recommend exploring some of the resources listed in this section. While UCLA Law cannot specifically endorse any of the resources or organizations, several listed here were helpful during the research and drafting of this publication.

A wealth of relevant information has been collated by Broadband USA. Broadband USA has published toolkits for communities seeking to expand broadband access and adoption, including:

- Tribal Broadband Planning Toolkit 2022
- Planning Community Broadband Roadmap: A Toolkit for Local and Tribal Governments 2016
- The Power of Broadband Partnerships: A Toolkit for Local and Tribal Governments 2017
- Sustaining Broadband Networks: A Toolkit for Local and Tribal Governments 2017
- Implementing a Broadband Network Vision: A Toolkit for Local and Tribal Governments 2017

In addition to the toolkits, Broadband USA has webinars, frequently asked questions, and funding information located on their website: https://broadbandusa.ntia.doc.gov/resources/tribal-nations.

The California Indian Legal Services has two very helpful webinars on tribal broadband procurement and contracting which are posted to YouTube and available on their website: https://www.calindian.org/self-help/tribalbroadband/.

The Federal Communications Commission (“FCC”) and U.S. Government Accountability Office (“GAO”) have published comprehensive reports on tribal broadband that can be found here:

- https://www.fcc.gov/sites/default/files/nnctf_tribal_broadband_report.pdf
- https://www.gao.gov/products/gao-18-682

Further, the FCC has an Office of Native Affairs and Policy which should be the first stop for Tribal Nations wishing to learn more about the FCC. The FCC has also established the Native Nations Communications Task Force, which has expanded the timeline for their work to October of 2022.

Finally, the U.S. Department of Interior (“DOI”) hosts the National Tribal Broadband Summit, which is the largest annual tribal broadband conference and is an excellent resource for Tribal nations. From current funding opportunities to easements to broadband use and adoption planning; the summit provides timely information necessary to any tribal broadband project. Recently, the DOI has begun posting past conference recordings on YouTube, the latest summit recordings are available at this webpage: https://www.youtube.com/playlist?app=desktop&list=PLSziTXHUFJBSOgx9wVMhsW-p-6G5MN59Z

ENDNOTES

1 U.S. Department of the Interior, ***National Tribal Broadband Summit*** (2020), https://www.doi.gov/tribalbroadband.

2 G.A. Res. 61/295, ¶ 12, U.N. Doc. A/RES/61/295, Art. 3 (Sept. 13, 2007).

3 *See* 2.5 GHz Rural Tribal Window, Federal Communications Commission, https://www.fcc.gov/25-ghz-rural-tribal-window.

4 *See* Mississippi Choctaws Receive 2.5 GHz Spectrum License to Assist in Broadband Access for Tribe, WTOK (Nov. 17 2020), https://www.wtok.com/2020/11/17/mississippi-choctaws-receive-25-ghz-spectrum-license-to-assist-in-broadband-access-for-tribe/ (describing the Mississippi Band of Choctaw Indians efforts to apply for the license considering the challenges posed by the COVID-19 pandemic).

5 California Indian Legal Services, Webinar: "The Good, The Bad, and The Ugly: Procurement Practices for Tribal Broadband" (Aug. 10, 2021), https://www.calindian.org/wp-content/uploads/2021/08/2021.08.10-The-Good-The-Bad-and-the-Ugly-Procurement-Practices-for-Tribal-Broadband-CILS-GWF-BBK-TelTech.pdf.

6 *Id.*

7 Techni Pages, "Fiber vs. Copper Internet," (2022), https://www.technipages.com/fiber-vs-copper-internet#:~:text=A%20copper%2Dbased%20internet%20connection,cables%20to%20transmit%20signals%20instead.

8 Small Business Trends, "Fiber, Copper, or Wireless: Which Connection Is Best for Your Company?" (Aug. 4, 2015), https://smallbiztrends.com/2015/08/fiber-optic-copper-wireless-internet-transmission-methods.html.

9 Id.

10 Id.

11 Id.

12 Id.

13 Id.

14 Id.

15 Id.

16 Id.

17 Broadband USA, *Implementing a Broadband Network Vision: A Toolkit for Local and Tribal Governments* (Aug. 2017), https://broadbandusa.ntia.doc.gov/sites/default/files/publication-pdfs/bbusa_implementing_broadband_network_vision.pdf.

18 *Id.*

19 Wireless broadband converts the data transmission into electromagnetic waves for broadcasting. These waves travel wirelessly, similar to radio transmissions. In terms of infrastructure, wireless broadband equipment can vary drastically but typically needs a point-to-point or line-of-sight connection.

20 For more on community networks, see https://www.internetsociety.org/issues/community-networks/.

21 "Make-ready" refers to process of updating utility poles, replacing wires/lines, and make the utility poles ready for construction. U.S. Department of the Interior, ***National Tribal Broadband Summit*** (2020), https://www.doi.gov/tribalbroadband.

22 Broadband USA, *Planning a Community Broadband Roadmap: A Toolkit for Local and Tribal Governments* (April 2016), https://broadbandusa.ntia.doc.gov/sites/default/files/publication-pdfs/bbusa_planning_community_broadband_roadmap.pdf.

23 U.S. Department of the Interior, *National Tribal Broadband Summit: Transforming First Responder Communications & Extending Connectivity in Tribal Communities* (2020), https://www.doi.gov/tribalbroadband.

24 *See infra* Section 2D for information on government, non-profit, or for-profit models.

25 https://www.cpuc.ca.gov/industries-and-topics/internet-and-phone/california-advanced-services-fund/tribal-technical-assistance

26 *See* Tribal Broadband Connectivity Program, Broadband USA, https://broadbandusa.ntia.doc.gov/resources/grant-programs/tribal-broadband-connectivity-program. https://broadbandusa.ntia.doc.gov/resources/grant-programs/tribal-broadband-connectivity-program

27 *See* Department of Commerce–Connecting Minority Communities Pilot Program, Broadband USA, https://broadbandusa.ntia.doc.gov/resources/federal/federal-funding/department-commerce-connecting-minority-communities-cmc-pilot.

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