

2020

# West Virginia Broadband Development Guide

## State and Federal Resources and Policies

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## West Virginia Broadband Development Guide

The *West Virginia Broadband Development Guide* was developed in partnership with the West Virginia Broadband Enhancement Council, West Virginia Development Office, and the West Virginia Geological and Economic Survey within the West Virginia Department of Commerce.

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For more information, visit the Council website at: [broadband.wv.gov](http://broadband.wv.gov).

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Help improve broadband access in your community

Take the Speed Test



## Forward

Broadband is an essential part of the economy, fueling opportunity and innovation. Communities throughout West Virginia are embracing broadband as part of an overall economic development strategy. Many are actively pursuing advancement in broadband technology and infrastructure.

Numerous local governments have secured funding to begin infrastructure expansion projects through public-private partnerships with Internet Service Providers (ISPs). Many others have undertaken broadband feasibility studies. These studies enable local governments to develop a more practical view of the broadband development process, providing a roadmap for meaningful broadband expansion.

While each community approaches broadband development from a different perspective, common themes can guide decisions and increase success through the application of best practices.

The *West Virginia Broadband Development Guide* is provided as a reference and resource. As the subject of broadband rapidly evolves, this Guide will be updated to incorporate new information as it becomes available. The Guide is a companion to the *West Virginia Broadband Plan 2020-2025*, which provides a comprehensive summary of the state of broadband in West Virginia.

The West Virginia Broadband Enhancement Council acknowledges the contributions of Tilson Technology Management in the development of the State broadband plan and this companion document. Appreciation is also extended to Internet Service Providers (ISPs) that have worked diligently to expand service and capacity in West Virginia. Numerous State and Federal agencies have also contributed to the State's broadband development initiative.

This document is intended as a guide, not as a substitute for a thorough knowledge of State and Federal programs, laws, and regulations referenced in this manual. In the event of any discrepancy, applicable State and Federal regulations will prevail. Please consult the resources provided in the Plan and Guide for further assistance.

## Introduction

As West Virginia begins a new decade, broadband is front and center. West Virginia's leaders understand that broadband has moved beyond optional to essential. Recent policy initiatives indicate that improving broadband and bridging the digital divide is one of the State's highest priorities.

The West Virginia Broadband Enhancement Council (Council) was formed in 2016 to enact the provisions of House Bill 3093, which directs the development of policies, plans, processes and procedures to expand and enhance broadband access throughout West Virginia. In carrying out the mission of the West Virginia Legislature (Legislature), the Council places a primary emphasis on the development of broadband infrastructure in unserved and underserved areas of the State as outlined in West Virginia Code § 31G-1-1, et seq., <http://www.wvlegislature.gov/WVCODE/31G>.

The Council has 13 voting members; and two Senate Appointees and two House of Delegates Appointees, one from each party, to serve as ex officio, nonvoting advisory members. The Council conducts a regular meeting on the second Thursday of each month, at 10:00 a.m., in the West Virginia Department of Commerce offices in Building 3 at the State Capitol Complex.

Designed with the goal of connecting West Virginians with the resources they need to pursue broadband service, the Council's website features mapping resources, a news center, and related information at [broadband.wv.gov](http://broadband.wv.gov).

In this mission, the Council is pursuing primary goals to:

- Encourage the development of broadband infrastructure in the State;
- Evaluate and map the broadband infrastructure and service systems through an Interactive Mapping Program and other data collection methods;
- Eliminate barriers to broadband infrastructure development within the State;
- Engage and mobilize the expertise, funding, and partners to facilitate the creation of reliable and affordable broadband service; and
- Expand economic development and represent the State in matters related to broadband infrastructure development.

Broadband internet service forms the essential foundation for progress. Fast, affordable, and reliable service has never been more crucial to the economic future of West Virginia. Working together, West Virginia can achieve a more connected future.



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## Broadband Resources and Links

Broadband Planning Resources	
National Telecommunications Information Administration (NTIA)	<a href="https://broadbandusa.ntia.doc.gov/">https://broadbandusa.ntia.doc.gov/</a>
	<a href="https://broadbandusa.ntia.doc.gov/ntia-resources/publications">https://broadbandusa.ntia.doc.gov/ntia-resources/publications</a>
	<a href="https://broadbandusa.ntia.doc.gov/ntia-resources/webinars-archives">https://broadbandusa.ntia.doc.gov/ntia-resources/webinars-archives</a>
Next Century Cities	<a href="https://nextcenturycities.org/becoming-broadband-ready/">https://nextcenturycities.org/becoming-broadband-ready/</a>
Appalachian Regional Commission	<a href="https://www.arc.gov/images/programs/telecom/ARCBroadbandPlanningPrimerToolkit.pdf">https://www.arc.gov/images/programs/telecom/ARCBroadbandPlanningPrimerToolkit.pdf</a>
Federal Communications Commission	<a href="https://www.fcc.gov/connected">https://www.fcc.gov/connected</a>
Broadband Mapping Resources	
West Virginia Broadband Enhancement Council	<a href="https://broadband.wv.gov/">https://broadband.wv.gov/</a>
Federal Communications Commission	<a href="https://broadbandmap.fcc.gov/#/">https://broadbandmap.fcc.gov/#/</a>
CostQuest State Broadband Dashboard	<a href="https://www.costquest.com/resources/state-broadband-dashboard">https://www.costquest.com/resources/state-broadband-dashboard</a> .
Broadband Data Resources	
American Community Survey	<a href="#">American Community Survey</a>
Pew Charitable Trusts	<a href="https://www.pewtrusts.org/en/research-and-analysis/data-visualizations/2019/state-broadband-policy-explorer">https://www.pewtrusts.org/en/research-and-analysis/data-visualizations/2019/state-broadband-policy-explorer</a>
National Telecommunications Information Administration (NTIA)	<a href="https://www.ntia.doc.gov/blog/2018/new-data-show-substantial-gains-and-evolution-internet-use">https://www.ntia.doc.gov/blog/2018/new-data-show-substantial-gains-and-evolution-internet-use</a>
American Broadband Initiative	<a href="https://www.ntia.doc.gov/files/ntia/publications/american_broadband_initiative_milestones_report.pdf">https://www.ntia.doc.gov/files/ntia/publications/american_broadband_initiative_milestones_report.pdf</a>
Broadband Funding	
National Telecommunications Information Administration (NTIA)	<a href="https://broadbandusa.ntia.doc.gov/new-fund-search">https://broadbandusa.ntia.doc.gov/new-fund-search</a>



ARC POWER	<a href="https://www.arc.gov/funding/power.asp">https://www.arc.gov/funding/power.asp</a>
U.S. Department of Agriculture	<a href="https://www.rd.usda.gov/programs-services/community-connect-grants">https://www.rd.usda.gov/programs-services/community-connect-grants</a>
	<a href="https://www.usda.gov/reconnect">https://www.usda.gov/reconnect</a>
U.S. Department of Housing and Urban Development	<a href="https://www.hud.gov/program_offices/comm_planning/communitydevelopment/programs">https://www.hud.gov/program_offices/comm_planning/communitydevelopment/programs</a>
U.S. Economic Development Administration	<a href="https://www.eda.gov/about/">https://www.eda.gov/about/</a>
<b>Digital Equity and Inclusion</b>	
National Telecommunications Information Administration (NTIA)	<a href="https://www2.ntia.doc.gov/files/NTIA_2013_BroadbandUSA_Adoption_Toolkit.pdf">https://www2.ntia.doc.gov/files/NTIA_2013_BroadbandUSA_Adoption_Toolkit.pdf</a>
National Digital Inclusion Alliance	<a href="https://www.digitalinclusion.org/">https://www.digitalinclusion.org/</a>

# 1. Defining Broadband

The Federal Communications Commission (FCC) defines broadband by a specific transmission speed. The current FCC definition of broadband requires a minimum download speed of 25 megabits per second (25 Mbps) and an upload speed of 3 megabits per second (3 Mbps). This speed is expressed as 25:3 Mbps. Anything less than 25:3 Mbps does not meet the FCC definition of broadband.

The FCC may adjust the definition of broadband as internet usage, needs, and requirements change. According to State law, West Virginia follows the FCC definition for broadband. West Virginia Code §31G-1-2 defines “broadband” or “broadband service” as:

*“...any service providing advanced telecommunications capability with the same downstream data rate and upstream data rate as is specified by the Federal Communications Commission and that does not require the end-user to dial up a connection, that has the capacity to always be on, and for which the transmission speeds are based on regular available bandwidth rates, not sporadic or burstable rates, with latency suitable for real-time applications and services such as voice-over Internet protocol and video conferencing, and with monthly usage capacity reasonably comparable to that of residential terrestrial fixed broadband offerings in urban areas: Provided, That as the Federal Communications Commission updates the downstream data rate and the upstream data rate the council will publish the revised data rates in the State Register within sixty days of the Federal update.”*

Upon any FCC revision of the definition of broadband, the West Virginia Broadband Enhancement Council will publish the revised data rate within 60 days of the Federal update, as required by the West Virginia Code §31G <http://www.wvlegislature.gov/WVCode/31G>. In the event of a discrepancy, the Federal rate will apply.

## Bits and Bytes

Internet data is transmitted digitally in “bits.” A higher megabit per second (Mbps) measurement produces faster Internet service and faster transmission of information, images and sound. Higher transmission speeds are only possible when supported by adequate technology and infrastructure.

Data Transmission Speeds		
1. <b>Bit</b>	Smallest unit of digital information	
2. <b>Byte</b>	8 bits per second	
3. <b>Kbps</b>	Kilobits (Kbps)	1 thousand bits per second
4. <b>Mbps</b>	Megabits (Mbps)	1 million bits per second
5. <b>Gbps</b>	Gigabits (Gbps)	1 billion bits per second
6. <b>Tbps</b>	Terabits (Tbps)	1 trillion bits per second

## How Much Speed Do You Need?

According to the National Telecommunications Information Administration (NTIA), an agency of the U.S. Department of Commerce, fast, reliable internet service is vital for communities to fully participate in the economy. NTIA provides the following guidelines for broadband speeds in certain settings:

Suggested Download Speeds, NTIA BroadbandUSA		
1. <b>Hospital</b>	1 Gbps+	Sharing health records, performing virtual consultations, connecting first responders.
2. <b>Library</b>	100 Mbps-1 Gbps+	Operating public computer centers, mobile hotspot lending, enabling collaborative workspaces.
3. <b>School</b>	100 Mbps-1 Gbps+	Sharing educational material, online testing, accessing databases.
4. <b>Small Business</b>	50 Mbps+	Managing inventory, operating point-of-sales terminals, coordinating shipping.
5. <b>Home</b>	25 Mbps+	Completing homework, streaming video, internet browsing.

*U.S. Department of Commerce, NTIA, BroadbandUSA*

Further information regarding household broadband usage is provided by the Federal Communications Commission (FCC): <https://www.fcc.gov/research-reports/guides/household-broadband-guide>

## Types of Technology

While there are several different types of technologies, those most frequently associated with recent broadband expansion are fiber optic networks, cable networks, and fixed wireless networks.

Broadband service is delivered via several different technologies. Speed, cost, reliability, and perhaps most importantly, availability, impact consumer selection of a particular technology. In broad terms, consumers access broadband either through wireline or wireless technology. Wireline technologies that provide broadband service include DSL, cable modem, and fiber. Wireless service can include mobile or fixed service, and sometimes satellite. Because satellite service is generally not capable of delivering 25/3 Mbps service, it is not included as a technology option in this report.<sup>1</sup>

### Fixed Wireline Broadband

#### *Digital Subscriber Line (DSL)*

DSL is a wireline transmission technology that transmits data faster over traditional copper telephone lines already installed to homes and businesses. DSL-based broadband provides transmission speeds ranging from several thousand to several million bits per second. The availability and speed of DSL service may depend on the distance from a home or business to the closest telephone company facility.<sup>2</sup>

<sup>1</sup> "[Types of Broadband Connections](#)," FCC website, FCC.gov.

<sup>2</sup> *Id.*

### *Cable Modem*

Cable modem service enables cable operators to provide broadband using the same coaxial cables that deliver pictures and sound to a television. Most cable modems are external devices that have two connections: one to the cable wall outlet, the other to a computer. Subscribers can access their cable modem service by simply turning on their computers, without dialing-up an ISP. You can still watch cable TV while using it. Transmission speeds vary depending on the type of cable modem, cable network, and traffic load. Speeds are comparable to DSL.<sup>3</sup>

### *Fiber*

Fiber optic technology converts electrical signals carrying data to light and sends the light through transparent glass fibers about the diameter of a human hair. Fiber transmits data at speeds far exceeding current DSL or cable modem speeds, typically by tens or even hundreds of Mbps.

The actual speed the consumer experiences will vary depending on a variety of factors, such as how close to a computer the service provider brings the fiber and how the service provider configures the service, including the amount of bandwidth used. The same fiber providing your broadband can also simultaneously deliver voice (VoIP) and video services, including video-on-demand.

Telecommunications providers offer fiber broadband in limited areas and have expanded fiber networks and offer bundled voice, Internet access, and video services. Variations of the technology run the fiber all the way to the customer's home or business, to the curb outside, or to a location somewhere between the provider's facilities and the customer.<sup>4</sup>

## Wireless Broadband

Wireless broadband services are similar to wired broadband in that they connect to an internet backbone usually a fiber-optic trunk; however, they don't use cables to connect to the last mile or business/residences. Instead they use Wireless Fidelity (Wi-Fi) connections or radio waves. A computer or mobile device has a wireless adapter that translates data into a radio signal and transmits the signal using an antenna. A wireless router receives the signal, decodes it and then sends it to the Internet through a wired Ethernet connection.<sup>5</sup> There are different technologies to access wireless broadband:

### *Fixed Wireless*

Fixed wireless is a type of high-speed Internet access where connections to service providers use radio signals rather than cables. Fixed wireless generally offers connections speeds between 1 and 10 Mbps (although speeds are increasing with advances in technology) and use transmission towers similar to cell phone towers that communicate to a resident's

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<sup>3</sup> *Id.*

<sup>4</sup> *Id.*

<sup>5</sup> "[What are the Wireless Broadband Technologies?](#)" Broadband Matters, broadbandmatters.com.

transceiver equipment that, as the name implies, is fixed at the premise. The transceiver equipment communicates with the providers' ground stations.<sup>6</sup>

#### *Wireless Fidelity (Wi-Fi)*

Wi-Fi is a fixed, short-range technology that is often used in combination with DSL, fixed wireless, fiber, or cable modem service to connect devices within a home or business to the Internet using a radio link between the location and the service provider's facility. Wi-Fi service can be available in your home or at community locations (airports, coffee shops, schools, businesses, etc.) and are often called "hotspots." A Wi-Fi network uses radio waves similar to two-way radio communications. A computer has a wireless adapter that translates data into a radio signal and transmits it using an antenna. A router receives the signal, decodes it, and then sends the information to the Internet using a physical connection, usually via an Ethernet cable, a cable that carries the broadband signal between the modem, router, computer, and other wired Internet capable devices.<sup>7</sup>

#### *Mobile Wireless (3G, 4G, 5G)*

Mobile wireless is high-speed wireless broadband connection (often referred to as cellular or cell service) that is accessible from random locations. The locations depend on the provider's cellular towers and monthly service plans. Many technologies make up wireless networks, but no matter the technology or acronyms, mobile wireless networks are radio systems.

## Types of Connections

The terms first mile, middle mile, and last mile are frequently used when discussing broadband. The terms generally describe certain sections of a broadband network, briefly outlined below:

1. First Mile: The fiber backbone is the part of a communications network that acts like the central nervous system, a central hub from which all parts of the network extend.
2. Middle Mile: Network infrastructure that does not deliver services to customers, but which provides for interoffice transport, backhaul, connectivity, or special access to service providers.
3. Last Mile: The final leg of delivering connectivity from a service provider to a customer.

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<sup>6</sup> *Id.*

<sup>7</sup> *Id.*

## 2. Advantages of a Connected Community

Connected communities achieve numerous advantages. Perhaps the most critical is inclusion in an economy that relies on internet connectivity. Recognizing that residents in rural areas should achieve the same level of connectivity as their urban counterparts is the first step toward full participation in a digital economy.

West Virginia leaders recognize that broadband connectivity must be part of the State's overall economic development strategy. In the State Broadband Plan 2020-2025, the Council identified primary goals related to the following key areas:

- Workforce Development and Economic Development,
- Health Care,
- Public Safety,
- Education, and
- Gigabit Cities and Counties.

Each of these focus areas have existing needs for fast, affordable, and reliable broadband service, and demand for such service that is expected to increase exponentially in the near- and long-term. While providing Internet access is not a "magic bullet" that will ensure each of West Virginia's rural communities will thrive and flourish, without access to fast, reliable broadband connectivity, the task is almost insurmountable.

As West Virginia seeks to improve broadband connectivity, communities are encouraged to consider how connectivity can be accessed and how the benefits of connectivity can be shared. When creating policies for effective deployment and integration of broadband into communities, it is important to consider not just broadband availability, but broadband adoption by consumers. The crucial questions are:

- When service is available, how many consumers subscribe to such service?
- To what extent is service available, but not used or "adopted" by consumers?
- What are the barriers to adoption?

There are sources available that attempt to discern the answers to these questions, including the American Community Survey and the Pew Research Center. An extensive collection of broadband mapping and demographic data is provided in the West Virginia State Broadband Plan 2020-2025 plan available at: <https://broadband.wv.gov/resources/west-virginia-broadband-plan/>.

The National Telecommunications and Information Administration (NTIA), part of the U.S. Department of Commerce, offers an extensive selection of resources related to broadband development at <https://broadbandusa.ntia.doc.gov/>.

Nationwide, NTIA reports that broadband provides numerous benefits related to commerce, public safety, education, healthcare, government services, digital technology, employment, family; the list of needs and uses is almost infinite.

Useful resources for illustrating the benefits of broadband connectivity include:

- [https://broadbandusa.ntia.doc.gov/sites/default/files/resourcefiles/bbusa\\_why\\_does\\_broadband\\_matter.pdf](https://broadbandusa.ntia.doc.gov/sites/default/files/resourcefiles/bbusa_why_does_broadband_matter.pdf)
- [https://broadbandusa.ntia.doc.gov/sites/default/files/resourcefiles/bbusa\\_connected\\_community.pdf](https://broadbandusa.ntia.doc.gov/sites/default/files/resourcefiles/bbusa_connected_community.pdf)
- [https://broadbandusa.ntia.doc.gov/sites/default/files/resourcefiles/bbusa\\_connectivity\\_with\\_purpose\\_digital\\_inclusion.pdf](https://broadbandusa.ntia.doc.gov/sites/default/files/resourcefiles/bbusa_connectivity_with_purpose_digital_inclusion.pdf)

#### *Pew Broadband Policy Explorer*

The Pew Charitable Trusts has created a [50-State fact sheet](#), which identifies each State's broadband deployment efforts, and:

- State agencies involved in broadband projects,
- Approaches to implement efforts,
- Mapping initiatives, and
- Funding mechanism(s).

West Virginia will continue working with Pew in this comprehensive review of promising practices aimed at improving broadband connectivity throughout the United States.

The full report is slated for release in 2020. For more information on Pew's broadband research efforts, visit <https://www.pewtrusts.org/en/research-and-analysis/data-visualizations/2019/State-broadband-policy-explorer>.

*Pew Broadband Research Initiative*

[The Pew Research Center](#) is a nonpartisan fact tank that conducts public opinion polling, demographic research, content analysis and other data-driven social science research. It does not take policy positions.<sup>8</sup> It provides independent opinion research about American attitudes on politics and major policy issues and studies the changing U.S. electorate by measuring long-term trends in political values and public policy priorities, as well as conducting timely and topical polling on the issues of the day.<sup>9</sup>

The Pew Research Center concluded that the typical American household contains multiple connected devices. Trends indicate that the number of connected devices will continue to grow. <https://www.pewresearch.org/fact-tank/2017/05/25/a-third-of-americans-live-in-a-household-with-three-or-more-smartphones/>.

*American Community Survey*

The American Community Survey (ACS) is an ongoing survey conducted by the United States Census Bureau that provides vital information on a yearly basis about the nation and its people.

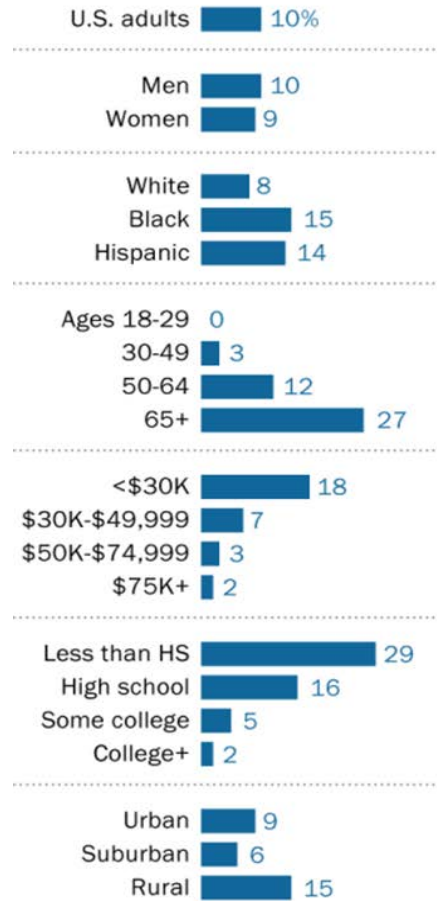
The ACS surveys many issues relating to broadband adoption, including type of internet subscription, number of devices in the home, and household income. These questions were added in 2013 as a requirement of the Federal Broadband Data Improvement Act of 2008.<sup>10</sup> The ACS releases its data in a 1-Year Report and a rolling 5-Year Report each September and December respectively.

The ACS also does not have county-level statistics in its 1-Year data. In addition, the ACS has no speed benchmarks for broadband such as the FCC's 25 Mbps/3Mbps standard. Rather, it classifies broadband as anything other than dial-up internet access.<sup>11</sup> This would make the ACS's measurements considerably more generous as to the availability of internet service than the FCC's, for example.

---

## Who's not online in 2019?

*% of U.S. adults who say they do not use the internet*



Note: Whites and blacks include only non-Hispanics. Hispanics are of any race.  
Source: Survey conducted Jan. 8-Feb. 7, 2019.

PEW RESEARCH CENTER

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<sup>8</sup> ["About Pew Research Center,"](#) PewResearch.org.

<sup>9</sup> ["Our Research,"](#) PewResearch.org.

<sup>10</sup> ["Why We Ask Questions About Computer and Internet Use,"](#) United States Census Bureau, census.gov.

<sup>11</sup> ["Computer and Internet Use in the United States: 2016,"](#) Census.gov, fn. 2.



Nonetheless, the ACS research finds that West Virginia lags much of the United States in measures related to broadband access and adoption, and in several categories, is in last place. The ACS measures any home internet access other than dial-up, including satellite and cellular. Here are two key findings:

- West Virginia is the fourth-lowest ranked State.
- West Virginia’s percentage of households with an internet subscription of any type is 76 percent, which is also lower than the overall U.S. percentage of 83.5 percent.

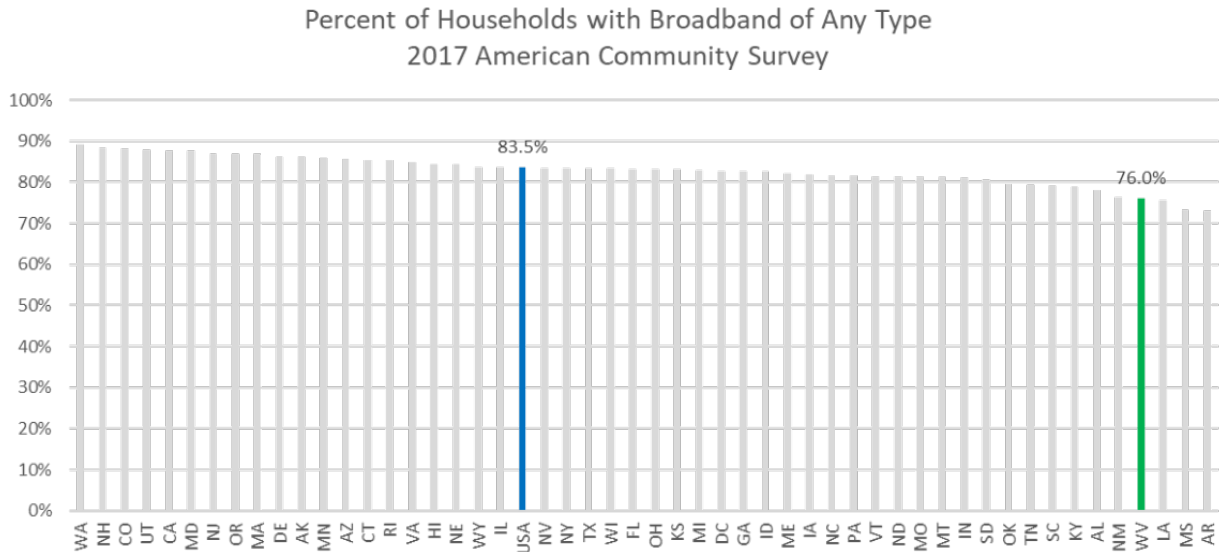


Figure 1: U.S. Census Bureau, ACS 1-Year Data Percent of Households with Broadband of Any Type

# 3. Creating a Community Vision

Each community approaches broadband development from a different starting point. Numerous broadband planning projects are underway throughout West Virginia as detailed in Section 7. Planning empowers communities with information, provides a forum for discovery, and signals a practical approach to a complex topic.

In 2019, communities throughout West Virginia pursued and successfully captured Federal funding for broadband development. This is an achievable goal. However, preparation is key. Technical expertise varies according to the types of projects and sources of funding. While the capacity for broadband development grows in West Virginia, communities are encouraged to keep this sequence in mind:

Broadband Development Steps	
1. <b>Planning</b>	Asset inventories, mapping, surveys and speed testing, stakeholder engagement, market analysis, technical analysis, and development strategies.
2. <b>Funding</b>	Identifying potential projects and partners, preparing for funding opportunities, developing applications.
3. <b>Implementation</b>	Final engineering, permitting, environmental clearances, project management, network deployment, and consumer outreach.

## Local Planning Teams

Within the planning process, numerous stakeholders can be represented. Local planning teams can include residents, business owners, educators, first responders, nonprofit leaders, elected officials, technical consultants, ISPs, and other potential partners.

These local planning teams can coordinate communication with potential ISP partners and work with a State team consisting of representatives of the West Virginia Development Office (WVDO) and the Council. The local management team should include, but not be limited to, the following members:

- Local Elected Official and/or Manager
- Community Representatives
- Regional Planning and Development Council
- Economic Development Authority
- Project Manager and/or Project Designer

When pursuing public funds, local governments are encouraged to partner with Local Economic Development agencies and Regional Planning and Development Councils to form a broadband development team. This team will coordinate projects with State and Federal agencies and perform essential administrative functions.

While planning should be “technology neutral” and should not favor one technology over another, the plan should evaluate alternatives and recommend the most suitable technology for the project area. A local government’s decision to pursue a specific technology should be based on a comprehensive assessment of available assets and community needs.

Broadband construction projects should relate to a community broadband plan that includes a community profile, project budget and preliminary design to sufficiently demonstrate the scope and benefit of the project.

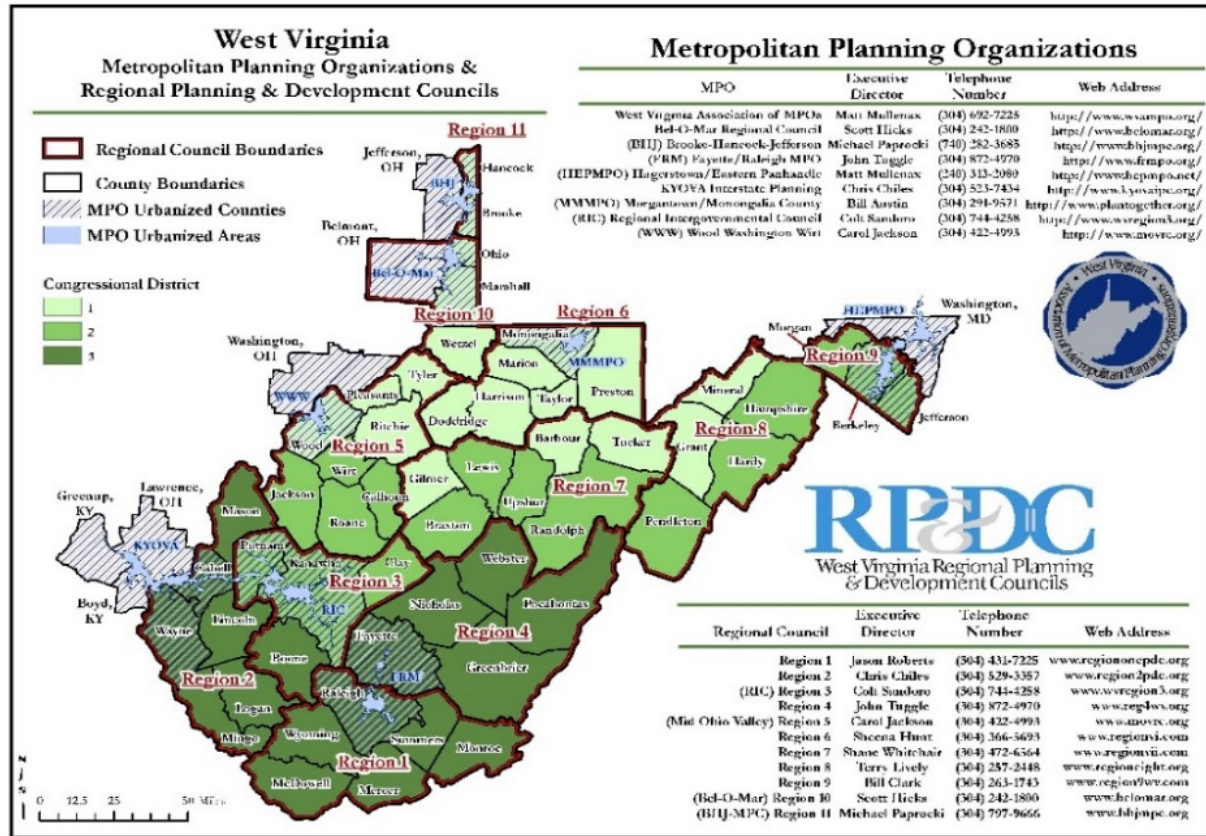
In addition, certain Federal programs grant directly to nonprofit organizations, others grant only to units of local government or to ISPs. The broadband development team and its lead agency should have a full understanding of available programs and applicable requirements. If the project includes consulting services, the following guidance is suggested:

1. Experience in broadband policy development, broadband infrastructure development, and broadband project management with state and local government agencies in the past three years,
2. Skills, technical resources and capabilities, experience and expertise in broadband development program of comparable scope and scale,
3. Knowledge of related state and Federal laws and requirements; and
4. Technical knowledge and ability to convey technical concepts to non-technical audiences.

The WVDO has developed sample forms for procurement of professional services and engineering services. Other documents, such as bid specifications and standard agreements are also available in template form for further customization related to specific project needs.

## Regional Planning and Development Council Partnerships

West Virginia's 11 Regional Planning and Development Councils (RPDCs) play a critical role in determining where and how public funds can be utilized for broadband development. The Regional Councils can also facilitate consultations with potential ISP partners.



Produced by: Region 1 Planning & Development Council

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Figure 2: West Virginia RPDC and MPO Boundaries

The RPDCs assist communities in the identification of numerous funding sources and provide project administration services. Notably, many local governments in West Virginia are including broadband as priorities in Comprehensive Economic Development Strategies (CEDs). Regions must update CEDs plans at least every five years to qualify for assistance under the Public Works and Economic Adjustment Assistance programs of the U.S. Economic Development Administration. CEDs plans can be viewed at each Regional Council website.

## 4. Consulting with Providers

Creating a plan for uses of broadband within the community provides a forum for engagement with potential ISP partners. The planning process enables communities to research internet speed, business and residential service packages, customer support, reliability, and availability.

There are areas of the State that are underserved, meaning there may be some limited level of Internet service, but that service is inadequate to meet the basic needs of residents. Or perhaps service is not available to every premise within that community.

There are also unserved areas, where there is no Internet service available at all. Substantial parts of West Virginia are underserved or unserved today. The State's efforts are focused on encouraging projects that help bring broadband to the areas with the greatest need.

Many communities within West Virginia – typically more rural parts of the State – are limited by access to the Internet that is severely constrained, or even unavailable.

Careful analysis of the current state of broadband within a community or region provides the foundation for successful project development.

In general, it is important to note that there is no obligation of any ISP to provide service to any particular community, business, home, hospital, or school. However, when funding for a broadband expansion project is derived through certain funding programs, particularly those that are publicly funded, the administrative agencies for those programs can and do impose service and performance milestones as a condition of funding.

For example, under the administration of the U.S. Department of Agriculture, the ReConnect program requires that service at a specified level is made available to all locations within a proposed funded service area.

Private investment by numerous ISP partners has expanded access to broadband connectivity for numerous communities and regions in West Virginia. Numerous public funding opportunities can complement this private investment. Successful public-private partnerships have demonstrated the value of a cooperative approach that pairs ISP investment goals with those of a local broadband development team.

The power of these partnerships has created significant results. Since 2017, local teams have partnered with ISPs to secure approximately \$40 million in broadband development funds for projects in the State of West Virginia. Funds have been awarded by the following agencies and sources:

- FCC Connect American Fund (CAF II),
- U.S. Department of Agriculture,
- U.S. Department of Housing and Urban Development,
- U.S. Economic Development Administration, and the
- Appalachian Regional Commission.

There is a great variety in the companies reporting the fastest available speed of a given area. Residents and business are likely to have the most in-depth familiarity with the ISPs serving a

community. Communication regarding existing service and expansion opportunities often begins through local interaction. The map below shows the fastest available broadband access by broadband service provider for company, as reported by the companies to the FCC.

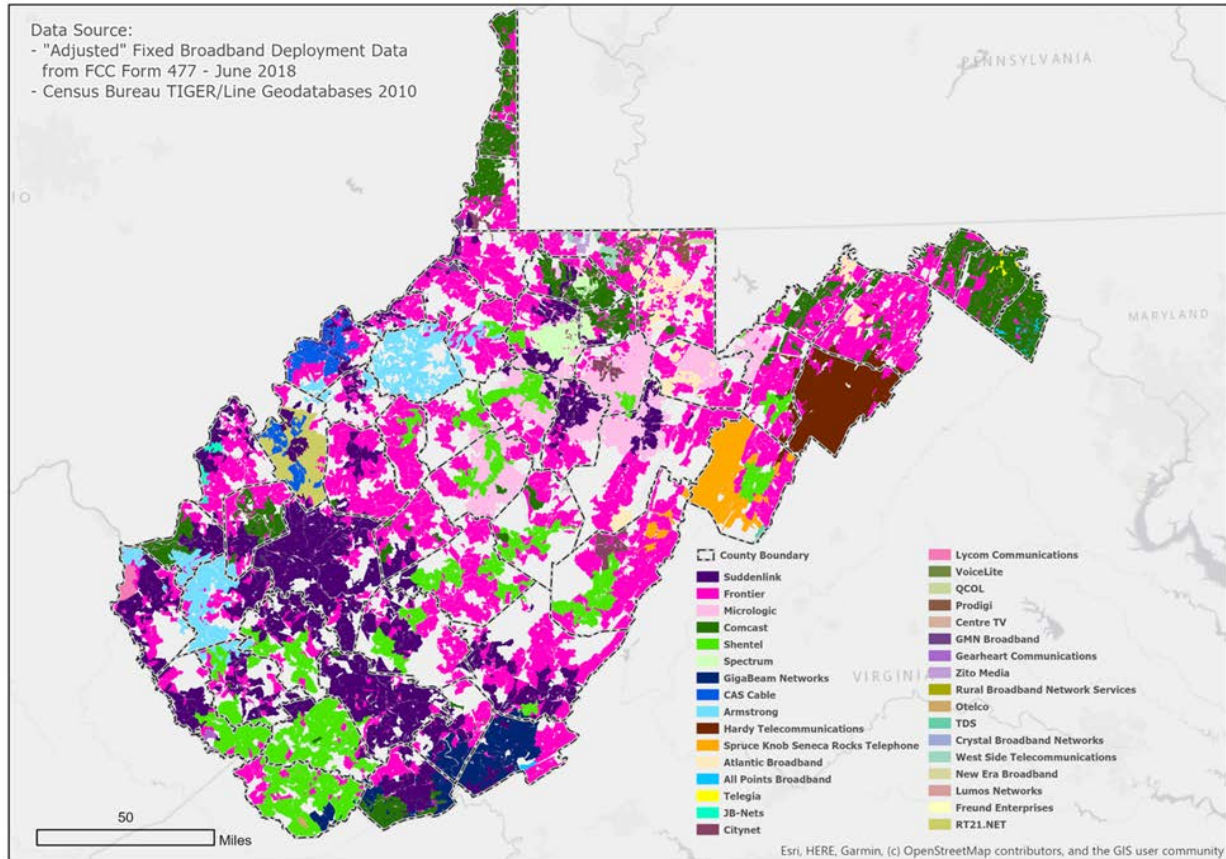


Figure 3: Fastest Available Broadband by Company as Reported to the FCC

Most recently, the Council issued a Request for Information (RFI) to embark upon a state-level planning process and to assist in the Identification of unserved areas which the private sector is likely to serve soon.

Communication with potential ISP partners is strongly encouraged. Several ISPs have demonstrated willingness to upgrade existing infrastructure or expand network coverage. Others have partnered with communities to pursue grant or loan funding.

Each county and municipal government is gaining experience in broadband development through planning and infrastructure projects that utilize the expertise of partners, including design professionals and ISPs, following a project development model that incorporates the State's 11 Regional Planning and Development Councils and Local Economic Development Authorities.

## Broadband Development Strategies



Broadband connectivity is widely considered as essential to economic activity and job growth as other utilities, such as electricity, water and wastewater. Broadband is not just desired for companies of all types and sizes; it is often required. West Virginia can and must improve access to broadband so that residents and businesses can pursue the highest levels of economic and community development.

As with the design of water and sewer infrastructure projects, broadband projects may include an overall design and a phased approach. Due to funding constraints and the need to coordinate disparate funding sources, projects may be executed incrementally and completed in phases. When undertaking a phased approach, the overall project design should outline intended phases, describe the type of infrastructure and services required, include an evaluation of alternatives, and provide preliminary cost estimates for construction.

The design must incorporate an assessment of potential users and usage patterns to determine cost feasibility. An evaluation of existing telecommunications infrastructure, assets and providers is essential. Design elements should include GIS mapping, proposed routes and interconnection opportunities, and recommendations for reaching unserved areas and remote areas.

An evaluation of required permits, and strategies for access to, and utilization of, the roadbed right of way is a crucial part of the project development process. Project teams should also existing vertical assets, including poles, towers, and other structures, that may require use agreements. Any cost associated with this access must also be included in project estimates.

## Broadband Development Models

Determining opportunities for successful partnership are critical first steps in the broadband development process. A basic understanding of common network models, provided below, can inform this process. Common models, as detailed in Broadband Communities Magazine<sup>12</sup>, include:

- Public Service-Only,
- Open-Access,
- Infrastructure,
- Retail, and
- Public-Private Partnership

### *Public Service-Only Provider*

Public services providers utilize fiber and broadband resources to connect multiple public organizations with fiber or wireless connectivity. These organizations are generally limited to the community anchors within their jurisdictions, including local governments, school districts, higher educational organizations, public safety organizations, utilities and health care providers.

Most of these anchors require substantial connectivity, and often a local government's network can provide higher capacity at lower costs than these organizations can obtain in the commercial market.

- This approach enables counties and their communities to:
- Share resources among themselves and schools and community colleges

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<sup>12</sup> Broadband Communities Magazine, "Broadband Development Models," [https://www.bbcmag.com/pub/doc/BBC\\_May16\\_SevenModels.pdf](https://www.bbcmag.com/pub/doc/BBC_May16_SevenModels.pdf), Author, John Honker.

- Aggregate demand for public procurements to attain volume purchasing power
- Provide interjurisdictional public safety communications between the county and cities
- Reduce public organizations' spending on communications services on a countywide basis
- Future proof the communications needs of all organizations connected to the network.

### *Open-Access Provider*

Local governments that adopt open access generally own substantial fiber optic networks in their communities. To provide open access, these governments light the fiber and equip the network with the electronics necessary to establish a transport service or circuit to service providers that connect to the local network.

Open access enables competition among service providers across a network owned by a local government. The municipality remains neutral and nondiscriminatory toward providers that deliver services over the network. It leases access to each service provider based on the amount of bandwidth required by the provider's end customers and establishes a standard rate structure and standard terms of service. Municipalities generally charge retail broadband providers wholesale rates to use their networks. They publish rates to competitive service providers, charging a monthly fee based on bandwidth utilized or a flat fixed fee per month. Services may include internet, telephone, data connectivity (transport) and dark fiber.

### *Infrastructure Provider*

Cities that provide conduit and dark fiber services to local organizations are generally considered infrastructure providers. They lease these assets to community organizations, businesses and broadband providers, which use the fiber to connect to one another and to data centers to reach the internet, cloud services and other content networks. Many municipal providers that have deployed these services began by building their own fiber networks to serve purely municipal functions. As their networks grew, they realized that these networks could provide access to local organizations needing fiber connectivity.

Dark fiber is the core product of most infrastructure providers and is utilized by businesses, community anchor organizations and, in a few cases, residents. Commonly, municipalities lease dark fiber strands using a simple, mileage-based price calculation to the end user. However, customers may require new construction to reach their facilities. Construction costs that municipalities incur are charged back to customers to allow municipalities to recoup their investments.

### *Retail Provider – Business Only*

A common goal for municipalities that deploy broadband networks is to support local economic development needs. Local governments equip their business and industrial districts with fiber infrastructure through which they can provide cost-effective, high speed internet and other services to local customers. Municipal business providers offer internet and communications services that are generally priced very competitively against other provider offerings in the small and medium business market. In addition to offering lower prices than other service providers, they offer:

- Higher bandwidth scalable to gigabit speeds
- Symmetrical service (the same upload and download speeds)
- Higher-quality fiber connections with less downtime and stronger service level agreements
- Responsive local customer service.



### *Retail Provider – Residential and Business*

Municipalities that provide direct services to residential and business customers are considered retail service providers. Most commonly, local governments offer triple-play services consisting of phone, television, and internet services. A retail provider is responsible for a significant number of operational functions, including management of retail services, network operations, billing, provisioning, network construction and general management.

Perhaps the most important decision when evaluating a retail business case is whether to provide linear television services. Television is the glue that holds a triple-play service bundle together; without television, many networks fail to achieve strong market share above 30 percent.

Costs vary among municipal retail providers. Therefore, it becomes difficult to set benchmarks consistently, as each provider has a cost structure that differs from those of its peers. We do not advise that a city rely on the performance of other municipal providers to forecast its own expected performance.

### *Public-Private Partnerships*

The emerging business model of public private partnerships (P3s) provides an innovative solution to an ongoing municipal broadband issue: How can a local government invest in municipal broadband without operating a broadband network?

Generally, P3s bring a local government and one or more private organizations into a partnership to plan, fund, build, and maintain a broadband network within the municipality's jurisdiction. Many P3s are still in development, and very few operating networks today use this model.

The tricky part of a P3 is to find the right division of roles between the public and private partner. Public and private partners must agree on workable solutions to the following issues, among others:

- Who has rights to access the network, and is the P3 exclusive or nonexclusive?
- What are the public and private partners' goals, and how are they incentivized?
- What roles and responsibilities do the public and private partner have in the P3?
- What assets are financed through the public and private partners respectively?
- What revenue model do the public and private partners use to recoup their investments?
- What requirements must the private partner meet in terms of service availability, speed, price, locations and time frames?
- How will the partners determine future buildouts, and who pays for them?

*Author, John Honker, Broadband Communities Magazine*

# 5. Development Resources and Mapping

West Virginia has assembled and created a variety of information on consumer availability of broadband services. This information is used in development of policies and deployment of investment to underserved and unserved areas of the State. The most granular data, as detailed in this Plan, comes from five sources:

- [FCC Form 477 Data](#)
- [Federal Communications 2019 Broadband Deployment Report](#)
- [American Community Survey](#)
- [The Pew Research Center](#)
- [The Pew State Broadband Policy Explorer](#)

The information provided from these sources is important for understanding the current State of broadband in West Virginia. However, these sources have limitations that should be noted when reviewing the information they provide. While no one source provides a complete picture of broadband in West Virginia, taken together they tell a compelling story highlighting the need for continued action on facilitating broadband deployment.

There are two sources of information on broadband availability published by the FCC: FCC Form 477 Data and FCC Broadband Deployment Reports.

## FCC Form 477 Data

All facilities-based broadband providers are required to file data with the FCC twice a year through Form 477 detailing where they offer Internet access service speeds exceeding 200 Kbps in at least one direction. Fixed providers file lists of census blocks in which they can or do offer service to at least one location. Mobile providers file maps of their coverage areas for each broadband technology.

A full set of maps showing coverage in West Virginia based on data published by the FCC with respect to the June 2018 data (the latest available as January 2020) are included in the West Virginia State Broadband Plan 2020-2025.

The data in the Form 477 is widely considered to be flawed, because if a service provider claims that they serve a single customer in a census block, the FCC's existing data practices assume that there is service throughout the census block.<sup>13</sup> Since census blocks can be of unlimited size and irregular shape, particularly in rural areas, the data can thus overestimate the number of consumers that can actually access the service within any consensus block. The definition of broadband as 25 Mbps/3 Mbps is also considered a minimum level of service, and does not address the many business, commercial, and residential uses that demand much higher speed.

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<sup>13</sup> [Federal Communications 2019 Broadband Deployment Report](#) at pp 12-13.

## FCC Broadband Progress Report

The FCC released its 2019 Broadband Deployment Report on May 29, 2019. The report may be viewed at <https://www.fcc.gov/reports-research/reports/broadband-progress-reports>.

This report holistically evaluates the availability of fixed and mobile services over a 5-year time period (2013-2017). Note that the Report does not incorporate the most recent Form 477 data from June 2018 but ends with 2017 data. The report breaks the consumer data into four categories:

1. Those with access to fixed services,
2. those with access to mobile LTE services,
3. those with access to both fixed and mobile LTE services, and
4. those with access to at least one of either fixed or mobile LTE services.

The FCC has noted that mobile services are not full substitutes for fixed services and that mobile and fixed services must be evaluated separately.

Even though many critics consider the FCC's measurement metrics to be flawed, report provides an indication of the State's relative low position in national and regional rankings.

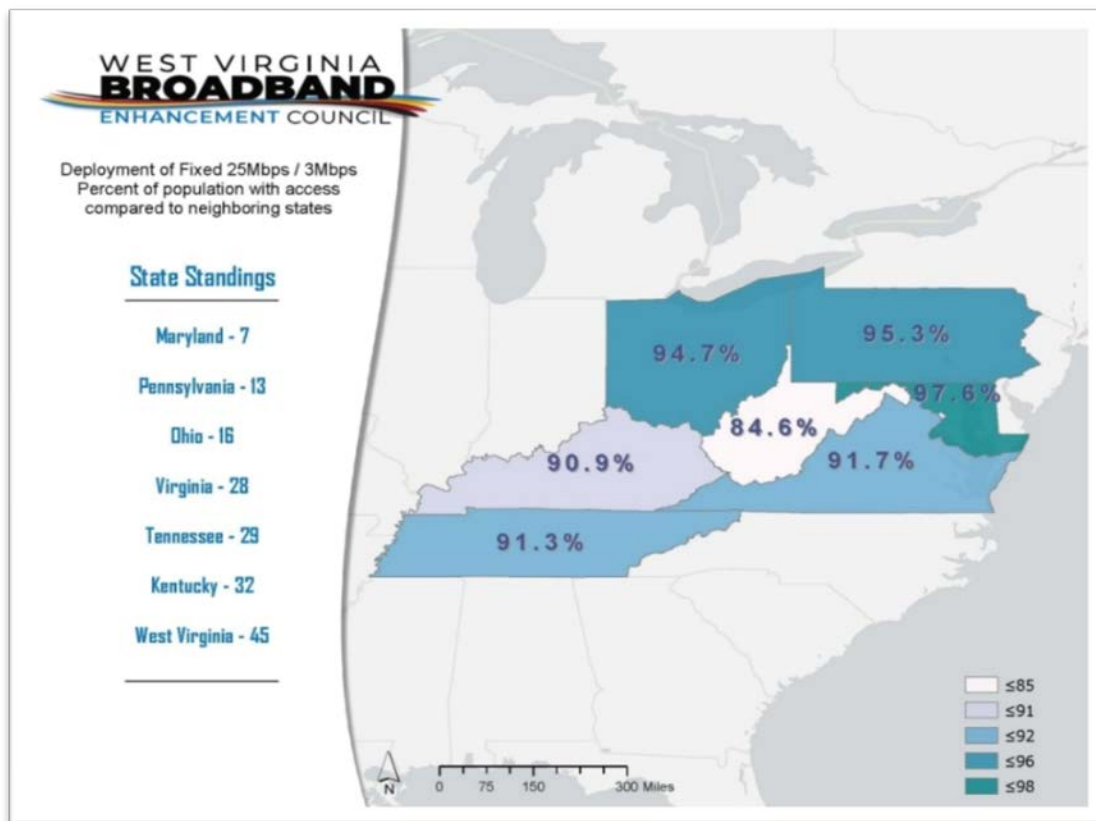


Figure 4: State Ranking Based Upon FCC 2019 Broadband Deployment Report

## West Virginia Speed Test Portal

Since its establishment, the Council has worked to improve the broadband mapping data available in the State through such activities as initiating collection of speed test data from West Virginians. Speed testing is the centerpiece of this initiative. The Council's website features a speed test and user survey to improve the State's ability to understand and address its gaps.



Figure 5: WV Broadband Council Speed Test Portal

Data collection activities that take place every year will provide up-to-date information about how broadband availability is changing in West Virginia.

The Federal Communications Commission (FCC) reports that more than 84 percent of the State's residents have access to broadband level service. This measurement of access is based upon a reporting system that relies upon information submitted by the internet service provider to the FCC. While the FCC measurement reflects information submitted by the provider, West Virginians may use the speed test as a validation tool.

## Interactive Mapping System

The Council has established an Interactive Broadband Mapping System featured on the Council's website at [broadband.wv.gov](http://broadband.wv.gov). To assist local development teams, the following maps and metrics are available:

1. Static Maps by County
2. ESRI's ArcGIS Desktop (ArcMap)
3. Providers by Area
4. Speed Tiers by Area

The mapping system includes maps for each of the State's 55 counties. Individual county maps are County level maps allow consumers, broadband providers, policy makers, and community leaders the ability to identify service availability and speed, provider coverage areas, and community anchor institutions.

The Broadband Council’s data sources include biannual broadband service provider submissions in FCC Form 477 data, third party datasets, and other publicly available sources. Data is modified, where necessary, to meet broadband mapping standards set by the Council.

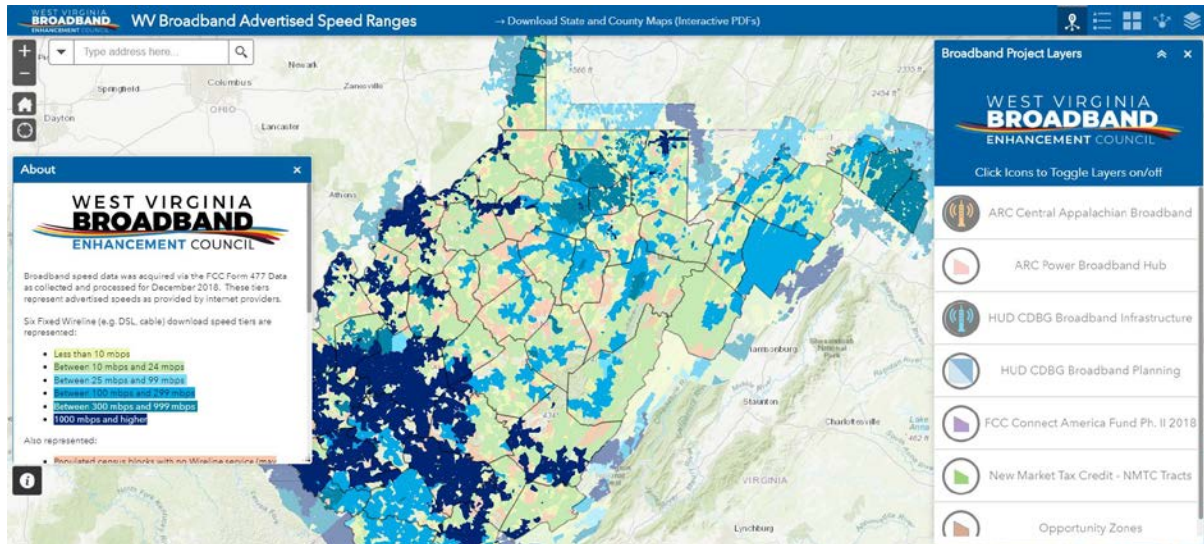


Figure 6: WV Broadband Council Internet Speed Tiers

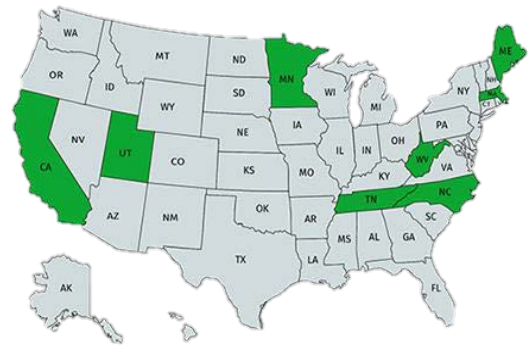
## NTIA Broadband Availability Map

West Virginia is one of eight States selected by the National Telecommunications and Information Administration (NTIA) to partner in the National Broadband Availability Map (NBAM) broadband mapping initiative.

The initial eight State partners were chosen because they reflect geographic diversity, participate in NTIA’s State Broadband Leaders Network, have active State broadband plans or programs, and were willing to contribute data that can be combined with nationwide data sources to give policymakers a deeper understanding of broadband availability.<sup>14</sup>

The Council has long maintained that more accurate data is essential. Under this initiative, the Council is working to improve the accuracy and granularity of service provider reported data, and supplement this with data from other sources.

The Council also intends to continue and refine its existing process for collecting speed test data from consumers, an additional source of data about available broadband services.



NTIA Graphic, NBAM Phase I States

<sup>14</sup> [“NTIA Partners with 8 States on Improvements to Broadband Availability Map,”](https://www.ntia.doc.gov/press-releases/2018/08/2018-08-14-ntia-partners-with-8-states-on-improvements-to-broadband-availability-map) ntia.doc.gov.

## 6. Evaluating Key Infrastructure Assets

West Virginia has existing infrastructure assets that may be leveraged as part of a plan to improve broadband deployment. Determining how and under what terms and conditions these assets should be part of the planning process for local broadband development. Existing assets may include:

- County-owned towers,
- Public buildings,
- Public infrastructure assets, and
- Other vertical assets.

For example, the Hampshire County Commission continues efforts to expand its existing public fiber infrastructure. The county is connecting the Hampshire County Technology Park to a Gigabit circuit which includes fiber connections to a multi-tenant building within the park. The county has worked to attract business investment but remains hampered by the lack of reliable broadband service. County officials note the ongoing goal is to provide broadband connectivity to the Capon Bridge Technology Park and surrounding areas and to leverage any future grant funding to improve connectivity.

### *County-Owned Towers*

County-owned towers may be available in certain instances. Recently, the Jackson County Commission received CDBG funding for a broadband infrastructure project in the Sandyville area. In partnership with the Jackson County Economic Development Authority, the county will leverage an existing communications tower owned by the county as the catalyst for affordable wireless broadband in Sandyville.

### *State Interoperable Radio Network (SIRN)*

The West Virginia Statewide Interoperable Radio Network is a partnership of municipal, county, State, and Federal public safety entities to establish and maintain a Statewide interoperable radio network. This radio network is comprised of a UHF digital P25 compliant trunked radio system that utilizes some of the latest technologies. Currently the SIRN has over 100 tower sites operational and provides coverage throughout most of West Virginia.

### *Abandoned Land Mine (AML) Tower Sites*

The Upshur County Development Authority (UCDA) is the recipient of an Abandoned Mine Lands PILOT (AML) grant through the U.S. Office of Surface Mining Reclamation and Enforcement Economic Development Pilot Program. The grant's purpose is to expand wireless broadband tower infrastructure throughout West Virginia on AML eligible sites. This \$16 million project will support the construction of an open access network of telecommunication towers. The overall concept is to build a series of backbone fiber connected high load, high height towers with optimal view shed for backhauling to smaller spoke towers within an estimated 20-mile radius.





## HUD Community Development Block Grant (CDBG)

In 2018, for the first time in State history, Governor Jim Justice announced the approval of \$1.5 million in Community Development Block Grant (CDBG) funding for broadband development projects in West Virginia. Through 2019, approximately \$4 million in CDBG funding has been dedicated to 16 broadband planning and six infrastructure projects, with more than half of West Virginia's 55 counties actively pursuing broadband development as follows:

1. Broadband Planning: 16 projects including 37 counties, and
2. Broadband Infrastructure: 6 projects that will provide broadband connectivity to more than 2,000 residential and business customers upon completion.

In 2019, communities throughout West Virginia submitted 19 project applications, representing 15 infrastructure projects and four planning projects, requesting a total of \$9 million in project funds. Notably, seven of the State's 11 Regional Planning Councils are represented in these project applications.

The CDBG program is administered by the State of West Virginia in the West Virginia Development Office (WVDO), under the guidelines of the U.S. Department of Housing and Urban Development (HUD). All projects funded through this program must fulfill one of three HUD National Objectives, to:

1. Benefit low- to moderate-income persons;
2. Aid in the elimination of slum or blight; and/or
3. Meet an urgent need due to a serious and immediate threat to health and welfare.

HUD has directed States to evaluate the availability of broadband among low- to moderate-income citizens and to expand broadband access. Recognizing that broadband connectivity is essential for economic success, the WVDO has partnered with the Council to develop the CDBG broadband program with a primary emphasis on the extension of broadband to unserved and underserved communities. These areas align with CDBG priorities for low- to moderate-income residents.

### *CDBG Project Development Strategies*

Broadband projects may be completed in phases. CDBG funding may be dedicated to projects which:

1. Assist in planning, analysis, and assessment and construction activities that further the strategic deployment of broadband across the State;
2. Invest in projects that leverage other Federal, State, and local funding in the deployment of broadband infrastructure; and
3. Provide funding for broadband pilot and demonstration projects that provide for the innovative deployment and installation of broadband facilities and infrastructure.

### *CDBG Eligible Activities*

Eligible activities for this funding, include but are not limited to, the following:

1. Extension of existing service into underserved and unserved areas.



2. Provision of new service or upgrade of current services for economic development areas and anchors such as central business districts, business and industrial parks and business incubators.
3. Installation of fiber backbone to assist in broadband deployment.
4. Expansion of wireless broadband coverage into underserved or unserved areas.
5. Planning for the above.

### *CDBG Project Types and Funding Levels*

The WVDO will consider applications for planning, analysis, and assessment and construction activities that further the strategic deployment of broadband throughout the State. The following categories are included in the program:

**Planning Only Grants:** Broadband planning grants are designed to enable local governments to conduct the assessments needed to develop effective strategies for the construction of broadband infrastructure within the following ranges:

1. \$30,000 - \$50,000 for Municipal Applicants
2. \$50,000 - \$75,000 for Counties Applicants
3. \$75,000 - \$125,000 for Regional Applicants

**Construction Grants:** Broadband construction grant applications must meet HUD requirements for Low- to Moderate-Income (LMI) benefit. Construction grant applications must be supported by a comprehensive community broadband plan as outlined above or conceptual design sufficient to demonstrate the project scope and benefit. Upon qualification under HUD LMI guidelines, funds may be used for project-specific engineering, permitting, acquisition, construction, inspection, legal services, project administration and other requirements, according to State CDBG program design requirements. *Construction Grant Maximum: \$1,250,000.*

**Pilot or Demonstration Grants:** The State will consider broadband pilot and demonstration projects that provide for the innovative deployment and installment of broadband facilities and infrastructure. *Pilot or Demonstration Grant Maximum: \$500,000 with a broadband plan as indicted above.*

**Matching Grants:** The State will invest in projects that leverage other federal, state, and local funding in the deployment of broadband infrastructure. CDBG funds may be matched to eligible projects also funded by other state, Federal and private sources. *Matching Grant applications may represent the amount or percentage required by the funding agency.*

### *CDBG General Guidelines*

Broadband infrastructure may be eligible for funding under the CDBG program is most likely to meet the low- and moderate-income requirement either by serving a primarily residential area in which at least 51 percent of the residents are low- and moderate-income, or by creating and retaining jobs of which at least 51 percent are held by or made available to low- and moderate-income persons. CDBG funds may be used to install wiring, fiber optic cables, and permanently affixed equipment such as receivers for areas to create broadband access.

Eligible activities include:

1. The acquisition, construction, reconstruction, rehabilitation, or installation of public facilities and improvements (which include infrastructure improvements) under **24 CFR 570.201(c)**;
2. The acquisition, construction, reconstruction, rehabilitation, or installation of distribution lines and facilities of privately-owned utilities, which includes the placing underground of new or existing distribution facilities and lines under **24 CFR 570.201(i)**;
3. Planning activities are eligible under **24 CFR 570.205** for eligible planning and capacity building activities. Eligible activities include the costs of research, preparation of plans, studies, analysis, training, and the identification of actions to implement plans.

<b>West Virginia CDBG Broadband Projects 2018-2019</b>			
<b>Local Government</b>	<b>Project</b>	<b>Funding Source</b>	<b>Date Awarded</b>
<b>2018</b>			
<b>1. Clay County- Lead Applicant for 3-County Regional Project.</b>	Calhoun-Clay-Roane Regional Plan	<u>CDBG</u>	2/1/2018
<b>2. Fayette County</b>	Fayette County Broadband Plan	CDBG	2/1/2018
<b>3. Gilmer County-Braxton County</b>	Fixed Wireless Design Plan	CDBG	2/1/2018
<b>4. Hampshire County</b>	<b>Capon Bridge Broadband Fiber Expansion Project</b>	<b>CDBG Infrastructure</b>	<b>2/1/2018</b>
<b>5. Jackson County</b>	<b>Sandyville Tower Wireless Project</b>	<b>CDBG Infrastructure</b>	<b>2/1/2018</b>
<b>6. Mingo County</b>	Mingo-Town of Gilbert Plan	CDBG	2/1/2018
<b>7. Morgan County</b>	Morgan County Broadband Plan	CDBG	2/1/2018
<b>8. Nicholas County-Richwood</b>	<b>Richwood-Hinkle Mountain Pilot Project</b>	<b>CDBG Infrastructure</b>	<b>2/1/2018</b>
<b>9. Taylor County-Lead Applicant for 6-County Regional Project</b>	Regional Broadband Strategic Plan, includes Taylor, Doddridge, Harrison, Marion, Monongalia and Preston counties.	CDBG	2/1/2018
<b>10. Tyler County</b>	Tyler County Broadband Plan	CDBG	2/1/2018
<b>11. Webster County-Lead Applicant for 6-County Regional Plan in conjunction with Wyoming County</b>	Broadband Initiative for Southern WV. Plan includes Webster, Fayette, Greenbrier, Nicholas, Pocahontas and Summers counties.	CDBG	2/1/2018
<b>12. Wyoming County- Lead Applicant for 5-County Regional Project in conjunction with Webster County.</b>	Regional Broadband plan includes Wyoming, McDowell, Mercer, Monroe, and Raleigh counties in the Region 4 PDC area.	CDBG	2/1/2018
<b>2019</b>			
<b>13. Brooke County- Lead for Regional Project</b>	Brooke-Hancock Regional Plan	CDBG	4/1/2019
<b>14. Grant County</b>	Grant County Broadband Plan	CDBG	4/1/2019
<b>15. Jefferson County</b>	Jefferson County Broadband Plan	CDBG	4/1/2019
<b>16. Lewis County</b>	<b>Southern Lewis County Expansion Project</b>	<b>CDBG Infrastructure</b>	<b>4/1/2019</b>

17. <b>Marshall County-Lead for Regional Project</b>	Marshall-Ohio-Wetzel Regional Broadband Plan	CDBG	4/1/2019
18. <b>Mason County</b>	Mason County Broadband Plan	CDBG	4/1/2019
19. <b>McDowell County</b>	<b>Bull Creek – Isaban Area Expansion Project</b>	<b>CDBG Infrastructure</b>	<b>4/1/2019</b>
20. <b>Mercer County</b>	<b>Cumberland Industrial Park Expansion Project</b>	<b>CDBG Infrastructure</b>	<b>4/1/2019</b>
* <b>Nicholas County-Richwood (Two-year project funded in 2018 and 2019)</b>	<b>Hinkle Mountain – Little Laurel Expansion Project</b>	<b>CDBG Infrastructure</b>	<b>4/1/2019</b>
21. <b>Pocahontas County</b>	Pocahontas County Broadband Plan	CDBG	4/1/2019
22. <b>Wayne County</b>	Wayne County Broadband Plan	CDBG	4/1/2019

*CDBG Projects Announced in 2018 and 2019*

## Appalachian Regional Commission (ARC) Central Appalachian Broadband

In 2018, the Council and the West Virginia Development Office (WVDO) coordinated the release of a request for proposals for projects to be funded by an available \$3.2 million in Appalachian Regional Commission (ARC) funding as part of the agency’s broadband initiative. The goal of the initiative is to provide funding for the deployment of broadband that will increase economic and business development or provide service to unserved customers. Funding is limited to ARC-designated distressed counties in West Virginia that have been most negatively impacted by the downturn in the coal industry. Eligible counties are **Boone, Clay, Logan, Lincoln, McDowell, Mingo, Webster, and Wyoming.**

### *ARC Eligible Activities*

Competitive project applications will be those that deploy broadband to underserved and unserved areas, particularly to promote economic development and growth. Eligible activities for initiative funding include, but are not limited to, the following:

1. Providing or upgrading broadband service for key economic development areas and anchors such as central business districts, business and industrial parks, and business incubators.
2. Work with existing service providers operating in the area to explore the possibility of increasing their footprint further into underserved and unserved areas.
3. Installing a fiber backbone facility into the eligible counties to assist in broadband deployment to serve area residents and businesses.
4. Expanding wireless broadband coverage into a distressed area.

### *ARC Eligible Applicants*

Eligible applicants include units of local government, community and economic development agencies, regional planning and development councils, and nonprofit organizations.

While funding under this announcement is limited to the following counties: Boone, Clay, Lincoln, Logan, McDowell, Mingo, Webster, and Wyoming counties, it is recognized that in order to bring broadband facilities to the eligible counties identified above, it may be necessary to run facilities

through other counties. Grant funding may be approved in these situations but only with adequate support that this will ultimately aid the deployment of broadband in the eligible counties identified above.

Projects are competitively evaluated on the following criteria:

1. The degree to which the project will increase economic development in an underserved or unserved area will receive higher priority.
2. Projects that demonstrate adequate capacity to administer the project will receive higher priority.
3. Projects that demonstrate detailed and measurable outcomes will receive higher priority.
4. Projects that demonstrate a high degree of demand from end users for the project services will receive higher priority.

### *ARC Project Outcomes*

Applicants should describe the project outcomes in detailed and measurable terms, including:

1. Number of businesses that will be provided with improved or new broadband service.
2. Number of households that will be provided with improved or new broadband service.
3. Number of key economic development anchors that will be served, such as a business/industrial park or a business incubator facility.

ARC Central Appalachian Broadband Projects in West Virginia		
Local Government	Project	Funding Source
1. Webster County Economic Development Authority	Engineering Design for Fiber, Wireless System	ARC Central Appalachian Broadband
2. Williamson Health and Wellness	Engineering Design for Downtown Fiber Ring, serving WVCTC and Williamson Hospital	ARC Central Appalachian Broadband
3. WVU Land Use and Sustainable Development Law Clinic via West Virginia University Research Corporation	TURBO: Tools for Understanding Rural Broadband Access, A Legal Toolkit for Broadband Development	ARC Central Appalachian Broadband

*ARC Central Appalachian Broadband Projects Announced n 2019*

## **ARC POWER**

The Appalachian Regional Commission (ARC) launched the POWER (Partnerships for Opportunity and Workforce and Economic Revitalization) program to help communities and regions that have been affected by job losses in coal mining, coal power plant operations, and coal-related supply chain industries due to the changing economics of America's energy production.

For more information about ARC POWER, visit: <https://www.arc.gov/funding/POWER.asp>. The 2020 POWER application cycle will begin in January 2020. Applications are due by April 24, 2020.

### *ARC POWER: Broadband Development HUB*

In 2018, the Council initiated the creation of the West Virginia Broadband Hub. With ARC POWER funding, this project incorporated existing highway permit data into the State’s broadband mapping initiative. The project also included the integration of broadband into the West Virginia Development Office (WVDO) Site Selection program, and the creation of a Guide to Broadband Development in West Virginia.

The West Virginia Geological and Economic Survey (WVGES) served as the lead applicant for Technical Assistance funding through the ARC POWER program. This application was strongly supported by the West Virginia Department of Commerce in partnership with the West Virginia Department of Transportation. The ten counties included in this project are Boone, Clay, Lincoln, Logan, Mingo, McDowell, Nicholas, Wayne, Webster, and Wyoming.

The integration of data sources and the consolidation of broadband development resources will assist local governments in their pursuit of broadband connectivity. The project will increase community capacity to support broadband and economic development.

## **U.S. Department of Agriculture (USDA) Broadband Programs**

The U.S. Department of Agriculture (USDA) Rural Development team partnered with the Council to conduct a series of workshops in 2018 and 2019 to detail program requirements and encourage the development of project proposals from West Virginia. Training events focused on three primary USDA broadband programs, including:

- Community Connect,
- ReConnect, and
- Distance Learning and Telemedicine

### *USDA Community Connect*

Applications for USDA Community Connect are accepted annually during specific application cycles. For more information about USDA Community Connect, visit <https://www.rd.usda.gov/programs-services/community-connect-grants>.

Proving that communities in West Virginia can successfully compete for this funding, the emphasis on broadband development has resulted in project applications recently selected for USDA Community Connect funding, detailed in the chart below.

<b>USDA Community Connect Projects in West Virginia</b>		
<b>Provider</b>	<b>Award</b>	<b>Counties</b>
<b>1. Central West Virginia Development Association, MicroLogic</b>	\$3,000,000	Barbour, Randolph, Upshur
<b>2. Preston County Economic Development Authority, Digital Connections</b>	\$3,000,000	Preston
<b>3. ClearFiber</b>	\$1,960,000	Marion, Monongalia

*Recent USDA Community Connect Projects Announced 2017-2019*

### USDA ReConnect

In December 2018, the U.S. Department of Agriculture (USDA) announced details regarding its \$600 million ReConnect Program. A second round of USDA ReConnect funding availability begins in early 2020. Applications are due by March 31, 2020. For more information about USDA ReConnect, visit <https://www.usda.gov/reconnect>. USDA ReConnect first-round funding awards, announced in 2019, in West Virginia include:

USDA ReConnect Projects in West Virginia		
Provider	Total Project Cost and Funding Type	Counties
1. Tyler County Development Authority, CityNet	\$3,516,000 50/50 Loan-Grant	Tyler
2. Regional Economic Development Partnership (RED), CityNet	\$4,189,000 50/50 Loan-Grant	Wetzel
3. Harrison Rural Electrification Association (HREA), Digital Connections-Prodigy	\$18,700 Grant \$24,999,920 Total Project Cost	Harrison, Doddridge, Lewis, Upshur, Barbour

USDA ReConnect Projects 2019-2020

### USDA Distance Learning and Telemedicine

The USDA Distance Learning and Telemedicine program helps rural communities use the unique capabilities of telecommunications to connect to each other and to the world, overcoming the effects of remoteness and low population density. For more information, visit <https://www.rd.usda.gov/programs-services/distance-learning-telemedicine-grants>.

USDA Learning Distance and Telemedicine Projects in West Virginia		
Applicant	Awarded Funds	Year
1. Cabell Huntington Hospital Foundation, Inc.	\$206,000	2019
2. Salem University, LLC	\$231,436	2019
3. Charleston Area Medical Center Health Education and Research Institute	\$163,223	2018
4. CHANGE, Inc.	\$500,000	2018
5. Toronto Board of Education*	\$500,000	2018
6. Lincoln County Board of Education	\$440,295	2017
7. Charleston Area Medical Center Health Education and Research Institute	\$100,079	2017

\*Grant awarded to an Ohio based applicant, however, which also serves hub site in Weirton, WV

# FCC Rural Digital Opportunity Fund: RDOF 2020

The Federal Communications Commission (FCC) recently announced plans to invest \$20 billion over the next 10 years through its Rural Digital Opportunity Fund (RDOF). These funds would be derived through the Universal Service Fund (USF) to support broadband expansion in unserved and underserved rural areas over the next decade.

The RDOF will build upon the FCC's experience with its prior broadband development programs, including the Connect America Fund (CAF), Phases I and II.

A preliminary map of initial eligible areas, as determined by the FCC, was released in March 2020 and is subject to change. The auction is expected to close in October 2020. Additional resources are found at the following links:

- **Preliminary List and Map of Eligible Areas for the Rural Digital Opportunity Fund Phase I Auction**  
<https://www.fcc.gov/document/wcb-releases-preliminary-list-and-map-rdof-phase-i-eligible-areas>
- **FCC Auction 904 Initial Eligible Areas Data as of 03/17/2020**  
<https://www.fcc.gov/reports-research/maps/auction-904-preliminary-eligible-areas/>

The Council will continue to engage with the FCC in the development of the RDOF procedures and will conduct training in West Virginia to assist communities and ISP partners as they pursue this funding.

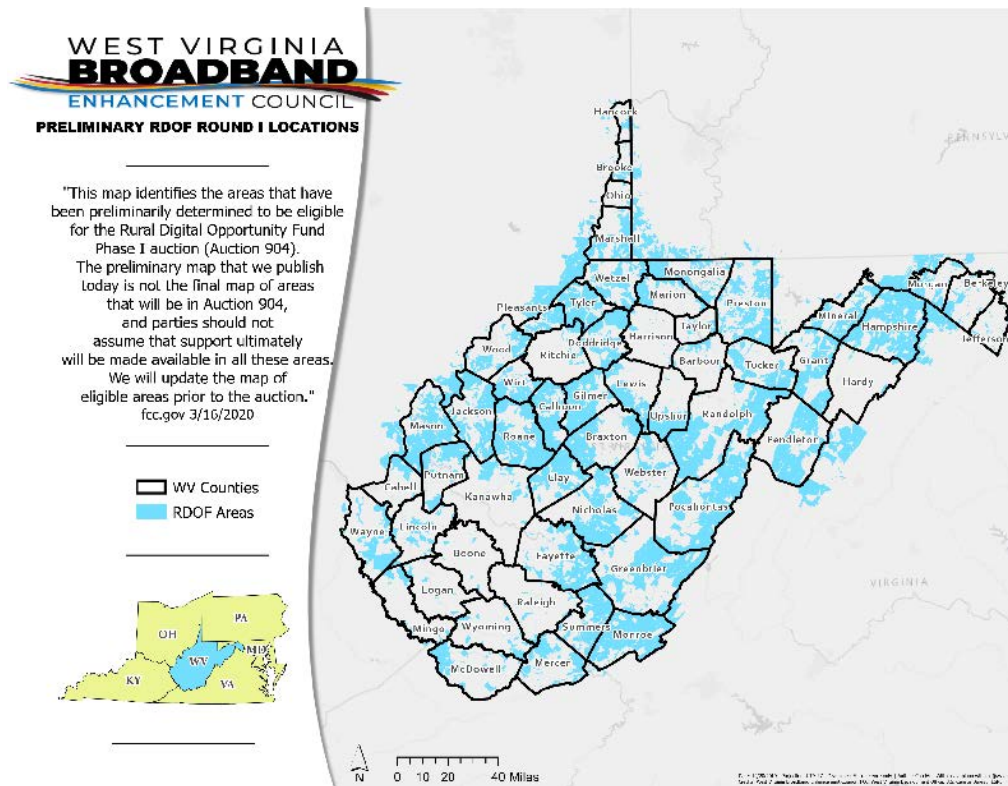


Figure 8: FCC Preliminary Map of RDOF Eligible Areas



## 8.Recent Policy and Legislation

The State of West Virginia has made great strides in recent years with respect to broadband deployment policy and legislation. Recognizing the needs of its many underserved and unserved citizens, the West Virginia Legislature has passed numerous pieces of legislation that will encourage broadband deployment and the development of policies that will enhance deployment.

### **Creation of West Virginia Broadband Enhancement Council**

One of the most significant legislative developments was the creation of the West Virginia Broadband Enhancement Council, established pursuant to legislation in 2017 under House Bill 3093. The primary goal of its creation is to ensure that every part of municipality, community, and rural area of the State has access to Internet communications. The Council is charged with exploring ways to expand access to middle mile, last mile, and wireless applications, including making legislative recommendations. The Council is also charged with mapping broadband services available within the State. The Legislature created a Broadband Enhancement Fund to support the efforts of the Council. The Council reports back each year to the Legislature on its activities.

Pursuant to WV Code § 31G-1-4(a):

(a) The Council shall:

- (1) Explore any and all ways to expand access to broadband services, including, but not limited to, middle mile, last mile and wireless applications;
- (2) Gather data regarding the various speeds provided to consumers in comparison to what is advertised. The Council may request the assistance of the Legislative Auditor in gathering this data;
- (3) Explore the potential for increased use of broadband service for the purposes of education, career readiness, workforce preparation and alternative career training;
- (4) Explore ways for encouraging State and municipal agencies to expand the development and use of broadband services for the purpose of better serving the public, including audio and video streaming, voice-over Internet protocol, teleconferencing and wireless networking; and
- (5) Cooperate and assist in the expansion of electronic instruction and distance education services.

(b) In addition to the powers set forth elsewhere in this article, the Council is hereby granted, has and may exercise the powers necessary or appropriate to carry out and effectuate the purpose and intent of this article, as enumerated herein. The Council shall have the power and capacity to:

- (1) Provide consultation services to project sponsors in connection with the planning, acquisition, improvement, construction or development of any broadband deployment project;



(2) Promote awareness of public facilities that have community broadband access that can be used for distance education and workforce development; (3) Advise on deployment of e-government portals such that all public bodies and political subdivisions have homepages, encourage one-stop government access and that all public entities stream audio and video of all public meetings;

(4) Make and execute contracts, commitments and other agreements necessary or convenient for the exercise of its powers, including, but not limited to, the hiring of consultants to assist in the mapping of the State and categorization of areas within the State;

(5) Acquire by gift or purchase, hold or dispose of real property and personal property in the exercise of its powers and performance of its duties as set forth in this article;

(6) Receive and dispense funds appropriated for its use by the Legislature or other funding sources or solicit, apply for and receive any funds, property or services from any person, governmental agency or organization to carry out its statutory duties;

(7) to oversee the use of conduit installed pursuant to section two of article three of this chapter; and to

(8) Perform any and all other activities in furtherance of its purpose.

(c) The Council shall exercise its powers and authority to advise and make recommendations to the Legislature on bringing broadband service to unserved and underserved areas, as well as to propose statutory changes that may enhance and expand broadband in the State.

(d) The Council shall report to the Joint Committee on Government and Finance on or before January 1 of each year. The report shall include the action that was taken by the Council during the previous year in carrying out the provisions of this article. The Council shall also make any other reports as may be required by the Legislature or the Governor.

### **Access to Highway Rights-of-Way and Dig Once Policy**

In 2018, the West Virginia legislature enacted a “Dig Once” policy, passing legislation that will create incentives over the long term to create spare conduit or opportunities to lay fiber in a joint trench. It directs the West Virginia Division of Highways to install vacant broadband conduit during highway construction projects. Interested ISPs apply to the Council for approval to use the conduit. Conduit is leased at cost-based rates. The Council is also charged with creating a strategy to facilitate the timely and efficient deployment of broadband infrastructure on State-owned lands and buildings, and to assist local governments with development of similar Dig Once and deployment policies. House Bill 4447.

### **Electric Utility Feasibility Studies to Provide Middle-Mile Facilities**

In a bold move showing West Virginia’s continuing commitment to improving broadband access for its citizens, the Legislature passed legislation in 2019 that empowers the State’s electric utilities to develop plans for construction and operation of middle-mile broadband infrastructure expansion projects to provide access to unserved areas of the State. Senate Bill 3 codified at W. Va Code §31G-4-5 (2019).

The Council and the West Virginia Public Service Commission are tasked with assisting the electric utilities in development of these studies. The studies shall address:

1. The route of the middle-mile infrastructure proposed for the project,
2. The number of fiber strands that would be utilized in connection with the proposed project and dedicated to serve as the middle mile,
3. The location of the electric utility's distribution infrastructure that will be utilized in connection with the proposed project, and
4. The capacity of the middle-mile broadband infrastructure that will be available to lease to last-mile broadband Internet providers upon completion of the proposed project;
5. The estimated cost of the proposed project, including but not limited to engineering costs, construction costs, permitting costs, materials and labor, right-of-way costs, and a reasonable rate of return to the electric utility;
6. The proposed schedule of construction of the proposed project; and
7. The method of attachment and connection of the middle-mile broadband fiber assets to the electric utility's distribution infrastructure.

The Council is currently working with two of the State's electric utilities, Appalachian Power and First Energy, on development of the feasibility studies, which may be submitted to the Council for review and approval by December 1, 2019.

These feasibility studies, if approved and implemented, will bring sources of private capital to bear on creating critical fiber infrastructure linking unserved and underserved communities to lower cost bandwidth.

## **Public Service Commission Jurisdiction Over Utility Pole Attachments and One-Touch Make-Ready**

Recent legislative changes also establish the Public Service Commission's jurisdiction over the "make-ready" process for pole access within the State, the process through which internet service providers access the utility poles to attach their infrastructure for broadband deployment (typically fiber or small cells).

In 2019, Senate Bill 3 provided for the implementation of One-Touch Make-Ready rules for utility pole attachments, premised primarily on the FCC's rules around this process. Senate Bill 3 amended the Make Ready Pole Access Statute. Senate Bill 3 is codified at W. Va Code §31G-4-1 *et seq.* One-Touch Make-Ready requires the pole owners to allow a single crew to make changes to multiple wires, rather than having the owner of each wire or strand send its own crew to move it separately.

The Public Service Commission conducted a proceeding, *General Investigation into Adopting and Implementing Rules Governing Pole Attachments and Assumption of Commission Jurisdiction Over Pole Attachments*, Case No. 19-0551-T-GI, to implement the changes to the Make Ready Pole Access Statute. Providing an affordable and timely pathway for attachment of infrastructure to utility poles has proven to be one of the most effective ways to speed broadband deployment.

The Council filed comments in support of the new rules and urged that the Commission adopt the FCC rules largely as is, taking the position:

Improving the reach and quality of broadband is vital to West Virginia's efforts to attract and retain businesses and residents. Senate Bill 3 is appealing to broadband providers because it adopts a known framework. Many broadband providers operate on an interState basis, and distinctive State rules are a deterrent to entry and expansion. *Initial Comments of West Virginia Broadband Enhancement Council*, Case No. 19-0551-T-G, July 9, 2019.

The Commission adopted new rules implementing One-Touch Make-Ready based on the FCC's rules on October 15, 2019.<sup>15</sup> The Council will continue its leadership and advocacy at the State level as additional issues arise.

## **West Virginia Economic Development Authority Broadband Loan Insurance Program**

West Virginia also provides incentives for investors to support deployment of broadband infrastructure, through a non-lapsing fund administered by the West Virginia Economic Development Authority (WVEDA) to support broadband investment. The Broadband Loan Insurance Program (BLINS) insures the repayment of debt on capital costs related to providing broadband service to unserved or underserved areas of the State, or that links a segment of a network operator's core network to a local network plant that serves an unserved area or an area with no more than two wireline providers as outlined in West Virginia Code § 31-15-8, et seq.

Under the BLINS program, the WVEDA can insure up to 80 percent of a bank loan for a broadband infrastructure or development project. The insured portion cannot exceed \$10 million and could be for a maximum term of 20 years.

The purpose of this program is to expand, extend and make generally available broadband service throughout the State of West Virginia with a primary emphasis on the development of broadband infrastructure in unserved and underserved areas of the State as outlined in West Virginia Code § 31G-1-1, et seq.

The program requires the certification of eligibility by the Council. Under the program, the WVEDA may ensure the payment or repayment of the principal and interest of debt related to the following:

1. Providing broadband service of 25/3 Mbps to a household or business located in an Unserved or Underserved Area. The following definitions apply:
  - a. An Unserved Area is defined as a community that has no access to broadband service.
  - b. An Underserved Area is defined as an area with access to Internet service, by wireline or fixed wireless technology, whereby fifteen percent or more of the households and businesses in the area are served by Internet service with an actual downstream data rate less than ten (10) megabits per second (Mbps) and an upstream data rate less than one (1) Mbps, and no part of the area has three (3) or more wireline or fixed wireless broadband service providers.

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<sup>15</sup> [General Order No. 261](#), Public Service Commission of West Virginia (October 15, 2019).

2. Building a segment of a telecommunications network that links a network operator's core network to a local network plant that serves either an unserved area or an area in which no more than two (2) wireline providers are operating.

Public notice is required for all projects, except those that plan to provide a downstream data rate of at least one (1) Gigabyte per second throughout the proposed project service area. The process for funding has detailed requirements for as-built plans, mapping, modifications, project completion, and closeout.

## **Incentives for Development of Wireless Facilities**

In 2019, West Virginia also passed legislation that provides for reduced property taxation for a five-year period of communications towers erected between mid-2019 and mid-2024. Towers erected in this time shall be valued at salvage value for five years, meaning five percent of its original cost. W. Va. Code §§ 11-6L-1 through – 5. This greatly reduces the tax burden on such towers. The State also gives greater certainty for the ability to place of small wireless facilities in the State.

There is also legislation acknowledging the importance of small wireless facilities (small cells and distributed antenna systems) to delivering advanced technology, broadband, and 911 service. The West Virginia Small Wireless Facilities Act creates more regulatory certainty and lower costs to providers by allowing wireless providers to collocate small wireless facilities, and to install, modify or replace utility poles for such facilities in public rights-of-way. It also prohibits exclusive arrangements for use of rights-of-way, limits pole attachment fees, and reduces regulatory burdens on installations. W. Va. Code § 31H-1-1 *et seq.*

## **Permitting Microtrenching**

West Virginia Code § 31G-3-1 *et seq.* establishes the ability of fiber network builders to utilize microtrenching in the State of West Virginia, an innovative lower-cost, lower-impact option for installing underground fiber facilities. It also requires the installation of vacant conduit when a provider is performing microtrenching operations.

## **Nonregulation of VoIP Services**

West Virginia also has legislation clarifying that the Public Service Commission does not have jurisdiction over companies that offer Voice over Internet Protocol (VoIP) telephony services. W. Va. Code § 24-2-1(e).

## **Oversight of Cable Franchising**

Cable franchising in West Virginia is subject to licensing by the State or municipality under W. Va. Code § 24D-1-1 *et seq.* The Commission determines the appropriate authority for issuance of a license, prescribes the standards for construction, operation, and safe, adequate, and reliable service to subscribers. The municipality in which the cable system will be located usually serves as the permitting authority. At least one municipality, Jefferson County, is in the process of negotiating a cable franchise agreement for its residents.

## Establishment of Broadband Cooperatives

West Virginia also provides a statutory mechanism for residents, businesses, and political subdivisions in West Virginia to create a broadband cooperative association. These coops are authorized to establish a provider focused on their communities, bond or finance the building of infrastructure, and engage in other related activities. W. Va. Code § 31G-2-1 *et seq.* The applicable portions of House Bill 3093 regarding cooperatives are also provided via weblink: [House Bill 3093: Article 2. Cooperative Associations.](#)

The West Virginia University Entrepreneurship & Innovation Law Clinic has developed a Broadband Cooperative Toolkit. The toolkit contains a diagram detailing the way a broadband network could be established in West Virginia. The Council will continue its partnership with the Law Clinic to assist communities in the formation of cooperatives. Many cooperatives are found in agricultural applications, and numerous states have a strong heritage in other types of cooperatives, including those serving telephone and electric service.

Communities will need professional assistance, including legal, accounting and business services, to form a BCA. Following is a sample of frequently asked questions related to the BCA option:

*Q. What is a Broadband Cooperative Association (“BCA”)?*

A. Any business or non-profit corporation organized under applicable law for the purpose of obtaining broadband services within a region or community. A BCA is a membership organization comprised of individuals who have a common interest in doing the same type of business or in purchasing a similar type of good or service. A BCA divides its revenues among its members to reward those members for doing business together. Each member has a vote on the policies and priorities of the organization.

*Q. Why did the Legislature think BCAs are important?*

A. As a predominately rural state, West Virginia still has many cities, towns, and other concentrated population areas which are unserved or underserved by broadband access. The lack of affordable, accessible broadband service necessitates consideration of alternative means and methods of providing these services.

*Q. Why should I consider organizing a BCA?*

A. Generally, cooperative associations, or co-ops, are designed to increase access to a service and to minimize the cost of that service for the consumers who are the members. The top priority for a BCA is always to spend whatever is needed to ensure access to good Internet services.

If a BCA runs a budgetary surplus, it distributes that surplus back to the members as dividends as a reward for using the cooperative association. This helps keep rates low and provides financial support for BCA members. Co-ops are popular in emerging industries, such as rural broadband, because they use the power of local markets to satisfy the limited needs of a local community that might not otherwise be served by larger companies in the same low-cost way.

*Q. I’m interested in forming a BCA. How do I get started?*

A. Identify the underserved area where you wish to offer broadband services through a co-op. Identify community leaders – private citizens and/or businesses leaders – who want access to better Internet in that area and are willing to collect a list of customers who wish to incorporate a

cooperative. Seek assistance from organizations, government, and partners willing to organize a BCA membership meeting; establish a team; and pursue a plan for exploring the BCA. This would include developing a business plan, incorporating and operating the BCA. The team should include a knowledgeable business planner, lawyer, and accountant who are available to provide advice as needed.

*Q. What powers will a BCA have in providing Internet services to a community?*

A. As a business entity, a BCA will have many powers to do all things necessary, suitable, or proper in accomplishing its purpose of providing Internet services to a community. In the pursuit of those goals, and BCA may: engage in using or providing any Internet service; or in any activity in connection with the purchase, providing or use by its members of Internet services; or in the financing, directly, through the association of any qualified activities.

In addition, the BCA may conduct business in much the same form as any other business entity in the state such as borrow money, make payments to members, execute promissory notes, become a surety or guarantor, purchase and own stock and capital interests, borrow money and any other form of obligation, establish reserves and invest in ownership of real or personal property, and exercise privileges granted by the laws of this state to ordinary corporations. For more information, please refer to **W.Va. Code § 31G-2-4**.

*Q. Generally, how do you form a BCA?*

A. After forming the team and developing the initial governing documents, each BCA must file its Articles of Incorporation with the West Virginia Secretary of State, Business Licensing Division, and register with other appropriate government agencies like any new business.

# 9. Permits and Clearances

The State of West Virginia has enacted policies to designed to streamline the broadband development process. This work is coordinated with numerous State and Federal agencies. The information provided in this document should not be considered an all-inclusive list of approvals, permits or clearances.

This information is presented as a guide concerning those issues that will most likely be associated with broadband development. Please consult the WVDO or contact the agencies listed below for additional information.

## Role of the Project Engineer

Most State and Federal agencies require the involvement of a properly certified engineer. The project engineer can also provide other services, including but not limited to, design, evaluation of infrastructure, preparation of bid documents, and evaluation of bids. Engineers often provide project management services that include oversights and inspection. Engineering services must be procured under West Virginia Code 5G.

## State Highway Right-of-Way

In West Virginia, the Division of Highways (DOH) has jurisdiction over most roadways. The DOH plans, designs, builds, and maintains more than 34,000 miles of state roads.

The West Virginia Legislature has found that it is in the public interest to accommodate telecommunications facilities on West Virginia Division of Highways (Division) right-of-way when the use of the right-of-way does not:

- Adversely affect the safety of the traveling public,
- Impair the highway or its aesthetic quality, or
- Conflict with any federal, state, or local laws, rules, regulations, or policies.

Also, the Legislature has found that a broadband connection is an essential part of developing the state and local economies, enhancing the transportation system and creating a safer and more secure environment for the citizens of West Virginia. As such, instituting a “dig once” policy encourages telecommunications carriers to coordinate the installation of broadband conduits to minimize costs to the carriers and to minimize disruption and inconvenience to the traveling public.

The DOH maintains regulations in its utility manual, *“Accommodation of Utilities on Highway Right of Way and Adjustment and Relocation of Utility Facilities on Highway Projects Policy”*, or equivalent policy, as currently enforced by the DOH for requirements and conditions for performing work in a right-of-way. The Utility Manual is found here:

[https://transportation.wv.gov/highways/engineering/files/ACCOMMODATION\\_OF\\_UTILITIES.pdf](https://transportation.wv.gov/highways/engineering/files/ACCOMMODATION_OF_UTILITIES.pdf)

## WVDOH District Offices

The WVDOH maintains 10 District Offices to assist counties throughout West Virginia. The DOH District Offices are the first point of contact for any work that may be undertaken within the State highway right of way. District Offices will review all work and issue applicable permits and clearances upon receipt of proper documentation. A complete map of district offices is found here: <https://transportation.wv.gov/HIGHWAYS/DISTRICTS/Pages/default.aspx>

## Environmental Review

The National Environmental Policy Act (NEPA) and “other Federal laws and authorities” require that an environmental review be conducted for all federally assisted actions. This requirement applies to any projects that receive assistance from Federal grant and loan programs, including, but not limited to the following agencies:

- U.S. Department of Housing and Urban Development (HUD CDBG)
- Appalachian Regional Commission (ARC),
- U.S. Department of Agriculture (USDA ReConnect, Community Connect, and Telemedicine)
- U.S. Economic Development Administration (U.S. EDA)
- Federal Communications Commission (FCC)

Each Federal agency has its own environmental review process. Expert assistance may be needed to complete certain components of the environmental review. Consultation with the appropriate agency is advised to ensure compliance with environmental review requirements.

## National Historic Preservation Act State Historic Preservation Office

The National Historic Preservation Act (NHPA), 16 U.S.C. 470 et seq., directs each Federal agency, and those tribal, state, and local governments that assume Federal agency responsibilities, to protect historic properties and to avoid, minimize, or mitigate possible harm that may result from agency actions. The review process, known as Section 106 review, is detailed in 36 CFR Part 800. Section 106 of the NHPA requires that Federal agencies consider the effects of agency action on potential cultural and resources, including providing an opportunity for the Advisory Council of on Historic Preservation (ACHP) to comment on proposed agency action.

Early consideration of historic places in project planning and full consultation with interested parties are key to effective compliance with Section 106. The West Virginia State Historic Preservation Office (SHPO) is the primary consulting party in the process. Details on this process can be found at the following website: [www.wvculture.org/shpo/review.html](http://www.wvculture.org/shpo/review.html). The initial assessment may take up to 30 days.



This document will be updated as new information and resources as they are developed.  
For more information, visit the Council website at: [broadband.wv.gov](http://broadband.wv.gov).

**West Virginia Broadband Enhancement Council**

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