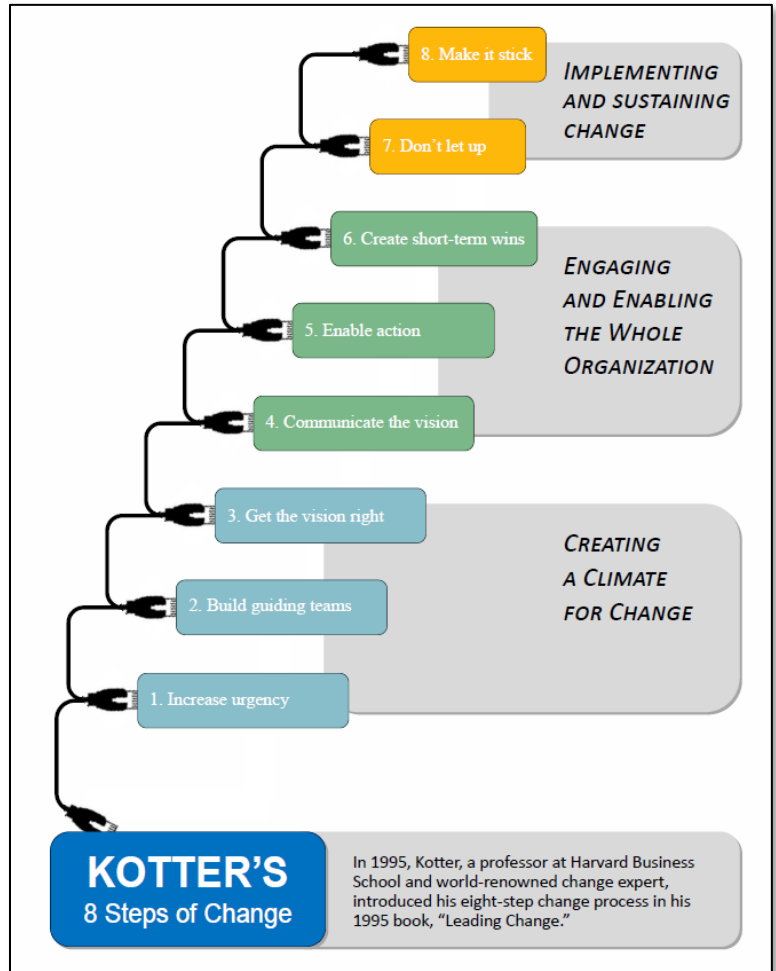# Broadband Expansion Tools for Local Communities

This document is a brief overview of potential tools that counties, municipalities, and local neighborhoods may use to encourage the expansion of broadband infrastructure. This is a checklist and does not offer detailed descriptions or case studies of each tool; additional research will often be required. The document is loosely organized by the *Kotter's 8 Steps of Change*, which has been highlighted during Wisconsin Broadband Boot Camps conducted by the now defunct UW-Extension's Broadband & E-Commerce Education Center. The order of your community's actions may vary and there is some overlap between tools.



## Increase Urgency, Awareness & Capacity

☐ As an advocate, start by understanding what broadband is and why it is important to your community. Treat broadband as essential infrastructure. The graphic on the following page provides a great starting point for such discussions. Pierce County Economic Development Corporation (EDC) has prepared an excellent "white paper" on this topic.

☐ Use press releases, newspaper ads, flyers, presentations, websites, etc., to educate the public and elected officials on topics such as:

- · What is broadband?
- · Why is broadband essential infrastructure for community & economic development?
- · Why is broadband important to local businesses, workforce attraction, and tourism?
- · Why is broadband important to health care, education, and emergency services?
- · How is broadband changing our quality of life? What is the Internet of Things?
- · How can I be more cyber-secure?
- · What are the potential impacts of broadband availability on home and property values, home equity, and the property tax base of local communities?

☐ Adopt a broadband support resolution that affirms importance of broadband and identifies initial actions. Make it an issue and take ownership!

# Broadband
The Fourth Utility

**CORNING**

Let's connect on your vision of a brighter future for your community.

**www.corning.com/muni**

## For communities to thrive
in a global economy, broadband must join electricity, water, and natural gas as required utilities. The stakes couldn't be higher…

Between 2010 and 2016, overall population declined in rural U.S. counties for the first time in history. **Lack of broadband is a contributing factor.** [1]

With higher rates of chronic illness and overall poor health, **rural communities could benefit from telehealth services.** [2]

**66 percent of individuals age 35 and under** living in MDUs get about half of their video content online. [5]

**7 out of 10 teachers now assign homework that requires internet access,** creating a homework divide where broadband is not present. [3]

Only **32.6 percent of rural libraries report having a fiber broadband connection,** compared to 62.3 percent of their urban counterparts. [4]

**Smart communities require robust broadband** for applications like precision agriculture, e-government, next-generation public safety (FirstNet), smart grids, and smart connected homes.

If communities are to keep pace with evolving mobile wireless technology, or 5G, **an extensive fiber-based backhaul network will be required**

## Broadband services enabled by robust fiber networks can make a difference,
often making or breaking a community's ability to survive over the long term…

Between 2005 and 2016, **output in the digital economy grew 5.6 percent per year.** Annual growth in total U.S. GDP by contrast, was just 1.5 percent. [6]

FTTH-available communities enjoy **46 percent better new business formation** compared to communities without fiber broadband services. [7]

Since the Sevier County School system in TN instituted a telehealth program, **84 percent of students treated via telehealth remain in school.** [9]

Thanks to a broadband grant from the U.S. Economic Development Agency, the Eastern Kentucky Concentrated Employment Program (EKCEP) **saved 142 jobs and created 25 new ones.** [10]

The **average revenue from a home-based business using FTTH ($73,000)** far exceeds, cable broadband ($43,000), DSL ($38,000), and wireless ($25,000). [5]

Fiber-based broadband correlates with **higher property satisfaction.** [8]

When available, **rural markets enjoy better average take rates (63 percent) for fiber broadband** than urban (50 percent) or suburban (43 percent). [7]

[1] Rural Economy and Population, USDA
[2] Rural Health Disparities, Rural Health Information Hub
[3] Bridging a Digital Divide That Leaves School Children Behind, New York Times
[4] Rural Libraries in the United States, American Library Association
[5] RVA LLC
[6] Defining and Measuring the Digital Economy, Bureau of Economic Analysis, U.S. Dept. of Commerce
[7] Fiber Broadband Association
[8] The Tangible Value of Advanced Broadband to MDUs—RVA LLC
[9] Health Care Hubs: The Future of Telemedicine and Broadband
[10] Building the Broadband Economy, Broadband Properties Magazine

*Corning Optical Communications, LLC in Charlotte, NC created this excellent graphic that reinforces the necessity of broadband as the fourth utility—on par with water, gas, and electricity—in today's world. In this context, treating broadband as a utility suggests that reliable, affordable broadband access is a right; it is not suggesting that broadband be made a public utility.*

☐ Your project needs one or two passionate champions or a specific organization/department that will take the lead, facilitate communications, and keep your efforts moving forward. Identify and nurture community leaders and advocates to fill that role.  Delegate and empower individuals or a group to take action on broadband expansion for your community by motion, resolution, etc.

☐ Bring diverse stakeholders together to form a guiding coalition, advocacy group, or technology committee to take the lead on broadband planning and advocacy. Such groups can start out informal, or can be formalized and incorporated such as the Northwoods Broadband & Economic Development Coalition.

☐ Build the capacity of residents at a local or neighborhood level to take action.  This can include providing data, maps, broadband tools, resources, and how to build broadband partnerships.  Create and provide a resource hub for broadband information.

☐ The West Central Wisconsin Broadband Alliance maintains a web-based Broadband Library via Dropbox with informational articles, studies, data, example surveys, sample support resolutions, and other resources.  Contact WCWRPC (www.wcwrpc.org) for more information.

## Inventory and Assess Broadband Supply & Demand

☐ When exploring data, keep in mind that most homes and businesses have some type of internet access, but this does not mean they have affordable, reliable broadband.  Some key public data sources include:

· Wisconsin Broadband Office's (WBO) data and maps, including the State Broadband Map and maps of areas awarded subsidies by the FCC (e.g., CAF-2, ACAM, RDOF)[1]. https://psc.wi.gov/Pages/Programs/BroadbandData.aspx

· The U.S. Census Bureau's American Community Survey (ACS) has data on computer ownership, internet subscriptions, and cell phone use as well as various socio-economic data. https://data.census.gov/cedsci/

· The National Telecommunications & Information Administration (NTIA) conducts an internet use survey as a supplement to the Census Bureau's annual Current Population Survey. https://www.ntia.doc.gov/category/data-central

· Wisconsin Department of Public Instruction's Digital Equity Gap Survey. https://dpi.wi.gov/broadband

· The Center for Community & Economic Development within UW-Madison Extension has conducted some analysis and prepared related reports and fact sheets, including a broadband index that is a "mash-up" of ACS and FCC data. https://economicdevelopment.extension.wisc.edu/broadband-internet-and-the-wisconsin-economy/

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[1] The data and maps available through the WBO include or incorporate most key broadband maps available from the Federal Communications Commission (FCC), including the National Broadband Map (https://broadbandmap.fcc.gov/#/).

- Consumer-initiated data sources, such as those provided by M-Lab and Ookla®, obtain data generated by users of certain web-based applications, such as online speed tests. M-Lab data is publicly archived and freely available, while Ookla data and their web-based tools may require an agreement. The end user should understand any differences, strengths, and weaknesses of these data sources.

- I3 Connectivity Explorer is a free, web-based tool that draws data from various federal sources and M-Lab to allow users to compile and analyze the broadband situation in their community. https://i3connect.org

- Conduct a community and/or business survey on perceptions, use/adoption, needs, and barriers for use.

  - Some communities, such as Dunn County, have conducted mail surveys. Some example surveys are available in the Broadband Alliance's web-based library.

  - More recently, Eau Claire and Clark counties have both conducted GIS-based surveys over the internet with a built-in speed test.

  - An additional option is to use a service, such as GEOspatial Engineering & Optimization, to utilize specialized software to guide and support your web-based data collection and conduct detailed analysis based on the results. Such services may also be a valuable option if you wish to monitor or evaluate broadband expansion projects awarded to providers, including the FCC subsidy programs (e.g., CAF-2, ACAM, RDOF).

- Engage in discussions with the business community, emergency services/communications providers, and critical facilities on broadband needs, plans, and opportunities.

- Expand upon the WBO's broadband surveys and maps to collaborate on local maps with additional information on broadband supply (e.g., providers, type of service, upload/download speeds) and demand. This could include a review of public right-of-way permits to identify the owners of existing fiber that may be underutilized or dark.

- Share your broadband data and mapping needs with neighboring jurisdictions, the WBO, and elected officials. For instance, if you are interested in data from a fee-based service or analytical tool, such as Ookla or GEOspatial mentioned previously, it can be much more cost effective to subscribe as multiple counties or at the state level as well as providing the needed staffing resources to effectively use these services.

## Broadband Planning—General



- Identify and build relationships with local broadband providers and any existing community area networks. Tell them what you need and explore opportunities. See next sub-section.

- While implementation typically occurs locally, activities such as planning, policies, information sharing and leveraging resources often begin at the county or regional level. Reach out to your school district and neighboring jurisdictions to learn what they've done. Identify shared needs and partnership opportunities. Explore case studies from other communities. Participate in the West Central Wisconsin Broadband Alliance meetings for a regional perspective and to share resources. For technical assistance, contact the Public Service Commission's Wisconsin Broadband Office (WBO) or the NTIA's BroadbandUSA program.

- Using WBO or FCC maps/data, determine if your community is in an area to be served by a FCC auction/subsidy program. If you are in an award area, reach out to the internet service

provider (ISP) to determine their plans and explore partnership opportunities.   These FCC programs include:

- Connect America Fund II (CAF-2), which was limited to larger price-cap carriers
- Alternate Connect America Cost Model (A-CAM) for smaller, rate-of-return carriers
- Rural Digital Opportunity Fund (RDOF)

☐ Integrate broadband conditions, needs, and strategies into your community's comprehensive plan, often as part of the Utilities & Community Facilities element or as a standalone element. Some communities have made broadband a centerpiece of their economic development strategy, including for tourism, attracting/retaining workforce, and for marketing to potential residents, entrepreneurs, and businesses.

☐ Your local school district, technical college, and public library can be key partners in broadband education, data gathering, and planning.  Educating youth on the importance of broadband, beyond gaming, can help attract/retain young workers.  Young people can also be a good resource to assist with your outreach and planning efforts.

☐ Develop a standalone broadband plan or strategy that assesses supply and demand, with recommendations.  Look ahead—what you need today may be very different than what you will need in the future.  Your broadband strategy may need to prioritize goals and actions based on need and opportunity.  If needed, obtain technical assistance from qualified consultant to drive the effort and provide an objective, "outside" perspective.

☐ As part of capital improvements planning and official mapping, discuss road & right-of-way projects with local providers to identify opportunities for installation of fiber, conduit, etc.

☐ Inventory and create a vertical assets database of structures (e.g., silos, water towers, tall buildings) where ISPs could locate wireless antennas and other equipment.  Check the list of WDNR decommissioned fire towers.  Make this database available to ISPs.

☐ Strive to become a Smart City/Community, a Gigabit Community, a US Ignite Smart Gigabit Community, a WEDC-recognized Gigabit Business Park, or similar.

☐ As you explore solutions, understand that more than one type of broadband service may be needed to meet the needs of your community.  The high-speed transmission of data can be physically provided in a variety of ways, including:
- Digital Subscriber Line (DSL) through landline phone networks
- Cable Modem
- Fiber optic or Fiber-to-the-Premises (FttP)
- Fixed Wireless
- Satellite, including the Starlink project that is in testing
- Broadband over Powerlines (BPL) – very limited use to date
- TV White Space – emerging wireless option sometimes called Super Wi-Fi[2]
- Mobile, Non-fixed/Roaming Wireless (Cellular Phone Networks)[3]

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[2] Connect Americans Now (https://connectamericansnow.com/) is a national coalition n advocacy organization advocating for more federal funding and reducing regulatory barriers to allow a mix of technologies to address the broadband divide, including TV white space.  Some Wisconsin communities and organizations have joined this Coalition.
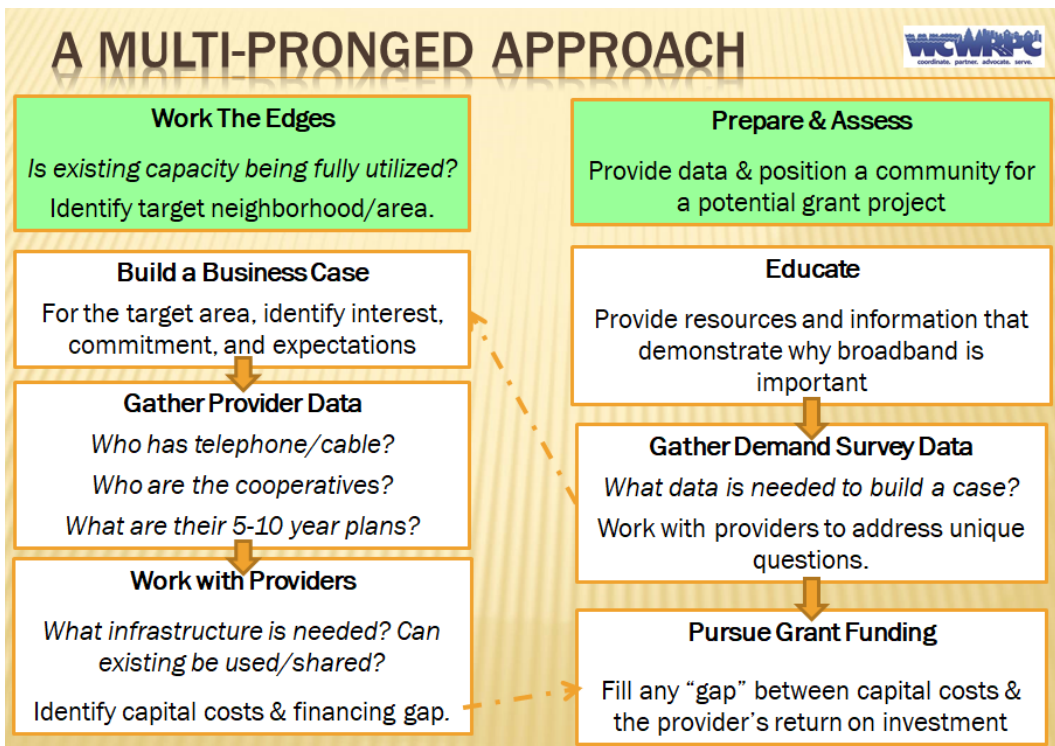
[3] Mobile wireless phone networks are generally optimized for larger numbers of non-stationary or non-permanent users, but this can be at the sacrifice of speeds, latency, and costly data plans.  For such reasons, non-fixed internet service has sometimes

- A combination of the above technologies (e.g., installing fiber to a DSL repeater or a fixed wireless tower).

Keep in mind that each broadband type has strengths and weaknesses. Your solution will be influenced by factors such as: available infrastructure and broadband providers, capital costs, topography, potential sources of interference, current community adoption, and existing and future broadband needs (e.g., costs, reliability, speeds, use). For example, DSL may be effective up to 2-3 miles maximum, while fixed wireless towers may be effective up to 5-10 miles, if there is good line-of-sight.

## Broadband Planning—A Multi-Pronged Approach

Most broadband service is provided by a private Internet Service Provider (e.g., for-profit company, cooperative, private-public partnership). When exploring solutions, engaging area ISPs will be one of your first steps. However, you may first need to do some homework. The multi-pronged approach below was developed by the West Central Wisconsin Broadband Alliance from discussions with area ISPs.



A MULTI-PRONGED APPROACH

**Work The Edges**
*Is existing capacity being fully utilized?*
Identify target neighborhood/area.

**Prepare & Assess**
Provide data & position a community for a potential grant project

**Build a Business Case**
For the target area, identify interest, commitment, and expectations

**Educate**
Provide resources and information that demonstrate why broadband is important

**Gather Provider Data**
*Who has telephone/cable?*
*Who are the cooperatives?*
*What are their 5-10 year plans?*

**Gather Demand Survey Data**
*What data is needed to build a case?*
Work with providers to address unique questions.

**Work with Providers**
*What infrastructure is needed? Can existing be used/shared?*
Identify capital costs & financing gap.

**Pursue Grant Funding**
Fill any "gap" between capital costs & the provider's return on investment

The left column in the above graphic focuses on setting priorities and engaging providers:

1) **Work the Edges**. Broadband expansion projects typically do not encompass an entire county, town, or community. You may need to set some priorities. One communications expediter suggested that communities should "work the edges." Know where your service is today and grow out from there. Broadband expansion will likely be localized and incremental (by subdivision or "neighborhood" area). In some cases, the target area may cross municipal

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not been included as a broadband technology. However, 5G wireless technology is becoming more common with a promise of increased capacity, lower latency, and faster speeds, though it may be a few years before we know if 5G will be an effective broadband alternative for rural areas.

boundaries.  However, you should still be strategic in your planning as suggested in the cautionary note at the end of this section.

2) **Build a Business Case**.  Along the edges, identify a very specific target area (e.g., a number of close subdivisions, a neighborhood that is physically separated by water or topography, along a limited number of roadways), then build a business case for private investment for that target area.  Be able to demonstrate and quantify to ISPs that there is demand and commitment for the target area.  If you need to target a "sub-area", local politics can be a challenge, since an expansion project may not immediately be benefiting the entire community.  But as service is provided, your edges (target sub-areas) will change.

3) **Identify Potential Providers**.  Identify area providers and learn about their services and plans.  If needed, consider adjusting your target area or adding anchor institutions (potential customers with a large broadband need) to improve your business case for a specific provider.

4) **Engage Providers**.  Share your business case.  If an ISP is open to discussing, they can estimate the capital/infrastructure costs and how much of these costs they can finance given a fair Return on Investment (ROI).

The right column of the previous graphic reflects the information needed to build your business case and potentially pursue grant funding.  In this scenario, think of the public funding as "gap financing."  If broadband service is not already provided, there is increased likelihood that a larger capital investment is not feasible based solely on the ROI from customer fees.  In such a case, the local municipality or a community group can partner with the provider to explore grants and other financing alternatives to fill the gap between actual capital costs and the provider's ROI.

**Be strategic and "big picture" in your planning.**  When "working the edges" and engaging ISPs, strive for a holistic approach and consider the ramifications of your decisions.  Take caution not to "cherry pick" by identifying a project that is limited to the most profitable areas or largest customers (e.g., hospitals, schools, other large users), especially if your community is contributing to the project.  This can create a situation that makes it less desirable and less profitable for a second ISP to provide and manage service to the remaining residents and businesses, especially in rural, less densely populated areas.  Further, the second ISP may also lack control or ownership over the "middle mile" in such a scenario, which may limit their options or impact service levels.  Instead, is there an opportunity to "work the edges" in a manner that is accessible by other ISPs (e.g., extra capacity, lease options) and makes it more cost feasible to expand to other underserved areas in the future.  If you treat broadband as essential infrastructure, it is then equitable that these costs be shared equally over the entire population of a community, county, or region instead of perpetuating or creating a digital divide at the local level.

## Remove Barriers and Enable Action

☐ Adopt dig-once and joint trench-use policies and ordinances.  Require that conduit or fiber installation will be allowed in R-O-W and require related notifications.  Coordinate with Wisconsin DOT and/or County Highway Department.

☐ Adopt public rights-of-way policies that waive fees or expedite use for broadband installation.

☐ Adopt tower ordinances that allow agreements for the installation/co-locating of antennae and equipment.

☐ Amend zoning, subdivision, and design review ordinances to consider, encourage, or require the installation of broadband.  Potentially include design plates or cross-sections with standards.

- ☐ Continue to support and advocate for efforts at the Federal and State levels that will provide effective, long-term solutions to addressing rural broadband needs and the digital divide. This includes encouraging more competition in the broadband market place and providing opportunities for smaller or potentially new ISPs, including cooperatives, to enter the market and help meet demand.

- ☐ Signal your eagerness for broadband expansion by obtaining Broadband Forward! Community Certification through the Wisconsin Public Service Commission.

- ☐ Much of the above could be incorporated into a single, overarching broadband ordinance.

- ☐ Provide model ordinances and permitting models to sub-units of government.

- ☐ Your community or organization can apply to become a member of Connect Americans Now, which is a Coalition advocating for elimination of the rural divide largely through education and the removal of Federal policy barriers. This organization is emphasizing TV white space as an emerging broadband technology that will be key to addressing rural broadband needs. Visit https://connectamericansnow.com/

## Other Short-Term Wins & Broadband Adoption

- ☐ Conduct and advocate for digital literacy projects and technology trainings. Such efforts could target a population (e.g., seniors, small businesses). Improving digital literacy and related educational efforts can improve broadband use (adoption) and have significant economic impacts, while strengthening your business case for broadband investment.

- ☐ Advocate for telecommuting & telehealth. Obtain Telecommuter Forward! Community Certification (new program in Spring 2018) through the Wisconsin Public Service Commission.

- ☐ Bring together residents, businesses, and ISPs for community discussions, to educate on available broadband services, and explore opportunities. Show ISPs there is an unmet demand in your community. Such events could include community forums, technology fairs, and educational seminars on broadband topics.

- ☐ Once an ISP is committed to a project or has received a grant, encourage them to keep the general public regularly informed on the plans and progress, perhaps using social media.

## Implementing Change –What is your Approach?

Similar to the types of broadband, the solution for your community may involve a variety of providers. Your approach will depend on the results of your inventory, local demand/needs, preferred broadband type, and goals. Some existing providers may not provide "last mile" broadband, but can help you get there. Some common broadband provider approaches are:

- ☐ **Private For-Profit Providers** – These may be larger price cap telecommunications and cable firms and smaller, local ISPs. These providers are primarily market and profit driven; Federal or State subsidies (e.g., CAF II) are sometimes available. May or may not have shareholders.

- ☐ **Non-Profits and Cooperatives** – Organized and controlled by its members for a specific function to meet member needs, typically for a more limited geographic area. Cooperatives may or may not be non-profit.

☐ **Community Area Networks (CANs)** – CANs are broadband communication networks that are collectively designed and managed. CANs in Wisconsin most commonly serve local units of government, state government, educational institutions, libraries, health care and nonprofits. A CAN may not only build and manage the broadband distribution network, but can include sharing of applications, data centers, expertise, etc. See https://cincua.org/

☐ **Local Government-Owned Infrastructure** – A municipality, a utility/commission established by the municipality, or other public-sector collaborative constructs their own broadband infrastructure for government use or to provide services within all or part of the community. May include Public Wi-Fi for a specific area (e.g., park, downtown) or community wide. Some municipalities (or their utility commissions) are certified by the Wisconsin Public Service Commission as an alternative telecommunications provider, but statutory constraints exist.

As an alternative to acting as an ISP, some municipalities have installed conduit and fiber, then are leasing it out to one or more ISPs. The fiber may initially be dark (unused) or it may be connecting existing (or planned) public uses. Two Wisconsin examples of this approach are:

- Brown County has installed 120 miles of fiber to schools, municipal buildings, etc. They are now working with ISPs to explore ways in which the ISPs can use this fiber to help reach businesses and residents without broadband service.

- Taylor County approved a $9.5 million bond and, through a request-for-proposals process, selected WANRack to help develop and manage a fiber network that will span 74.6 miles throughout the County. In addition, other ISPs will be able to affordably lease any portion of the new fiber to provide high-speed service to residents.

UW-Madison Extension's *Strategies & Policy Options for Broadband Access Across Wisconsin* discusses some of the challenges and limitations with broadband provided by municipalities and cooperatives. As the public-sector increases their role in broadband expansion and adoption, it not only provides for more public control over access and security, but also provides opportunities for the growth of public-sector IT management jobs.

☐ **Private-Public Partnerships -** For most partnerships, ISP owns & operates the service and/or the infrastructure with the public-sector providing financial support or access to public infrastructure. Example partnerships include:

- tower or use agreements and leases for public buildings, water towers, ex-DNR fire towers, property, etc.
- development or shared resource agreements (e.g., e.g., local government waives permitting processes, allow right-of-way use, assists with planning, engineering or other costs)
- lease of public-owned right-of-way, easements, or conduit for fiber
- sale or lease of dark fiber
- co-apply for grant funding, as required by Wisconsin Broadband Expansion Grants

## Implementing Change – Potential Funding Sources

Financing of broadband expansion can be complicated and the best solution may require financing from multiple sources and partners. In some cases, the infrastructure may not be entirely owned by a single, sole service provider (the proprietary model). The following are some of the more common financing alternatives, though the specific programs change over time.

## Federal & State Funding

Table 1 on page 12 identifies some of the most common government financial assistance programs for broadband expansion.  Additionally, funding may be available if the broadband expansion will serve critical facilities, such as schools, libraries, and hospitals.  As of May 2021, new funding opportunities and programs supporting broadband expansion are under consideration, especially at the Federal level, so it is important to stay informed of these changing opportunities.

## Coronavirus State and Local Fiscal Recovery Funds

COVID-19 laid bare the rural digital divide as the demand for remote learning, telemedicine, telecommuting, and other broadband use dramatically increased.  The American Rescue Plan Act (ARPA), signed into law by President Biden on March 11, 2021, allocated funding to state, local, territorial, and Tribal governments to respond to the COVID-19 emergency.  Per ARPA, State and Local Fiscal Recovery Funds must be obligated by December 31, 2024 with projects to be completed by December 31, 2026.  Broadband infrastructure that "makes necessary investments to provide unserved or underserved locations with new or expanded broadband access"[4] is an eligible use of this funding.  The U.S. Treasury has provided guidance on the use of funds and specific expectations for project delivery, including:  broadband projects must be designed to deliver service that reliably meets or exceeds symmetrical upload and download speeds of 100 Mbps and projects must use "strong labor standards, including project labor agreements and community benefits agreements that offer wages at or above the prevailing rate and include local hire provisions."[5]  This funding provides a unique opportunity for units of government to undertake investments but it is important that counties and communities understand and follow all of the guidelines and reporting requirements associated with the funding.
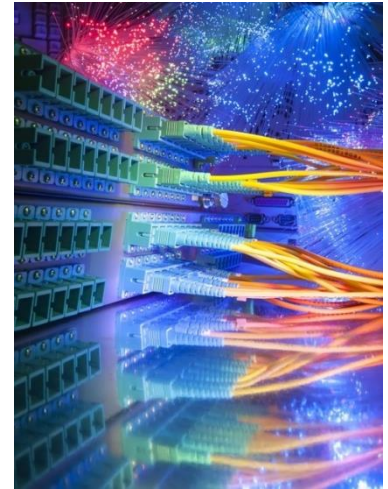
## State of Wisconsin Broadband Expansion Grant Program

Since 2014, the Wisconsin Broadband Expansion Grant Program administered by the Public Service Commission's WBO has been a vital source of broadband project funding.  West Central Wisconsin has been a leading region in successfully using these grant funds.  Applications require a private-public partnership and must expand broadband into unserved or underserved areas.  A local match is not required, but is a priority factor in grant scoring; a local match of 50+% is not uncommon.  The deadline for applications is often short (e.g., 3 months or less from the announcement date), so it is important to be proactive, start building those partnerships, and begin planning in advance of the grant announcement.  There have been multiple application rounds in some years.

This grant program is very competitive.  The FY2021 initial grant rounds awarded 58 projects totaling $28.4 million; a total of 124 applications were submitted totaling $62.6 million.   To strengthen your application, review successful applications from past grant cycles and consider the technical comments from the grant reviewers.  For example, project speeds and scalability are important factors, with 50 of the 58 FY2021 grant awards being for fiber broadband projects.  Grant applications in which the municipality and other partners (not just the ISP) make a cash contribution towards the project are also scored higher.

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[4] U.S. Department of Treasury, *Coronavirus State and Local Fiscal Recovery Funds – Quick Reference Guide.* https://home.treasury.gov/system/files/136/SLFRP-Quick-Reference-Guide-FINAL-508a.pdf
[5] U.S. Department of Treasury, *Coronavirus State and Local Fiscal Recovery Funds – Interim Final Rule.* https://home.treasury.gov/system/files/136/FRF-Interim-Final-Rule.pdf

On June 1, 2021, Wisconsin PSC launched a special round of broadband expansion funding with $100 million from the Federal ARPA. This is the initial batch of Federal funds to be dedicated to expanding high-speed broadband internet access across the State. The very short application acceptance period of June 1 – July 27, 2021, demonstrates the need to plan ahead and be prepared when grant opportunities arise.

## *Other Financing Mechanisms*

- **Private Grants and Foundations.** Private foundation grants for broadband expansion capital are rare. Some foundations may provide private grants for broadband planning, feasibility studies, public education, and adoption. Foundations may target specific areas or demographics of concern. Worth special mention, in 2017 Microsoft initiated the Rural Airband Initiative, which lifted certain patents and has been supporting TV white space projects through grants and commercial partnerships, including a project in northern Wisconsin.

- **Private Equity and Financing** by ISPs, investors/investment banks, developers, and local residents and businesses, including private equity or debt financing, mezzanine funding, private-public development agreements and crowdfunding with patient capital. Private revenue-based financing may also include wholesale dark fiber lease, transmission services, and retails infrastructure lease or connectivity fees.

- **Tax and Assessment-Based Financing**, such as Utility Assessments, Tax Assessment Districts, Property-Assessed Broadband (landowner driven), Tax Increment Financing, Business Improvement Districts, and New Market Tax Credits. May include utility connection or connectivity fees.

- **Municipal Financing**, such as tax-exempt debt financing, general obligation bonds, revenue bonds, industrial revenue bonds, avoided costs, etc.

- **Public Leasing or Tax-Exempt Municipal Lease Financing.** This includes the leasing of public land or structures (e.g., buildings, water towers) for the installation of antennae or other broadband infrastructure by an ISP. This also includes the installation of "dark fiber" where extra fiber capacity is laid by the municipality within the right-of-way that can then be leased to a private entity to cut down on some of their capital and operational expenses.

- **Phased Financing and Expansion.** Early revenues from the operation of a broadband network are used to secure financing for subsequent expansion of the network.

- **Encourage Anchor Tenants.** An anchor tenant is typically a single facility or customer who will require high broadband use, but could be a concentration of users, such as a new subdivision. To help make a broadband investment feasible, the facilities and services of a local government can serve as an anchor tenant for their own networks or for a private network. Likewise, a municipality may identify or encourage additional anchor tenants for areas needing improved broadband service through comprehensive planning, zoning, provision of infrastructure, and other incentives.

- **Cost-Sharing and Partnerships**. When the private marketplace alone provides insufficient return on investment for broadband expansion, collaboration may be needed to leverage resources from multiple partners, including private-public partnerships, intergovernmental agreements, multi-user community area networks, and similar cooperative efforts.

**Table 1. Federal & State Funding Sources for Broadband**

| FUNDING PROGRAM NAME | AGENCY | PROGRAM WEBSITE |
|---|---|---|
| ReConnect Loan & Grant Program | U.S. Department of Agriculture (USDA) | https://www.usda.gov/reconnect |
| Community Connect Program | USDA | https://www.rd.usda.gov/community-connect |
| Distance Learning and Telemedicine (DLT) | USDA | https://www.rd.usda.gov/programs-services/distance-learning-telemedicine-grants |
| Telecommunications Infrastructure Loans & Loan Guarantees | USDA | https://www.rd.usda.gov/programs-services/telecommunications-infrastructure-loans-loan-guarantees |
| Rural Digital Opportunity Fund (RDOF) | U.S. Federal Communications Commission (FCC) | https://www.fcc.gov/auction/904 |
| Universal Service Fund - Schools and Libraries Program ("E-Rate") | FCC | https://www.fcc.gov/consumers/guides/universal-service-support-mechanisms |
| Rural Health Care Program | FCC | https://www.fcc.gov/general/rural-health-care-program |
| Healthcare Connect Fund | FCC | https://www.fcc.gov/general/healthcare-connect-fund-frequently-asked-questions |
| Connected Care Pilot Program | FCC | https://www.fcc.gov/wireline-competition/telecommunications-access-policy-division/connected-care-pilot-program |
| Public Works and Economic Adjustment Assistance Program | U.S. Economic Development Administration (EDA) | https://www.eda.gov/funding-opportunities/ |
| Trust Fund Loan | Board of Commissioners of Public Lands | https://bcpl.wisconsin.gov/Pages/Home.aspx |
| Wisconsin Broadband Expansion Grants | Wisconsin PSC WBO | https://psc.wi.gov/Pages/Programs/BroadbandGrants.aspx |
| Community Development Block Grant Public Facilities Program | Wisconsin Dept of Administration | https://doa.wi.gov/Pages/LocalGovtsGrants/CDBGPublicFacilitiesProgram.aspx |

## *Primary Sources:*

This document compiled ideas and insights from various sources, including but not limited to the following:

- Biltonen, Eric. St. Croix County UW-Extension. *Economic Impacts of Broadband Access & Availability*. Powerpoint Presentation. January 2016.

- Straight, Chris. West Central Wisconsin Regional Planning Commission. *Ideas for Broadband Planning*. Powerpoint Presentation. April 2015.

- UW-Madison Extension, EDA-University Center Team. *Strategies and Policy Options for Broadband Across Wisconsin*. The Wisconsin Economy Policy Brief No. 7. January 2021.

- UW-Extension Broadband & E-Commerce Education Center. *Collected Broadband Regulations and Polices in Action*. May 2014.

- UW-Extension Broadband & E-Commerce Education Center. *Broadband Policies and Regulations*. June 2015.

- West Central Wisconsin (PSC Region 5) Broadband Implementation Group (now Broadband Alliance) meeting notes and group member input. March 2012 – May 2021.

For questions regarding this Toolkit or the West Central Wisconsin Broadband Alliance, contact Chris Straight, Senior Planner, WCWRPC at chris@wcwrpc.org or 715-836-2918.
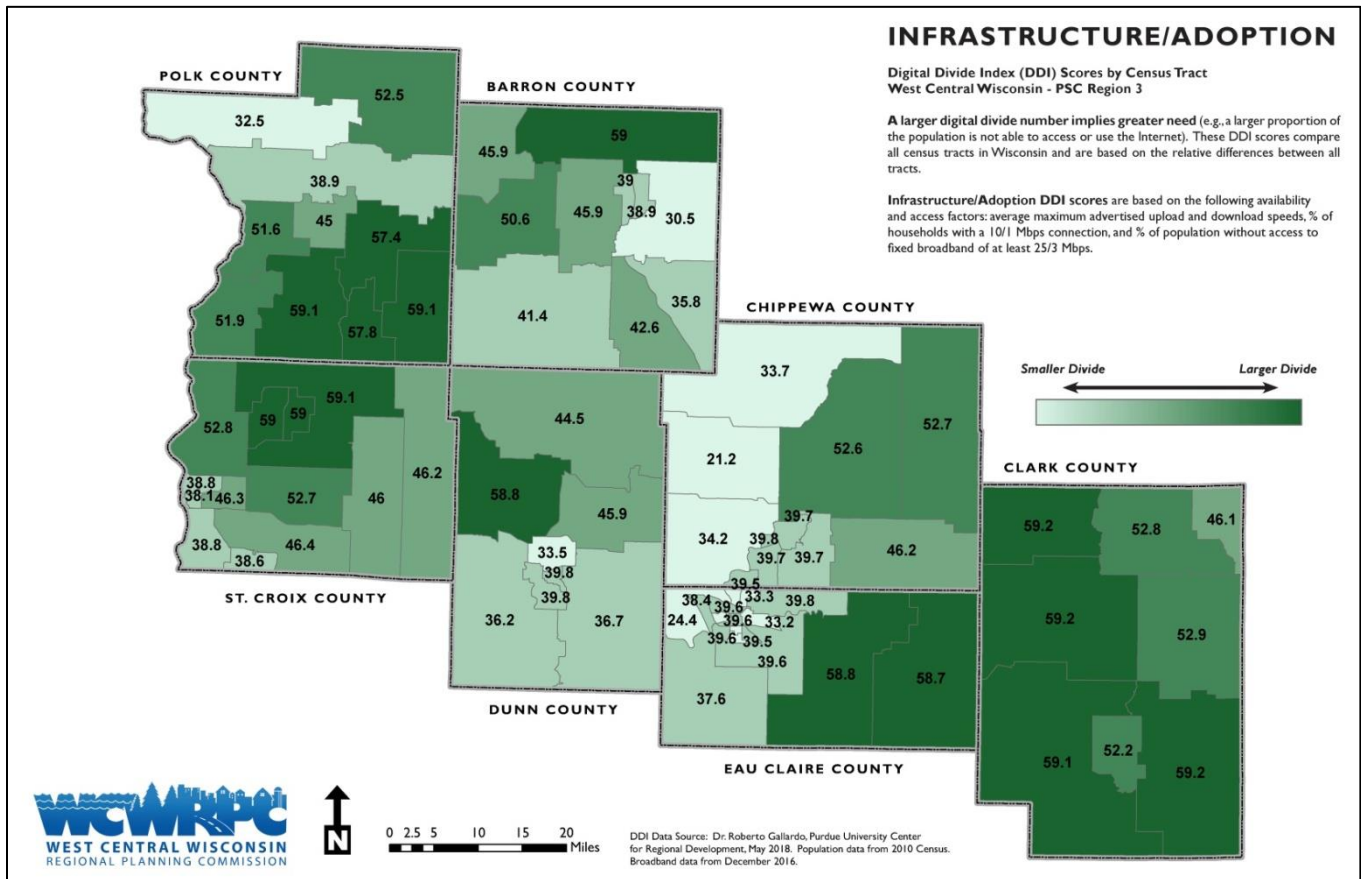
## *October 2023 Amendment[6]*

### Changing Broadband Definitions

While the current FCC definition of broadband is a minimum of 25 Mbps download and 3 Mbps upload speed, it is widely accepted that this definition is very out of date.  Be aware that different State and Federal grant programs have different standards and definitions in terms of minimum broadband speeds, unserved location, and underserved locations.

### Broadband Mapping

- Mapping data continues to improve with recent FCC mapping changes that created a nationwide fabric of potentially serviceable locations and a new approach to collecting data at a smaller geographic level.  Communities have the ability to challenge FCC fabric or broadband availability data.  However, be aware that challenging reported speeds (e.g., our broadband speeds are less than what is marketed/reported) are often not be accepted and would require the submittal of a complaint to the PSC, FCC, etc.

- Two State-level speed testing initiatives are continuing: Wisconsin Internet Self-Report (WISER) through the PSC and the OptiMap (f/k/a GeoPartners) through a collaboration of economic development organizations.  Each testing initiative has its strengths and it can be valuable to encourage residents and businesses to participate in both.

- The PSC continues to enhance and add to the State broadband maps.   For instance, a newer Wisconsin Broadband Planning Map: incorporates the FCC, WISER data, and OptiMap broadband data; enables to creation of coverage summaries by geography, and is searchable by ISP. https://psc.wi.gov/Pages/ServiceType/Broadband/BroadbandMaps.aspx

### Broadband Equity, Access, & Deployment (BEAD) Program

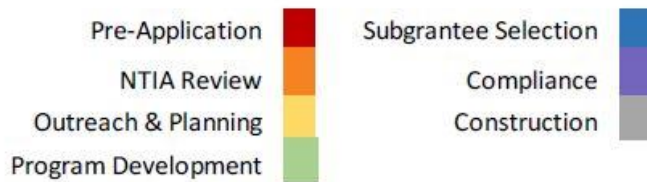- https://psc.wi.gov/Pages/ServiceType/Broadband/GrantLocalPlanning.aspx

- The Federal Bipartisan Infrastructure Law provided $65 billion for a number of programs, including BEAD and the Digital Equity Act program.

- Wisconsin received over $1 billion in BEAD funding for the deployment of primarily fiber internet technology that provides service of 100/20 Mbps to all households and residences in Wisconsin that lack access to 25/3 Mbps service.

- BEAD program aspires to achieve "Internet for All".   However, there are not enough BEAD dollars to provide broadband to all locations that need it, so your broadband strategy should use BEAD to leverage other private and public funding sources.

- Wisconsin PSC is required to prepare a 5-year plan (completed August 2023) as well as more specific proposals describing how BEAD funding will be prioritized and distributed in the State. There are opportunities for public input and to challenge the eligibility map as part of this planning process.

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[6] Some of the information in this supplemental section was taken from Extension's regional broadband workshops in Fall 2023.

- The distribution of BEAD planning grants to regional organizations, counties, and Tribes in Wisconsin has inspired and re-energized many local planning efforts.

- It is likely that construction using BEAD grant dollars would not occur before fall 2025. See timeline below:

## Broadband Equity, Access and Deployment Sequence

| Pre-Application | Subgrantee Selection |
| NTIA Review | Compliance |
| Outreach & Planning | Construction |
| Program Development | |

| Task | | Start Date | Duration (Days) | End Date |
|---|---|---|---|---|
| Notice of Funding Opportunity/Letter of Intent | | 5/13/22 | 66 | 7/18/22 |
| Planning Application Development | | 5/13/22 | 94 | 8/15/22 |
| NTIA Review of Planning Application | | 8/16/22 | 106 | 11/30/22 |
| Five-Year Plan Development | | 12/1/22 | 270 | 8/28/23 |
| Local Planning Subgrant | | 2/1/23 | 820 | 5/1/25 |
| Workforce Planning Subgrant | | 4/17/23 | 258 | 12/31/23 |
| Internet for All Wisconsin Listening Tour | | 5/8/23 | 29 | 6/6/23 |
| Initial Proposal Development (Volume 1, 2, & Budget) | | 6/30/23 | 180 | 12/27/23 |
| State Challenge Process Development (Volume 1) | | 6/28/23 | 180 | 11/1/23 |
| Initial Proposal Volume 2 & Budget Development | | 8/29/23 | 180 | 12/27/23 |
| NTIA Review of Initial Proposal (Estimate) | | 12/28/23 | 125 | 5/1/24 |
| State Challenge Process Implementation | | 1/1/24 | 120 | 4/30/24 |
| Primary Subgrantee Selection Process | | 6/1/24 | 365 | 6/1/25 |
| Final Proposal Review/Post-Award Verification (Estimate) | | 6/1/25 | 30 | 7/1/25 |
| Administrative Reconciliation of Funded Locations | | 1/1/27 | 151 | 6/1/27 |
| >National Environmental Policy Act Review (Short: 3 mo) | | 7/1/25 | 92 | 10/1/25 |
| >Construction (Short: 1 Season) | | 10/1/25 | 426 | 12/1/26 |
| >Closeout & Reporting (Short) | | 12/1/26 | 211 | 6/30/27 |
| >>National Environmental Policy Act Review (Long: 24 mo) | | 7/1/25 | 730 | 7/1/27 |
| >>Construction (Long: 3 Seasons) | | 7/1/27 | 884 | 12/1/29 |
| >>Closeout & Reporting (Long) | | 12/1/29 | 211 | 6/30/30 |

## Other Grant Funding

- Grant opportunities continue to change.  Since it can require significantly time to "bring a project together" and grant deadlines are often short, it is important to be proactive and plan ahead.

- It is also important to consider how projects funded under one grant program can impact eligibility for other programs.  For instance, if broadband expansion in an area is funded under RDOF or enhanced A-CAM, then that area might not be eligible for BEAD grant funding.

- For Federal grant programs, visit the following website and download their interactive guide: https://broadbandusa.ntia.doc.gov/resources/federal/federal-funding

- For State grant programs, visit: https://psc.wi.gov/Pages/ServiceType/Broadband/GrantPrograms.aspx

## Community and Counties as Partners

In most cases, if an area can be provided broadband with a reasonable return on investment by an ISP, then it likely already has broadband.  Rural, lower density areas often require public participation and financial assistance to make broadband expansion feasible.

A true partnership goes beyond just a letter of support.  And many grant programs give preference to applications in which a third party (e.g., a unit of government, area businesses or nonprofits) makes a financial or quantifiable in-kind contribution.  The following are a few ways in which communities may partner with ISPs for broadband expansion.

### Planning, Coordination, and Outreach Assistance

- Establishing a work group to coordinate with the ISP.  When approaching a potential ISP as a partner, it can be beneficial to have a more private, small group discussion instead of inviting multiple ISPs to a public meeting.

- Identify champions in the community as points of contact and act as a liaison with community members.  Conduct related education.  Encourage "take rates".  Foster easements on private property if needed.

- Provide information, maps, and GIS data on broadband demand, market information, potential customers, anchor institutions, etc.

- Provide information, maps, and GIS data on current levels of service, existing infrastructure, rights of way, property records, etc.

- Provide surveying support.

- Assistance with or waiving fees.

- Easy & expedited permitting processes.  Reduce or eliminate any land use or zoning barriers.

- Provide public easements, right-of-way, or access to public structures (e.g., placing wireless equipment on water towers)

- Coordination with other highway or infrastructure projects; "dig once".

- Conduct or coordinate digital literacy and adoption efforts.

- Help residents access internet affordability programs.

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**Full Partnership & Higher Levels of Commitment**

- Provide a financial contribution (e.g., general fund, special funds, ARPA, G.O. bonding, revenue bonding, tax incremental financing).

- Be a grant co-applicant or provide access to funding. For instance, a unit of government is eligible for some grants that a private or nonprofit ISP may not be eligible for. Other grants require or give preference to private-public partnerships.

- Provide access to funding at preferred rates. For instance, execute a development agreement to obtain financing at rates an ISP cannot obtain that is repaid by the ISP with revenues.

- Provide debt security or loan guarantees. For instance, it is currently proposed that BEAD grant funding may require a letter of credit, which may be challenging for smaller ISPs.

- Provide access to conduit or existing dark fiber.

- Provide other construction coordination and support (e.g., stormwater management, erosion control, site restoration).

- Provide grant writing and administration support

- Establish a community or county grant program. Local units of government more often will provide financial support for a specific project often as part of a grant application. As an alternative, a community/county could establish a broadband grant program administered by itself or a third party, such as a nonprofit, to support a specific aspect of broadband or smaller projects (e.g., matching funds for grant applications, last mile/hook-up subsidy, digital literacy or affordability programming).

**UW-Madison Extension Broadband Planning Toolkit**

This recently created web-based toolkit has additional information on broadband data & mapping, a growing ISP directory, community engagement tools, and other planning strategies. The web page also includes information on upcoming workshops and webinars.
https://economicdevelopment.extension.wisc.edu/broadband-toolkit/