



**WEST VIRGINIA**  
**BROADBAND**  
ENHANCEMENT COUNCIL

**2018 LEGISLATIVE REPORT**

To the West Virginia Legislature  
Joint Committee on Government and Finance

December 31, 2018



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# WEST VIRGINIA **BROADBAND** ENHANCEMENT COUNCIL

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W. Clayton Burch, *Interim Cabinet Secretary*

Robert Hinton, *Chairman*

December 28, 2018

The Honorable Mitch Carmichael, Senate President  
West Virginia Senate  
Building 1, Room 229M  
1900 Kanawha Boulevard, East  
Charleston, West Virginia 25305

The Honorable Roger Hanshaw, Speaker of the House  
West Virginia House of Delegates  
Building 1, Room 228M  
1900 Kanawha Boulevard, East  
Charleston, West Virginia 25305

**Subject: 2018 Report of the West Virginia Broadband Enhancement Council  
Legislative Reporting Requirement, West Virginia Code §31G-1-4**

Dear Senate President Carmichael and House Speaker Hanshaw:

On behalf of the West Virginia Broadband Enhancement Council, I am pleased to submit the Council's 2018 Report to the West Virginia Legislature's Committee on Government and Finance, pursuant to West Virginia Code §31G-1-4.

As directed by the West Virginia Legislature, the Council is diligently working to develop resources that will expedite the expansion of broadband infrastructure within the State of West Virginia, with an emphasis on unserved and underserved areas.

The Council is committed to empowering local communities by ensuring that they have the tools necessary to successfully implement solutions resulting in improved connectivity throughout the State. West Virginia's leaders demonstrated in 2018 that improving broadband and bridging the digital divide is one of the State's highest priorities. Collectively we must address this important issue with an "all hands on deck" approach.

The Council is committed to ensuring that West Virginia secures a large share of federal broadband infrastructure funding, maximizing opportunities as they arise. Numerous broadband planning projects are underway throughout West Virginia. The Council will encourage and motivate communities to transition from an infrastructure planning phase to an implementation phase by submitting successful federal funding requests.



Building upon the momentum created in 2018, the Council has undertaken the development of plans, processes, policies and procedures to improve access to broadband throughout our State. In this mission, the Council will:

- 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.

In this comprehensive approach, the Council is committed to not only holding communities accountable for moving from planning to implementation, but also holding providers to a higher standard to ensure that the level of service delivered matches the level of service purchased and/or advertised.

The Council's formation of partnerships with numerous State and Federal agencies and multiple organizations united in the recognition that West Virginia deserves better access broadband internet service forms the essential foundation for progress. These agencies understand that access to fast, affordable and reliable service has never been more crucial to the economic future of West Virginia.

Earlier this year, the Council was pleased to welcome Senator Robert H. Plymale and Delegate Daniel Linville as Advisory Members. The support and insight of our elected representatives is extremely valuable and we look forward to a productive 2019.

On behalf of the entire Council, we extend our appreciation for your support. We are honored to serve West Virginia in this important role. Should you need additional information, please do not hesitate to contact me at 304-472-1757, or send email to [rob@upshurda.com](mailto:rob@upshurda.com). Staff members in the West Virginia Department of Commerce can be reached at 304-558-2234 and will assist you in any way possible.

Sincerely,



Robert Hinton, Chairman  
West Virginia Broadband Enhancement Council

## 2018 Highlights

Broadband development in West Virginia took several major steps forward in 2018, setting the stage for progress in 2019.

For the first time in State history, Governor Jim Justice approved \$1.5 million in Community Development Block Grant (CDBG) funding for broadband development projects in West Virginia. In tremendous response, more than half of West Virginia's 55 counties began actively pursuing broadband development through nine planning projects and three infrastructure projects.

The Governor has authorized a second allocation of \$2 million in CDBG funding for broadband. An additional 10 counties submitted applications for this funding in October 2018, with applications exceeding the allocated amount.

The Council coordinates CDBG broadband development projects with the West Virginia Development Office. The planning process is designed to ensure that communities throughout the State are prepared to compete for infrastructure development funds.

In December 2018, the U.S. Department of Agriculture (USDA) announced details regarding its \$600 million ReConnect Program. Plans are underway to pursue funds wherever possible as communities in West Virginia seek innovative partnerships with providers of fast, reliable and affordable broadband.

State and local government leaders recognize that broadband is the essential economic infrastructure that West Virginia needs to compete regionally, nationally and globally.

The Council strongly supports these efforts and will continue working throughout 2019, maximizing opportunities to develop a more connected West Virginia.

West Virginia Broadband Enhancement Council

## Notes

*In 2018, the Council...*

Collected nearly 600,000 speed tests from internet users throughout West Virginia through the West Virginia Speed Test Portal and other sources.

Collaborated with the West Virginia Division of Highways to implement the State's Dig Once Policy to promote broadband infrastructure development in State-owned highway rights-of-way.

Launched creation of the West Virginia Broadband Hub, incorporating highway permit data, mapping, integration of broadband into the West Virginia Development Office Site Selection program, and the creation of a *Guide to Broadband Development in West Virginia*.

Provided broadband training and information for residents, local governments, business leaders and professional organizations.

Advocated for pro-broadband policies, representing West Virginia's interests with Federal agencies, such as U.S. Department of Commerce, National Telecommunications and Information Administration and the U.S. Department of Agriculture.

# Financial Report

In July 2016, \$1,475,641, was transferred to the newly formed West Virginia Broadband Enhancement Council from the previous Broadband Deployment Fund. The Council began calendar year 2018 with a balance of \$1,421,527 and maintained a balance of \$1,180,404 as of December 2018.

The Council is created under the West Virginia Department of Commerce for administrative, personnel and technical support services. Available funds are limited to current expenses and are judiciously encumbered for specific purposes related to the Council’s mission. Specific expense categories are detailed in Table 1.

The Council’s budget included the purchase of the licensing necessary to continue speed testing and mapping projects; associated data subscriptions; software; marketing and communications; contracted professional services with applicable State agencies; and limited travel expenses. Additionally, the Council has approved the expenditure of funding for specific legal services and technical consulting services, executed through requests for proposals.

Expense Category	2018 Budget	2018 Expended
Technology Services and Subscriptions	\$50,000	\$ 57,342.16
<ul style="list-style-type: none"> <li>▪ 2018 Ookla Data Subscription, ArcGIS Subscription, ESRI, Speed Test Servers, Speed Test Custom Development</li> </ul>		
Related Expenditures	\$50,000	\$ 31,925.00
<ul style="list-style-type: none"> <li>▪ 2017 Ookla Data Subscription</li> </ul>		
Website Development	\$25,000	\$ 23,723.06
Speed Test Marketing	\$25,000	\$ 13,469.33
WVGES Development Costs	\$41,650	\$ 30,149.75
WVAGO Legal Services	\$25,000	\$ 2,279.00
Travel	\$ 5,000	\$ 0
Legal Services	\$83,000	\$ 46,958.05
Technical Services	\$83,000	\$ 35,277.00
<b>2018 TOTAL EXPENDITURES</b>		<b>\$241,123.35</b>

Table 1: 2018 Expenditure Detail

# The Council's Mission

The West Virginia Broadband Enhancement Council (Council) is committed to enacting the provisions of House Bill 3093, which direct 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.

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 a resource library, news center, and events page at [broadband.wv.gov](http://broadband.wv.gov).

The Council is actively pursuing several initiatives as directed by the Legislature, outlined briefly in this report. While this report provides an overview of major projects, it is not all inclusive. The Council will provide additional details concerning any aspect of its responsibilities upon request. This report details work related to the following initiatives:

- West Virginia's Economic Infrastructure
- Interactive Broadband Mapping System
- Pro-Broadband Policies
- Connecting West Virginia Communities
- Notable Broadband Investment

Help improve broadband access in your community

Take the Speed Test



# West Virginia's Economic Infrastructure

Over the past year and throughout West Virginia, communities are recognizing that broadband connectivity has moved beyond optional to essential. With the 2017 enactment of House Bill 3093, West Virginia's leaders signaled the willingness to develop policies that encourage broadband development. Local government leaders have also indicated a strong interest in broadband development.

The State must encourage internet service providers to develop broadband infrastructure and improve connectivity in West Virginia through the development of policies and regulations that recognize broadband as essential economic infrastructure. Businesses of all types and sizes need the digital connectivity platform that broadband provides.

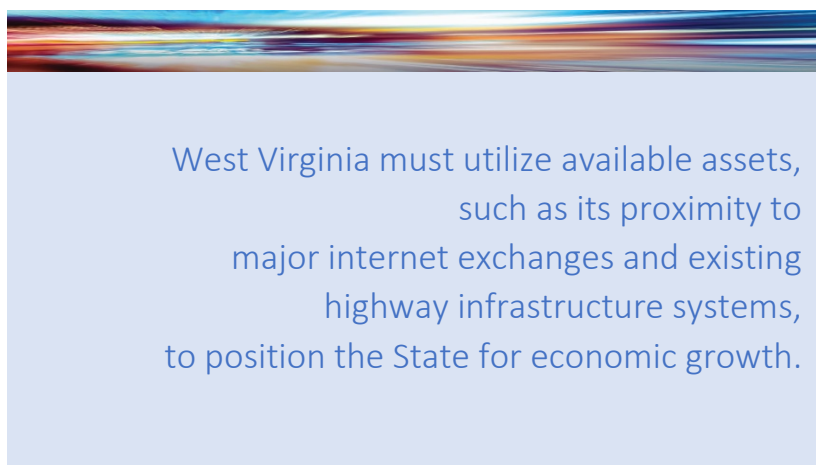
West Virginia has significant opportunities to accelerate the expansion of broadband infrastructure through access to State-owned highway rights-of-way.

This access is critical for both regulated utilities and non-rate regulated broadband service providers.

The operational components of efficient infrastructure systems, historically including electricity and natural gas, water and wastewater and transportation, must now be expanded to include broadband. West Virginia's approach to broadband infrastructure development must include recruitment of Tier I Long-Haul Fiber Carriers. These partners will provide open access connectivity to major internet exchanges and data hubs. Building upon a foundation of abundant long-haul fiber will accelerate the expansion of middle and last mile fiber network systems.

West Virginia must utilize available assets, such as its proximity to major internet exchanges and existing highway infrastructure systems, to attract broadband infrastructure investment and position the State for economic growth. Work will continue with the West Virginia Division of Highways to develop policies that incorporate the needs of West Virginians who remain concerned about the pace of broadband development.

Conducive policies and regulations that encourage expansion will ultimately lead to increased broadband infrastructure investment and a more connected West Virginia.





# Interactive Broadband Mapping System

The Council has initiated an Interactive Broadband Mapping System, redeveloping the mapping program initiated under the 2014 State Broadband Initiative (SBI). This project is achieved within the West Virginia Department of Commerce and includes partnerships with the West Virginia Geological and Economic Survey (WVGES) and the State Office of GIS Coordination.

All maps may be viewed at: <https://wvbroadband.maps.arcgis.com/apps/WVAdvertisedSpeedRanges>. The mapping system will provide information regarding the presence and level of broadband connectivity throughout the State and will serve as a guide to improving connectivity, particularly in unserved and underserved areas.

The mapping system includes static maps for each of the State's 55 counties. Individual county maps are featured on the Council's website at [broadband.wv.gov](http://broadband.wv.gov).

Mapping services will be provided to the State and Federal agencies and local governments to support efficient broadband infrastructure development. The following metrics are available:

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

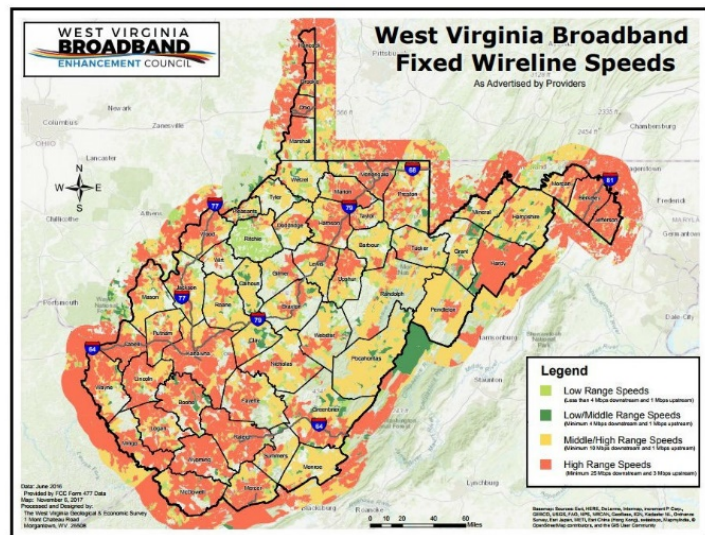


Figure 1: 2017 Form FCC Data, Released September 2018

Each map is created via ESRI's ArcGIS Desktop (ArcMap). Images are exported as layered and interactive PDFs, rather than JPG images. This format allows the user to activate or deactivate individual map layers, map text, map labels and other data elements. Speed tier colors are consistent with those applied throughout the Interactive Broadband Mapping System. This format also provides the flexibility to print the PDF as needed.

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. 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 and the State Office of GIS Coordination.

## Key Components of the Mapping System

Accurate data is the cornerstone of solid planning. Among the Council's goals is the collection of data needed to accurately assess West Virginia's current broadband services, assets and infrastructure. Data collected at the local level will contribute to the State's strategic plan for broadband development. To this end, the Broadband Mapping System includes two main components: The Speed Test Portal and the Statewide Broadband Coverage Map.

### West Virginia Speed Test Portal

The Speed Test Portal was launched in October 2017 and continues to provide valuable data as the Council maps broadband services in communities and business districts throughout the State. Speed test data will enhance the Statewide Broadband Coverage Map to more accurately identify the presence and level of broadband internet service.

The Federal Communications Commission (FCC) reports that more than 80 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 are telling a different story through speed testing and the Council's Speed Test Portal, found at [broadband.wv.gov](http://broadband.wv.gov). In the event of discrepancy with data derived through Form 477 data, as provided by the FCC, the Speed Test Portal can provide alternate data derived through speed testing.

The Council maintains that actual user data is essential to the accurate assessment of internet speeds. "This is one of the most important things this Council can do for the citizens of West Virginia because it provides an accurate assessment of service," stated Michael J. Holstine, P.E. Mr. Holstine represents Congressional District 3 and serves as the Council's Secretary-Treasurer.

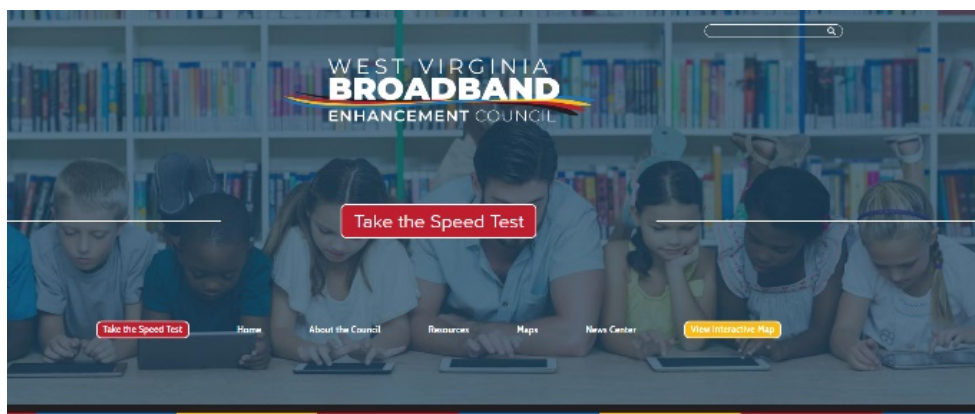


Figure 2: WV Broadband Enhancement Council Website, [broadband.wv.gov](http://broadband.wv.gov)

More than 40,000 West Virginians have utilized the Council's Speed Test Portal.

Nearly 3,000 residents have responded to an online survey.

## Speed Test Summary Data

During 2018, nearly 600,000 speed tests were captured through the Speed Test Portal and other sources. Residential and business users are encouraged to continue speed testing to build a greater volume of speed tests and data points for the development of comparative data sets. Throughout 2018, the Council has promoted the value of speed testing and is seeking additional outreach methods to promote awareness and increase the total number of speed tests conducted in West Virginia.

2018 Speed Test Summary Data				
Total Number of Statewide Speed Tests	Number of Statewide Speed Tests Above FCC Definition (25-3 Mbps)	Number of Statewide Speed Tests More than 10-1 Mbps and Less than 25-3 Mbps	Number of Statewide Speed Tests More than 4-1 Mbps and Less than 10-1 Mbps	Number of Statewide Speed Tests Less than 4-1 Mbps
594,499	363,901	113,432	48,695	73,471

Table 2: 2018 Speed Test Summary

## Speed Test Data Points

Each speed test conducted through the portal represents a unique data point that can be mapped to illustrate the presence and level of broadband in West Virginia, as depicted below:

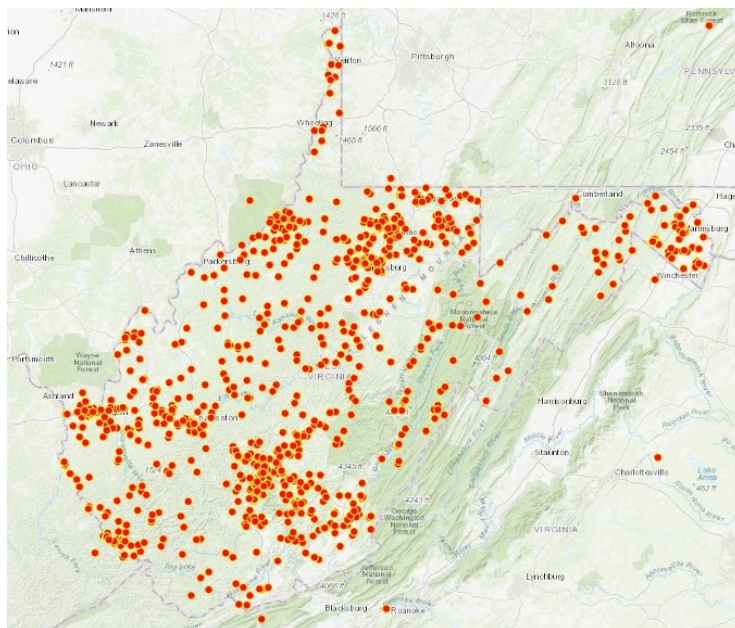


Figure 3: West Virginia Speed Test Portal 2018 Data Points

## 2018 Survey Data

As part of the Speed Test Portal, the Council also developed an online survey to capture information regarding internet usage and broadband service. Information requested in the online survey includes data related to internet speed, subscription level, customer satisfaction and other research points. This survey also provides residential and business users with an opportunity to submit comments to the Council concerning internet service. Sample comments are provided in Appendix A of this report.



## Why Better Data Matters

Simply stated, inaccurate data can render a community ineligible for certain types of broadband funding and assistance. More nuanced, granular, and accurate data will improve State and Federal broadband policy and programs. In addition, State agencies and broadband offices can contribute important information that will provide a more accurate assessment of broadband availability.

Continuing to rely on the current FCC methodology for mapping broadband, utilizing only census block data creates a host of avoidable issues that may only deny or delay access to affordable broadband where it is needed most. The Council maintains that census block data reporting has produced an inaccurate and misleading picture of broadband deployment in West Virginia and has petitioned the FCC for recognition of alternative data sources.

As required by Section 706 of the Telecommunications Act of 1996, the Federal Communications Commission (FCC) released the 2018 Broadband Deployment Report in February 2018. The report states that 82.2 percent of West Virginians have access to fixed, non-mobile broadband internet speeds.

Notably, the report also concludes that seven West Virginia counties - Barbour, Gilmer, Harrison, Lewis, Marion, Randolph and Upshur - have 100 percent fixed broadband access. Report findings are based upon the FCC's [Form 477 data](#), as reported by internet service providers. Residential and business customers within these counties would readily demonstrate that broadband service does not meet a 100 percent threshold. As communities throughout West Virginia prepare to compete for broadband development funding, the Council continues to advocate for improved accuracy in broadband reporting.

The 2018 report indicates that West Virginia ranked 44th for percentage of residents without access to broadband internet service, raising from 48<sup>th</sup> in 2016, but still trailing all surrounding states.

Americans (Millions) With Access to Fixed Terrestrial 25 Mbps/3 Mbps; Mobile LTE with a Minimum Advertised Speed of 5 Mbps/1 Mbps; and Mobile LTE with a Median Speed of 10 Mbps/3 Mbps

### State Ranking

	Population in Millions	Fixed 25 Mbps/3 Mbps		State Standing
		Population With Access	Percent of Population	
United States	322.518	297.766	92.30%	
Maryland	6.001	5.85	97.50%	8
Pennsylvania	12.774	12.124	94.90%	15
Ohio	11.61	10.724	92.40%	22
Tennessee	6.64	6.049	91.10%	24
Virginia	8.387	7.617	90.80%	27
Kentucky	4.428	3.799	85.80%	39
West Virginia	1.83	1.504	82.20%	44

Source: FCC 2018 Broadband Deployment Report  
<https://www.fcc.gov/document/fcc-releases-2018-broadband-deployment-report>

Figure 4: FCC 2018 Broadband Deployment Report Data

## 2018 FCC Report Highlights

- The definition of broadband remains unchanged.
- Mobile services are not full substitutes for fixed services.
- Mobile and fixed services must be evaluated separately.
- Broadband remains the FCC's top priority.
- Approximately 30 percent of Americans in rural areas and 35 percent of Americans in tribal lands lack access to broadband.

# Pro-Broadband Policies

In 2016, the West Virginia Broadband Enhancement Council became a voice for broadband development in West Virginia. As the Council continues to advocate for greater connectivity, this effort is supported by the West Virginia Legislature, the West Virginia Department of Commerce and numerous partners. Each of West Virginia's Congressional representatives continue to support and enhance Federal programs for broadband development and their efforts are setting the stage for progress.

These partnerships are essential to connecting West Virginia, one community at a time. Numerous broadband infrastructure projects are underway or in planning stages. In addition, ventures and partnerships between public agencies and private companies demonstrate the collaboration needed to improve connectivity in West Virginia.

The Council seeks to develop a core network of capacity within the State to undertake broadband development projects. Concurrently, the Council seeks to eliminate barriers to broadband infrastructure development. Key partners in this endeavor include State and Federal agencies, local governments, Regional Planning and Development Councils, Local Economic Development Authorities, internet service providers, and other interested parties. A brief review of current policy initiatives includes:

## Federal Policy Advocacy

The Council represents the interests of West Virginia in Federal matters related to broadband development through its contribution of technical responses to notices of proposed rule-making and other matters. This work is coordinated with numerous agencies, research organizations and program developers to represent the needs of West Virginia's residential and business broadband users. In 2018, the Council submitted comments on applicable broadband policies, including but not limited to:

1. **The National Telecommunications and Information Administration, Improving the Quality and Accuracy of Broadband Availability Data.** The Council provided comment on the notice of proposed rulemaking in July 2018. A copy of the comment submitted by the Council is provided in Appendix C of this report.
2. **The U.S. Department of Agriculture, Broadband e-Connectivity Pilot Program.** The Council provided comment on the notice of proposed rulemaking in September 2018. A copy of the comment submitted by the Council is provided in Appendix C of this report.
3. **The National Telecommunications and Information Administration, Improving the Quality and Accuracy of Broadband Availability Data.** NTIA intends to collect broadband availability data at a more granular level than the FCC Form 477 process. The Council provided comment on the notice of proposed rulemaking in December 2018. A copy of the comments submitted by the Council is provided in Appendix C of this report.



## State Policy Initiatives

At the State level, the Council is committed to carrying statutory changes to enhance and expand broadband within the State, as enacted by the West Virginia Legislature and approved by the Governor.

### Dig Once Policy Act: HB 4447

This act of the Legislature created a new article in the West Virginia Code, designated the Dig Once Policy Act, W. Va. Code § 17-2E-1, et seq. (2018). The purpose of the Act is to assist in the submission, processing and enforcement of a carrier's desire to install, extend, expand, or upgrade its existing longitudinal underground fiber optic network or wireless telecommunications facility within State rights-of-way. The Council is working the West Virginia Division of Highways to implement this policy and is also working with providers to develop any necessary revisions to this policy.

### Utilization of State Right of Way: SB 445

This act of the Legislature creates a new section of the West Virginia Code allowing the Division of Highways to acquire public and private real or personal property adjacent to public roadways and highways for purposes of accommodating utilities. The act's definition of "utility" includes any "privately, publicly, or cooperatively owned line, facility, or system for producing, transmitting, or distributing communications, data, information, video services," etc. Accordingly, broadband qualifies as a utility for purposes of the act. The Council will continue working with the West Virginia Division of Highways and the West Virginia Legislature to develop any necessary revisions to this policy.

### Analysis of State Right-of-Way (ROW) Policies and Fees

The Council has partnered with Tilson Technology Management, Inc. (Tilson) for technical consulting on a vast array of telecommunication issues. In 2018, Tilson assisted the Council in its assessment of right-of-way fee structures for contiguous and demographically comparable states, producing an *Analysis of State Right-of-Way (ROW) Policies and Fees*.

The report was generated through an analysis of the current ROW fee structures in other states, incorporating a review of applicable state statutes, consultation with state highway ROW and engineering offices, and review of material published on state DOT websites within each state. The report also included a review of previously proposed rules and policies in West Virginia for comparison.

States included in the analysis were selected based upon proximity to West Virginia (Pennsylvania, West Virginia, Maryland, Ohio, Kentucky), as well as the states of Vermont, Idaho, and Maine, which represent similar comparisons to West Virginia's rural population and mountainous terrain. The report is available on the Council website and will contribute to the development of policies that encourage broadband infrastructure development in West Virginia.

# Connecting West Virginia Communities

One of the Council's primary objective is to empower communities throughout West Virginia by providing access to the resources needed for the sustained pursuit of broadband expansion at the local level. Innovative partnerships to improve broadband connectivity must be part of an overall economic development strategy. Communities throughout West Virginia are ready to take on this challenge with the State's first allocation of Community Development Block Grant (CDBG) funding for broadband. This proactive attitude is a must for West Virginia to become connected and compete on a global scale.

## State Awards First WV CDBG Broadband Development Grants

Governor Jim Justice announced on February 1, 2018, that for the first time in West Virginia, CDBG funds are being dedicated to broadband planning and infrastructure projects. Twenty-seven West Virginia counties are included in the historic first round of funding.

The State has traditionally and successfully utilized CDBG funding for water infrastructure. With this announcement, the development of broadband infrastructure became part of economic development strategies at the local, regional and State levels.



*Figure 5: CDBG Broadband Development Grant Awards, February 2018*

In a February 2018, news release, Gov. Justice said, "My administration is dedicated to improving the quality of life for all West Virginians. If West Virginia expects to be competitive with the rest of the world, we must have high speed internet connectivity, and this is going to help see this through."

The U.S. Department of Housing and Urban Development provides CDBG funds to the State of West Virginia. HUD has directed states to consider the availability of broadband in low- to

moderate-income areas, noting that these communities may also lack affordable and reliable broadband connectivity. As with other infrastructure, lack of broadband connectivity inhibits economic opportunity within these communities, where local economies are at-risk or in transition.

An additional \$2 million in FY 2018 CDBG funding will be allocated to broadband development with 10 counties have applied for FY 2018 funding. Projects are coordinated with the West Virginia Development Office (WVDO).

2018 CDBG Project Summary Table				
1.	Clay, Calhoun, Roane County Regional Plan	\$125,000	Calhoun-Clay-Roane Regional Plan	CDBG
2.	Fayette County	\$30,000	Fayette County Broadband Plan	CDBG
3.	Gilmer County-Braxton County	\$50,000	Fixed Wireless Design Plan	CDBG
4.	Hampshire County	\$405,795	Broadband Fiber Expansion Project	CDBG Infrastructure
5.	Jackson County	\$125,000	Sandyville Tower Wireless Project	CDBG Infrastructure
6.	Mingo County	\$75,000	Mingo-Town of Gilbert Design Plan	CDBG
7.	Morgan County	\$75,000	Morgan County Broadband Plan	CDBG
8.	Nicholas County-Richwood	\$300,000	Richwood-Hinkle Mountain Pilot Project	CDBG Infrastructure
9.	Taylor, Doddridge, Harrison, Marion, Monongalia, Preston County Regional Plan	\$125,000	Regional Broadband Strategic Plan	CDBG
10.	Tyler County	\$30,000	Tyler County Broadband Plan	CDBG
11.	Webster, Fayette, Greenbrier, Nicholas, Pocahontas County Regional Plan	\$125,000	Broadband Initiative for Southern WV	CDBG
12.	Wyoming, McDowell, Mercer, Monroe, Raleigh and Summers County Regional Plan	\$125,000	Regional Broadband Strategic Plan	CDBG

Table 3: 2018 CDBG Broadband Projects

## Appalachian Regional Commission (ARC)

The Council and the 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. Proposals are limited to Webster, Clay, McDowell, Mingo and Lincoln counties. These project proposals are currently in development.

The Council has also partnered with ARC to create the West Virginia Broadband Hub, incorporating existing highway permit data, mapping, integration of broadband into the WVDO Site Selection program, and the creation of *a Guide to Broadband Development in West Virginia*.

## USDA ReConnect

In December 2018, the U.S. Department of Agriculture (USDA) announced its \$600 million ReConnect Program, created under the Consolidated Appropriations Act of 2018. This program will offer grants, loans, and grant/loan combinations to improve broadband service in rural unserved areas. Application deadlines will begin in April 2019. The Council will support applications for projects in West Virginia to this important new program through consultation with project teams, training and other assistance.

## The Power of Partnerships

West Virginia must actively compete for Federal funds available for broadband development. The Council is currently working with local governments throughout West Virginia to build the foundation and capacity within the State deemed necessary for the pursuit of funding through Federal programs, including but not limited to, the Appalachian Regional Commission (ARC), U.S. Department of Agriculture (USDA), U.S. Economic Development Administration (U.S. EDA), and other agencies as depicted in Figure 6.

Local leaders in 27 counties have formed diverse committees, representing the needs of West Virginia residents and businesses, to pursue broadband development. 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 internet service providers, following a project development model that incorporates the State's 11 Regional Planning and Development Councils and Local Economic Development Authorities. Following are examples of broadband development projects in various regions of West Virginia.

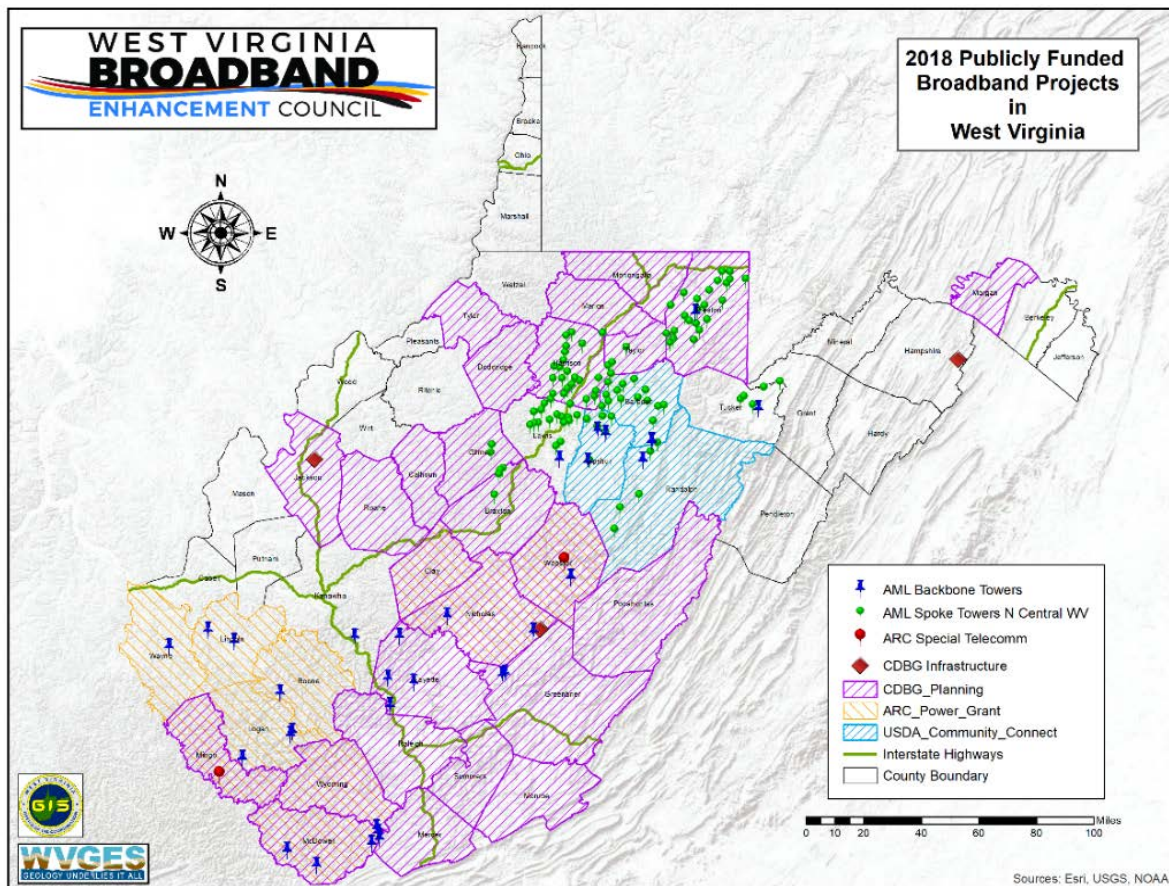


Figure 6: West Virginia Counties with Publicly Funded Broadband Development Projects



## Calhoun, Clay and Roane Broadband Committee Pursues Broadband Connectivity

Local leaders and residents from Calhoun, Clay and Roane counties have formed the Calhoun-Clay-Roane Broadband Development Committee ([CCRBDC](http://www.ccrbdc.org)) to support the Clay County Commission's role as the lead administrator of a Community Development Block Grant (CDBG) broadband development project.



The Broadband Committee has four goals:

- Provide a fundamental understanding of the applicable interest access technologies;
- Determine the existing regional broadband infrastructure;
- Survey potential customers and their needs; and
- Specify the gaps in coverage and/or service capacity.

"This Broadband Committee was formed from the three county broadband groups that have been dedicated to bringing broadband service to their businesses and homes for the past few years. The CCRBDC was formed to oversee the development of this broadband network," said Region III Project Coordinator Terry Martin. "I have worked with many volunteer committees and this is the most dedicated group. Each member adds expertise to the group and I am honored to be a part of this committee."

## Hampshire County Continues Expansion of Hybrid Open Access Network

The Hampshire County Commission continues efforts to connect the underserved 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, 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.



*Figure 7: Fiber Installation Continues in Hampshire County*

"As West Virginians, we are really great at developing water and sewer infrastructure across our beautiful state," said Hampshire County Broadband Council Director Aaron Cox.

"Educating ourselves and taking similar design and layout schemes used in other infrastructure projects, we can join with knowledgeable, trustworthy partners that will enable us as a group to take a bite out of the huge digital divide that we are suffering in which repeatedly hinders economic development across the entire State."



## Gilmer and Braxton Counties Collaborate in Broadband Planning Initiative

Broadband connectivity in Gilmer County mirrors many counties around the State. Broadband is available in select areas near anchor institutions but it quickly dissipates at the outer edges of surrounding communities and into the rural areas. Gilmer and Braxton counties have joined to complete a design plan to address this issue.

"This design plan is focused on bringing broadband connectivity to those residents and businesses whose current options for service are either limited to solutions which are not broadband or are unserved by what is currently available," said Shane Whitehair, the Region 7 Planning and Development Council Executive Director.

## Jackson County Pursues Sandyville Wireless Tower Project

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.

"The addition of new broadband internet connectivity would be an enormous asset for the Sandyville area. Internet connectivity in the area is greatly lacking and the addition of affordable, high-speed service would greatly benefit students, first responders, citizens and local businesses," said Luke Peters, Project Manager, Mid-Ohio Valley Regional Council.



Figure 8: The Sandyville Tower Project will improve public safety in the local community.

## Eleven Counties Join Broadband Initiative for Southern West Virginia

The Webster County and Wyoming County commissions are the lead agencies for a broadband development project including Fayette, Greenbrier, Nicholas, Pocahontas and Webster counties in the Region 4 Planning and Development Council area; and Wyoming, McDowell, Mercer, Monroe, and Raleigh counties in the Region 1 Planning and Development Council area. The Broadband Initiative for Southern West Virginia project encompasses 11 counties in preparation for phased infrastructure development.

"We will compile a full listing of existing broadband providers and their respective service areas including capabilities, establish the best applications of existing, current and future technologies and develop an overall map of broadband facilities," said John Tuggle, Region 4 Executive Director.

"The importance of broadband planning and infrastructure for Wyoming County and the surrounding region cannot be emphasized enough," said Jason Roberts, Region I Executive Director. "Wyoming County has taken a necessary step in advancing the presence of broadband which will make the region much more competitive in attracting new businesses while boosting the operations of existing businesses."

# 2018 Notable Broadband Investments

## Microsoft Airband Initiative: August 2018

In August 2018, the Microsoft Corp. announced West Virginia's inclusion in its 2018 Airband Grant Fund Initiative. The Airband initiative is designed to help bring broadband internet access to rural communities through innovative technologies. Houston-based Skylark Wireless was selected to provide affordable broadband service in Mingo County, one of only eight U.S. communities to receive this grant in 2018. The Airband Grant Fund is part of the [Microsoft Airband Initiative](#), which aims to help close the broadband access gap in rural America by 2022.

## FCC CAF II Investment: August 2018

Also in August 2018, the Federal Communications Commission (FCC) announced its award of \$1.49 billion, to be paid over the next 10 years, to 103 providers nationwide in under the Connect America Fund Phase II (CAFII) program. Three services providers were collectively awarded nearly \$12 million for broadband projects in West Virginia. Announced projects in West Virginia include:

Connect America Fund Phase II (CAF II) Projects in West Virginia		
Provider	Award	Counties
Citynet	\$6.5 million	Greenbrier, Nicholas, Pocahontas, Taylor, and Webster
Hardy Telecommunications	\$47,435	Rio in Hampshire County
ViaSat, Inc.	\$5.43 million	Various locations; emphasis in Calhoun, Clay, Marshall and Wetzel

Table 4: West Virginia FCC CAF II Projects, Announced in August 2018

## Zayo Announcement: October 2018

In October 2018, the Zayo Group announced plans to build a 200-mile fiber route across West Virginia, from Ashburn, Virginia to Columbus, Ohio. This major project will provide significant opportunities for the expansion of high-speed connectivity built upon advanced fiber infrastructure. West Virginia Governor Jim Justice, U.S. Senator Shelly Moore Capito, and State Senate President Mitch Carmichael joined Jack Waters, Zayo Chief Technology Officer and West Virginia University graduate, during the announcement.

# Broadband Infrastructure Loan Insurance Program

The West Virginia Economic Development Authority (the WVEDA) and the Council cooperatively administer the Broadband Infrastructure Loan Insurance Program (BLINS) to expand, extend and make generally available broadband service throughout the State of West Virginia. The loan insurance program 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.

Upon certification of eligibility by the Council, the WVEDA is authorized to provide financial assistance in the form of loan insurance solely for capital costs relating to eligible projects for the provision of broadband service to unserved or underserved areas, and for building certain telecommunications network segments.



Upon certification of eligibility by the Council, the WVEDA is authorized to provide financial assistance in the form of loan insurance solely for capital costs relating to eligible projects for the provision of broadband service to unserved or underserved areas, and for building certain telecommunications network segments.

The WVEDA may insure, for up to 20 years, the payment or repayment of the principal and interest of debt related to the following:

Providing broadband service, as defined in West Virginia Code §31G-1-2, 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 15 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 megabits per second (Mbps)** and an upstream data rate **less than one Mbps**, and no part of the area has **three or more** wireline or fixed wireless broadband service providers.

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** wireline providers are operating.

This program further solidifies West Virginia's commitment to broadband expansion. The program has been successfully utilized to expand broadband service in Preston County, West Virginia. Additional projects that will utilize this program to serve additional counties are currently in development.



# WEST VIRGINIA **BROADBAND** ENHANCEMENT COUNCIL

[Broadband.wv.gov](http://Broadband.wv.gov)  
[WVBroadbandCouncil@wv.gov](mailto:WVBroadbandCouncil@wv.gov)

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1900 Kanawha Boulevard East | Building 3, Suite 200 | Charleston, West Virginia 25305 | 304-558-2234





# Appendix A: Sample Online Survey Comments

1. I have the only plan available from the only provider where I live.
2. [REDACTED] has the capability to improve my service, they merely ignore my requests.
3. your speed test is horrible, page hard to use. Do better.
4. I have [REDACTED] internet and it is the worst internet you could possibly pay for.
5. Inconsistent, at times less than 3 mps Down and 0.01 Up. Fiber is within range, not affordable.
6. I was not able to indicate my location on the map (it was not interactive). I am in Fairplain, WV.
7. My business suffers without decent broadband. [REDACTED] was supposed to fix that when it bought [REDACTED]!
8. We subscribe to less than 10 Mbps because our phone lines cant handle a bigger service.
9. [REDACTED] service is consistently not as fast as the subscribed/contracted rate.
10. [REDACTED] has a monopoly and they exploit it to full potential... I have to pay 68 a month
11. Have complained many times need faster speeds for working from home.
12. slow speed, never above 3 MBPS. not sure how Randolph County is 100% for 25 MBPS
13. [REDACTED] only provides 5 mbps to this area. they slowed us to 3 as internet would not work at 5,
14. Notice the blistering speed? Yeah, this is what we have to put up with.
15. [REDACTED] is 1/2 mile away but refuses to provide service. FCC has no clue
16. [REDACTED] is the best at being the worst internet provider I have had in 35 years
17. My Internet cuts out a lot.
18. Recently canceled DSL w/[REDACTED] due to very poor reliability and low speed.
19. I am obviously not receiving the internet speed that I was promised by my internet service provider
20. Hopeful that we can work to get better connection speeds in WV
21. Internet goes in and out to point can't do business needs!
22. Internet slower than what I am paying for.
23. Our internet is so slow that more than one device takes it down. Sad.
24. This is my only internet connection possible. Besides a satellite or dial up service.
25. Ridiculous that the government says that most of WV has access to broadband.
26. This test doest show the days there is no service or how often it goes down
27. Access is worse when Snowshoe Mt. Resort has activities. Very poor most of the time.
28. Upload too slow to measure. This is a measurement at 1:30 in the afternoon on a school day.
29. We pay for 6mbp but as you can see we do not get that. Our internet is constantly dropping .
30. I hope at some point we're going to discuss costs. What we get now isn't cheap.
31. Service is getting worse and worse - and they raised my rates!!
32. Our internet is awful for the price we pay. [REDACTED] will not update anything.
33. I live in Beckley WV I pay [REDACTED] for 1000 Mbps internet> I do not even get 100 Mbps
34. Service in our area is often blanket outage for several hours over a period of weeks
35. Please, for the love of god, get us faster service
36. I shouldn't have to pay \$40. a month for the terrible internet that I have. It's sporadic.
37. Intermittent access, super slow speeds.

# **Appendix B: 2107 Statewide Broadband Coverage Maps and County Maps**

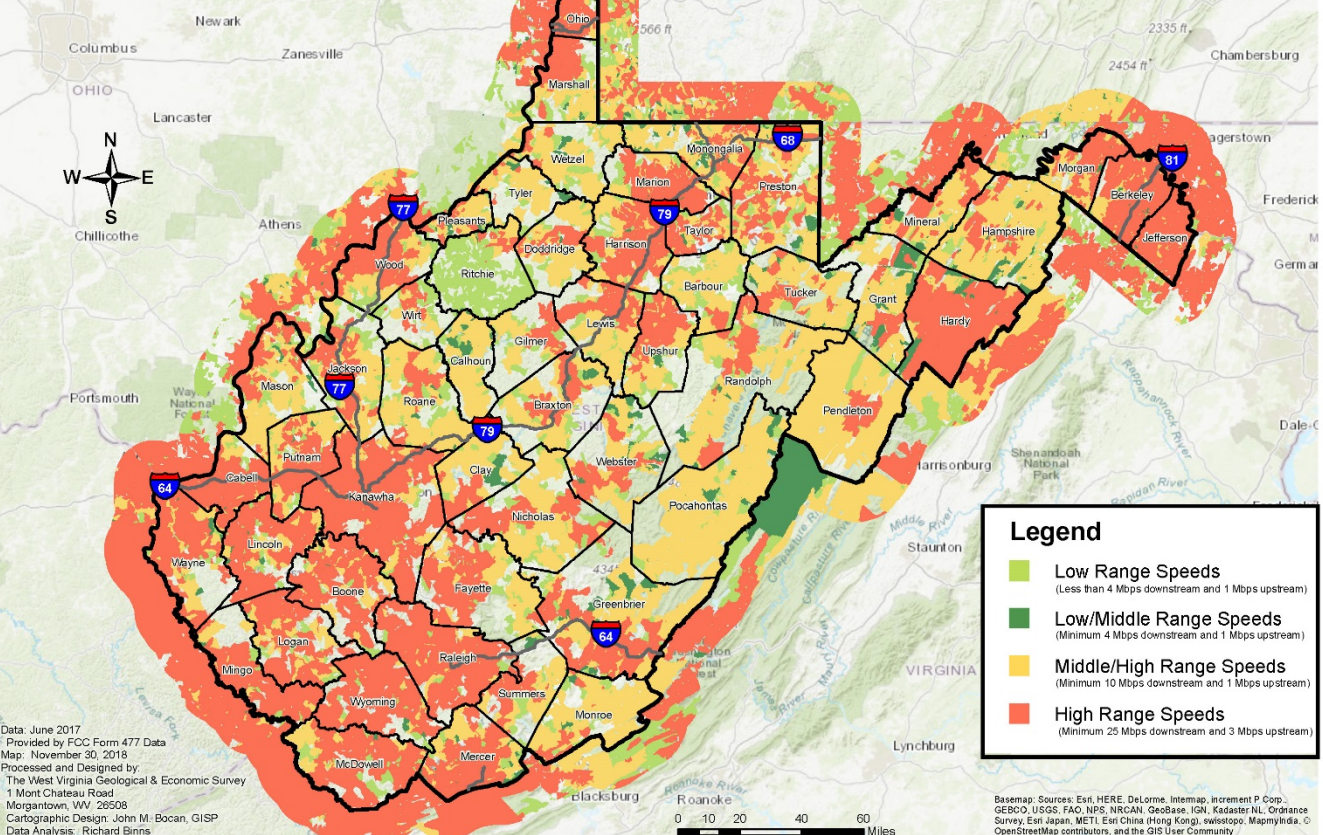
**Based Upon  
Federal Communications  
Commission (FCC) Form  
477 Data,  
Issued September 2018**



[broadband.wv.gov](http://broadband.wv.gov)

# West Virginia Broadband Fixed Wireline Speeds

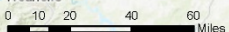
As Advertised by Providers for Consumers



**Legend**

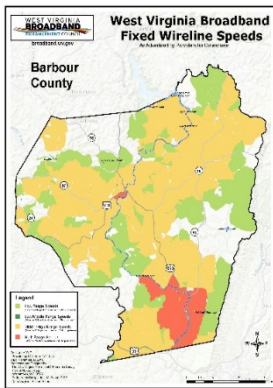
- **Low Range Speeds**  
(Less than 4 Mbps downstream and 1 Mbps upstream)
- **Low/Middle Range Speeds**  
(Minimum 4 Mbps downstream and 1 Mbps upstream)
- **Middle/High Range Speeds**  
(Minimum 10 Mbps downstream and 1 Mbps upstream)
- **High Range Speeds**  
(Minimum 25 Mbps downstream and 3 Mbps upstream)

Data: June 2017  
 Provided by FCC Form 477 Data  
 Map: November 30, 2018  
 Processed and Designed by:  
 The West Virginia Geological & Economic Survey  
 1 Mont Chateau Road  
 Morgantown, WV 26508  
 Cartographic Design: John M. Bocan, GISP  
 Data Analysis: Richard Binns



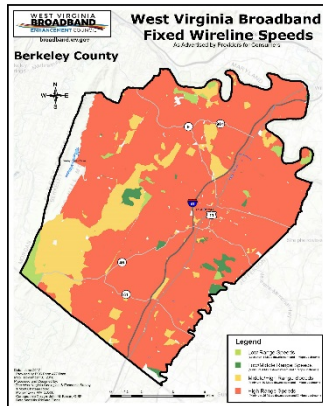
Basemap: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

### Barbour County



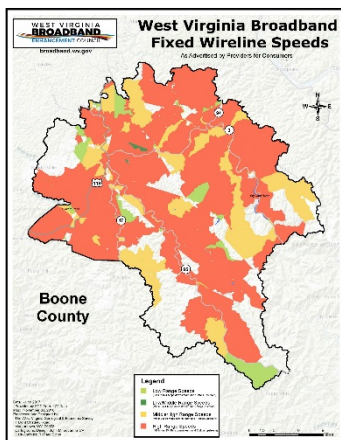
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	64.93	7.46	11	328	184	138
Shentel	30.43	8.64	11	252	159	72
Verizon	14.52	7.05	45	14	11	8
Sprint	10.28	5.97	9	9	9	5
Micrologic	7.4	3.06	26	754	399	128
Frontier	6.04	0.76	45	865	602	335
AT&T Internet	5.47	1.96	75	67	33	14

### Berkeley County



ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
XFINITY	107.03	10.04	15	23398	14041	5933
AT&T Internet	11.32	4.85	49	296	210	102
Sprint	10.31	3.03	36	122	94	75
Shentel	7.27	2.24	43	120	63	17
Frontier	5.74	0.8	27	5722	3400	1420
Verizon	4.34	0.69	42	501	340	238

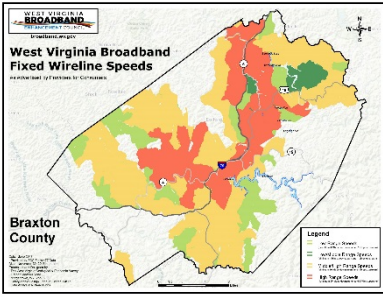
### Boone County



ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Zoom Internet	85.91	10.85	56	26	18	9
Suddenlink	72.3	20.7	11	1835	1133	426
Shentel	23	7.16	51	771	453	120
TG Communications	13.54	4.86	3	1	1	1
Frontier	7.45	0.78	20	5484	3450	1957
Verizon	6.61	2.22	69	5	4	4
Lumos Networks	6.2	4.91	43	20	13	8
AT&T Internet	5.34	1.76	9	4	4	3

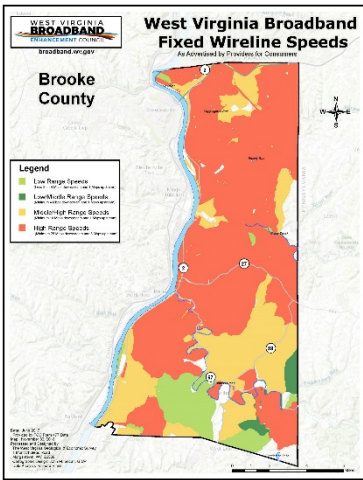


### Braxton County



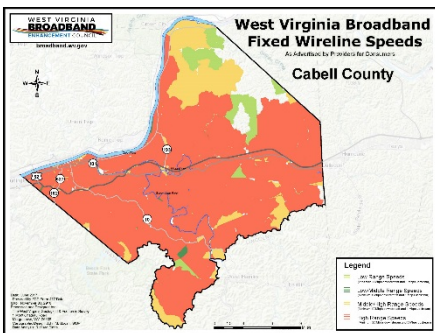
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Shentel	34.93	9.69	12	361	232	76
Lumos Networks	31.71	18.66	17	155	96	54
Suddenlink	21.29	9.47	10	1	1	1
Verizon	14.91	6.32	44	7	7	7
Frontier	8.2	0.85	46	874	528	151
Sprint	5.74	2.2	64	3	3	3
AT&T Internet	5.33	5.38	83	14	12	7
Micrologic	4.71	2.53	35	539	251	58

### Brooke County



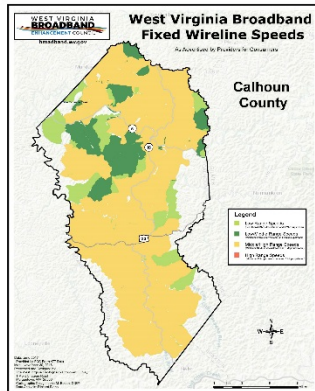
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XFINITY	112.11	10.2	13	1596	824	395
HTC Communications	70.78	99.56	25	2	1	1
Verizon	11.62	4.7	32	67	48	41
Frontier	9.34	0.95	46	351	265	98
AT&T Internet	8.47	3.1	62	20	20	12
JCC	7.99	2.54	24	471	242	92

### Cabell County



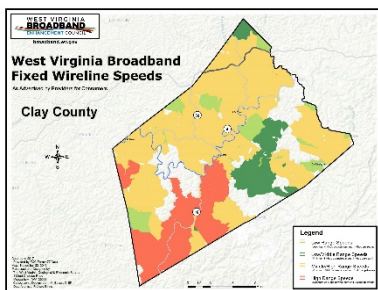
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	96.34	20.62	11	6295	3619	1401
Zoom Internet	74.15	13.92	48	705	483	177
Spectrum	66.07	11.56	35	18	12	6
XFINITY	54.03	7.8	44	1573	1081	769
CenturyLink	27.54	41.49	45	8	5	5
Lumos Networks	23.19	17.84	39	489	303	218
Verizon	14.16	10.28	76	76	56	29
AT&T Internet	11.21	5.8	49	126	110	89
Frontier	9.5	1.1	20	2966	2052	798

## Calhoun County



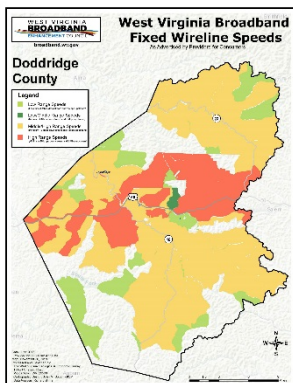
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Lumos Networks	55.39	7.63	10	14	10	5
Shentel	24.11	5.17	61	498	322	39
Frontier	4.18	0.66	46	331	205	90

## Clay County



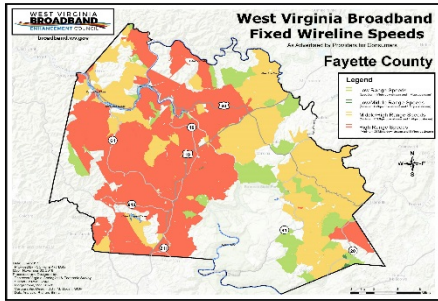
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	86.42	17.74	11	130	80	32
Lumos Networks	34.16	30.63	29	10	8	7
AT&T Internet	9.97	1.44	75	11	10	8
Frontier	8.72	0.86	19	816	517	125

## Doddridge County



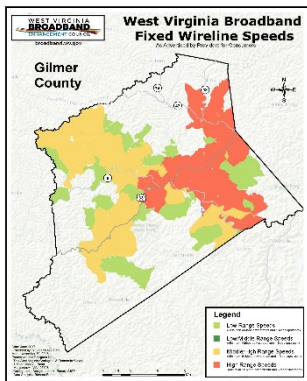
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Zoom Internet	68.9	11.16	41	325	181	101
Shentel	30.82	6.73	9	193	104	42
Lumos Networks	24.48	20.36	23	8	6	6
Frontier	7.39	0.84	50	376	252	106
AT&T Internet	5.92	1.66	117	53	19	12
Verizon	1.73	2.35	166	57	17	7

## Fayette County



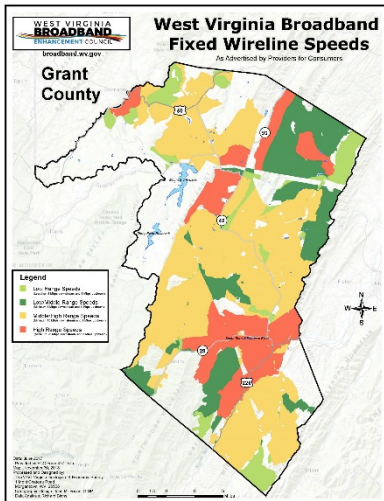
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	101.05	22.27	10	5582	3320	1194
Lumos Networks	43.05	23.16	22	15	14	12
Shentel	19.18	7.71	16	956	547	181
Sprint	11.2	2.44	76	9	9	6
Verizon	9.49	4.49	47	39	19	16
Frontier	6.78	0.79	21	1454	962	560
AT&T Internet	6.68	1.36	72	37	31	18

## Gilmer County



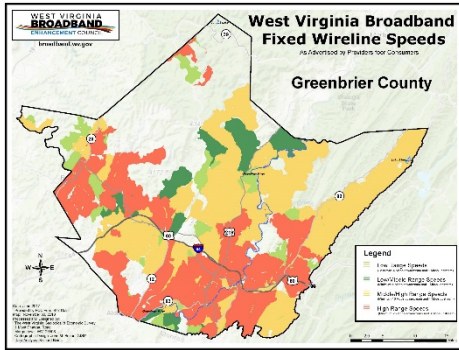
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	67.28	7.35	16	20	13	11
Shentel	25.01	3.79	5	618	237	71
CenturyLink	19.55	12.69	34	7	6	6
Frontier	11.24	1.14	41	214	153	72

## Grant County



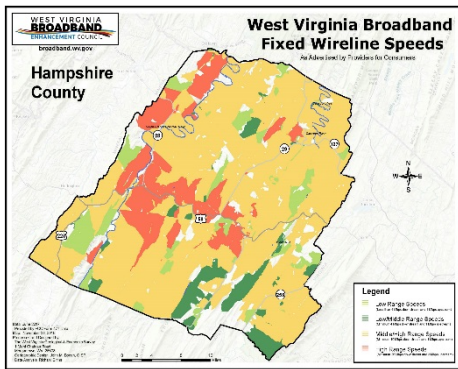
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Shentel	23.21	7.46	14	1179	602	254
Atlantic Broadband	15.78	5.85	30	13	5	5
Hardy Telecommunications	4.11	1.84	11	11	9	6
Frontier	3.98	0.58	46	336	251	94
AT&T Internet	3.45	0.64	67	131	42	11

## Greenbrier County



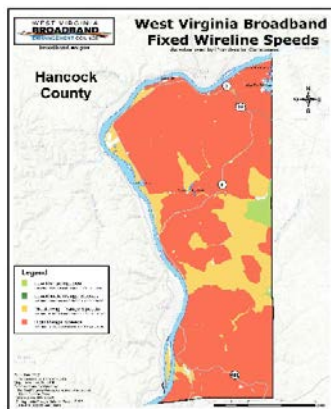
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	81.82	20.94	11	3323	1979	601
Lumos Networks	22.03	9.41	28	614	336	112
Shentel	19.65	5.76	23	192	124	55
Sprint	9.31	5.03	51	32	19	11
Frontier	7.41	0.86	34	2286	1583	802
AT&T Internet	7.38	2.42	75	89	50	33
Verizon	4.63	3.33	86	34	20	17

## Hampshire County



ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
XFINITY	135.75	11.87	14	11	8	8
Atlantic Broadband	48.18	8.18	27	603	362	133
AT&T Internet	10.16	2.45	44	93	61	28
Hardy Telecommunications	6.85	2.14	12	97	64	35
Frontier	5.87	0.73	29	3014	2057	877
Shentel	4.28	1.55	52	21	9	5
Verizon	2.87	0.64	44	79	49	45

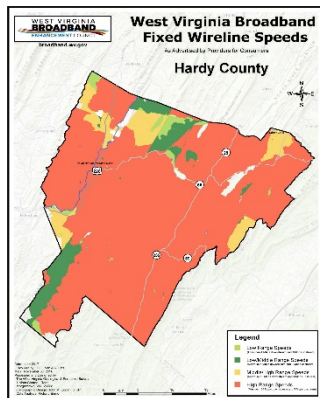
## Hancock County



ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
XFINITY	127.94	10.49	14	4910	2987	1218
Spectrum	27.93	5.61	13	40	17	10
AT&T Internet	13.8	6.52	54	100	80	26
Frontier	8.75	1.01	46	624	402	94
Verizon	6.34	4.37	30	62	46	39

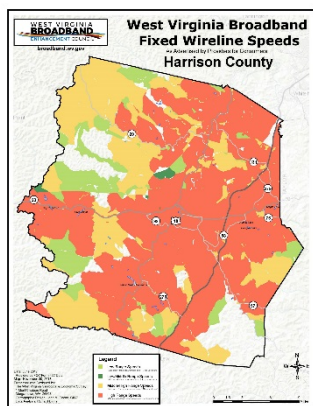


## Hardy County



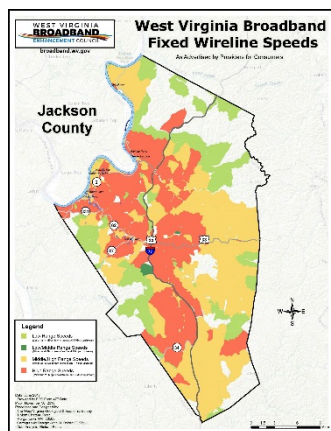
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Atlantic Broadband	19.49	5.44	27	17	7	5
Hardy Telecommunications	14.9	6.39	6	1423	892	463
AT&T Internet	9.47	2.72	49	23	18	14
Frontier	8.19	0.92	26	254	175	52

## Harrison County



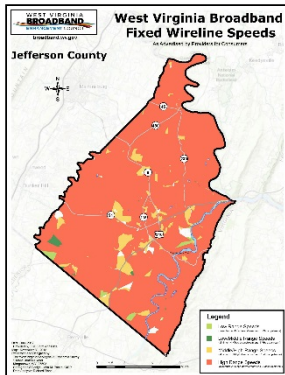
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	72.42	7.98	11	4109	2419	754
Lumos Networks	72.39	65.8	14	958	281	119
XFINITY	66.35	74.76	3	31	26	20
Spectrum	56.84	10.94	51	11507	6689	2504
Shentel	22.53	6.67	10	181	107	60
Micrologic	16.63	4.38	13	183	104	34
AT&T Internet	9.55	3.69	67	152	110	79
Verizon	9.08	5.66	72	85	67	43
Frontier	7.02	0.88	45	6093	3869	1912

## Jackson County



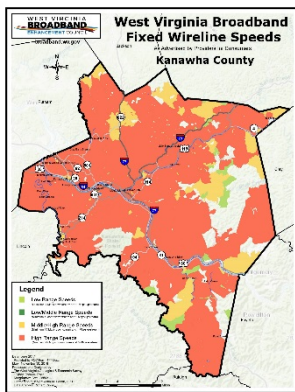
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	90.77	25.83	12	1926	1085	384
Zoom Internet	64.57	8.84	46	12	8	8
CAS Cable	48.91	9.96	34	1042	622	337
Lumos Networks	20.51	6.39	36	371	218	67
Frontier	6.88	0.81	23	1042	754	283
AT&T Internet	4.31	2.08	94	80	48	25
Sprint	4.23	1.99	64	32	25	9

## Jefferson County



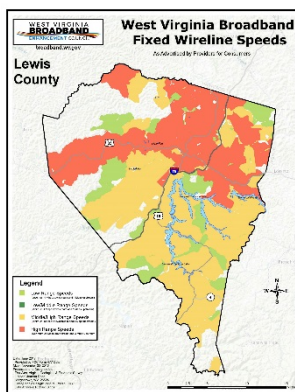
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
RCN	179.41	24.22	10	45	26	19
XFINITY	107.38	10.42	16	13888	8043	3622
Verizon	21.37	9.9	26	151	120	58
AT&T Internet	17.88	5.87	44	151	95	49
Frontier	6.75	0.96	21	1691	1104	407

## Kanawha County



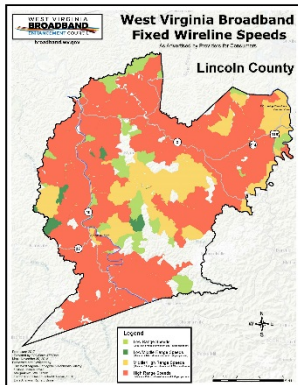
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	74.83	18.34	11	71211	38361	13145
XFINITY	36.18	12.62	45	14	5	4
Lumos Networks	30.91	22.58	34	1102	679	457
Verizon	12.43	6.36	44	146	122	96
AT&T Internet	10.66	4.16	18	284	248	159
Frontier	8.49	0.89	20	14353	8970	4306

## Lewis County



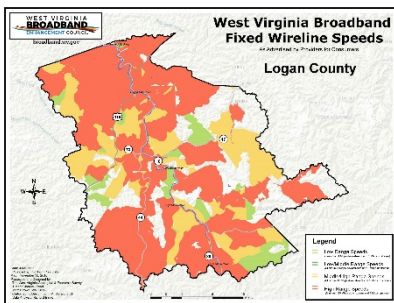
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	56.41	7.45	10	34	27	17
Lumos Networks	38.02	34.78	11	65	45	33
Shentel	27.31	8.23	9	2444	1395	597
Micrologic	14.02	5.99	24	425	230	58
AT&T Internet	10.31	2.65	58	22	18	13
Frontier	8.23	1.06	44	920	618	266

## Lincoln County



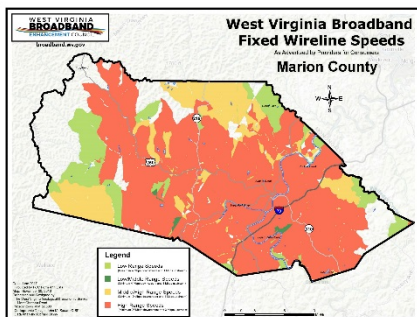
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Zoom Internet	63.67	12.66	51	1411	888	351
Suddenlink	39.31	7.94	12	1713	718	307
Frontier	6.99	0.77	23	1995	1343	649
AT&T Internet	4.11	1.09	132	29	22	9

## Logan County



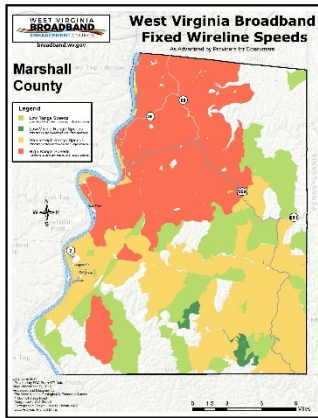
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Zoom Internet	114.46	18.44	55	230	166	48
Suddenlink	88.36	23.77	11	6563	3773	1000
Shentel	31.51	7.41	48	1535	770	316
Frontier	7.7	0.95	21	1513	950	341

## Marion County



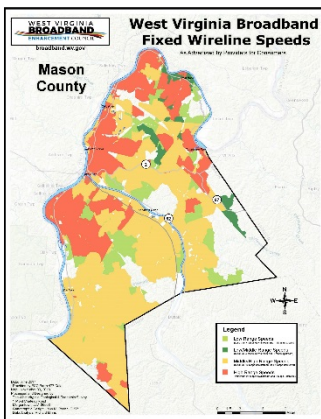
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
XFINITY	109.8	9.81	15	3011	1973	928
Lumos Networks	88.5	64.7	12	31	25	25
Spectrum	69.06	11.35	32	9392	4454	1441
Suddenlink	58.17	8.12	11	245	175	42
Frontier	6.36	0.78	47	3538	2341	1203

## Marshall County



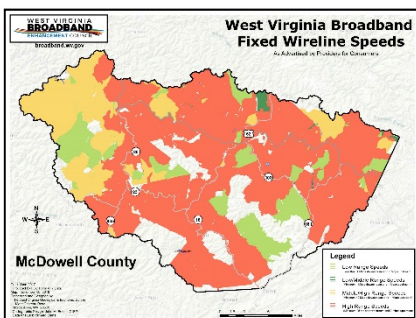
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
XFINITY	111.67	9.79	14	3077	1835	870
Frontier	8.16	0.94	44	854	589	175
StratusWave	6.05	1.64	38	84	44	19
AT&T Internet	4.48	3.87	111	411	113	43

## Mason County



ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Zoom Internet	109.98	10.89	39	16	15	14
Suddenlink	89.01	23.31	11	5264	2992	1236
Shentel	9.82	0.57	831	1	1	1
AT&T Internet	8.48	2.65	55	89	57	20
Frontier	7.81	0.94	24	1523	958	246
Lumos Networks	5.4	5.18	34	15	14	13
Verizon	4.78	1.73	59	23	20	15

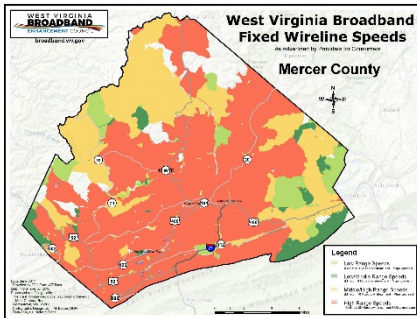
## McDowell County



ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Spectrum	66.33	11.7	48	18	12	11
Exede	19.62	2.66	666	82	46	14
Shentel	18.23	7.12	43	1502	855	318
Frontier	8.62	0.88	19	1200	733	220

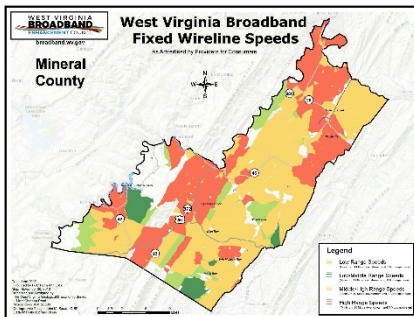


## Mercer County



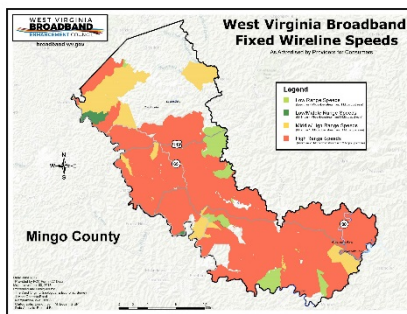
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
XFINITY	109.26	8.91	29	3595	2249	933
Suddenlink	101.95	24.1	11	7204	3612	1220
Lumos Networks	26.61	27.06	26	77	62	42
GigaBeam Net	14.56	9.95	33	185	118	18
Frontier	7.03	0.96	22	2001	1312	435

## Mineral County



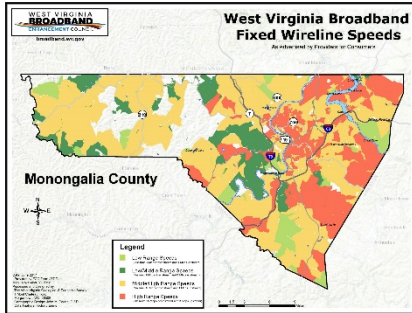
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
XFINITY	100.51	10.55	19	1244	740	245
Atlantic Broadband	47.4	7.29	24	2302	1429	805
Frontier	10.37	1.2	25	452	328	133
Verizon	2.96	0.61	43	43	34	31

## Mingo County



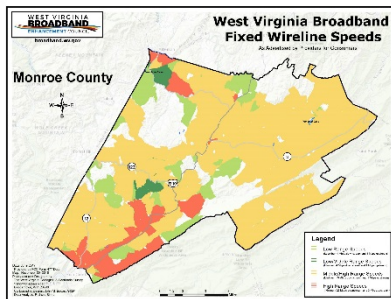
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	101.64	22.63	10	6762	3711	1532
Shentel	34.34	7.76	48	1130	639	164
Frontier	10.68	1.08	16	1816	1162	244
Exede	5.63	2.01	651	33	25	8

## Monongalia County



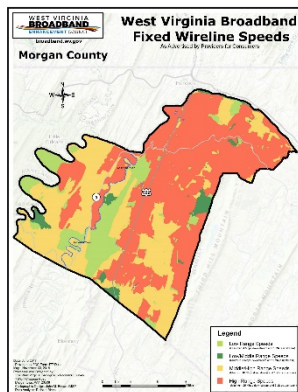
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Labyrinth Solutions	185.06	252.82	1	3494	1529	447
XFINITY	110.97	9.67	11	22826	14050	6101
Atlantic Broadband	53.95	4.17	26	1585	855	414
Pavlov Media	52.07	56.64	30	251	160	87
Hotwire Communications	35.42	23.92	48	73	48	27
Lumos Networks	21.41	19.4	14	86	61	53
Frontier	6.12	0.91	44	1491	961	443

## Monroe County



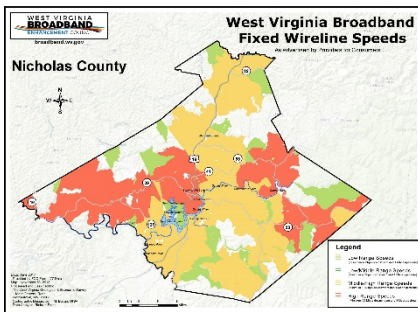
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	75.25	20.18	11	2070	975	537
AT&T Internet	15.11	6.86	97	67	45	11
GigaBeam Net	10.61	1.76	50	1559	565	126
Frontier	7.04	1	28	642	413	120

## Morgan County



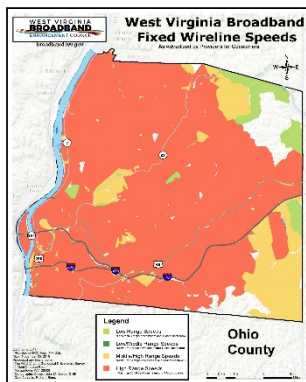
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
XFINITY	75.02	10.17	15	1106	752	355
AT&T Internet	13.24	3.12	42	44	37	22
Frontier	6.84	0.8	26	5057	3054	1431
Shentel	4.57	4.21	6	51	24	13

## Nicholas County



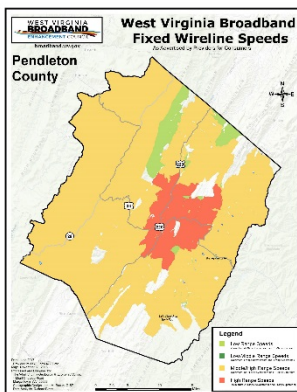
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	115.65	23.73	11	121	88	51
Shentel	23.29	7.14	13	3614	1903	771
Lumos Networks	14.73	9.96	27	124	55	42
Frontier	7.32	0.83	24	2047	1317	609

## Ohio County



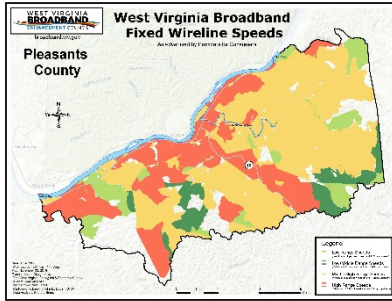
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
XFINITY	115.59	10.12	14	6547	3973	1766
Zoom Internet	54.58	21.18	14	11	10	10
StratusWave	11.13	6.19	31	40	24	11
Verizon	9.65	3.8	58	84	59	29
Frontier	7.34	0.9	47	382	291	133

## Pendleton County



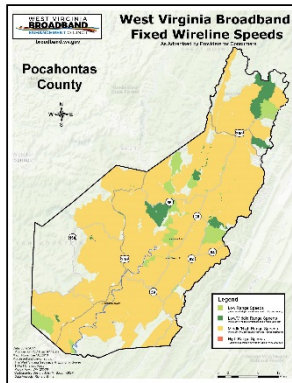
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Shentel	21.61	7.16	15	363	196	83
SKSRT	14.17	8.19	13	456	295	141
Frontier	5.5	0.8	49	239	160	44

## Pleasants County



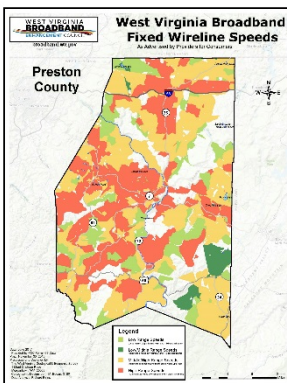
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	65.87	18.52	10	421	234	85
Frontier	8.23	0.99	45	324	248	70

## Pocahontas County



ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Shentel	17.28	8.54	55	719	324	120
SKSRT	15.6	8.1	11	122	84	42
Frontier	3.9	0.57	59	1957	1147	312

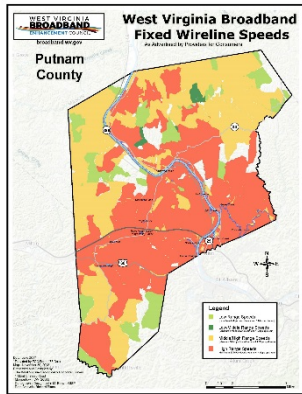
## Preston County



ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
XFINITY	109.05	10.73	12	74	50	32
Atlantic Broadband	47.32	3.89	28	2009	1154	408
QCOL	36.96	48.51	17	31	18	10
Labyrinth Solutions	32.14	35.01	5	1137	612	192
Exede	16.62	4.18	661	22	14	10
Frontier	6.41	1.03	39	1634	1122	341

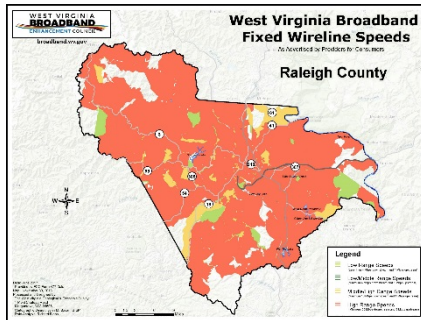


## Putnam County



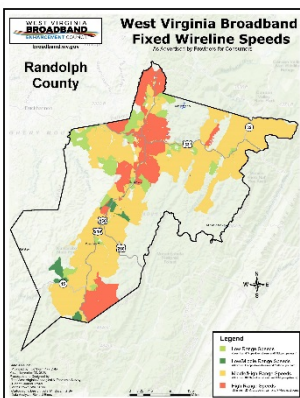
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	106.92	20.57	11	24144	13253	5279
XFINITY	72.23	8.57	38	507	295	201
Frontier	7.75	0.9	23	3339	2318	954

## Raleigh County



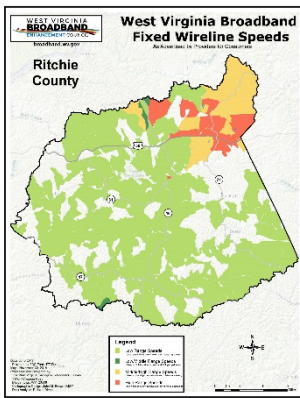
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	90.67	21.48	10	20543	11903	4982
Lumos Networks	26.49	31.09	29	209	159	103
Sprint	13.8	6.13	31	36	32	23
Frontier	10.12	1.04	17	1302	927	372

## Randolph County



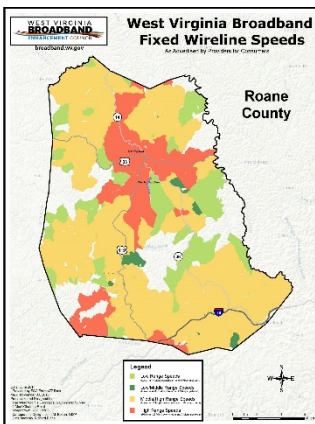
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Lumos Networks	69.76	83.28	12	43	31	27
Atlantic Broadband	67.42	6.37	22	15	12	9
Suddenlink	57.63	7.84	11	4077	2436	775
Micrologic	7.36	3.82	35	209	139	46
Frontier	6.27	0.95	43	1087	725	260

## Ritchie County



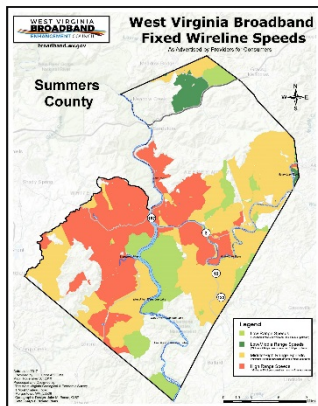
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Zoom Internet	29.08	6.38	39	1295	744	337
Frontier	7.96	1.03	48	108	87	34

## Roane County



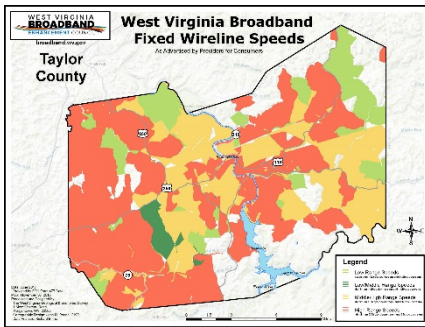
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	121.22	30.94	12	354	242	81
Frontier	7.8	0.83	26	897	571	174

## Summers County



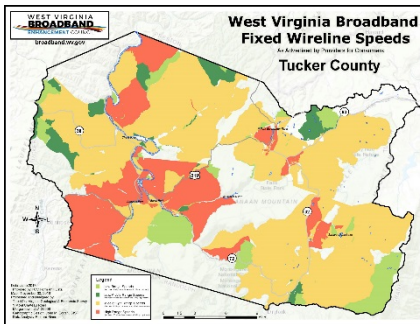
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	95.48	22.21	11	3501	1835	1119
Frontier	9.51	0.89	28	541	334	139

## Taylor County



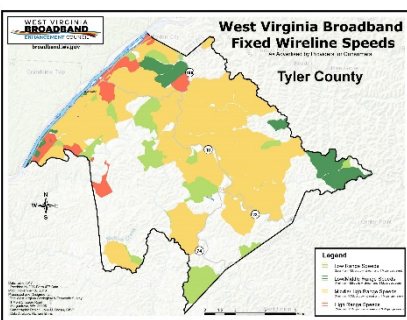
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
XFINITY	129.9	10.26	14	1567	911	361
Suddenlink	48.11	8.23	11	243	142	52
Spectrum	47.76	10.72	50	201	106	35
Frontier	7.63	0.86	41	798	552	343

## Tucker County



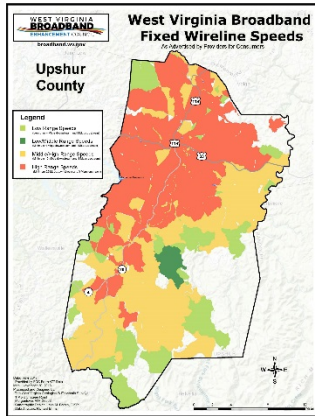
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Atlantic Broadband	43.24	8.72	24	811	489	196
Frontier	4.84	0.83	37	535	415	247

## Tyler County



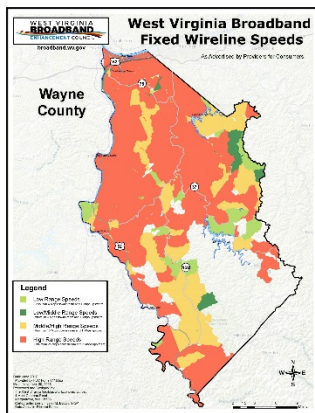
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	67.31	22.84	10	161	120	45
Exede	32.08	2.59	644	45	32	15
Frontier	4.1	0.69	66	507	398	90

## Upshur County



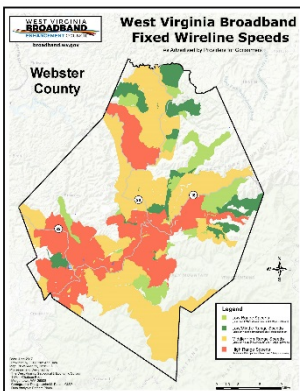
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	59.19	7.78	10	3696	2369	1055
Frontier	9.35	1.11	38	1050	634	207
Micrologic	6.15	3.15	32	2298	620	139

## Wayne County



ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	86.81	23.89	12	1986	1138	328
Zoom Internet	76.05	15.17	52	1880	1208	518
Lycom Communications	31.04	7.65	10	309	195	117
Frontier	5.94	0.78	42	1403	936	238

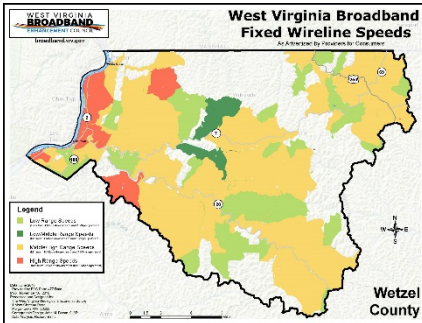
## Webster County



ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Lumos Networks	50.14	28.86	21	124	61	44
Shentel	29.47	8.43	11	542	331	101
Frontier	5.29	0.62	41	550	358	108

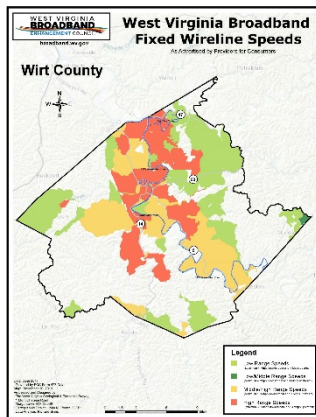


## Wetzel County



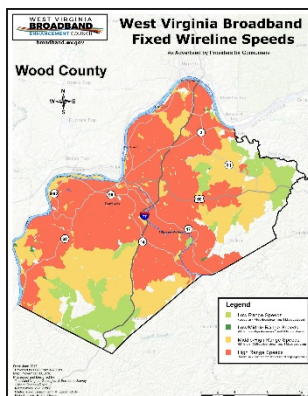
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	70.53	23.02	10	1104	607	195
Frontier	5.51	0.75	49	677	447	229

## Wirt County



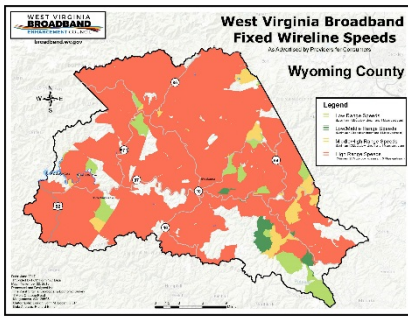
ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	117.06	20.06	10	185	118	47
Zoom Internet	3.63	0.46	60	79	42	19
Frontier	2.76	0.5	36	207	109	36

## Wood County



ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	101.03	24.07	10	27344	14828	5800
CAS Cable	60.26	10.83	34	3309	1952	909
Lumos Networks	24.59	28.17	20	103	69	44
Frontier	8.14	0.99	24	1287	855	247
Zoom Internet	3.26	0.52	54	74	52	22
CenturyLink	2.97	2.98	28	21	21	14

## Wyoming County



ISP Name	Download Speed Mbps	Upload Speed Mbps	Latency	Test Count	Sample Count	User Count
Suddenlink	95.16	17.14	11	40	31	17
Shentel	19.81	6.47	46	2960	1700	800
Frontier	6.61	0.79	29	1367	688	155

# Appendix C: Federal Policy Comments

**Item 1:**

**NTIA: Improving the Quality and Accuracy of Broadband Availability Data  
July 2018**

**Item 2:**

**USDA: Broadband e-Connectivity Pilot Program  
September 2018**

**Item 3:**

**NTIA: Improving the Quality and Accuracy of Broadband Availability Data  
December 2018**

# WEST VIRGINIA **BROADBAND** ENHANCEMENT COUNCIL

W. Clayton Burch, *Interim Cabinet Secretary*

Robert Hinton, *Chairman*

July 16, 2018

Mr. Douglas Kinkoph  
Associate Administrator  
U.S. Department of Commerce  
1401 Constitution Avenue NW  
Room 4887  
Washington, DC 20230

**Re: Filing of Comment by the West Virginia Broadband Enhancement Council  
In Response To The National Telecommunications and Information Administration  
Public Notice for Improving the Quality and Accuracy of Broadband Availability  
Data; Docket Number 1804274421-8421-01; Document Number 2018-11483**

Dear Mr. Kinkoph:

Thank you for soliciting comments on actions that can be taken to improve the quality and accuracy of broadband availability data, particularly in rural areas, as part of the activities directed by the United States Congress in the Consolidated Appropriations Act of 2018. Through this Request for Comments, the National Telecommunications and Information Administration (NTIA), on behalf of the U.S. Department of Commerce, seeks input on ways to improve the nation's ability to analyze broadband availability, with the intention of identifying gaps in availability that can be used to improve policymaking and improve public investments.

The West Virginia Broadband Enhancement Council (the "Council") is committed to pursuing broadband development on behalf of the State of West Virginia. The comments provided herein represent the Council's commitment to this important endeavor. The Council appreciates the efforts of NTIA and those of the Federal Communications Commission (FCC) to improve the accuracy of broadband availability data, currently collected through the FCC Form 477 Fixed Broadband Deployment data process.

In its request, the NTIA acknowledges that, "Knowing where the persistent gaps in broadband exist is crucial to enabling more efficient and effective investments in broadband infrastructure from both the public and private sectors." While the Council agrees with the NTIA that the FCC Form 477 data is useful, this data is built upon the provision of data at the Census Block level whereby the provision of service to any residence or business within a census block enables a provider to indicate that service is provided throughout the entire Census Block.



The Council asserts that careful and strategic evaluation of accurate data is critical to broadband development, particularly in underserved and unserved areas.

The Council requests the assistance of NTIA and the FCC in reasoned decision making. Practically speaking, continuing to rely on only census block data creates a host of avoidable issues that may only deny or delay access to affordable broadband in an increasingly digital society. The Council maintains that census block data reporting has produced an inaccurate and misleading picture of broadband deployment in West Virginia.

Recent experience within the State of West Virginia clearly illustrates the importance of reliable and accurate data in providing internet access to disparate geographic areas. Notably, seven counties in West Virginia were designated as having 100 percent broadband service in the FCC's *2018 Broadband Deployment Report*. This designation includes, Barbour, Gilmer, Harrison, Lewis, Marion, Randolph, and Upshur counties. Residential and business customers and numerous stakeholders within these counties would readily demonstrate that broadband service does not meet a 100 percent threshold.

On behalf of the Council, I am grateful for the continued support of the NTIA and its many initiatives to enhance broadband service, particularly in rural locations like those found throughout the State of West Virginia. Your careful consideration of the comments provided herein are appreciated.

## **Priority Comments**

### ***1. Identifying additional broadband availability data:***

**a. What additional data on broadband availability are available from federal, state, not-for-profit, academic, or private-sector sources to augment the FCC Form 477 data set?**

The Council and similar state agencies are eager to provide data to supplement FCC Form 477 data. Supplemental data provided by state agencies can assist the FCC, NTIA and other federal agencies in the development of a more comprehensive data set which provides a more accurate representation of broadband availability.

The Council continues to advocate for address-level data and speed test results obtained from the public for submission to the FCC to augment the FCC Form 477 data set. The FCC should accept actual "on-the-ground" service data from state agencies that are based on speed test results collected from the public. The FCC can then incorporate this data with data it receives from providers.

To collect this on-the-ground data, the Council's speed-test portal uses an Ookla speed-test interface to gauge the speed a user experiences. The system enables users to enter their address; locate their home or business on an interactive map; identify their carrier; and select the level of service to which they subscribe. The users then follow prompts to conduct a speed test; the results are then automatically populated to a dataset where comparisons can be drawn. As a result, the program allows users to provide on-the-ground, address-level service data to West Virginia.

Incorporating on-the-ground speed test results will discourage and help correct inaccurate provider representations. Indeed, the Council and the West Virginia Attorney General have found that providers sometimes fail to deliver the service they claim. For example, West Virginia recently settled a dispute with Frontier Communications over its failure to deliver the service level promised to its customers. The Council encourages the FCC to take these steps, which will ensure that its Form 477 data program detects circumstances in which customers do not receive the service level for which they pay.

As the FCC recognizes in the mobile-broadband context, it can and should collect “on-the-ground” data to compare provider claims to “actual consumer experience,” FCC 17-103 at ¶ 14. The Council and other state agencies can summarize and coalesce this data in a preferred format. For example, the Council may aggregate data for discreet areas or regions identifying addresses for which a state agency has data indicating that service is underperforming provider claims and representations, or, alternatively, average speed-test results over the reporting period for each address.

As noted, seven counties in West Virginia was designated as having 100 percent broadband service in the FCC’s *2018 Broadband Deployment Report*. Recognizing the importance of accurate data, the Council is willing to undertake a targeted assessment of actual user data to demonstrate how alternate data sources can be compared to Form 477 data. The Council is willing to work with the NTIA and the FCC in this project to fulfill the data requirements needed to provide an accurate dataset that can supplement and enhance existing measurement systems.

The recognition of more granular data would reveal all unserved and underserved Americans and also provide data that the FCC, state agencies, and state attorneys general can check against the reality on the ground.

Finally, requiring providers to report address-level data will enhance the FCC’s ability to direct funds for broadband. The FCC helps to direct billions of federal funding for broadband that are based on existing service levels and obtaining address-level data will allow the FCC to identify all the eligible projects.

**b. What obstacles—such as concerns about the quality, scope, or format of the data, as well as contractual, confidentiality, or data privacy concerns—might prevent the collaborative use of such data?**

The Ookla speed-test which can be used to validate data submitted by providers, in accordance with the Council’s contractual agreement. The Council can share aggregate speed test data that complies with all stated contractual agreements.

The Council currently provides geocoded speed test results to state, local and community entities in West Virginia in support of funding applications and could easily provide statewide test coverage to both NTIA and the FCC on a semi-annual basis. Data collection methods can be refined over time to more accurately demonstrate service levels.

Similarly, the Council strongly encourages the FCC to provide state broadband agencies and state attorneys general with full access to all the data collected in the Form 477 program. Full data sharing will leverage the FCC’s data and further its objectives by enabling states to help increase the availability and affordability of broadband service. Moreover, it will remove any



need for duplicative data collection and reduce the burden imposed on providers by enabling the submission of a single uniform data set to the FCC for all of the states in which they operate.

Specifically, unrestricted, full access to Form 477 data will allow states to enforce their unfair /deceptive-trade-practices laws against providers that misrepresent their services. Likewise, state attorneys general have significant authority to address competition issues, and this authority can complement—and often exceed—the FCC’s powers.

Moreover, enabling states to ensure adequate and affordable service for their own citizens will allow states to experiment with ways in which to best achieve regulatory goals. This is particularly true when considering states with a disproportionate share of unserved and underserved citizens. Such states can expeditiously identify and implement innovative and locally tailored solutions to address problems, and the FCC should provide full access to data to assist their efforts.

To truly provide leverage while reducing duplication, the FCC should refrain from imposing any restrictions on the state’s use of data except for those intended to safeguard personally identifiable information. And although the Council appreciates that some providers might resist full data sharing, any such concerns are obviated by the states’ ability to obtain the same data if the FCC does not provide it.

**2. *Technology type, service areas, and bandwidth:* Please consider providing a table or spreadsheet attachment when responding to question 2, if needed.**

a. For each broadband availability data source, please define the specific broadband technologies (*e.g.*, wireline, cable, fixed wireless, satellite, multiple sources, etc.) included in the data set. Please explain the service areas or geographic scope of the data set (*e.g.*, Census block, county, cable franchises, publicly funded service areas, etc.) and describe how records from the data set could be matched with records from Form 477 data.

The Council is committed to a sustainable broadband enhancement program. The Council’s speed-test portal allows location identification to determine where unserved and underserved areas are found. The speed-test portal will generate the information needed to strategically address the digital divide in West Virginia. Essentially, the state must accurately assess its current broadband services, assets, and opportunities to develop a comprehensive improvement plan.

Individual users and business owners can, and should, take the test multiple times to record actual speeds during different hours of the day. This data will be used to assist communities as they pursue greater access to broadband connectivity. The availability of this data will enable the state to validate data provided with FCC Form 477. In the event of discrepancy with data derived through Form 477 data, the state’s data can provide alternate data, indicating the need for further evaluation.

While this type of analysis represents an investment of time and resources, the Council asserts that this investment is warranted. The Council is willing to undertake this activity in service to the residents of West Virginia who are eager to pursue the benefits of broadband connectivity.

If NTIA accepts the state's speed test data, the state can also determine the type of technology utilized, as one of the fields on the speed test identifies technology used. If data is collected by FCC as Council suggests data from those specific broadband technologies would be captured by FCC Form 477.

b. Describe how frequently the data set is updated and the methodology used for collection and what measures are employed to validate or otherwise ensure the data is accurate. Please explain whether the data set differentiates between subscribed bandwidth and maximum available speeds.

The Ookla speed test captures data continuously and a CSV file can be downloaded at the end of every month or upon regular intervals. The Ookla speed test does not capture individual addresses and instead utilizes the centroid of the closest town. To provide a more precise location, the Council coupled its speed test to a geographical information system that allows the user to pinpoint a precise location. The Council envisions submitting speed test data on a semi-annual basis to NTIA and the FCC. This semi-annual report can then be used as a comparison and validation of FCC Form 477.

The data does not differentiate subscribed and maximum available speeds, and to our knowledge, no available data set does that at the scale needed to determine unserved and underserved areas. It is noted that providers have this data and Form 477 may be modified to capture subscribership bandwidth and maximum advertised speeds directly from providers. This should not pose an undue burden on providers as they currently maintain this data.

The FCC should also consider collecting data that specifically maps unserved and underserved residential areas and CAIs. Residents, businesses, providers and other interested stakeholders, such as states and local governments, should be included in this process and should have the opportunity to identify specific locations that are unserved and underserved.

c. For each data set, please provide the name(s) and type(s) of entity that collects the data.

The Ookla speed test is regarded as the most comprehensive speed test on the market operating as a private company. The FCC is a federal agency that was designated by Congress to regulate providers and collects data every six months under Form 477. The Council suggests that both have merit and, when combined, can provide valuable data elements that can enhance the accurate assessment of broadband availability.

d. Finally, please specify the format of the data (e.g., CSV, specific database, specific Geographic Information System (GIS) format, etc.)

The Ookla speed test delivers data in a CSV format and has fields that include geographical coordinates of the host and customer server, and the Internet Protocol (IP) address, as well as data related to latency, distance to the server and other relevant information. The FCC offers a CSV download for wireline and Shapefile (SHP) for wireless coverage.

The Council requests that both wireline and wireless datasets be available in Shapefile format. The State of West Virginia has the technical capability to provide data to the NTIA and the FCC in both formats.



### **3. *New approaches: Are there new approaches, tools, technologies, or methodologies that could be used to capture broadband availability data, particularly in rural areas?***

Federal agencies should recognize and consider data submitted by states, and additional data should be shared with state and local governments. For example, providers are known to have two types of data:

- Address Level Data
- Centerline Level Data

Both types of data should be available to inform policy and investment. While Address Level Data will aid in calculating actual subscribers, Centerline Level Data provides the location of available infrastructure.

Centerline Level Data was utilized with much success during the NTIA State Broadband Initiative (SBI) program. Centerlines can be compared to state address datasets to better determine areas that are unserved and or underserved. The Council recommends that this data be collected and shared with state agencies to provide states with data that reflects the percentage of households and business that are subscribing. Such a report would also indicate the percentage of those households that have access but are not connected and the percentage of those without service within a census block. The current methodology allows providers to count an entire census block as served even if only one household or business has access, with no requirement of service.

West Virginia is among several states that maintain public speed testing systems that capture data continuously. Significant gaps in available data have prompted states like West Virginia to undertake its own data collection methodologies to provide residents and businesses with a voice regarding the availability of broadband service or the lack thereof. Speed test data will contribute to greater understanding among consumers who are paying a fee for the provision of services. Consumers should have a level of confidence in and understanding of services provided.

Data collected by the state-administered speed tests should be admitted by both the NITA and the FCC. The State of West Virginia is capable of sharing this data in both comma separated value (CSV) and Shapefile (SHP) format.

### **4. *Validating broadband availability data:***

#### **a. *What methodologies, policies, standards, or technologies can be implemented to validate and compare various broadband availability data sources and identify and address conflicts between them?***

Data gathered by states with active speed data gathering tools should be considered by the FCC as part of its verification process.

On-premise validation of wireline technologies is intrusive because of the need to access individual addresses. Enabling the user to conduct a speed test provides the user with a methodology for submitting this data efficiently.

It is understood that the FCC must maintain the current speed benchmark as one factor for measuring the deployment of fixed broadband. Other data points to consider include the type of technology, latency, cost, competition, data caps and potential usage patterns.

Working with additional data sources, the FCC may create an Availability Index, using data points listed above, to determine access and timely and reasonable deployment. Data could be obtained from the states, to be compared to the annual reports released by the FCC and those of the U.S. Census Bureau.

These additional metrics would demonstrate a more accurate picture of broadband deployment throughout the nation. This type of reporting would be more comprehensive than a determination of access and would more accurately assess the deployment of broadband in terms beyond speed alone. For example, showing an area as served, having only one provider at non-competitive rates, does not present an accurate view of availability.

**b. Do examples or studies of such validation exist?**

Wireless coverage studies were conducted by the State of West Virginia under NTIA SBI and can be found here: <http://www.wvgs.wvnet.edu/bb/reports.php>. These studies can be used as a model for an acceptable validation study. Any modifications can be built into revised validation requirements.

**c. What thresholds or benchmarks should be taken into account when validating broadband availability, such as bandwidth, latency, geographic coverage, technology type, etc.? How can conformance to such standards be used to evaluate the accuracy of broadband data sets? How could those standards be used to improve policymaking, program management, or research in broadband related fields?**

The Council observes that address level data would be ideal when validating geographic coverage and the state's speed test portal greatly enhances the available data needed for this validation.

Previous mapping efforts and research have found that fiber is the most future-proof technology, yet in rural states like West Virginia, this technology may not be readily available or feasible for every household. For this reason, other technologies should be part of the unserved and underserved analysis, recognizing that any technologies should be scalable and be able to meet at least one gigabit per second, to accommodate any future revisions to the definition of broadband.

Broadband datasets submitted by the state will follow the same standards as FCC's Ookla applications with the added value of granular consumer location data attached.

An analysis of bandwidth and latency will provide a method of analysis for provider performance characteristics and customer experience. According to the annual "*Measuring Broadband America*" reports conducted by the FCC, the last-mile latencies for terrestrial-based broadband (DSL, cable, fiber) within the United States have remained relatively stable over time. Fiber has best average performance (10-20 ms), followed by cable (15-40 ms), and DSL (30-65 ms).

This would translate into 10-65 ms of latency just to the closest measuring node within the ISP's core network, before the packet is even routed to its destination. Any latency below 65 ms should be considered good, and anything below 40 should be deemed very good. The measurement of latency and speed in a combined analysis provide a better standard of broadband data.



## **5. Identifying gaps in broadband availability:**

### **a. What data improvements can the government implement to better identify areas with insufficient broadband capacity?**

Acknowledging that the FCC Form 477 data is among the “most important data sets,” which the FCC and others “rely on every day” to make important decisions affecting millions of Americans, Statement of Chairman Ajit Pai, FCC 17-103, the Council also believes that this data can be improved.

Adding the requirement that number of current subscribers in that census block and the number of potential customers using a specific technology that can, and would, be readily increased within a standard interval upon request. This would only require two additional fields in the current filing.

In addition to comments made above, the Council believes the FCC should require providers to submit local retail presence in addition to service availability. This would aid policy makers in determining how to serve consumers not located in retail service areas but located in “available” areas. This would also aid providers in making decisions on future growth.

Aggregation of actual subscriber count data within established speed tiers, perhaps using the tiers established under the National Broadband Map, would provide a useful benchmark for policy considerations and to have a more informed market for broadband services. This information could help assess broadband adoption levels. Counts should be publicly reported as a total across all providers, nationally and by state, with complete anonymity with respect to individuals and their service provider. However state and federal programs should be able to use the raw data, under non-disclosure provisions, to assist in determining competition levels for Universal Service Fund decisions.

Discontinuing the reporting differences between consumer and business/enterprise/government services within the Form 477 filing simplifies the process for industry without degrading the insight gained from the filing. However, providers should be required to indicate any service and coverage that is exclusively marketed to business customers, and not available for residential customers. The FCC should also require reporting the number of businesses providers serve in a particular census block.

### **b. What other inputs should NTIA seek to inform data-driven broadband policy and decision-making?**

Data collection is crucial to evaluating and encouraging the investment of broadband services. Basing data collection, planning efforts, and funding decisions on census blocks is problematic, particularly in census blocks which are large, remote and include terrain that makes it difficult to install infrastructure in states like West Virginia.

Any current and future programs implemented by NTIA, the FCC or other state or federal agencies, such as the United States Department of Agriculture (USDA) and U.S. Economic Development Administration (U.S. EDA) must rely heavily on the accuracy and precision of the mapping data that is collected. The FCC should consider refining its broadband data collection processes to meet the needs of funding and planning efforts at all levels of government.

Under the current Form 477 submission process, any census block that is partially covered would be ineligible for certain federal broadband programs, even if only a small percentage of

households or census block area is covered. For these reasons, the Council strongly asserts that the NTIA, FCC and other federal funding agencies should accept speed test data gathered by state agencies.

### **State Broadband Councils, Offices and Authorities**

The NTIA should closely work with the states to collect comparative data. Neither NTIA nor the FCC should assume that all homes and businesses within a census block have or do not have service when a fraction of the block is served. This can be addressed by accepting data collected by the states that meet certain standards and having providers submit the number of subscribers for individual census blocks and number of potential subscribers.

The Council requests that NTIA and the FCC work with state agencies and providers to coordinate data collection and mapping efforts in order to collect actual provider service footprints. These footprints could be collected through either shape or raster files (provided raster cells are sized small enough to make the data meaningful).

Guidelines and specifications should be developed, and basic tools and documentation should be made available. Collecting this more refined data will ensure that projects designed to reach unserved residents and businesses in partially covered blocks are included in broadband planning efforts and eligible areas for available funding.

Small rural carriers may require assistance to submit broadband data, regardless of the data model implemented. The FCC should ensure that the data model and collection process will be simple for providers or should provide tools and other resources to help them successfully complete submissions. The current model has not been sufficient to determine the locations of unserved households for state and local planning efforts in West Virginia.

### **U.S. Census Bureau**

A more statistically accurate calculation could then be made using U.S. Census household data. The FCC should explore entering into an agreement with the U.S. Census Bureau to better utilize its data to identify unserved locations. Some states, including West Virginia, maintain statewide address datasets that could be used by providers when submitting more granular data.

Mapping data on unserved or underserved areas could utilize existing data sets such as address points created and maintained by the states and CAI location points which were created and sustained under the NTIA SBI program, and possibly other household and business location data sets from the U.S. Census Bureau.

### **National Emergency Number Association (NENA)**

The National Emergency Number Association (NENA) in conjunction with other geospatial organizations and the FCC have been working on the development of a national address dataset in preparation for Next Generation 911 and FirstNet, provided at this link: <https://www.fcc.gov/help/public-safety-and-homeland-security-bureau-about-us>.

Similarly, the U.S. Census Bureau is currently working on the 2020 Census within all states and territories as part of its Local Update of Census Addresses Operation (LUCA) initiative. These efforts could be leveraged by NTIA and the FCC to obtain more granular data.

There is a statewide address dataset for West Virginia. Organizations such NENA and the National States Geographical Information Council may have an up to date comprehensive list of



states and territories that have a statewide address dataset. Address formatting should be based on the NENA standard.

The two primary mapping layers that are most valuable to informing consumer experience and developing effective strategies for broadband expansion are:

1. The provider's current capabilities, including coverage, speed and technology; and
2. The precise locations of unserved and underserved address points.

Taken together, these layers should provide the information needed to focus investments where they are needed most, providing broadband service to unserved and underserved areas. The FCC should consider sustaining this dataset over time and should inventory address point locations that have been upgraded to meet national service level goals.

Until a nationwide address point data set is created, states, providers, and other stakeholders should be allowed to submit the precise locations (geographic coordinates and street addresses) of unserved and underserved areas to the FCC.

Every provider has address level data for current and potential subscribers. Indeed, providers could not maintain their facilities and bill for their services without keeping address level records, and providers use addresses both to respond to requests for service from potential subscribers and to send them direct mail advertisements. Accordingly, providing address level data to the FCC should not pose an undue burden for providers, and there should be no claim that it is not possible to comply with this requirement.

Strong consideration should be given by the FCC to collaborating with other national and state programs to produce and maintain a publicly available, national set of address location points in rural areas.

## **Conclusion**

The Council requests that NTIA, the FCC and state and local government agencies work cooperatively to collect and analyze data that supports the accurate assessment of existing service, to facilitate the reasoned expansion of service based upon a thorough analysis of need. The lack of address-level data inhibits the ability of the Council and other state agencies to meet their own responsibilities to ensure and enhance broadband access.

The Council asserts that census block data masks the persistent lack of service and the growing divide between served and unserved areas of West Virginia. Moreover, there is little incentive for providers to ensure that they are accurately representing their service offerings when the data they report makes it almost impossible to verify or disprove.

As the number of completely unserved or underserved census blocks dwindles, the FCC's approach leads to irrationally disproportionate assistance to those census blocks in comparison to millions of equally deserving Americans who live in partially served census blocks but continue to remain unserved or underserved.

The FCC, state agencies, and state attorneys general must assess competition levels and take steps to ensure adequate competition so that broadband is not available in theory but in fact. Using census block data creates illusions of competition where none exists in areas with two or more providers that independently serve distinct areas that fall within the same census block. Government agencies at the state and federal levels should work together to address this oversight.

The Council is aware that Congress has required the FCC to “encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to *all Americans*,” 47 U.S.C. § 1302(a).

It is difficult to accurately assess the availability of broadband under the current practice of validating service within an entire census block through the provision of service to a fraction of household or business locations within the census block. For this reason, Congress has required the FCC to rely on more than aggregate census block data that does not represent the unserved and underserved Americans that most need help.

In conclusion, and on behalf of the West Virginia Broadband Enhancement Council, I appreciate the consideration of the NTIA in its review of the comments provided herein. The Council values the partnership of the NTIA in the development of policies and procedures that will directly influence the future of our state.

We fully realize the importance of these policies and appreciate the opportunity to provide input. Should you have any questions concerning the information provided in this letter, please do not hesitate to contact me.

Sincerely,



Robert Hinton  
Chairman

cc: West Virginia Broadband Enhancement Council

# WEST VIRGINIA **BROADBAND** ENHANCEMENT COUNCIL

W. Clayton Burch, *Interim Cabinet Secretary*

Robert Hinton, *Chairman*

September 10, 2018

Michele Brooks  
Rural Development Innovation Center  
Regulations Team Lead  
U.S. Department of Agriculture  
1400 Independence Avenue, SW  
Stop 1522, Room 1562  
Washington, D.C. 20250

**Re: Filing of Comment by the West Virginia Broadband Enhancement Council  
Broadband e-Connectivity Pilot Program  
Docket Number: RUS-18-TELECOM-0004**

Dear Ms. Brooks:

Thank you for soliciting comments on the implementation of certain provisions of the e-Connectivity Pilot Program (e-Connectivity Pilot). The e-Connectivity Pilot was established by the United States Congress in the Consolidated Appropriations Act of 2018 to provide loans and grants for the construction, improvement and acquisition of facilities and equipment for broadband service in eligible rural communities. Through this Request for Comments, the Rural Utilities Service (RUS), an agency of the U.S. Department of Agriculture (USDA), seeks input on provisions of the e-Connectivity Pilot to improve policymaking and improve public investments.

The West Virginia Broadband Enhancement Council (the "Council") is committed to pursuing broadband development on behalf of the State of West Virginia. The comments provided herein represent the Council's commitment to this important endeavor. The Council appreciates the efforts of the USDA, RUS and those of our elected representatives who continue to pursue broadband development in unserved and underserved communities.

Because the thoughtful and strategic commitment of this funding is critical to the future economic development of the State of West Virginia, the Council respectfully requests the careful consideration of the RUS in its evaluation of the comments provided in this letter.

The State of West Virginia is both rural and mountainous, and is unfortunately designated with measurements of broadband connectivity that rank near the lowest levels in the nation, according



to Federal Communication Commission (FCC) 2018 Broadband Deployment Report <https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2018-broadband-deployment-report>. This designation continues to separate West Virginia from the economic opportunities derived from high-speed broadband service and is a particular concern for rural communities throughout the State.

To improve this situation, the Council continues to partner with numerous stakeholders who are committed to the efficient deployment of this vital economic infrastructure. The Council and its partners are committed to working with the USDA, RUS to pursue broadband technology and infrastructure that meets the needs of West Virginia's residential and business users.

On behalf of the Council, I am grateful for the continued support of the USDA, RUS and its many initiatives to enhance broadband service, particularly in rural locations like those found throughout the State of West Virginia. Your careful consideration of the comments provided herein are appreciated.

### **Priority Comments**

- 1. Eligible rural areas are defined as having at least 90 percent of households without sufficient access to broadband, defined in the law as 10 Mbps downstream and 1 Mbps upstream. At present, RUS is working to determine what types of technologies and services are defined as "sufficient access."**

In response to this request, the Council wishes to convey recent experience within the State of West Virginia that illustrates the importance of reliable and accurate data in the determination of sufficient access to broadband Internet service in numerous geographic areas.

Notably, seven counties in West Virginia were designated as having 100 percent broadband service in the FCC's *2018 Broadband Deployment Report*. This designation includes, Barbour, Gilmer, Harrison, Lewis, Marion, Randolph, and Upshur counties. Residential and business customers and numerous stakeholders within these counties would readily demonstrate that broadband service does not meet a 100 percent threshold and that sufficient access does not exist in many rural areas.

Knowing where the persistent gaps in broadband exist is crucial to enabling more efficient and effective investments in broadband infrastructure from both the public and private sectors. While the Council agrees that FCC Form 477 Data is useful, supplemental data provided by state agencies can assist the USDA, RUS and other federal agencies in the development of a more comprehensive dataset which provides a more accurate representation of sufficient access to broadband.



For these reasons, the Council strongly asserts that the USDA, RUS and other federal funding agencies should accept speed test data gathered by state agencies or survey data collected by the applicant to demonstrate sufficient access.

As noted, seven counties in West Virginia were designated as having 100 percent broadband service in the FCC's *2018 Broadband Deployment Report*. Recognizing the importance of accurate data, the Council is willing to undertake a targeted assessment of actual user data to support e-Connectivity Pilot Program applicants in West Virginia.

The Council offers to work with the USDA, RUS in this regard to fulfill the data requirements needed to provide an accurate dataset that can supplement and enhance existing measurement systems. Incorporation of this address-level data will allow the USDA, RUS to more accurately identify eligible project areas.

The Council maintains that census block data reporting, as submitted by Internet service providers, to the FCC via Form 477 Data Reporting methodology, has produced an inaccurate and misleading picture of broadband deployment in West Virginia. Under the current Form 477 Data submission process, any census block that is partially covered would be ineligible for certain federal broadband programs, even if only a small percentage of households or census block area is covered.

Practically speaking, continuing to rely on only census block data creates a host of avoidable issues that may only deny or delay sufficient access to affordable broadband in an increasingly digital society. The inclusion of comparative geolocated speed test data during the proposal review process will strengthen the USDA RUS's ability to identify as well as connect regions without sufficient broadband access, ultimately contributing to the significant narrowing of the digital divide in rural America.

#### **1a. What types of technology and services are defined as "sufficient access?"**

It is widely recognized that fiber is the most future-proof technology, yet in rural states like West Virginia, this technology may not be readily available or feasible for every household. For this reason, other technologies should be part of the unserved and underserved analysis, recognizing that any technologies should be scalable and be able to meet at least one gigabit per second, to accommodate any future revisions to the definition of broadband.

Infrastructure investments should facilitate broadband through Data Over Cable Service Interface Specification (DOCSIS), the telecommunications standard used to provide Internet access via a cable modem. It is noted that DOCSIS 3.0 or higher modems are often required for higher speed Internet service tiers.

In this regard, investment in Digital Subscriber Line (DSL) should not be permitted for new infrastructure investment as this aging infrastructure is not considered a viable platform for scalable infrastructure that will support evolving technology systems.

Accordingly, the Council recommends that the USDA RUS consider areas with only having access to Internet service provided over DSL infrastructure to be evaluated as not meeting the

standard of “sufficient access” due to the limitations of the technology and the lack of scalability.

**1b. RUS is seeking information about the transmission capacity required for economic development and speed and latency in peak usage hours, to ensure rural premises have access to coverage similar to that offered in urban areas.**

The measurement of latency and speed in a combined analysis can provide a better standard of broadband data. An analysis of bandwidth and latency will provide a method of analysis for provider performance characteristics and customer experience.

According to the annual "*Measuring Broadband America*" reports conducted by the FCC, the last-mile latencies for terrestrial-based broadband (DSL, cable, fiber) within the United States have remained relatively stable over time. Fiber has the best average performance at (10-20 ms), followed by cable (15-40 ms), and DSL (30-65 ms).

This would translate into 10-65 ms of latency just to the closest measuring node within the ISP's core network, before the packet is even routed to its destination. Any latency below 65 ms should be considered good, and anything below 40 should be deemed very good.

**1c. Comments are specifically requested on whether affordability of service should be included in evaluating whether an area already has “sufficient access” and how to benchmark affordability of internet services. And if so, what equates to consumers' costs being so high that they are effectively rendered inaccessible to rural households.**

It is understood that the FCC must maintain the current speed benchmark as one factor for measuring the deployment of fixed broadband. Other critical data points to consider include the type of technology, latency, cost, competition, data caps and potential usage patterns.

Working with additional data sources, the RUS application should provide applicants with an opportunity to demonstrate areas that lack sufficient access to broadband.

The RUS should also incorporate demographic data, provided by the U.S. Census Bureau, American Community Survey, to gain a comprehensive applicant profile. Key economic indicators may include unemployment rate, poverty rate, per capita income and population loss. Communities may then provide a canvas of nearby or comparable data packages and service packages to demonstrate disparity between more urban costs and rural costs.

These additional metrics would demonstrate a more accurate picture of sufficient access to broadband in rural communities. This type of analysis would be more comprehensive than a determination of the mere presence of service alone and would more accurately assess the deployment of broadband beyond a measurement of speed alone.

For example, showing an area as served, according to Form 477 Data, having only one provider at non-competitive rates, does not present a comprehensive view of sufficient access. Communities should be afforded the opportunity to provide a realistic representation of current service.

The needs of community key anchor institutions, such as medical clinics, educational facilities and business sectors should also be considered in the evaluation of sufficient access.



Community surveys could be used to demonstrate typical service packages and likely subscribers.

Investment in broadband technology is critical for economic diversification in rural West Virginia communities. The RUS may consider a benchmark of two providers, offering service at a level of 25 Mbps downstream and 3 Mbps upstream as served. Establishing a higher minimum standard will accelerate infrastructure expansion, improve competition and increase economic growth potential in rural areas.

#### **1d. What other elements should RUS consider when defining sufficient access?**

Investment in future-oriented technology, capable of providing the speed and reliability that communities seek, would provide the most formidable foundation for economic growth in rural areas.

The Council requests that the RUS work cooperatively with state and local government agencies to collect and analyze data that supports the accurate assessment of existing service, to facilitate the reasoned expansion of service based upon a thorough analysis of need.

As the number of completely unserved or underserved census blocks dwindles, the current approach, based solely on census block data, contributes to unequal and even punitive decisions that affect millions of equally deserving Americans who live in partially served census blocks but continue to remain unserved or underserved.

**2. RUS uses a combination of a Public Notice Filing—Public Notice Response process through our online mapping tool and the most current data of the National Broadband Map, or and other data regarding the availability of broadband service that may be collected or obtained through reasonable efforts. The RUS mapping tool will publicly post proposed service territories of applicants to allow existing service providers to comment on whether 10 Mbps downstream and 1 Mbps upstream service exists for households in the proposed service area. Comments are sought on how data speeds are to be used or verified, given the limited availability of publicly-available information regarding accurate broadband speeds provided to rural households.**

Significant gaps in available data have prompted states like West Virginia to undertake their own data collection methodologies to provide residents and businesses with a voice regarding the availability of broadband service or the lack thereof.

The Council continues to advocate for address-level data and speed test results to augment the FCC Form 477 Data. Rural areas should be afforded the opportunity to demonstrate actual “on-the-ground” service data. This data may be obtained from state agencies through speed test results collected from the public.

To collect this on-the-ground data in West Virginia, the Council’s speed-test portal uses an Ookla speed-test interface to gauge Internet speed. The system enables users to enter their address; locate their home or business on an interactive map; identify their carrier; and select the level of service to which they subscribe. The users then follow prompts to conduct a speed test; the results are then automatically populated to a dataset where comparisons can be drawn. As a

result, the program facilitates the collection of on-the-ground, address-level service data in West Virginia.

The Ookla speed test is regarded as the most comprehensive speed test on the market operating as a private company. The FCC collects Form 477 Data every six months. The Council suggests that both have merit and, when combined, can provide valuable data elements that can enhance the accurate assessment of broadband availability. The Council may aggregate data for a particular project area as part of an e-Connectivity application.

The Ookla speed test captures data continuously and a CSV file can be downloaded as needed. The speed test does not capture individual addresses and instead utilizes the centroid of the closest town. To provide a more precise location, the Council coupled its speed test to a geographical information system that allows the user to pinpoint a precise location.

In addition, the two primary mapping layers that are most valuable to informing consumer experience and developing effective strategies for broadband expansion are:

1. The provider's current capabilities, including coverage, speed and technology; and
2. The precise locations of unserved and underserved address points.

Taken together, these datasets should provide the information needed to focus investments where they are needed most, providing broadband service to unserved and underserved areas.

Applicants, local governments, state governments, providers and other stakeholders should be allowed to submit the precise locations (geographic coordinates and street addresses) of unserved and underserved areas.

An exact count of subscribers within a proposed project area will be needed to demonstrate the required threshold of 90 percent of households without broadband service of at least 10 Mbps downstream and 1 Mbps upstream. Local governments will be required to canvas an area to verify the 90 percent threshold. Therefore, precise address-level data is needed to verify service levels.

## **2a. What other sources of data availability should be used for evaluation?**

The Council requests that the RUS take special care to ensure that the voices of West Virginia's rural communities are heard. Federal agencies should recognize and consider data submitted by states and local governments, including surveys and speed test data.

Basing data collection, planning efforts, and funding decisions on census block data is problematic, particularly in census blocks which are large, remote and include terrain that makes it difficult to install infrastructure in states like West Virginia.

Funding agencies should not assume that all homes and businesses within a census block have service when a fraction of the census block is served.

Further, providers are known to have two types of data:

- Address Level Data
- Centerline Level Data (Road Segment Data)



Both types of data should be available to inform policy and investment. While Address Level Data will aid in calculating actual subscribers, Centerline Level Data or Road Segment Data provides the location of available infrastructure.

Centerline Level Data was utilized with much success during the National Telecommunications Information Administration (NTIA) State Broadband Initiative (SBI) program. Centerlines can be compared to state address datasets to better determine areas that are unserved and or underserved. The current methodology allows providers to count an entire census block as served even if only one household or business has access, with no requirement of service. For instance, infrastructure may be present along the main streets of a rural neighborhood, however the infrastructure or service may not be present or offered to residents and businesses adjacent to main thoroughfares.

Data collected by the state-administered speed tests should be admitted by RUS. The State of West Virginia is capable of sharing this data in both comma-separated value (CSV) and Shapefile (SHP) format.

Residents, businesses, providers and other interested stakeholders should be included in this process and should have the opportunity to identify specific locations that are unserved and underserved through speed test data or surveys.

**3. RUS is working to ensure that projects funded by the e-Connectivity pilot provide improvements to rural prosperity. This includes projects that benefit rural industries such as agriculture, health care, and education. Comments are specifically requested on effective methods that can measure leading indicators of potential project benefits for these sectors, using readily available public data.**

Many rural areas participate in a planning process under the U.S. Economic Development Administration's Comprehensive Economic Development Strategy (CEDS) plan. The CEDS plan is a local planning and regional implementation process designed to create jobs, foster more stable and diversified economies through coordination of economic development activities.

To specifically encourage broadband development, the State of West Virginia is also providing broadband planning funds through its allocation of Community Development Block Grant (CDBG) funds, as provided by the U.S. Department of Housing and Urban Development.

Through these projects and other similar community planning initiatives, numerous local governments in West Virginia have identified broadband development as a factor in the region's economic viability.

Recognizing that each community has different needs, it is suggested that RUS recognize the existing CEDS planning process, CDBG broadband plans or comparable planning efforts to provide rural communities with a framework for outlining broadband needs.

Many local governments stand ready to provide RUS with the information needed to support applications for broadband development, however, many may lack the capacity to undertake the application process. Survey templates and other components of an application toolkit would greatly assist small rural communities in this process.

The RUS may wish to collect baseline demographic data, available through the American Community Survey, as part of the application, and collect an update of this data upon project completion as a reporting method to track key economic indicators.

## Conclusion

The Council requests that RUS work with state agencies, local governments, applicants and providers to coordinate data collection and mapping efforts in order to collect actual broadband service data to determine sufficient access to broadband.

Collecting more refined data will ensure that projects are designed to reach unserved and underserved residents and businesses in census blocks that are only partially covered.

Through the assistance of RUS, numerous State agencies stand ready to assist West Virginia's rural communities in forging a new path to a more connected and diversified economic future.

In conclusion, and on behalf of the West Virginia Broadband Enhancement Council, I appreciate the consideration of the USDA, RUS in its review of the comments provided herein. The Council values the partnership of the RUS in the development of policies and procedures that will directly influence the future of our State.

We fully realize the importance of these policies and appreciate the opportunity to provide input. Should you have any questions concerning the information provided in this letter, please do not hesitate to contact me.

Sincerely,



Robert Hinton  
Chairman

cc: West Virginia Broadband Enhancement Council





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W. Clayton Burch, *Interim Cabinet Secretary*

Robert Hinton, *Chairman*

December 21, 2018

Ms. Jennifer Jessup  
Departmental Paperwork Clearance Officer  
U.S. Department of Commerce  
1401 Constitution Avenue NW  
Room 6612  
Washington, DC 20230  
VIA EMAIL: docpra@doc.gov

**Re: Filing of Comment by the West Virginia Broadband Enhancement Council  
In Response to the National Telecommunications and Information Administration  
Proposed Information Collection and Comment Request; Broadband Availability  
Data; Document Number 2018-23296**

Dear Ms. Jessup:

The West Virginia Broadband Enhancement Council (the “Council”) appreciates and supports the proposal by the National Telecommunications and Information Administration (“NTIA”), pursuant to the Consolidated Appropriations Act of 2018, to undertake broadband data collection that can augment data collected by the Federal Communications Commission (“FCC”) through its Form 477 process. The Council is a state broadband council committed to pursuing broadband development on behalf of the State of West Virginia. The Council both believes that better data will improve state and federal broadband policy and programs and believes that states can contribute important information that will provide a clearer picture of the state of broadband availability. In this filing, the Council addresses the topics on which NTIA has invited comments.

On behalf of the Council, I am grateful for the continued support of the NTIA and its many initiatives to enhance broadband service, particularly in rural locations like those found throughout the State of West Virginia. Your careful consideration of the comments provided herein are appreciated.

## **Priority Comments**

### **1. Does the proposed collection have practical utility?**

The NTIA's proposed collection of data is an essential step to improve local, state and federal initiatives that aim to achieve broadband service in unserved and underserved areas. Broadband programs implemented by NTIA, the FCC, the United States Department of Agriculture (USDA) and U.S. Economic Development Administration (U.S. EDA), and the Appalachian Regional Commission (ARC) can benefit from better broadband data. The Council itself recognizes that better data than is currently available is essential for its mission. More nuanced, granular, and accurate data will allow public programs to better identify and target areas that need assistance. This will be an immensely practical benefit. Incomplete or misleading data lowers economic opportunity and participation in a digital society by causing missed opportunities to improve broadband service.

As correctly identified by the NTIA in its Notice, the current Form 477 reporting process, while an important baseline, has known limitations that can overstate the level of broadband service provided or the reach of services provided, especially in rural areas. These overstatements are not hypothetical. For example, as the Council has noted in other opportunities for comment, seven counties in West Virginia were designated as having 100 percent broadband service in the FCC's *2018 Broadband Deployment Report*.<sup>1</sup> This designation includes, Barbour, Gilmer, Harrison, Lewis, Marion, Randolph, and Upshur counties. Residential and business customers and numerous stakeholders within these counties would readily demonstrate that broadband service does not meet a 100 percent threshold.

The NTIA is correct to propose to collect additional data from both owners and operators and other categories of respondents, including states. The Council, as a state broadband office, understands that states often have additional mandates, information and resources that the NTIA can use to refine and improve the baseline data that the Form 477 process provides. For example, the Council is directed by West Virginia state law to undertake broadband mapping and data collection.<sup>2</sup> Our comments below will identify some of the ways that the NTIA can work with states, as it has done in the not-too-distant past under the State Broadband Initiative (SBI).

### **2. How accurate is the of the agency's estimate of burden, including hours and cost?**

The Council does not have direct information about the burden to respondents who are service providers, but the NTIA's proposal appears to minimize requirements that could require respondents to modify data or create new data. Furthermore, data collection proposed by the NTIA may in some cases be similar to data requested by states that is more granular than FCC Form 477 data. To the extent that the NTIA actively coordinates with states on data collection efforts, there is an opportunity to minimize additional reporting burdens on service providers while at the same time obtaining a better national data set.

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<sup>1</sup> See Comments of West Virginia Broadband Enhancement Council, *Improving the Quality and Accuracy of Broadband Availability Data*, Docket Number 1804274421-8421-01 (filed July 16, 2018), p 2.

<sup>2</sup> W. Va. Code §31G-1-6 and -9.

NTIA's estimate may not fully reflect the hours that would potentially be spent by entities other than broadband providers, such as states or local government. Additional time and data contributed by states and communities should not necessarily be viewed a burden, however, but an opportunity. These respondents have not had the opportunity to provide valuable information under Form 477 reporting. It is important that the new process for participation is efficient for such reporting entities and such cooperation is voluntary. NTIA should encourage greater participation by states and communities by providing low barriers to providing data. If it does, the Council will be an enthusiastic partner, and it believes similar entities will be as well.

### **3. What are ways to minimize the burden of the collection of information on respondents, through the use of automated collection techniques or other information technology?**

Respondents will benefit from the use of straightforward, well-understood data standards that are used repeatedly over time, providing respondents with predictability regarding how they will be able to present NTIA with useful, digestible data. NTIA should publish and promote the use of a common set of standards for different classes of data that respondents can use to report data to NTIA. In the Notice, the NTIA proposes to collect data using many geographic units also used in the SBI program. In the development of its reporting schema, NTIA should start with the reporting standards already developed under the SBI program, as reporting entities (service providers and states) have already had the opportunity to become familiar with reporting under these standards.

This is not to say that reporting should stay absolutely static over time, or that no improvements can be made. During SBI, the development of standards for reported data benefited from the ongoing federal-state partnership. NTIA should convene an ongoing technical working group that includes willing state partners to recommend refinements to data reporting standards over time.

NTIA should develop systems with a web interface to receive batch uploads of respondent data (including data from respondents who are not broadband providers). Data should be accepted in commonly-used data formats, such as DBF or CSV files for tabular information, shapefiles for map information and JPEG for image information. For example, the Ookla speed test data developed by the Council can be exported to a CSV file which then could be reported to the NTIA. The Council can also report speed test data as a shapefile.

The NTIA's systems should do more than simply accept data. They should also provide respondents with feedback in map and tabular form that the information has been accepted and identifies possible non-conformities with the published standards.

### **4. What are ways to enhance the quality and utility of the information?**

NTIA should seek to be a conduit and repository for available information that will deepen the public's understanding of the true state of broadband deployment, beyond that provided by current Form 477 data. It can do this by (a) developing additional attributes for data at the Census Block level that will provide a more nuanced understanding of this data, (b) collaborating with states and others to collect speed test data as an additional data set, (c) collecting more granular, sub-Census Block information where available, and (d) incorporating available third-party verification data to improve the accuracy of published results.



a. **More nuanced reporting categories**

One of the most widely-recognized ways in which Form 477 data overstates broadband availability is the classification of Census Blocks as having a service available in the Block if a service provider can provide service to any part of the block. NTIA can greatly improve the available broadband data if it reports services in Census Blocks not only as either "available" or "not available." The Council joins other commenters in calling on the NTIA to request information that can identify when Census Blocks are neither entirely served nor entirely unserved.<sup>3</sup> Adding even just one intermediate category for Census Block reported data, "partially available," would paint a much truer picture of broadband availability in the United States than the current data set. NTIA can develop this information by deriving it from sub-Census Block data it collects when sub-Census Block data is available and requesting that service providers identify the additional category when it is not. It may also be derived in some cases from validation data submitted by respondents who are not service providers.

In addition, the NTIA should recognize that not all data supplied by all broadband service providers is consistently accurate. These comments do not seek to single out any particular provider or group of providers, but simply acknowledge that some level of inaccurate information is present in Form 477 data. In the interests of publishing more accurate information, NTIA should allow opportunities to validate reported data, and use validation results to qualify reported data.

Currently Form 477 data is published essentially as reported by service providers. While it is not feasible to independently validate all reported data, NTIA can adopt the position that provider-supplied data (either at the Census Block or more granular reported data) is presumed to be accurate while at the same time allowing that presumption to be qualified, challenged or rebutted by data from other sources, including states. NTIA should establish a "confidence" attribute for reported data that can reflect additional information about the accuracy of reported information.

- Data within a Census Block that is based only on service provider filings should be published as "reported."
- If NTIA receives credible information reported by other respondents that provider-reported data is inaccurate, it should at a minimum publish such data as "questionable" or "challenged." Strong contrary showings by other respondents should lead NTIA to revise or remove provider-reported data in its published information.
- NTIA should also note a higher confidence level when service provider data positively correlates with independent data. Service provider data that is credibly validated by other respondents or third-provider data should be published as "verified."
- Service providers who demonstrate a substantial pattern of reporting inaccurate information should lose the presumption that their reported data is accurate, and if NTIA publishes data reported by such service providers, it should be published as "unverified" unless it can be validated by other reporting and data sources.

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<sup>3</sup> See for example, Comments of Wisconsin Public Service Commission, *Improving the Quality and Accuracy of Broadband Availability Data*, Docket Number 1804274421-8421-01 (filed July 12, 2018), p 6; Comments of Connected Nation, *Improving the Quality and Accuracy of Broadband Availability Data*, Docket Number 1804274421-8421-01 (filed July 16, 2018), p 7; Comments of the West Virginia Office of GIS Coordination, *Modernizing the FCC Form 477 Data Program*, WC Docket Number 11-10, (filed October 6, 2017) p.6.

Service provider efforts to supply accurate and complete data are essential to broadband data collection efforts. The Council acknowledges and applauds the efforts of many service providers to supply the federal government and states with broadband availability information. It takes nothing away from these providers' efforts for NTIA to flag inaccuracies within reported data where they exist and acknowledge that in some cases we cannot be confident that they are accurate as originally reported. NTIA should seek continuous improvement of reported data over time.

The Council also encourages the NTIA to collect data about the cost of available broadband service for residential and mass-market consumers and limitations on use imposed by data caps. Broadband access can be limited by affordability as well as unavailability, and strict data caps can in some cases exacerbate affordability. The Council has previously recommended that the FCC create an Availability Index that synthesizes factors such as speed, type of technology, latency, cost, competition, data caps and potential usage patterns to paint a more accurate picture of broadband deployment.<sup>4</sup> NTIA efforts to develop aspects of this data would help make this possible.

The NTIA should also ask reporting service providers if coverage in reported Census Blocks is offered for retail sale. From a consumer's point of view, being unable to purchase service is the equivalent of it being unavailable. At the same time, addressing availability of service, not offered for retail sale, may call for different public policy responses than a complete lack of service.

#### b. Speed test data

The Council believes that speed tests are an important tool to allow residents and businesses input on the state of broadband services available to them. The Council recommends that NTIA aggregate speed test data collected from multiple sources, including various states, and report on the data alongside carrier-reported speeds in its published data.

As reported to the NTIA in the Council's prior comments, the Council maintains a speed test portal which utilizes an Ookla speed-test interface.<sup>5</sup> The system enables users to enter their address; locate their home or business on an interactive map; identify their carrier; and select the level of service to which they subscribe. The users then follow prompts to conduct a speed test; the results are then automatically populated to a dataset where comparisons can be drawn.

To facilitate reporting from different programs, the NTIA should establish and publish a common set of attributes for reported speed test data. These should include test location, provider information (utilizing a unique common name for each provider), upload speed, download speed, and latency.

The NTIA should also establish categories for speed test results that will enable it to collect information from speed testing efforts using the most common methodologies yet understand the underlying conditions of the test. For example, some speed tests utilize methods different than the

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<sup>4</sup> See Comments of West Virginia Broadband Enhancement Council, *Improving the Quality and Accuracy of Broadband Availability Data*, Docket Number 1804274421-8421-01 (filed July 16, 2018), p.7.

<sup>5</sup> *ibid*, p. 2; see also Comments of the West Virginia Office of GIS Coordination, *Modernizing the FCC Form 477 Data Program*, WC Docket Number 11-10, (filed October 6, 2017) p.3.

Ookla methods employed by the Council and may lead to different results.<sup>6</sup> NTIA should seek to differentiate one from the other, while permitting collection from respondents using any of the major methods.

Over time, the NTIA should seek to build up a body of speed test data from the major testing methods that can be correlated with other collected data, such as carrier-reported speed data and other data sources, such as the FCC's Whitebox program. It should work to establish benchmarks that will allow it to use reported speed tests from the major testing methodologies as an indicator of the validity of carrier-reported speed data.

Collaboration over time will promote a greater understanding of how to use speed test data from different initiatives to develop a more complete picture of the broadband services delivered to users. To achieve this ongoing collaboration, NTIA should establish a technical working group with interested states who have speed testing programs to assist it in reviewing data and developing recommended benchmarks.

### c. More granular geographic units

In its Notice, the NTIA proposes to collect granular, sub-Census Block reporting of data and to collect where available various types of data: address, address range, road centerline, land-parcel identification, or latitude/longitude wireless coverage areas based on a propagation model, and network infrastructure (such as fiber optic routes). It proposes to collect corresponding broadband availability data. The Council supports the NTIA accepting any and all of the categories of sub-Census Block data outlined in the Notice. In addition, NTIA should accept fiber nodes for networks using DSL technology.

Ultimately, the NTIA should seek to translate all data types reported into a common, granular format, preferably at the address / location level, and encourage reporting at that level. To that end, the NTIA should cooperate with state and federal efforts to develop a common nationwide address point data. The Council has referenced some of these efforts in prior comments.<sup>7</sup>

The greatest benefit of sub-Census Block reporting would be in larger, mostly rural Census blocks. The NTIA should accept credible granular data in Census Blocks of any size but focusing on acquiring data in larger Census Blocks would limit reporting burdens and encourage greater participation.

NTIA should also work to promote an enhanced ability to make apples-to-apples comparisons of propagation data provided by different wireless ISPs. To do this, NTIA should promote the development of standard propagation model parameters for the most common categories of fixed and mobile wireless broadband services. The parameters should encourage wireless broadband

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<sup>6</sup> For example, see Comments of California Public Utilities Commission, *the Quality and Accuracy of Broadband Availability Data*, Docket Number 1804274421-8421-01 (filed July 16, 2018), p.6 (referencing its CalSPEED testing program) and Comments of Washing State Office of the Chief Information Officer, *Improving the Quality and Accuracy of Broadband Availability Data*, Docket Number 1804274421-8421-01 (filed July 16, 2018), p.1 (referencing its use of mLab Worldwide Speed test data).

<sup>7</sup> See Comments of West Virginia Broadband Enhancement Council, *Improving the Quality and Accuracy of Broadband Availability Data*, Docket Number 1804274421-8421-01 (filed July 16, 2018), pp. 9-10.



service providers to submit coverage information that conform to these standards. The development of these standards will require collaboration and therefore the NTIA should convene a technical working group that includes interested states and wireless industry representatives to make recommendations on these standards.

NTIA should encourage more granular, sub-Census Block reporting of data by service providers, but also permit non-service providers with access to sub-Census Block data to report it where available. This will provide valuable information that the NTIA can use to validate service provider data, as described below.

**d. Incorporate third-party validation into published results to improve accuracy**

State verification efforts were an important piece of the SBI program. More recently, the FCC has acknowledged the importance of allowing independent testing of service provider-reported data by creating the Mobility Fund Challenge process. Independent verification efforts represent an important information source that NTIA should explicitly enable through its data collection process.

States should have access to unredacted reported data to allow them to fulfill a verification role. States play a key role in our federal system, and the role that states play can complement and enhance the federal efforts of the NTIA and FCC. States are closer to and in more regular contact with their local communities. In West Virginia, the Council itself includes members from different geographic constituencies, different types of broadband users, and elected representatives. The Council and its staff are in regular contact with representatives of local communities, exchanging data about broadband service and gaps, and providing various forms of assistance and oversight to help implement projects that will improve local broadband services. State agencies also play an important role in ensuring that providers represent services offered truthfully and accurately.

To facilitate participation by entities other than service providers, NTIA should create a category for reporting “verification data” provided by entities other than service providers, such as states. The verification data should be focused on specific sub-Census Block units, such as road segments, geographic coordinates, addresses or address ranges. The NTIA should expect verification data may be less geographically comprehensive than provider-reported data and permit this. For example, it may represent third-party field-testing of wireless service in a sampled set of locations within a reported service territory, or fiber or cable plant observed in a ride-out of sampled road segments. NTIA should allow verification data to report either the presence or absence of service or facilities at a location.

NTIA should establish codes for verification data filings that allow reporting entities to identify how the verification data was derived, especially to distinguish information derived from members of the general public and that derived from a verification effort using trained individuals. NTIA should not entirely discount information sourced from the general public, however, especially if it shows a pattern and has been reviewed and submitted by a trusted source, such as a state broadband office. NTIA should provide key respondents, such as states, an opportunity to share verification methods that they have used. In cases where verification data contradicts data reported from

service providers and the data is of similar granularity,<sup>8</sup> NTIA should weigh heavily verification data from trusted respondents like states with known verification methods. It should weigh verification data even more heavily when the verification data is even more granular than the information provided by the service providers.<sup>9</sup>

NTIA should give service providers a limited time to respond to credible third-party data that contradicts data submitted by the service provider. NTIA should require that a service provider submit additional evidence to rebut credible verification data contradicting its original filing.

The Council also recommends that NTIA take steps to encourage greater ability to do independent testing of wireless broadband networks. In its Mobility Fund Challenge process, the FCC took the important step of identifying equipment that could validly be used to perform testing of mobile broadband networks. NTIA should work collaboratively with broadband providers and states to identify valid test equipment for the most common types of fixed wireless networks and procedures by which third parties (especially states or their designees) can request access for the purposes of performing validation of reported data.

The Council understands that NTIA will need to approach this in a voluntary, cooperative effort with wireless broadband providers, and that not all submitted data will necessarily be readily verifiable. Nevertheless, in reporting the results of data collection, it is important for the NTIA to clearly identify what coverage information was verified, which data is from networks participating in established verification processes (even if not all of the submitted data from those networks has been verified), and which reported data is essentially unverifiable.

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<sup>8</sup> For example, a cable broadband provider files that they have cable service along a road segment, but verification data from a state-sponsored ride-out shows no cable plant along the road segment.

<sup>9</sup> For example, a wireline broadband provider reports a Census Block as entirely served, but verification data shows that there are homes within the Census Block substantially beyond the providers' end-of-line.

## Conclusion

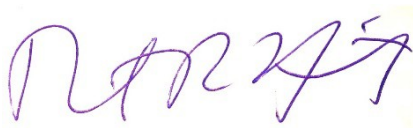
The Council applauds the NTIA for its proposed renewed broadband data collection efforts. Prior NTIA-state collaboration under the SBI program facilitated great improvements in the country's understanding of broadband service availability.

While the FCC's current Form 477 broadband data collection program has continued to fill an important role, the country can and must improve upon its limits. Initiatives of the State of West Virginia, its communities and a range of federal programs need more accurate broadband information. Beyond improving the data collected from service providers, states and others can be independent sources of supplemental and verification data.

NTIA can help create a truer picture of availability than the current Census-block data provides, identifying when blocks are only partly served, and recognizing that there are additional factors, such as affordability, that affect true availability to consumers. The Council also supports NTIA's proposal to collect data at a more granular level. It recommends that the NTIA also help the public participate and be heard by collecting and reporting speed test data alongside service-provider reported data. The Council also recommends that NTIA facilitate third parties providing data that can validate service provider reported data and acknowledge when verification data conflicts with reported data.

On behalf of the West Virginia Broadband Enhancement Council, I appreciate the opportunity to submit comments, and look forward to future opportunities for the Council to collaborate with the NTIA and broadband service providers to improve these important programs.

Sincerely,



Robert Hinton - Chairman

cc: West Virginia Broadband Enhancement Council

