

The logo for the West Virginia Broadband Enhancement Council features the text "WEST VIRGINIA BROADBAND ENHANCEMENT COUNCIL" in a bold, sans-serif font. The word "BROADBAND" is significantly larger and bolder than the other words. Below the text are several horizontal, overlapping brushstrokes in blue, yellow, red, and black. A solid blue horizontal bar is positioned above the text.

WEST VIRGINIA  
**BROADBAND**  
ENHANCEMENT COUNCIL

# 2017 ANNUAL REPORT

TO THE JOINT COMMITTEE ON GOVERNMENT AND FINANCE  
DECEMBER 30, 2017

# Introduction

The West Virginia Broadband Enhancement Council (the 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.

Accordingly, the Council seeks to remove barriers impeding the development of broadband infrastructure and services by encouraging and facilitating the construction of necessary infrastructure to meet the needs of West Virginia residents and businesses.

In carrying out the mission of the West Virginia Legislature (the 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 conducts a regular meeting on the second Thursday of each month, at 10:00 a.m., in the West Virginia Department of Commerce offices located in Building 3 at the State Capitol Complex. Committee meetings are held as needed to pursue specific projects.

The Council is actively pursuing several initiatives as directed by the Legislature, and outlined 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:

1. Broadband Infrastructure Loan Insurance Program
2. Interactive Broadband Mapping System
  - a. West Virginia Speed Test Portal
  - b. Statewide Broadband Coverage Maps
3. Broadband Cooperatives in West Virginia
4. Development of Policies, Plans and Procedures
5. Communication, Training and Capacity Development
6. Performance Measures
7. Recommendations

***The Council places a primary emphasis on the development of broadband infrastructure in unserved and underserved areas of the State.***

# WEST VIRGINIA BROADBAND ENHANCEMENT COUNCIL

Jim Justice, *Governor*

H. Wood Thrasher, *Cabinet Secretary*

Robert Hinton, *Chairman*

December 29, 2017

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

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

**Subject: Legislative Reporting Requirement, *West Virginia Code §31G-1-4***

Dear Senate President Carmichael and House Speaker Armstead:

On behalf of the West Virginia Broadband Enhancement Council (the Council), I am pleased to submit the Council's 2017 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 leading the expansion of broadband within the State of West Virginia, with an emphasis on unserved and underserved areas. 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.
- Expand economic development and represent the State in matters related to broadband infrastructure development.

The Council has formed partnerships with numerous State and Federal agencies, and multiple organizations united in the recognition that West Virginia deserves better access to broadband internet service. Along with the Council, these agencies understand that access to affordable and reliable broadband has never been more crucial to the economic, educational and social future of West Virginia.

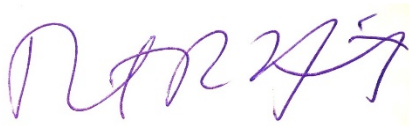
Broadband's meaning to state residents and businesses goes well beyond a technical definition. Broadband technology ensures that users can communicate, learn and conduct business efficiently. Communities and companies without affordable and reliable broadband access are being left behind in a society based upon online connections and transactions, both economic and social.

The Council is dedicated to playing a pivotal role in putting West Virginia on the positive side of the digital divide. In this regard, the Council is committed to holding providers to a higher standard to ensure that the level of service delivered matches the level of service purchased.

Earlier this year, the Council was pleased to welcome members of the West Virginia Senate, the Honorable Craig Blair and the Honorable Glenn Jeffries; and members of the West Virginia House of Delegates, the Honorable Roger Hanshaw and the Honorable Kenneth Hicks. We welcome the support and insight of our elected representatives.

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 are also available to assist you in any way possible.

Sincerely,



Robert Hinton  
Chairman  
West Virginia Broadband Enhancement Council

# Table of Contents

Council Members	6
2017 Highlights	7
Financial Report	8
Current FCC Broadband Data	9
Broadband Infrastructure Loan Insurance (BLINS)	10
Interactive Broadband Mapping System	11
West Virginia Speed Test Portal	11
2017 Online Survey Data	13
2017 Statewide Broadband Coverage Maps	15
Broadband Cooperative Associations	21
Policies, Plans and Procedures	24
West Virginia Forward Cites Need for Broadband Infrastructure	26
Grant Funding, Project Development	27
Communication, Training, Capacity Development	29
Data Management and Performance Measures	31
Recommendations	31
Appendix A: Sample Speed Test Comments	32
Appendix B: Statewide Broadband Coverage Maps	33
Appendix C: Council Comments to the FCC	44

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Vacant: User of Large Amounts of  
Broadband Services

Vacant: Rural Residential User  
Congressional District 2

\* Agency Representative

In 2017

## *The Council...*

**Launched the West Virginia Internet Speed Test Portal.**

Created West Virginia's First Interactive Statewide Broadband Coverage Map.

**Established the Council's role as a facilitator in statewide broadband planning.**

Conducted broadband development training for local government leaders, planners and project managers.

**Designed and launched new broadband development grant programs.**

Represented West Virginia's interests in matters of the Federal Communications Commission (FCC).

**Initiated the development of a Broadband Cooperative Toolkit with the WVU Entrepreneurship and Innovation Law Clinic and Generation West Virginia.**

Partnered with the West Virginia Department of Transportation and the West Virginia Department of Commerce to develop policies for the installation of fiber infrastructure.

# 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 Fiscal Year 2018 with a balance of \$1,410,417. Available funds are limited to current expenses and are judiciously encumbered for specific purposes related to the Council’s mission.

The Council maintained a balance of \$1,356,687 as of December 1, 2017. Current expenses include the purchase of the licensing necessary to continue speed testing and mapping projects; associated data subscriptions; software; website development, marketing, and communications; legal services; 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, to be executed through requests for proposals.

The Council is created under the West Virginia Department of Commerce for administrative, personnel and technical support services. Specific expense categories are detailed in Table 1.

Expense Category	FY 2018 Budget	FY 2018 Expended
Ookla Data Subscription	\$31,925	\$0
Fiber Locator Subscription	\$ 3,800	\$0
ArcGIS Subscription	\$ 3,000	\$3,000
Website Development	\$25,000	\$0
Speed Test Marketing	\$25,000	\$0
WVGES Development Costs	\$41,650	\$0
WVAGO Legal Services	\$25,000	\$7,442
Travel	\$ 5,000	\$1,908
Legal Services RFP	TBD	\$0
Technical Services RFP	TBD	\$0

Table 1: FY 2018 Expense Detail



# Current FCC Broadband Data

The 2016 Federal Communications Commission (FCC) Broadband Progress Report concluded that the State of West Virginia ranked 48th for percentage of residents without access to broadband internet service, trailing all surrounding states by double digits. The complete report can be viewed at <https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2016-broadband-progress-report>.

Broadband is high-speed internet access. It is defined by the FCC with specific data rates of 25 megabits per second (Mbps) downstream and 3 Mbps upstream, or a data rate expressed as 25:3 Mbps. Should the FCC revise this definition, the Council will publish the revised rates in the State Register within 60 days of the Federal update. In the event of any discrepancy, the Federal rate will apply.

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

State	Number of Internet Service Providers <sup>1</sup>	State Rankings - Population with Broadband Access <sup>2</sup>
Kentucky	189	35th
Maryland	131	9th
Ohio	273	17th
Pennsylvania	223	12th
Tennessee	183	29th
Virginia	204	23rd
<b>West Virginia</b>	<b>85</b>	<b>48th</b>

Source: U.S. Federal Communications Commission, Internet Access Service. Retrieved from [https://apps.fcc.gov/edocs\\_public/attachmatch/FCC-16-6A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/FCC-16-6A1.pdf)

Source: U.S. Federal Communications Commission, Fixed Provider Summary Table. Retrieved from <https://www.fcc.gov/general/broadband-deployment-data-fcc-form-477>

Figure 1: FCC Fixed Summary Provider Table

# Broadband Infrastructure Loan Insurance

The Council and the West Virginia Economic Development Authority (the WVEDA) are coordinating the administration of the **Broadband Infrastructure Loan Insurance (BLINS) Program** 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.

According to program requirements, the WVEDA is authorized to consider 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 in West Virginia and for building certain telecommunications network segments.

*The loan insurance program places a primary emphasis on the development of broadband infrastructure in unserved and underserved areas of the State.*

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

1. 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 fifteen percent or more of the households and businesses in the area are served by Internet service with an actual downstream data rate less than ten (10) megabits per second (Mbps) and an upstream data rate less than one (1) Mbps, and no part of the area has **three (3)** or more wireline or fixed wireless broadband service providers.
2. Building a segment of a telecommunications network that links a network operator’s core network to a local network plant that serves either an unserved area or an area in which no more than **two (2)** wireline providers are operating.

# Interactive Broadband Mapping System

The Council has developed an **Interactive Broadband Mapping System** to include two main components: 1.) the West Virginia Speed Test Portal, and 2.) the Statewide Broadband Coverage Map.

The **West Virginia Speed Test Portal** and the **Statewide Broadband Coverage Map** form the basis of the **Interactive Broadband Mapping System** and are central to a comprehensive approach to broadband development. These systems 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.

## The West Virginia Speed Test Portal

The **West Virginia Speed Test Portal** was launched in October 2017 to provide residential users and business owners with a method for reporting actual internet speeds. The speed test is available at: <https://broadband.wv.gov/Home/SpeedTest>. To date, more than 17,000 speed tests have been collected from nearly 11,000 unique data points. Speed tests have been conducted in each of West Virginia’s 55 counties, as indicated in Figure 2.

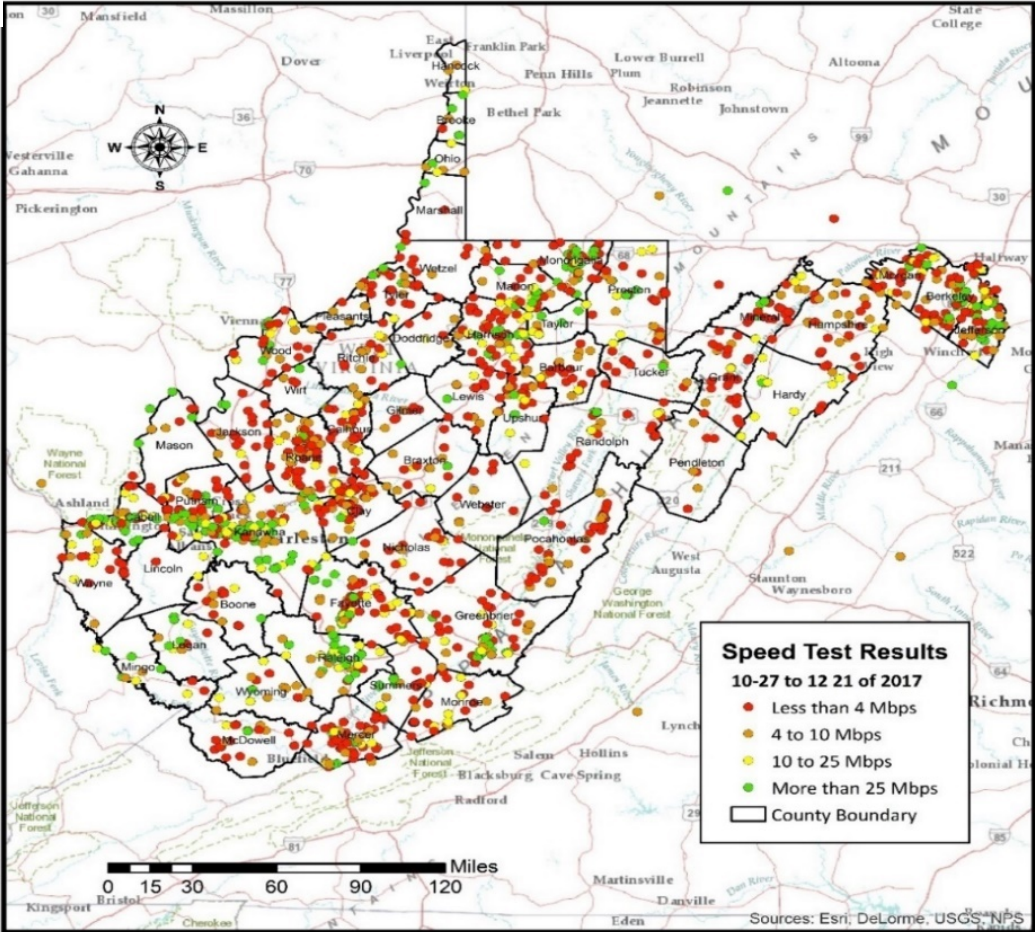


Figure 2: Speed Test Results Oct. 27, 2017 through Dec. 21, 2017

The Council is committed to a sustainable broadband enhancement program. 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 Speed Test Portal will also provide the data needed to generate **Statewide Broadband Coverage Map** to accurately identify the presence and level of broadband internet service delivered to users in the State, as well as the associated infrastructure necessary to support broadband development. In the event of discrepancy with data derived through Form 477 data, as provided by the Federal Communications Commission (FCC), the Speed Test Portal can provide alternate data for comparison and validation.

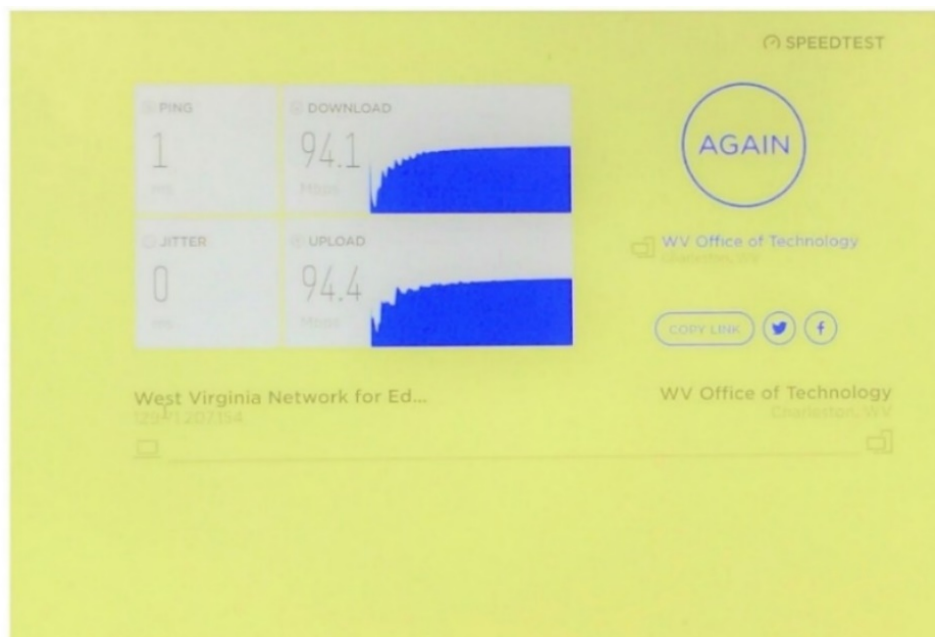


Figure 3: Screen Capture of Speed Test

Information derived through the **Interactive Broadband Mapping System** has never been more important. As previously noted, the 2016 FCC Broadband Progress Report, found at <https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2016-broadband-progress-report>, concluded that the State of West Virginia ranked 48th for percentage of residents without access to broadband internet service, trailing all surrounding states by double digits.

West Virginia can no longer settle for 48th place. The **West Virginia Speed Test Portal** will enable the Council to identify communities with connectivity that does not support the needs of residents and businesses. The Council will then assist those communities in moving forward to pursue the benefits of broadband connectivity.

## 2017 Online Survey Data

As part of the **West Virginia Speed Test Portal**, the Council also developed an online survey instrument to capture information regarding internet and broadband service. Information requested in the online survey includes data related to internet speed, subscription level, customer satisfaction, and other research points. Between October 27, 2017 and December 21, 2017, more than 2,000 West Virginia residents completed this online survey.

This survey also provides residential and business users with an opportunity to submit comments to the Council concerning internet service. At least 1,100 of those taking the speed test have provided comments. Sample comments are provided in Appendix A of this report.

In 2018, the Council will encourage communities to begin data aggregation campaigns. Residents and business owners are encouraged to help spread the word and increase speed test results. The Council will use the data provided by West Virginians to map broadband services in communities and business districts throughout the State. This information will be reported to the West Virginia Legislature and the Federal Communications Commission (FCC).

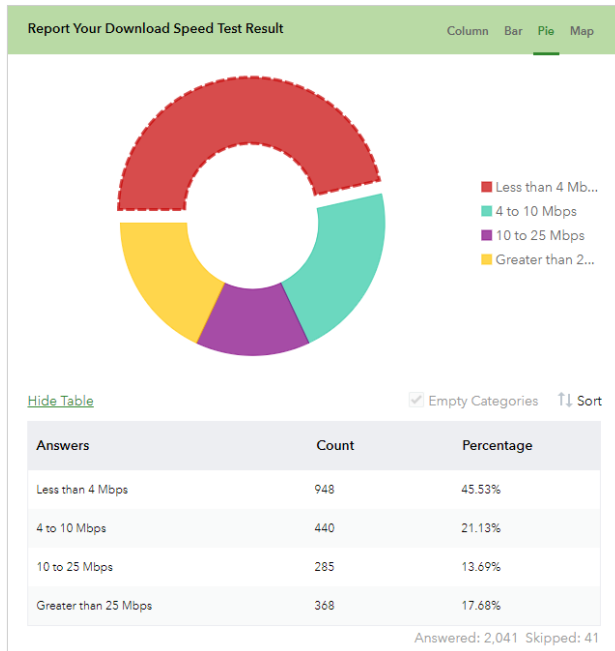
The Council is dedicated to holding providers to a higher standard, ensuring that internet service providers in West Virginia keep pace with this ever-evolving technology. Without question, this is critical to our State's future success.

In this regard, the Council submitted comments to the FCC in 2017 concerning the requirements of the Connect America Fund II (CAF II). Through this program, the FCC will award up to \$198 million annually for 10 years to service providers that commit to offer voice and broadband services to fixed locations in unserved high-cost areas. The minimum service level requirement under CAF II is a downstream data rate of 10 megabits per second (Mbps) and an upstream data rate of one Mbps, expressed as 10:1 Mbps.

The Council requested that the FCC give special consideration to the identification of eligible areas. The Council also requested that the FCC grant maximum flexibility to provide the greatest level of competition possible.

The Council also provided comment on the proposed application and bidding procedures for the auction, including how interested parties can qualify to participate in the auction, how bids will be submitted, and how the FCC will process bids to determine funding. A copy of this comment is provided in Appendix C of this report.

# 2017 Online Survey Findings to Date



**More than 45 percent of users who completed the online survey, reported download speeds of less than 4 Mbps.**



**More than 58 percent of users who completed the online survey, reported upload speeds of less than 1 Mbps.**

# Statewide Broadband Coverage Maps

The Council engaged experts in multiple State agencies to successfully execute the **Interactive Broadband Mapping System**. Through partnerships with the West Virginia Department of Commerce, West Virginia Geological and Economic Survey (WVGES), the State Office of GIS Coordination, and the West Virginia Office of Technology, the Council has created the State's first Interactive Broadband Mapping System, which includes the **Statewide Broadband Coverage Map**. The Statewide map is provided below. Additionally, a map for each of West Virginia's 55 counties is provided in Appendix B of this report.

Speeds on the interactive map shown below are based upon data provided through the Federal Communications Commission (FCC) Form 477 data, as reported by internet service providers. Wireline broadband data is based upon the U.S. Census Bureau's census block data. Both wireline and wireless broadband data are represented by coverage areas, as submitted by the service providers on a semiannual basis through FCC Form 477 data reporting.

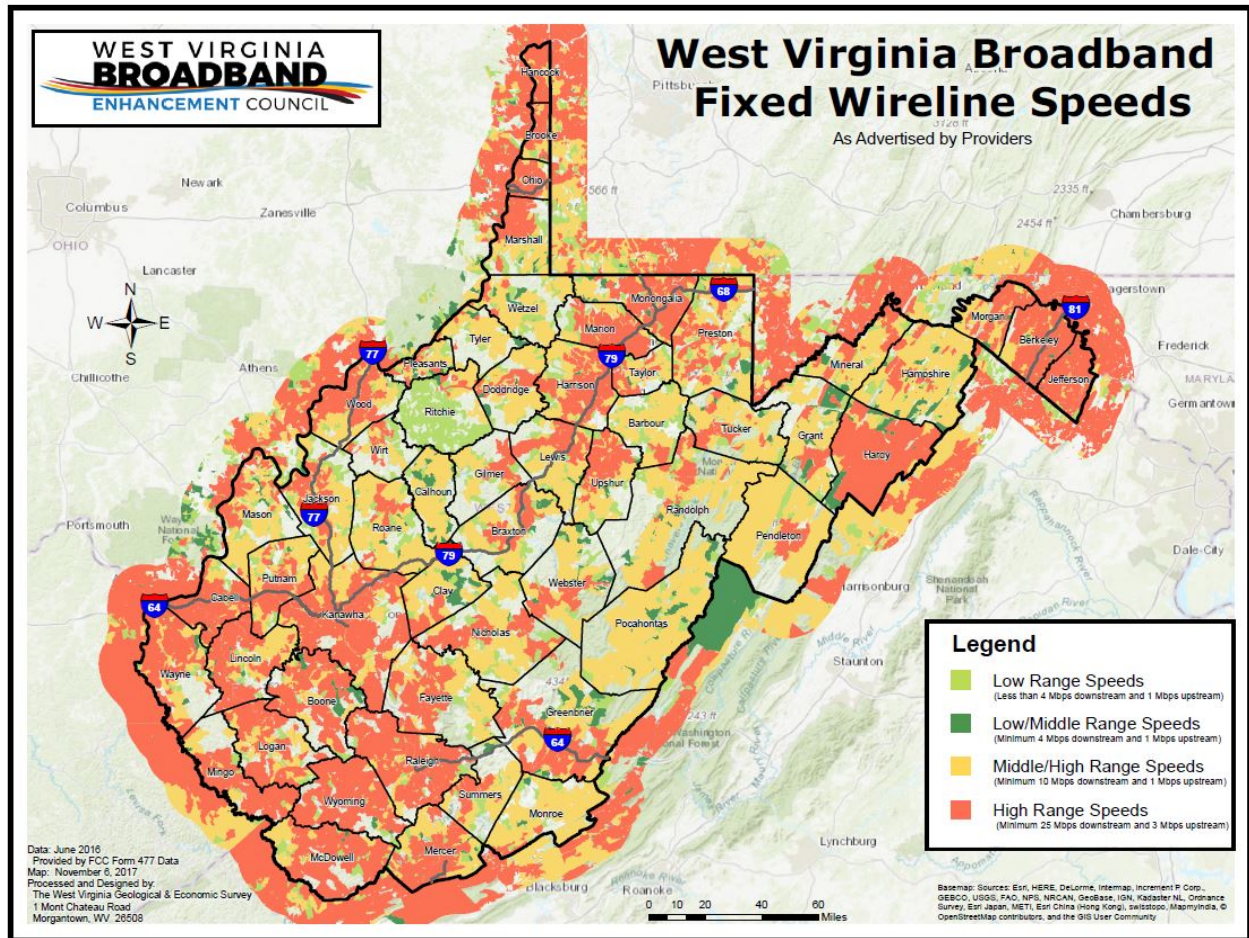


Figure 4: Statewide Broadband Coverage Map Based Upon FCC Form 477 Data

Notably, FCC Form 477 data is reported by the internet service provider. The FCC presents the data in U.S. Census Blocks, equivalent to a neighborhood block in an urban area. As a result, if there is one customer served in a census block, the entire block will be reported as having broadband.



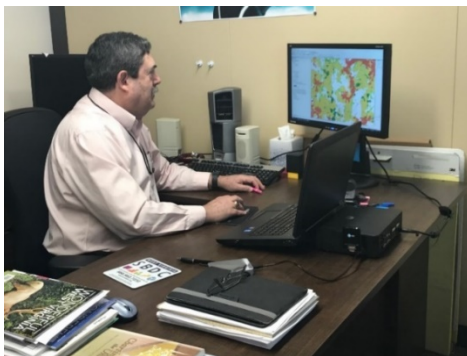


## Integration of Speed Test Portal Data

As described previously, the Council's West Virginia Speed Test Portal will validate internet speed, network performance and consumer satisfaction. The speed test portal enables users to enter an address to determine the broadband service providers and technologies available within a specific area.

To ensure accuracy, several data validation and verification processes are performed. These include consumer and provider speed test comparisons, third-party vendor and FCC database comparisons, and surveys from businesses and residences. The Council's consumer speed test results will accurately identify unserved and underserved areas throughout the State, and will ensure the accuracy of the Interactive Statewide Broadband Coverage Map.

As part of the previous State Broadband Initiative (SBI), the West Virginia Geological and Economic Survey (WVGES) and the State Office of GIS Coordination compiled and analyzed broadband service information and trends, which show access by speed tiers and technology type, from 2009 to 2014. The mapping program ended in February 2015, and was revived by the Council in the first half of 2017. The Council has allocated funds to update and maintain the State broadband speed range map found at <https://wvbroadband.maps.arcgis.com/apps/WVAdvertisedSpeedRanges>.



The Council will continue to compile a robust dataset of speedtest and survey results for the Interactive Broadband Mapping System. The project will also include the collection of data from Community Anchor Institutions (CAIs). The location and broadband capabilities of each CAI will enable the State to leverage all existing broadband infrastructure.

(Photo: WVGES, State Office of GIS Coordination)

## Compiling FCC Form 477 Data

Although FCC Form 477 data is publicly available, the average user may find it hard to access, difficult to understand, and overly complex. In addition, raw data collected is not readily formatted for everyday consumers. Therefore, all relevant data is carefully analyzed to make it easily accessible for consumers.

```
WV-Fixed-Jun2016-v2.csv - Notepad
File Edit Format View Help
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```

Figure 6: Screen Capture of raw .csv FCC Form 477 Data File.

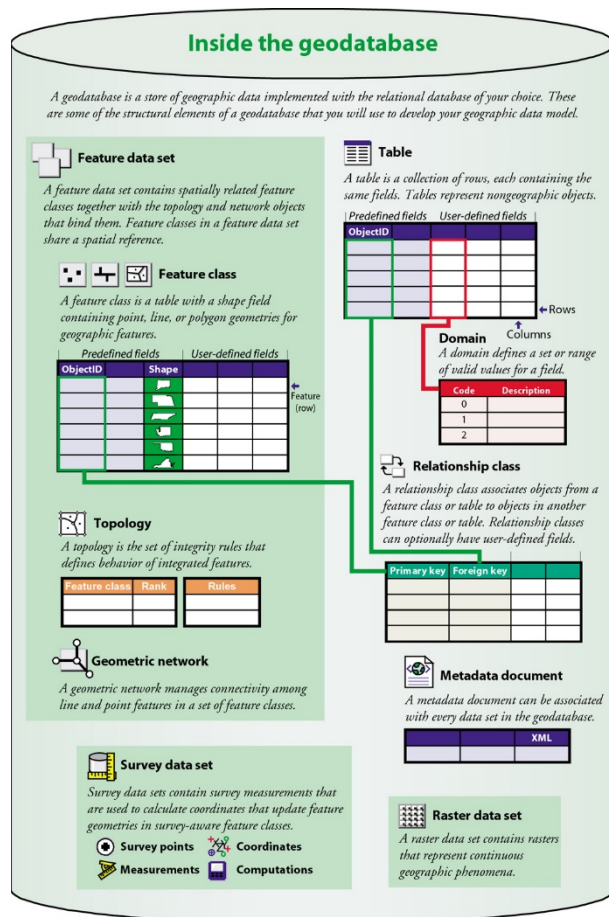
## Creation of the File Geodatabase from the CSV FCC Form 477 Data

The mapping process began in 2017 with the acquisition of the latest version of data from <https://www.fcc.gov/general/broadband-deployment-data-fcc-form-477> for West Virginia. The very large CSV file is put into a database system or an ArcGIS file geodatabase from which several extractions and mergers are performed via a “normalization” process to prevent “many-to-many” data relationships.

Broadband providers and individual technology types are then siphoned out of the CSV file, remerged and joined to spatial 2010 U.S. Census Blocks, based on unique block codes found in each file. An example of a geodatabase is provided in the Figure 7 below. A more detailed description is available upon request.

## Creation of Mapping Services from the File Geodatabase

Upon completion, the datasets are brought into ArcGIS Desktop (formerly known as ArcMap/ArcCatalog) for cartographic rendering of features, along with the establishments of viewable extents and proper geographic projection.



The completed results are saved and shared as dynamic, feature or tiled services which are created within the Council’s ArcGIS Online account—a web-based “cloud” spatial environment.

Several services were created and tested to ensure best means for speed of delivery and ease of use. For instance, a tiled mapping service is much faster for rendering many polygons on a Statewide scale than a dynamic mapping service.

Basically, the former means creates square tile or image snapshots at several scales and are stored/cached within the Council’s ArcGIS Online account for future use. The latter ability renders a map “on-the-fly” at any scale.

The Council maps utilize a combination of dynamic, tiled and feature services for best anticipated use by map users.

Figure 7: Geodatabase Relations (Image Credit: ESRI ArcNews, Fall 2002)

## Creation of the “WebMap” from the Mapping Services

The mapping services via the Council’s ArcGIS Online account are then brought into an interactive map or “WebMap,” platform where the system displays initial transparent layers and more FCC opaque layers in juxtaposition. Service layer information is also configured and accessed via a “click event” to produce a “pop up” window. The completed WebMap can then be used by anyone in the Council’s ArcGIS Online account environment depending upon permissions established by the designer, from only Council ArcGIS Online account members to the public, via the weblink found at <https://wvbroadband.maps.arcgis.com/home/index.html>

## Creation of the Interactive Mapping Application or “WebApp” from the “WebMap” Utility

Although the WebMap can be viewed and manipulated within the Council’s ArcGIS Online account environment, an actual application provides the best platform for a user to interact with a map and data. The ArcGIS Online account provides a means to create and configure a map application via a designing application called “Web AppBuilder for ArcGIS.” The Web AppBuilder provides the ability to choose from several themes, styles and layouts for the application, access to desired WebMaps, and widgets or tools such as for map navigation, data access and printing.

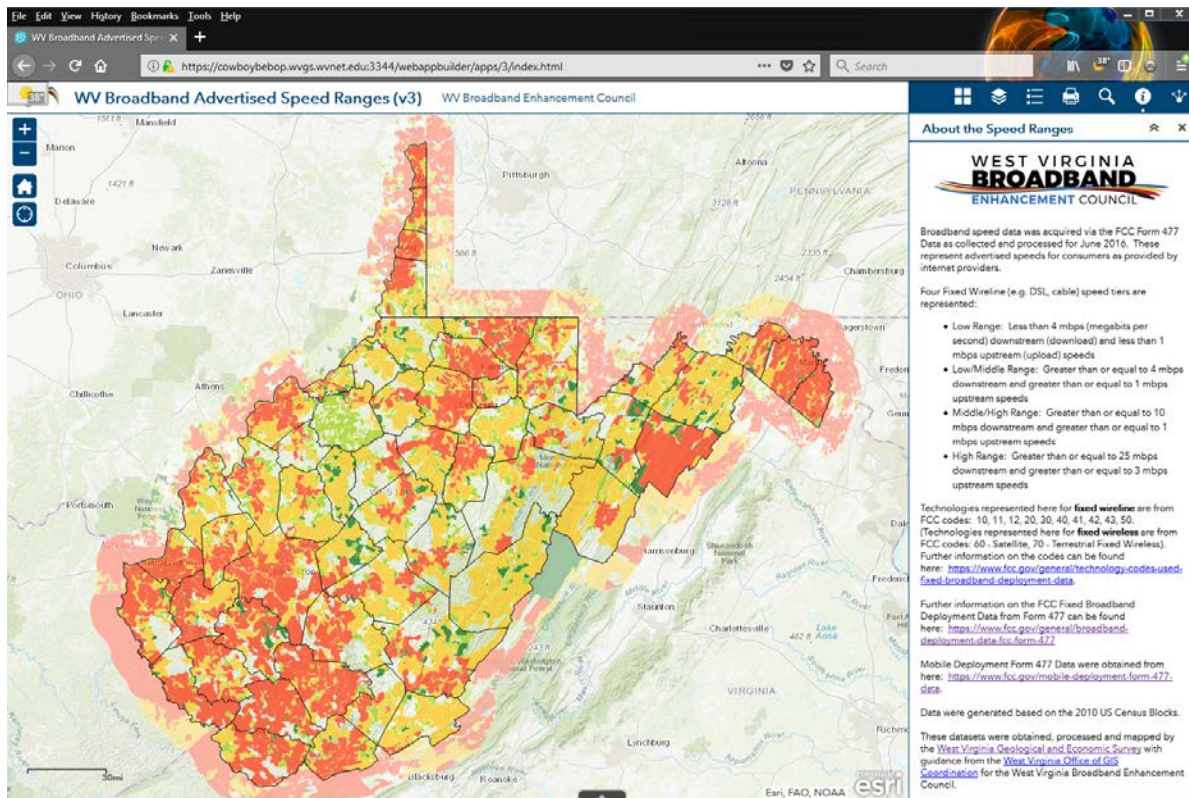


Figure 8: Image of the Interactive Mapping Application

## Web AppBuilder Print Tool

The print tool provided by Web AppBuilder is the final development component of the Interactive Broadband Mapping System. A specific function involved in the WebMap contains an enormous amount of data and is invisible to the user; however, it provides information if the user clicks on a map concerning broadband providers, speeds, and other information. While this layer is activated, the print tool may not function properly. This function is currently under development.

Rather than delay the release of the map, the WVGES created a county level map set for Council use. The WVGES will continue development of the print tool and release a new version of the mapping application upon resolution.



*(Photo: WVGES Staff Members)*

The WVGES designers successfully have aligned the entire mapping system, including the data gathering tool, data analysis and mapping systems, to integrate the West Virginia Speed Test Portal with the Statewide Broadband Coverage Maps.

The Council and the WVGES will continue this collaborative and integrated partnership throughout the ongoing development and management of the Interactive Broadband Mapping System project.

# Broadband Cooperative Associations

The Council has initiated the development of a **Broadband Cooperative Toolkit** to assist in the development of Broadband Cooperative Associations (BCAs). An initial review of Frequently Asked Questions (FAQ) Guide, the first element of a comprehensive toolkit, was completed in October 2017.

While cooperatives are primarily found in agricultural applications, it is observed that communities will need professional assistance, including legal, accounting and business services, to form a BCA. Therefore, the Council has partnered with the West Virginia University Entrepreneurship and Innovation Law Clinic and Generation West Virginia to develop a toolkit for those wishing to create a broadband cooperative.

Upon completion, the Council will partner with these and other organizations to facilitate training to assist communities in the development of BCAs. The applicable portions of House Bill 3093 regarding cooperatives are also provided via weblink: [House Bill 3093: Article 2. Cooperative Associations](#).

## Broadband Cooperative Associations Frequently Asked Questions

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

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

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

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

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

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

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

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

- A. Identify the underserved area where you wish to offer broadband services through a co-op. Identify community leaders – private citizens and/or businesses leaders – who want access to better Internet in that area and are willing to collect a list of customers who wish to incorporate a cooperative. Seek assistance from organizations, government, and partners willing to organize a BCA membership meeting; establish a team; and pursue a plan for exploring the BCA. This would include developing a business plan, incorporating and operating the BCA. The team should include a knowledgeable business planner, lawyer, and accountant who are available to provide advice as needed.

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

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

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

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

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

# West Virginia Communities Pursue Development of Broadband Cooperatives

## Clay-Calhoun-Roane Broadband Alliance | September 2017



*Members of the Clay, Calhoun and Roane Broadband Development committee explore options to improve broadband service in the region.*

Residents from Clay, Calhoun and Roane counties have formed an alliance to pursue a greater level of broadband service in their communities. The CCR Broadband Development Committee (CCRBDC) held its first meeting in September 2017 at the Big Otter Volunteer Fire Department in Clay County.

Representatives from the Region III Planning and Development Council and the Mid-Ohio Valley Regional Council organized the meeting. Representatives from the Council, West Virginia Development Office, and the West Virginia Office of Technology joined the meeting to advise the group through the project development process.

Since the September gathering, the participants have formed three-member, individual county committees which meet both separately and collectively as the CCRBDC. The three-county region has applied for grant funding to assist in an assessment of broadband development options.

## Community Broadband Meeting in Lewisburg | October 2017

Approximately 40 Lewisburg-area residents met in October 2017 to discuss strategies for bringing broadband connectivity to their neighborhoods. Residents cited House Bill 3093 as an impetus to bring much-sought enhanced internet service to Greenbrier County, with an emphasis on the bill's broadband cooperatives provision.

Chief Technology Officer and Council member John Dunlap told the attendees that local leadership and enthusiasm are critical, but cautioned that achieving connectivity would require patience and perseverance.

Residents are planning additional meetings to develop specific short-term and long-term plans. The Council will continue to assist this area in its pursuit of broadband connectivity.



*Lewisburg area residents meet with State officials to review broadband development strategies.*

# Development of Policies, Plans, Procedures

The Council seeks to develop a core network of capacity within the State to eliminate barriers to broadband infrastructure development. Partners in this endeavor include State and Federal agencies, local governments, Regional Planning and Development Councils, Local Economic Development Authorities, service providers, and other interested parties.

The Council's composition includes key stakeholders who represent the concerns of numerous constituencies. This structure ensures that the Council is well-equipped to represent the State of West Virginia in policy development at both the Federal and State levels. A brief review of current policy issues includes:

## Federal Policy Initiatives

The Council represents the interests of West Virginia in Federal matters related to broadband infrastructure development. The Council has and will continue to issue public comments on applicable Federal Communication Commission (FCC) policies.

In 2017, the FCC requested comments on important internet-related policies. In response, the Council outlined how Federal policy requirements could improve broadband initiatives in West Virginia in matters before the FCC. A copy of each letter is provided in Appendix C of this report. A brief review of each FCC matter is provided below:

### 1. FCC Wireline Infrastructure

***Notice of Proposed Rulemaking, Notice of Inquiry, WC Docket 17-84.***

The Council provided comment on the notice of proposed rulemaking in May 2017. A copy of this comment, which included a reference to and copy of House Bill 3093, is provided in Appendix C of this report.

### 2. FCC Connect America Fund II

***FCC Connect America Fund Phase II: Public Notice for Competitive Bidding Procedures, and Certain Program Requirements for the CAF II Auction (Auction 903), WC Docket No. 10-90.***

The Council submitted comments to the FCC regarding the requirements of the Connect America Fund II (CAF II) in October 2017. Through this program, the FCC will award up to \$198 million annually for 10 years to service providers that commit to offer voice and broadband services to fixed locations in unserved high-cost areas.

The Council requested that the FCC give special consideration to the identification of eligible areas. The Council also requested that the FCC grant maximum flexibility to provide the greatest level of



competition possible. The Council provided comment on the proposed application and bidding procedures for the auction, including how interested parties can qualify to participate in the auction, how bids will be submitted, and how the FCC will process bids to determine funding. A copy of this comment is provided in Appendix C of this report.

### **3. FCC Form 477 Data Program**

*Modernizing FCC Form 477 Data, WC Docket No. 11-10; Document Number 2017-17901.*

The Council provided comment on the notice of proposed rulemaking in August 2017. The Council provided comment on the quality, accuracy, and usefulness of FCC data collected on fixed and mobile voice and broadband service. The comment also included reference to the State's use of its own system for mapping broadband speeds as an alternate data source.

The FCC also requested comments on its Form 477 Data Program, which represents broadband availability according to census blocks. The Council and the State Office of GIS Coordination requested that the FCC require address-level data to accurately determine the presence and level of service. The Council maintains that this data is crucial to the assessment of existing service, and to facilitate the reasoned expansion of service based upon need in unserved and underserved areas. In reply comments to the FCC, the Pennsylvania Public Utility Commission, California Public Utility Commission and the City of New York each expressed support for West Virginia's request for address-level data.

A copy of the comments submitted by the Council and the Office of GIS Coordination are provided in Appendix C of this report.

## **State Policy Initiatives**

At the State level, it is within the mission of the Council to make recommendations to the West Virginia Legislature concerning the expansion of broadband services, as well as any statutory changes that may enhance and expand broadband within the State. In this regard, the Council has initiated exploration in the following areas:

### **1. Accommodation of Broadband Utilities on Highway Right of Way and Utility Facilities**

The Council has initiated the development of policy, and legislation if necessary, regarding the administration of roadbed rights-of-way (ROWs) in cooperation with the West Virginia Department of Commerce and the West Virginia Department of Transportation, Division of Highways. The Council is reviewing the fee structures of other states which may be implemented to achieve greater access to broadband service through the provision of and access to highway ROWs for broadband infrastructure.

## 2. Fiber Installation with Highway Construction Projects

The Council is seeking methods to pursue dual projects involving highway, utility and broadband infrastructure construction. Approaches to this issue may follow the establishment of local infrastructure teams in conjunction with highway construction, as currently provided with water and sewer utility construction, outlined in West Virginia Code [§31-15A-7](#), *Current and prospective planning; roads and highways; report to division of highways*. The Council is interested in establishing a similar review process, specific to broadband infrastructure, between the Council and the West Virginia Division of Highways.

## West Virginia Forward Cites Need for Broadband

The West Virginia Department of Commerce, West Virginia University and Marshall University recently released *West Virginia Forward*, a roadmap for diversifying the State's economy. The initiative analyzes West Virginia's economy, proposes new economic sectors, and suggests ways to improve competitiveness. The plan focuses on four economic areas: ease of doing business; innovation and business development; human capital; and infrastructure.

Regarding broadband infrastructure, the report concludes the following:

1. Despite past efforts, West Virginia ranks in the bottom 10 for households with access to broadband, with majority of West Virginians not satisfied with connection costs (73 percent), speed (58 percent) or reliability (60 percent).
2. Improving broadband access can create \$1.9 billion in value from direct and indirect economic impact.
3. Dual broadband access is also important for industries such as data centers, and West Virginia can increase the attractiveness of the State for those industries by ensuring potential data center target sites have sufficient broadband connectivity. To read the complete plan, [click here](#).



# Grant Funding, Project Development

The Council is mobilizing the expertise, funding and partners necessary to facilitate the creation of reliable and affordable broadband service, made possible by the expansion of broadband infrastructure.

The Council is currently working 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 U.S. Department of Agriculture (USDA) Community Connect, U.S. Economic Development Administration, and other agencies.

To date, West Virginia has not aggressively pursued broadband funding. To support this initiative, the Council will provide mapping resources and other technical assistance.

## Coordination of Funding Opportunities

Through its partnership with the West Virginia Department of Commerce and the West Virginia Development Office (WVDO), two new funding sources for broadband development have been made available for broadband development within West Virginia:

1. Community Development Block Grant (CDBG)
2. Appalachian Regional Commission (ARC)

The Council will provide a financial and technical review of all broadband planning and infrastructure projects in cooperation with the WVDO and other funding agencies to coordinate projects and resources, and to achieve maximum return on investments.

## CDBG Broadband Funds



In 2016, the U.S. Department of Housing and Urban Development (HUD) directed states to consider the availability of broadband access among low- and moderate-income households within strategic planning initiatives through its rule entitled, "*Modernizing the HUD Consolidated Planning Process to Narrow the Digital Divide and Increase Resilience to Natural Hazards.*"

In June 2017, the Council coordinated the creation of a broadband development program in cooperation with the West Virginia Development Office.

Notably, more than half of the State's counties, 27 in total, are represented in the 12 applications submitted for CDBG funding.

The 12 applicants for Fiscal Year 2017 CDBG funding include:

- Clay County Commission: Clay, Calhoun, Roane Broadband Planning
- Fayette County Commission: Fayette County Broadband Study
- Gilmer County Commission: Fixed Wireless Broadband Design Plan
- Hampshire County Commission: Hampshire County Broadband Expansion
- Jackson County Commission: Sandyville Area Broadband Project
- Mingo County Commission: Town of Gilbert Broadband Planning Grant
- Morgan County Commission: Morgan County Broadband Plan
- City of Richwood: Hinkle Mountain/Little Laurel Broadband Expansion
- Taylor County Commission: Regional Broadband Planning Project
- Tyler County Commission: Tyler County Broadband Study
- Webster County Commission: Broadband Initiative for Southern West Virginia
- Wyoming County Commission: Regional Broadband Planning Project

The Governor's Office is expected to announce grant recipients in early 2018. The Council will actively assist communities as they pursue broadband development projects.

## ARC Broadband Funds

In December 2017, the Council partnered with the West Virginia Development Office (WVDO) to release a request for project applications for \$3.2 million in grant funding as part of the West Virginia ARC Broadband Initiative, a program of the Appalachian Regional Commission (ARC).

The program goal is to provide funding for the deployment of broadband that will increase economic and business development or provide service to unserved and underserved customers. Funding is limited to ARC-designated distressed counties as determined by ARC, including Clay, Lincoln, McDowell, Mingo, and Webster. Eligible activities for initiative funding include but are not limited to the following:



- Providing or upgrading current bandwidth for key economic development areas and anchors such as town centers, business and industrial parks, and business incubators.
- Working with existing service providers operating in the area to explore the possibility of increasing service into underserved and unserved areas.
- Installing a fiber backbone facility into the eligible counties to assist in broadband deployment.
- Expanding cellular or wireless broadband coverage into a distressed area.

Competitive project applications will be those that deploy broadband to underserved and unserved areas, particularly to promote economic development and growth. Applications must be postmarked or delivered to the WVDO on or before April 30, 2018.

## Communication, Training and Capacity Development

It is noted that the West Virginia Legislature designed the Council to represent various constituencies from locations throughout the State. As a result, Council members are attuned to ongoing dialogue with State residents. To connect with residents, and propel broadband development in West Virginia, the Council launched a monthly newsletter in September 2017. The newsletter provides a forum for discussion of local developments and national trends related to broadband.

Additionally, the Council has developed a website to provide West Virginia residents and businesses with resources, such as maps, lists of providers, development tools, contacts, and other elements as part of a comprehensive broadband development initiative. Communication on multiple platforms will continue to evolve in 2018.

### Provider Forum I January 2017

The Council launched 2017 with a workshop designed to bring community leaders and internet service providers together to develop strategies for project development. The January 2017 event included representatives from numerous State and Federal funding agencies and leading industry experts who joined with local leaders in a collaborative forum.

Presenters shared viable models for project development and shared strategies to assist local governments in their efforts to pursue greater connectivity for residents and businesses.

### Community Impact Summit I September 2017

In September 2017, the Council and the West Virginia Development Office unveiled new initiatives for broadband development and funding at a workshop held September 15 at Stonewall Resort.

More than 75 community leaders from across the State attended to learn best practices for improving broadband connectivity to their respective areas and the revenue streams currently available.



Presenters included:

- West Virginia Department of Commerce Secretary H. Wood "Woody" Thrasher, who applauded the attendees for taking on the challenge of improving the State's low broadband connectivity rate and pledged that Commerce will be a strong partner in this endeavor.
- Richard Jenkins, Field Representative for the U.S. Department of Agriculture, Telecommunications Program, spoke about the USDA -RD Community Connect program.

- Tracey Rowan, U.S. Economic Development Administration, Economic Development Representative, discussed the eligibility requirements necessary to receive funding for broadband projects.
- Mark DeFalco, Broadband Manager for the Appalachian Regional Commission, presented the ongoing ARC Telecommunications Initiatives.
- Kelly Workman, West Virginia Development Office, reviewed the application requirements of the HUD CDBG program.

Officials from the West Virginia communities of Bridgeport, Charleston, Williamson and Hampshire County reviewed current broadband projects, development models and best practices for local government officials to undertake similar initiatives.

## **NTIA BroadbandUSA Workshop I September 2017**

Also in September 2017, the Council partnered with the National Telecommunications and Information Administration's (NTIA) BroadbandUSA program for its Technical Assistance Workshop on broadband planning and funding in Charleston. More than 60 attendees representing government, economic development organizations and private sector businesses were present.

Council Chairman Robert Hinton outlined West Virginia's broadband initiative at the half-day workshop, which provided an intense engagement into planning and funding broadband infrastructure projects. The BroadbandUSA Technical Assistance team brought its substantial public and private sector experience in broadband deployment and implementation to guide attendees through the program.



Two presentations entitled, "*A Roadmap for Planning a Broadband Infrastructure Project*" and "*An Overview of Models to Fund a Broadband Infrastructure Project*" served as the primary discussion points for the seminar.

NTIA's BroadbandUSA promotes innovation and economic growth by supporting efforts to expand broadband access.

The Council has engaged NTIA staff for assistance in West Virginia and

continues to collaborate on several issues with specific emphasis on utilization of the roadbed right-of-way for the development of fiber infrastructure.

# Data Management and Performance Measures

The Council will provide a central point of contact for broadband development and related target industries. Accordingly, the Council will develop appropriate databases to manage information related to assets and resources, mapping, investments, projects and infrastructure, and performance measures, as well as a resource directory of design professionals, contractors, providers and related services.

The Council will track metrics related to broadband infrastructure and service to residents and businesses in West Virginia. The following metrics will be tracked:

1. Number of communities served.
2. Number of residents served.
3. Number of businesses served.
4. Number of jobs created.
5. All known financial investment and assistance, in the form of grants, loans, and loan guarantees.
6. All known infrastructure assets, including fiber, tower, satellite, conduit, and related system components.
7. Mapping data showing progression in all areas on a year-by-year basis.
8. Any other metrics requested.

## Recommendations

The Council is eager to begin 2018 with a focus on improving access to affordable and reliable broadband internet service in unserved and underserved areas of West Virginia. The State has many challenges in this regard, including, but not limited to:

1. Issue One: The dominance of incumbent providers tied to legacy systems.
2. Issue Two: The lack of information about and accessibility to existing fiber routes.
3. Issue Three: The lack of capacity for development within the State.

The Council seeks the support of the West Virginia Legislature in the effort to address these and other challenges. The Council has forged strong partnership with numerous State agencies in the execution of specific projects, each contributing to a comprehensive and sustainable broadband development program.

The Council requests that the West Virginia Legislature provide funding sufficient for permanent staffing to support the aggressive broadband development program required to close the digital divide that exists in unserved and underserved areas of West Virginia. The effectiveness and speed at which the Council can accomplish its mission will be directly related to the commitment of ongoing financial support.

The State would also benefit from the dedication of funding for broadband development in areas that do not meet the strict criteria necessary to qualify for federal funding as part of a comprehensive broadband development strategy.



## Appendix A Sample Online Survey Comments

Download and Upload speed connection is slow. Bad weather makes it slow to connect that day...
Slow internet. Unable to load webpages. Minimal amounts of wind and rain will disconnect service.
Our internet is constantly disconnecting. It's very slow and times you can't use the internet at all
A lot slower when people are not at work or school.
Using [*Company's] 6 Mbps service, and it generally struggles to achieve 1.5 Mbps.
Always lagging constantly dropping. Very frustrating
I pay for more than twice the speeds I normally get. My cellphone is as fast as my home internet is.
[*Company] is a crooked business.
[*Company] is horrible...please upgrade them...it's so slow or doesn't work at all
Service and price for [Company] in Beckley is far better than any provider I had in Huntington.
I don't know why it seems so slow in the evenings.
Our internet goes down nearly day for a few minutes
Constant problems, internet freezing, errors in uploading
[*Company] is definitely taking advantage of rural customers, and we have no other option.
Can't watch a movie or Netflix . Always buffering
The speed I pay for is supposed to be 100 Mbps download and I'm lucky if it ever goes over 40.
Did have 15mbps then 10mbps sometimes as low as 4mbps
This is a business internet with [*Company] Hooked directly into modem. Problems with WIFI
Uploading speeds have slowed in the last month it's taking longer for the pages to connect...
As a telecommuter I require broadband. Reliability is shaky at best and speeds leave me wanting. .
Internet is so slow I can't use Netflix & only one person can be on it at a time or nothing will load
Paying for 70Mbps, receiving 25.6 today.
was promised at least 3, no higher available, only provider in area, other than expensive satellite
My internet service is ok.
I have never had the internet speed promised by [*Company].
The internet connection is so poor that it makes it difficult to do anything.
my internet connection is awful 1mbps and I pay \$20 usd a month for something I cannot use
Download and Upload speed connection is slow. Bad weather makes it slow to connect that day...
Slow internet. Unable to load webpages. Minimal amounts of wind and rain will disconnect service.

*\*Company names redacted.*





## **Appendix B**

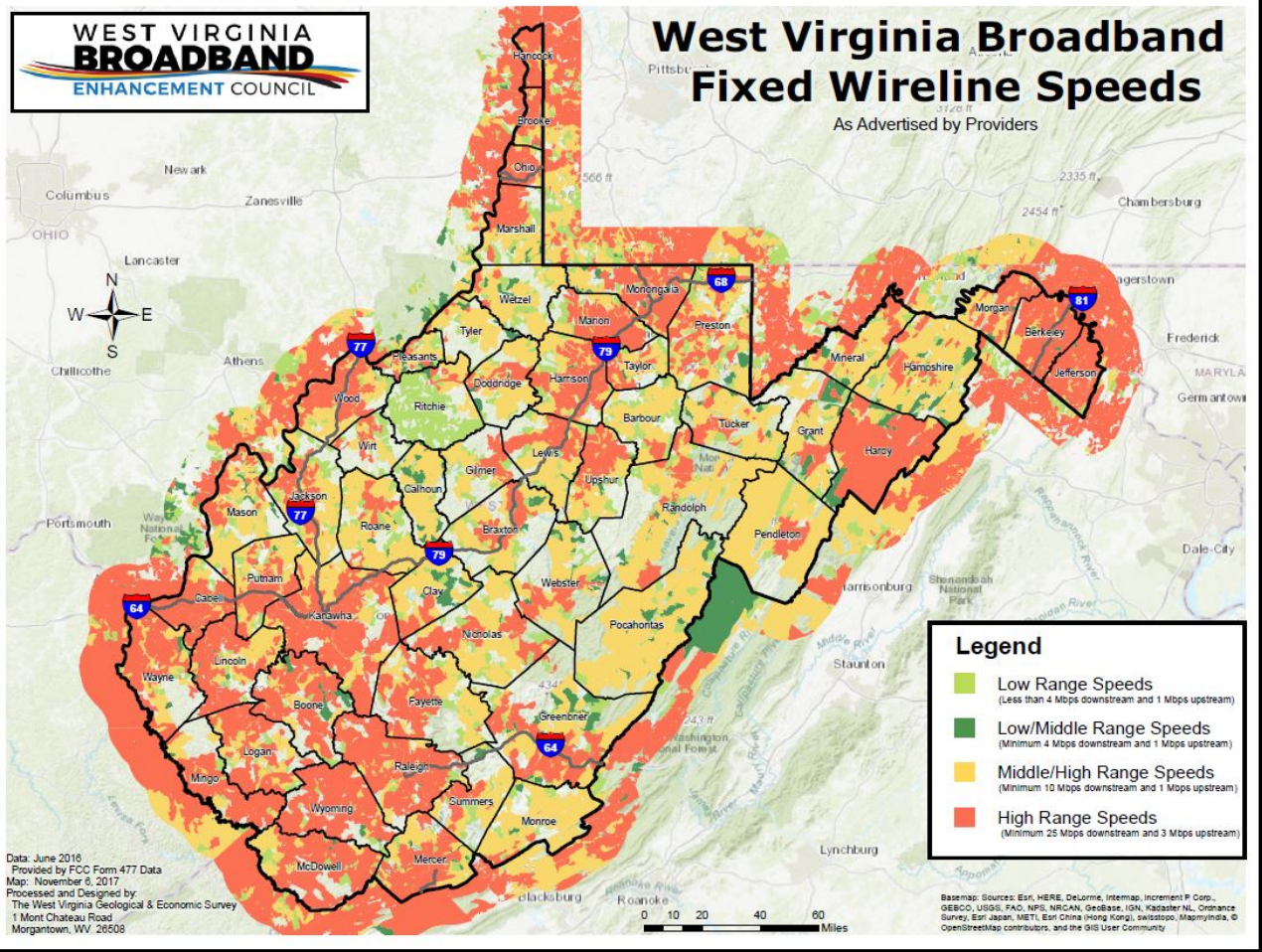
# **2017 Statewide Broadband Coverage Maps And County Maps**

**Based Upon  
Federal Communications Commission  
(FCC) Form 477 Data**



# West Virginia Broadband Fixed Wireline Speeds

As Advertised by Providers



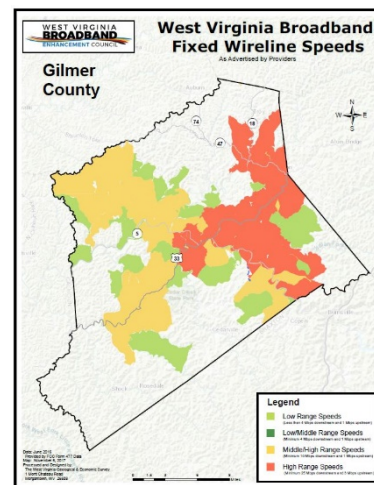
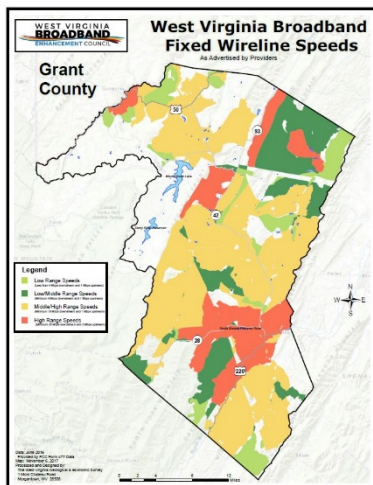
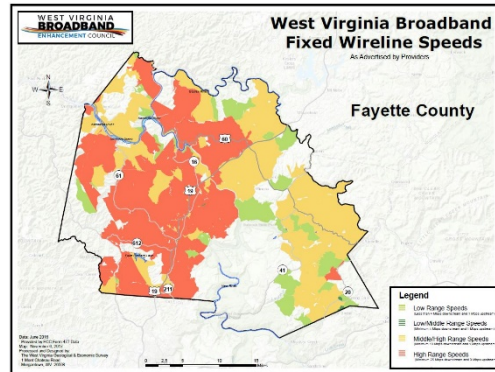
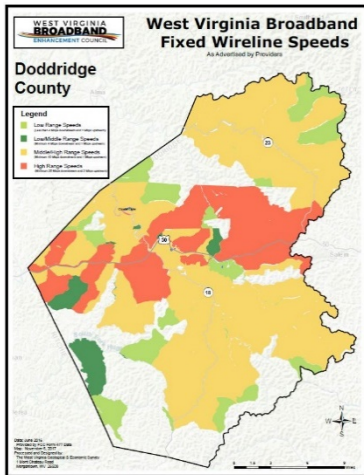
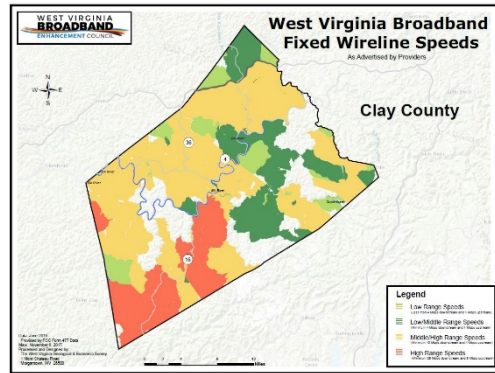
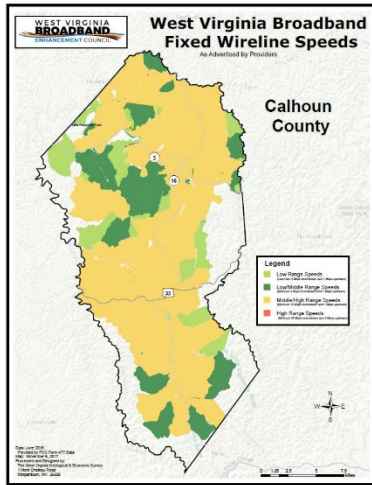
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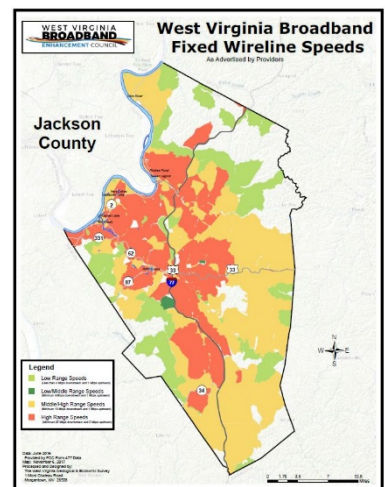
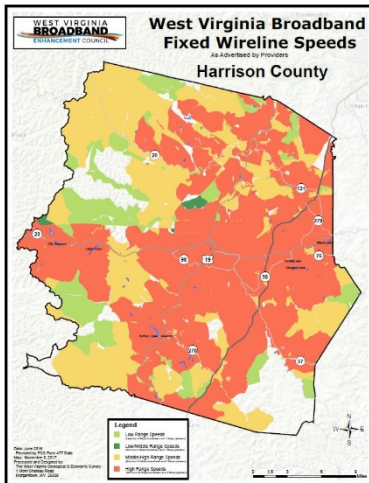
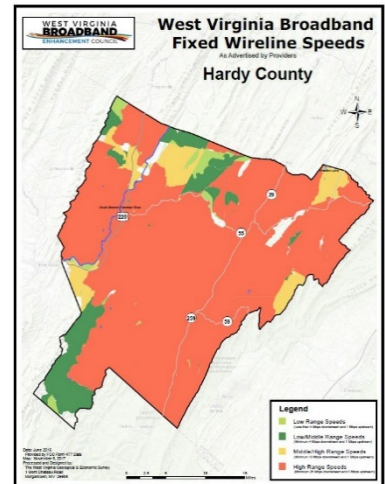
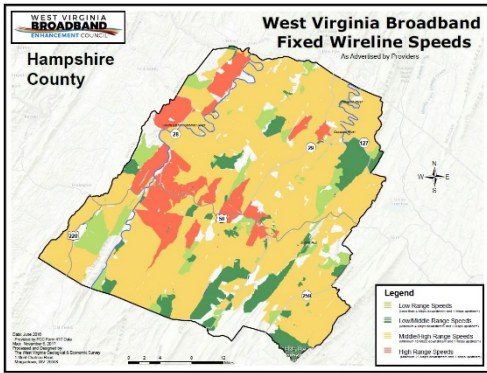
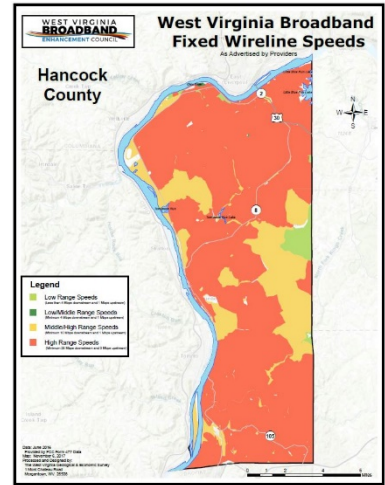
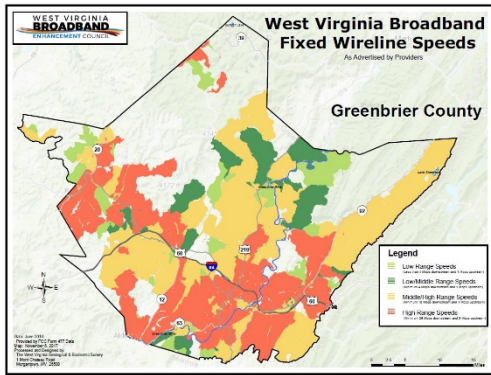
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- Low/Middle Range Speeds  
(Minimum 4 Mbps downstream and 1 Mbps upstream)
- Middle/High Range Speeds  
(Minimum 10 Mbps downstream and 1 Mbps upstream)
- High Range Speeds  
(Minimum 25 Mbps downstream and 3 Mbps upstream)

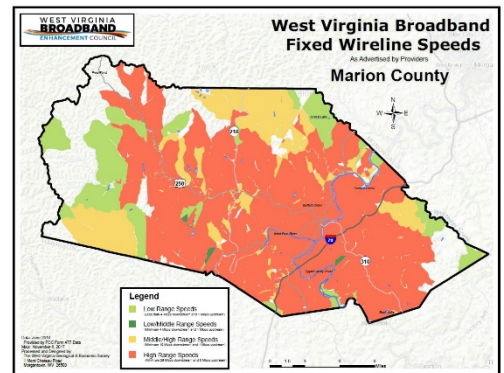
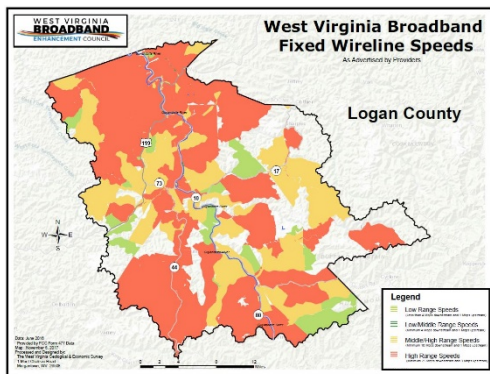
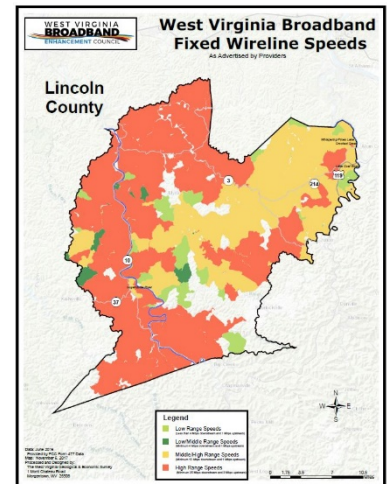
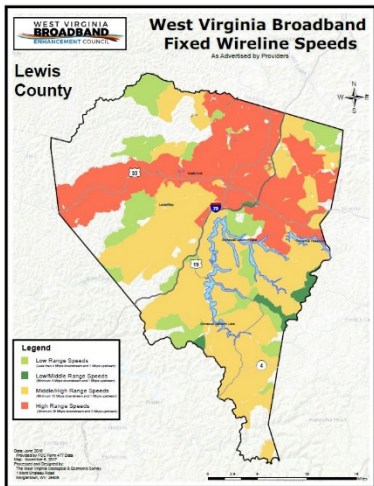
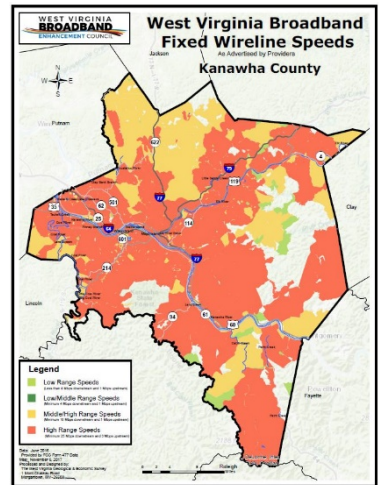
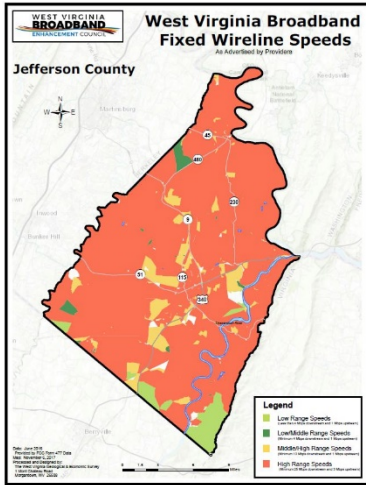
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 Provided by FCC Form 477 Data  
 Map: November 6, 2017  
 Processed and Designed by  
 The West Virginia Geological & Economic Survey  
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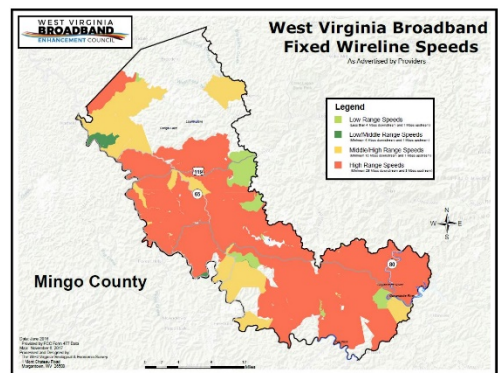
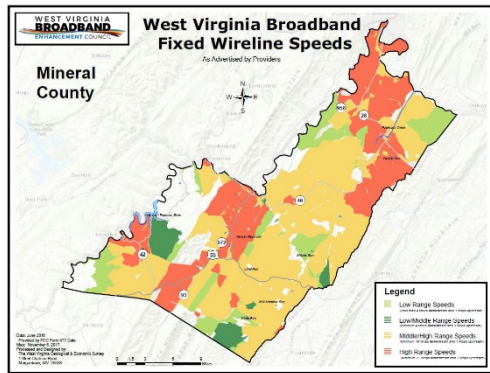
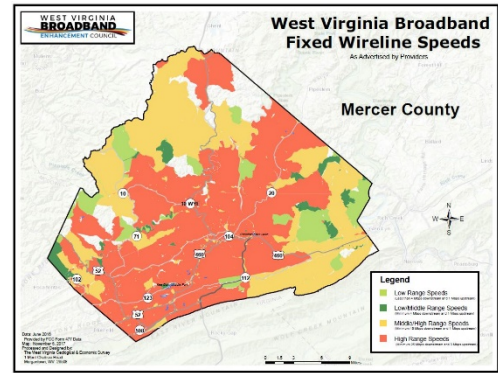
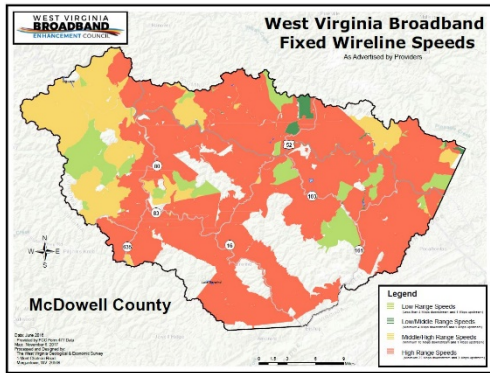
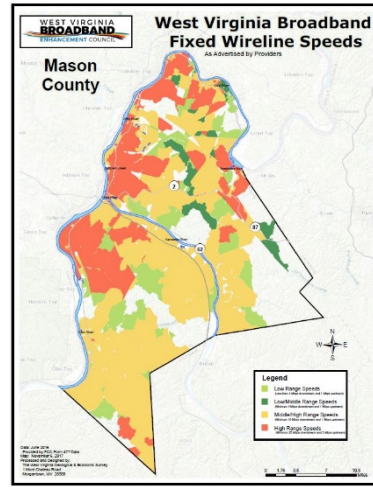
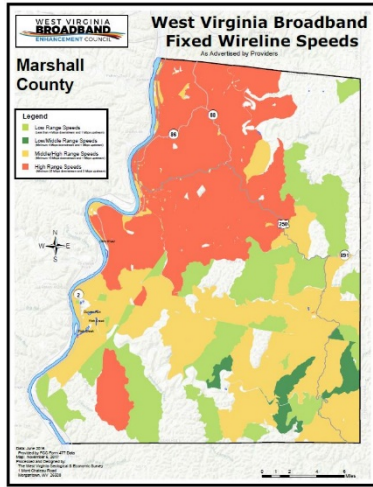
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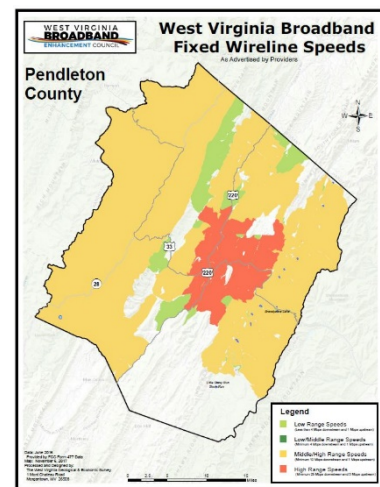
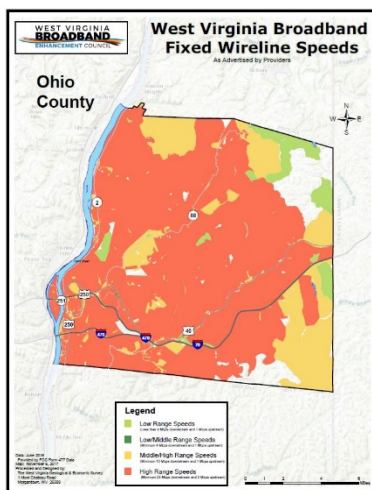
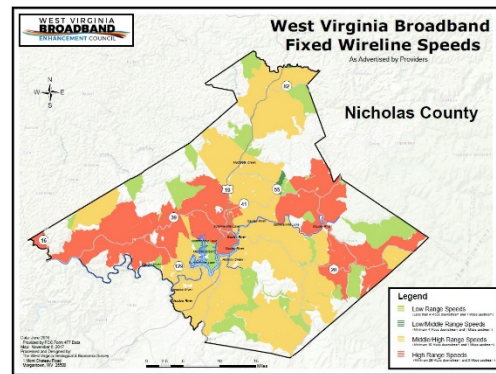
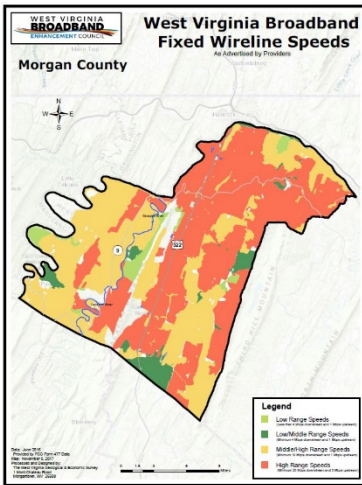
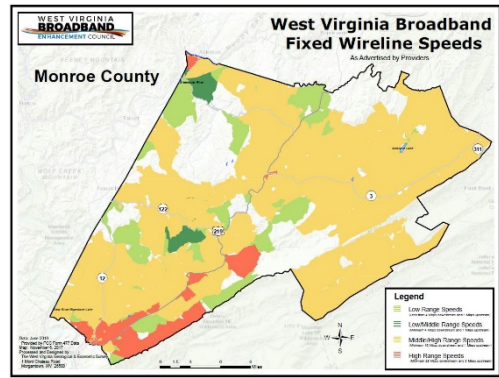
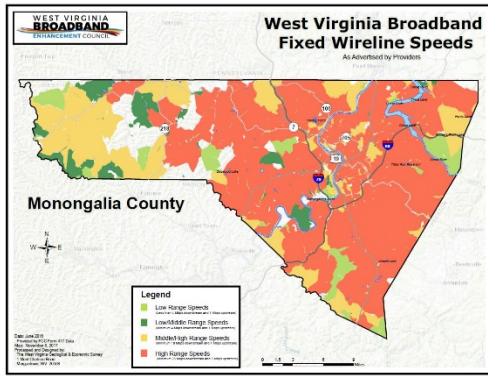




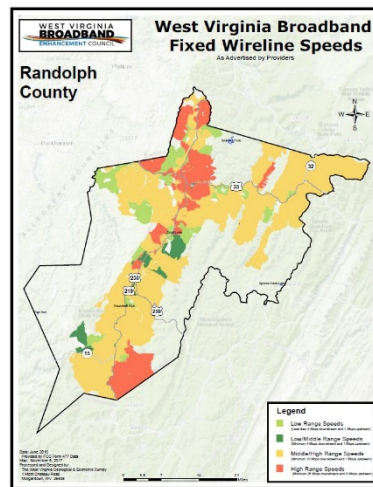
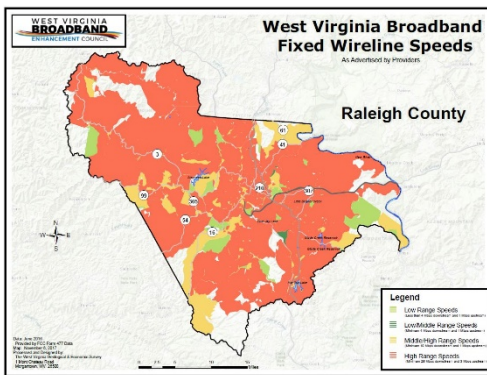
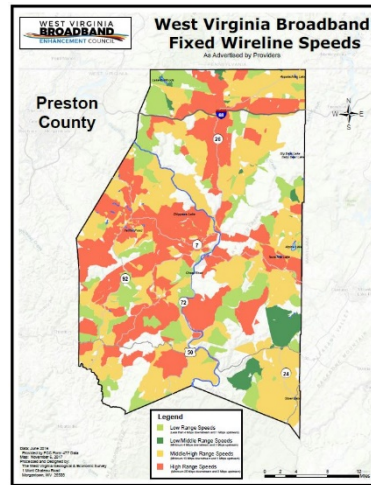
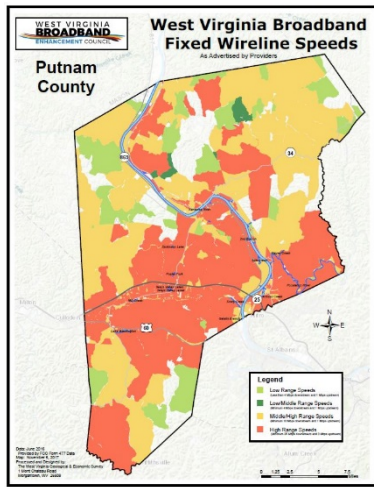
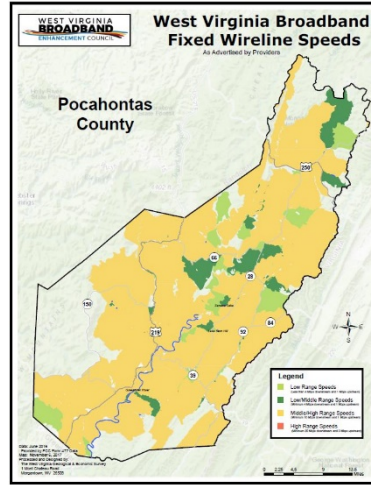
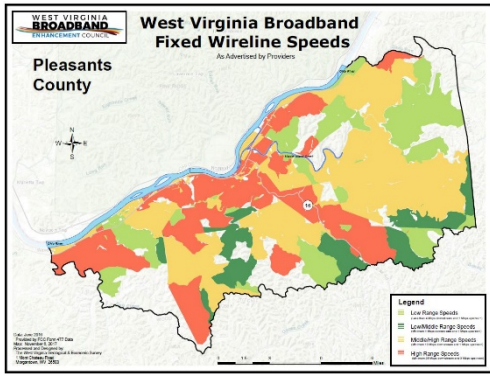


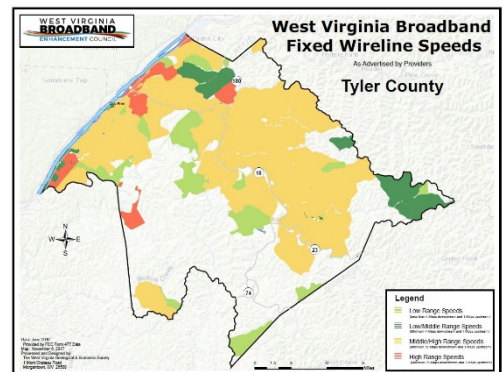
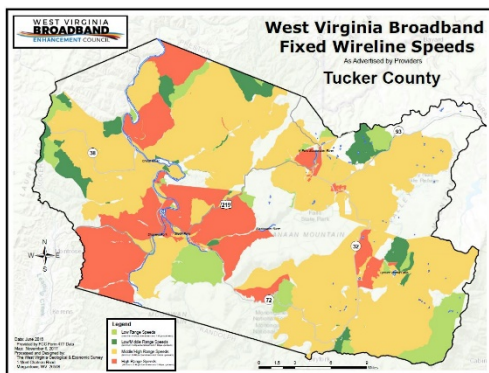
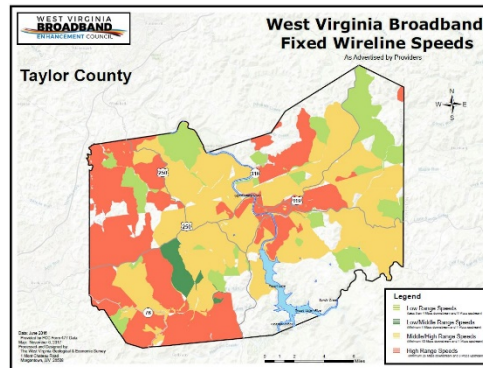
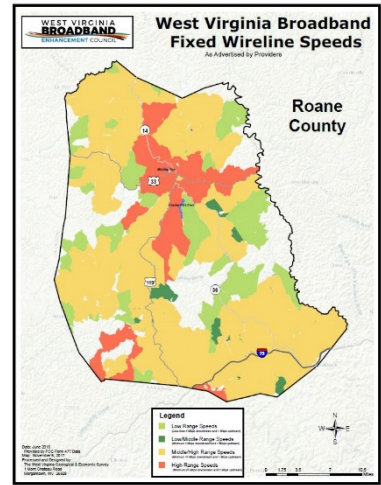
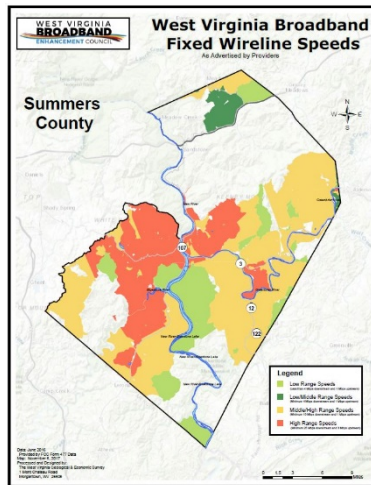
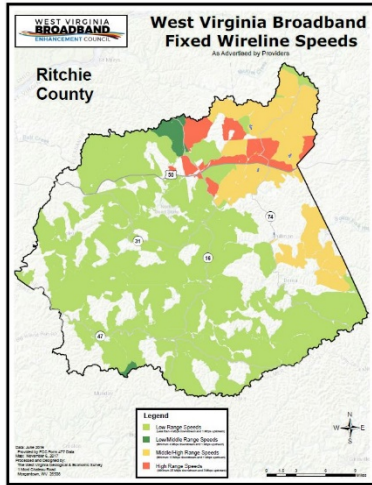


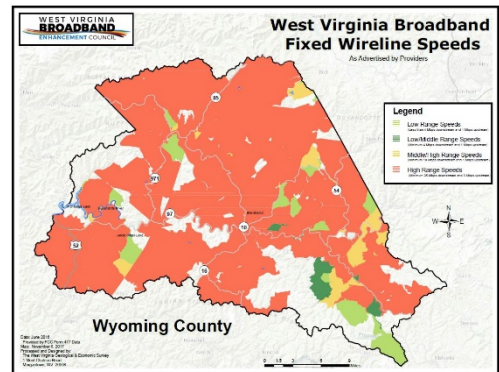
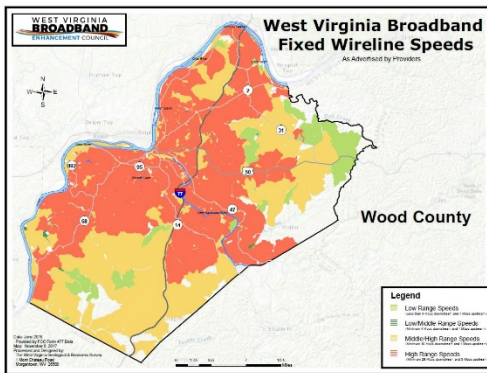
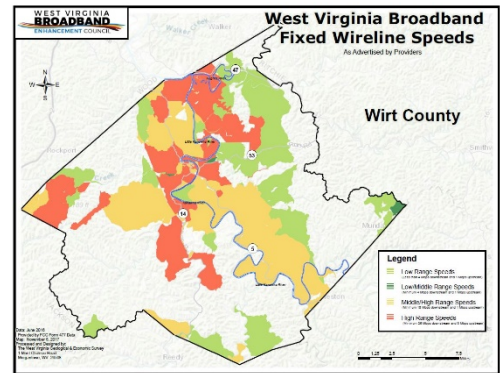
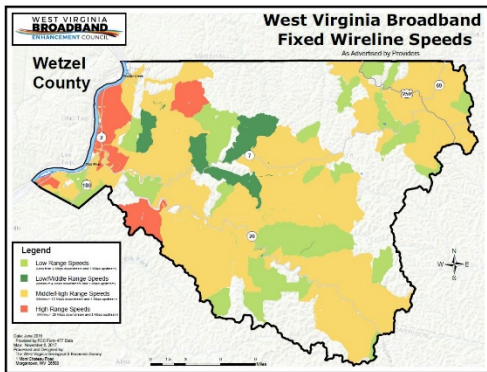
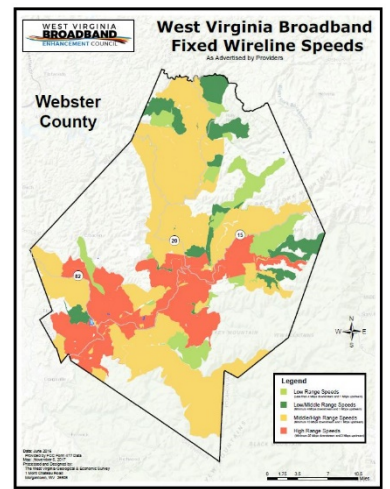
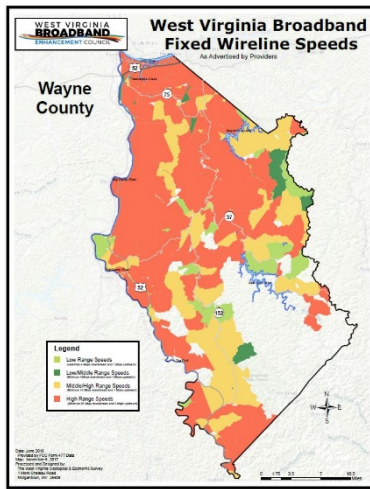
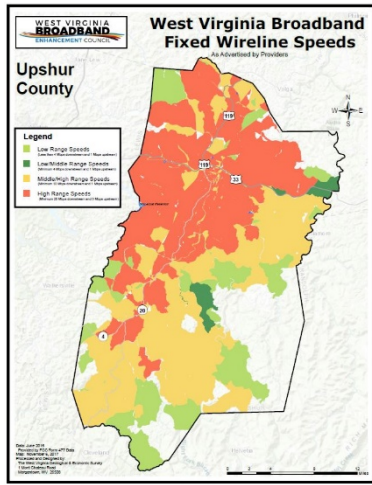














## Appendix C

# 2017 Council Comments to the Federal Communications Commission (FCC)

### 1. FCC Wireline Infrastructure

*Notice of Proposed Rulemaking, Notice of Inquiry, WC Docket 17-84.*

### 2. FCC Connect America Fund II

*FCC Connect America Fund Phase II: Public Notice for Competitive Bidding Procedures, and Certain Program Requirements for the CAF II Auction (Auction 903), WC Docket No. 10-90.*

### 3. FCC Form 477 Data Program

*Modernizing FCC Form 477 Data, WC Docket No. 11-10; Document Number 2017-17901.*



*State of West Virginia*

*Jim Justice*  
*Governor*

H. Wood Thrasher, Cabinet Secretary  
DEPARTMENT OF COMMERCE

www.wvcommerce.org  
(304) 558-2234

May 23, 2017

The Honorable Ajit Pai  
Chairman  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

Re: Filing of Comment by the West Virginia Broadband Enhancement Council in response to the 2017 Wireline Infrastructure NPRM, NOI, and Request for Comment, WC Docket No. 17-84

Dear Chairman Pai:

The State of West Virginia shares your belief that high-speed, high-quality broadband, especially in underserved and unserved areas, is paramount for economic development to prosper in the United States. In a rural and mountainous state like West Virginia, it is even more important that policy makers identify creative solutions that can help our citizens and businesses realize faster broadband at affordable prices.

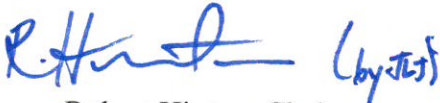
Recognizing the need to minimize barriers that impair the timely and economical delivery of high-speed internet, the West Virginia legislature overwhelmingly passed, and Governor Justice signed into law, HR 3093 during the 2017 regular legislative session. This bill made several changes to West Virginia law to improve broadband throughout the state and included a section designed to accelerate third-party access to existing power and communication poles. *See* W. Va. Code § 31G-4-1, et. seq., "Make Ready Pole Access." This new statute should improve broadband capacity in West Virginia by simplifying accessibility issues third parties routinely encounter in trying to build out their networks across existing wireline infrastructure. It will take effect on July 7, 2017.

The Honorable Ajit Pai  
May 23, 2017  
Page 2

Because of this recent action in West Virginia, I read the Federal Communications Commission's 2017 Wireline Infrastructure Notice of Proposed Rulemaking, Notice of Inquiry, and Request for Comment - WC Docket No. 17-84 with tremendous interest. As Chairman of the Broadband Enhancement Council, the state entity charged with advancing broadband capacity in West Virginia, I worked with my council members to support HR 3093 and the pole access program. I believe this section is responsive to your request for comment. Accordingly, I am respectfully submitting the text of this bill as part of the comments about pole attachment reform on behalf of the West Virginia Broadband Enhancement Council.

I appreciate the opportunity to comment and the Commission's support for policies to enhance broadband. If you have questions or need any additional information, please let me know how I can be helpful.

Sincerely,



Robert Hinton, Chairman  
West Virginia Broadband Enhancement Council

Enclosure

cc: West Virginia Broadband Enhancement Council





*State of West Virginia*  
*Jim Justice*  
*Governor*

H. Wood Thrasher, Cabinet Secretary  
DEPARTMENT OF COMMERCE

www.wvcommerce.org  
(304) 558-2234

September 18, 2017

The Honorable Ajit Pai  
Chairman  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

RE: Filing of Comment by the West Virginia Broadband Enhancement Council  
Competitive Bidding Procedures and Certain Program Requirements for the Connect America Fund  
Phase II Auction (Auction 903); WC Docket No. 10-90; Document Number 2017-18041

Dear Chairman Pai:

The West Virginia Broadband Enhancement Council (the "Council") is keenly interested in the Connect America Fund Phase II Auction (Auction 903) bidding procedures and processes. The Phase II Auction will award up to \$198 million annually for 10 years to service providers that commit to offer voice and broadband services to fixed locations in unserved high-cost areas.

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.

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 Federal Communications Commission (FCC) 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 2016 Broadband Progress Report (<https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2016-broadband-progress-report>). This designation threatens to bisect the State from the economic opportunities derived from high-speed broadband service.

While our residents and businesses continue to pursue high-speed, high-quality broadband, our State faces a persistent and growing digital divide. This pervasive divide, which touches numerous aspects of life, including education, health care, and employment, creates an acute hardship, especially for the most vulnerable populations in underserved and unserved communities.

To alter this situation, the Council seeks the partnership of providers that are committed to the efficient deployment of this vital economic infrastructure. As Chairman of the West Virginia Broadband Enhancement Council, I share the Federal Communications Commission's desire to, "...maximize the value the American people receive for the universal service dollars it spends, balancing higher-quality services with cost efficiencies." In this regard, partnership with providers that diligently work to deploy technology in rural areas is of paramount concern.

Because the Phase II Auction is specifically designed to select bids from providers that would deploy high-speed broadband and voice services in unserved communities for lower relative levels of support, the Council requests that maximum flexibility be granted to provide the greatest levels of competition possible. The Council is compelled to request maximum feasible deference with respect to the eligibility of census blocks, as detailed in *Section II: Minimum Geographic Bidding*.

In this regard, the Council requests that census blocks, previously claimed as part of the Connect America Fund, be granted eligibility for inclusion in the Phase II Auction if no deployment of broadband infrastructure has occurred. The Council further requests that previously claimed census blocks be granted eligibility if it can be demonstrated that the level of service delivered within those census blocks fails to meet the standard conditioned within the initial commitment of funding.

The State of West Virginia has attempted to resolve the connectivity issues that continue to confront rural residents and businesses. To this end, the West Virginia Attorney General's Office executed an Assurance of Voluntary Compliance in November 2015, in which the incumbent agreed to make a total of at least \$150 million in capital expenditures in West Virginia over a period of three years, in addition to the investments during this period from the \$180 million the incumbent expected to expend from the Connect American Fund II. This \$150 million in capital expenditures would allow the incumbent to further expand and build out its existing network to deliver internet access service at a rate of at least 6 Mbps download/1 Mbps upload, and to improve internet speed and reliability to customers receiving download speeds of 1.5 Mbps or lower.

The connectivity issues within West Virginia are extremely dynamic and challenging. Therefore, the Council requests that the FCC give special consideration to the identification of eligible census blocks. Inclusion of previously claimed census blocks will provide the opportunity for development of scalable infrastructure derived through a more competitive environment. In contrast, the lack of inclusion would render these communities to a limited future in which the digital divide will continue to grow. It is vital that the Phase II Auction casts a wide net to permit the inclusion of new technology to meet current needs without imposing restriction within these areas based upon previous inclusion in the absence of analysis of previous performance.

The Council specifically requests that the Commission allow the inclusion of previously claimed census blocks in the Phase II Auction under the following conditions:

1. Lack of construction activity within the census block claimed by Cap Rate Incumbent Providers;
2. Lack of higher-quality services with cost efficiencies. In light of the discrepancies between the service the incumbent has claimed to provide and the service the incumbent has actually provided as shown in the Assurance of Voluntary Compliance, the Council requests special consideration regarding the veracity of the incumbent's claims regarding the level of service delivered through the utilization of Connect America Funds. The Council requests that the Commission consider rescinding all eligible census blocks claimed by the incumbent and, subsequently requiring the incumbent to bid against Rate of Return Carriers under the CAF Phase II Auction in order to continue service in those census blocks.



3. Lack of minimum level of service according to the current program requirement. The Council requests a method by which the Commission would consider alternate data provided by the same. Should the Council provide sufficient evidence, deemed acceptable by the Commission, to demonstrate that previously awarded census blocks are not receiving minimum level of service of 10:1 Mbps, the Commission may consider a petition by the Council to consider inclusion of the census blocks group for Phase II Auction eligibility.

The Council respectfully requests consideration of the comments provided in this letter, with particular attention to, and consideration of, concerns regarding previous performance as indicted above.

It is noted that the Phase II Auction, scheduled to begin in early 2018, will be the first auction to award ongoing high-cost universal service support through competitive bidding in a multiple-round, reverse auction. The auction is designed to select bids from providers that would deploy high-speed broadband and voice services in unserved communities for lower relative levels of support.

The Council has observed that multiple providers are willing to deploy service within the parameters described above. This willingness is the critical aspect of service delivery that reaches West Virginia's small- to medium-sized communities and rural areas. It is the Council's position that multiple providers will create a more robust Phase II Auction process, in contrast to an allocation or initiative involving a single provider.

The State has taken steps to create an environment in which multiple providers can effectively reach new service areas through the passage of legislation in early 2017. As a result, the State is well positioned to exercise the degree of oversight necessary to execute projects in a manner that serves the needs of its residents. We request that the Commission support the State's effort to achieve significant progress in the expansion of high-speed broadband service.

It is my sincere hope that these comments are useful to you in the deliberation of the procedures and processes associated with the Phase II Auction.

I appreciate the opportunity to comment, as well as the Commission's support of policies to enhance broadband in West Virginia. If you have any questions, or if I may be of assistance, please do not hesitate to contact me.

Sincerely,



Robert Hinton

Chairman

West Virginia Broadband Enhancement Council

cc: West Virginia Broadband Enhancement Council



*State of West Virginia*

*Jim Justice*  
*Governor*

H. Wood Thrasher, Cabinet Secretary  
DEPARTMENT OF COMMERCE

October 6, 2017

www.wvcommerce.org  
(304) 558-2234

The Honorable Ajit Pai  
Chairman  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

**Re: Filing of Comment by the West Virginia Broadband Enhancement Council  
Public Notice for Modernizing the FCC Form 477 Data Program  
WC Docket No. 11-10; Document Number 2017-17901**

Dear Chairman Pai:

Thank you for soliciting comments concerning the Modernization of the Federal Communications Commission Form 477 Data Program. Your efforts to improve this process are encouraging and have the potential to expand access to high-capability broadband services throughout the State of West Virginia. The West Virginia Broadband Enhancement Council (the “Council”) is committed to pursuing broadband development on behalf of the State. The comments provided herein represent the Council’s commitment to this important endeavor.

The residents of West Virginia rely on the Commission for accurate data. As such, the Council requests that the Commission consider revisions to the Form 477 Data Program to protect the trust placed in government agencies with respect to the validity and accuracy of data related to the provision of broadband service.

The Council appreciates your commitment to the continuous improvement of policies and procedures that profoundly affect residents and businesses within the State of West Virginia.

The Council works closely with the West Virginia Office of GIS Coordination (WVGIS). In a partnership with the Council, the WVGIS will provide responses to the technical considerations associated with this Public Notice under separate cover.

The Council maintains that the careful and strategic evaluation of all available data is critical to broadband development. Therefore, the Council respectfully requests the consideration of the Commission in its evaluation of the comments provided in this letter.

The State of West Virginia has a unique perspective on broadband deployment in underserved and unserved areas. Our experience has shown how crucial reliable and accurate data becomes when providing internet access to disparate geographic areas. In this regard, the Council seeks partnership with the Commission, state and local governments, broadband providers, businesses, residents, and other stakeholders.

On behalf of the Council, I appreciate this opportunity to comment, and for the Commission's continued support of initiatives designed to enhance broadband service, particularly in rural locations like those found throughout the State of West Virginia.

Following are the priority comments of the West Virginia Broadband Enhancement Council:

**I. The West Virginia Broadband Enhancement Council Requests that the Commission Collect Address-Level Data to Ensure and Enhance Broadband Access. The Lack of Address-Level Data Inhibits and Restricts the Ability of the Council and Other State Agencies to Meet Their Own Responsibilities to Ensure and Enhance Broadband Access.**

The Council requests that the Commission begin to collect to support the accurate assessment of existing service, and to facilitate the reasoned expansion of service based upon a thorough analysis of need. The lack of address-level data inhibits and restricts the ability of the Council and other State agencies to meet their own responsibilities to ensure and enhance broadband access.

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

The Council requests that the Commission specifically consider the most "rural, insular, and high cost" consumers through a more rigorous and detailed approach to its Form 477 data.

The Council notes that the current method of data collection and assessment does not adequately measure rural, insular and high cost areas when data from these areas is aggregated within a census block that also includes urban, concentrated, and lower cost consumers in neighboring communities. In essence a yes or no answer derived through the status of a census block does not adequately represent the hopes, dreams and aspirations of the individuals who live, work and learn in a particular neighborhood.

The Commission can more adequately address the needs of neighborhoods throughout West Virginia by collecting Form 477 data on subscriptions and service availability at the address level, instead of at the census block level. All providers have address level data on their current and potential subscribers. Indeed, providers could not maintain their facilities and bill for their services without keeping address level records. Providers also use addresses both to respond to requests for service from potential subscribers and to send direct mail advertisements. Accordingly, providing address-level data to the Commission should not pose an undue burden for providers, and there should be no claim that it is not possible to comply with this requirement.

The Council also request the assistance of the Commission in its obligation of 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 observes that census block data reporting has produced an inaccurate and increasingly misleading picture of current broadband deployment in the State of West Virginia.

The Council asserts that census block data masks the persistent lack of service and the growing divide between unserved and underserved 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.

Requiring address level data would reveal all unserved and underserved Americans and also provide data that the Commission, State agencies, and State attorneys general can more readily verify. While providers may have little interest in revealing the areas that remain unserved and underserved, the Council sees no basis for forgoing the benefits of requiring providers to report address-level data.

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

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

The Commission has experience in detecting and preventing redlining practices, and the incentives for providers to engage in the practices underlays many of the Commission's policies and decisions as well as Congress's decision to impose the universal service mandate on the Commission.

Requiring the reporting of address-level data will allow the Commission, State agencies, and State attorneys general to detect suspicious patterns of deployment and service availability and to take appropriate remedial action. Reporting will also serve to deter redlining practices.

The Commission, 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.

## **II. The Commission Should Accept Actual “On-the-Ground” Service Data or Alternate Datasets from State Agencies That Are Based on Speed-Test Results Collected from the Public.**

As the Commission 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 similar State agencies, are eager to provide the Commission address-level data on speed-test results obtained from the public. The Commission can and should receive this data and incorporate it with address-level 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 allows the user 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 user then follows prompts with directions for conducting a speed test.

These 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 directly to the Council.

Incorporating on-the-ground speed test results will discourage and assist in correcting 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 an incumbent provider over its failure to deliver the service level promised to its customers. The Council encourages the Commission 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.

The Council is aware that other federal agencies accept alternative forms of data. To ease the burden on the Commission, the Council and other State agencies can summarize and coalesce data in a format deemed acceptable by the Commission. For example, the Commission can request data identifying addresses for which a State agency has data indicating that service is underperforming provider claims and representations to the Commission, or, alternatively, average speed-test results over the reporting period for each address.

### **III. Mobile Data Should Receive the Same Treatment as Fixed-Technologies Data.**

The Council encourages the Commission to ensure that data on mobile data and fixed-technologies data receive the same treatment under the Form 477 program. This request expressly includes the level of detail, as well as the timing and scope of publication and dissemination of the data.

As a part of the Commission's obligation to reach reasoned decisions, the Council requests that the Commission treat like cases in a uniform manner unless it has an adequate basis for disparate treatment.

Accordingly, the Commission should follow through on its proposal to publish data on mobile broadband speeds that it already gathers as part of Form 477. This would treat mobile providers the same as their non-mobile broadband-provider counterparts. Likewise, the Commission should provide mobile data when it provides fixed-technologies data, since the data are collected at the same time and are most useful when analyzed in tandem.

### **IV. Satellite Data Should Reflect As-Built Availability.**

The Council encourages the Commission to ensure that its satellite data reflects real-world, as-built availability so that the Commission can identify Americans who are entirely unserved. Satellite providers can obtain this data by using line-of-sight propagation analysis that considers both satellite positioning and digital terrain elevation models. This would allow for identification of areas the providers can serve. Relying on satellite data alone means that the Commission cannot accurately determine the presence of service.

Accordingly, the Commission should either refrain from making either service-availability or competition judgements that rely solely on satellite data, or Commission should require providers to submit data that reflects real-world, as-built availability.

### **V. State Broadband Agencies, Councils and Authorities, and State Attorneys General Should Have Full Access to Data.**

The Council strongly encourages the Commission to provide State broadband agencies, councils and authorities, and State attorneys general with full access to all the data collected in the Form 477 program. Full data sharing will leverage the Commission'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 them to submit a single uniform data set to the Commission for all of the States in which they operate.

Specifically, unrestricted, full access to Form 477 data will allow States to enforce their unfair or 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 Commission's powers.

Filing of Comment on Proposed Rule  
By the West Virginia Broadband Enhancement Council  
Modernizing the FCC Form 477 Data Program, Document Number 2017-17901  
October 6, 2017

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 Commission should provide full access to data to assist their efforts.

To truly provide leverage while reducing duplication, the Commission 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 Commission does not provide it.

#### **VI. The Commission Should Maintain Semi-Annual Reporting.**

The Council strongly discourages the Commission from reducing the frequency of Form 477 data publication. Any eased burden on providers will be offset by the reduced benefits of semi-annual reporting. The Council recognizes that Form 477 data is among the Commission's most important data sets, which the Commission and others rely on every day to make important decisions affecting millions of Americans.

Reducing the timeliness and accuracy of that data by moving to annual reporting would make it less useful and accurate and would do no more than require providers to create individual reports somewhat less frequently. Thus, the costs of reducing the frequency of collection and publication of Form 477 data would significantly outweigh the benefits.

In conclusion and behalf of the West Virginia Broadband Enhancement Council, I appreciate your consideration of the comments provided in this letter. The Council values partnership with Commission in the determination 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  
West Virginia Broadband Enhancement Council

RH:kw

cc: West Virginia Broadband Enhancement Council



# STATE OF WEST VIRGINIA

DEPARTMENT OF COMMERCE  
OFFICE OF GIS COORDINATION

1900 KANAWHA BOULEVARD, EAST  
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"Mapping the Mountain State"



JIM JUSTICE  
GOVERNOR

TONY SIMENTAL, MS, GISP  
GIS STATE COORDINATOR

October 6, 2017

The Honorable Ajit Pai  
Chairman  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

**Re: Filing of Comment by the West Virginia Office of GIS Coordination  
Public Notice for Modernizing the FCC Form 477 Data Program  
WC Docket No. 11-10; Document Number 2017-17901**

Dear Chairman Pai:

Thank you for the opportunity to comment on the Modernization of the Federal Communications Commission Form 477 Data Program. Your efforts to improve this process are encouraging and have the potential to facilitate the expansion of access to high-capability broadband services throughout the State of West Virginia, and throughout the nation.

The West Virginia Office of GIS Coordination (WVGIS) understands the substantial impact of this notice of proposed rulemaking in terms of its subsequent and resulting requirements. The WVGIS is optimistic that existing policies will be adjusted to facilitate the expansion of access to high quality broadband services throughout West Virginia through the availability of more accurate data.

Previous planning and mapping efforts have proven that reliable and accurate data is crucial to our mission to provide broadband to underserved and unserved areas. Better data collection will result in better understanding of broadband access in West Virginia and the throughout the nation, when this data is made available to and utilized by policy makers, stakeholders, funding agencies and providers.

The WVGIS maintains close affiliation with the West Virginia Broadband Enhancement Council (the Council). It is through this work with the Council that the WVGIS has a thorough understanding of the limitations of current data reporting methodology. The WVGIS is committed to ensuring the accuracy of data. Given the public reliance upon government entities to provide accurate and reliable data, the importance of accurate data cannot be overstated.

The technical comments provided herein offer responses to the specific technical considerations of the Commission in its mission to expand broadband service to unserved and underserved areas. The WVGIS supports this mission and is uniquely qualified to directly address these considerations.

The WVGIS appreciates the Commission's continued support of initiatives designed to enhance broadband service, particularly in the State of West Virginia, where lack of reliable service remains, especially in rural areas.

The WVGIS understands the challenges associated with the Form 477 Data Program and offers specific solutions to these challenges. Responses in this document are numbered according to those



provided in the Notice, as follows:

**3. *In undertaking this examination of the Form 477 data collection, one of the primary objectives is to ensure that the data the Commission collects are closely aligned with the uses to which they will be put, both by the Commission and by outside stakeholders.***

The West Virginia Office of GIS Coordination (WVGIS) affirms that state broadband agencies, councils and authorities, and state attorneys general offices should be granted access to the data, including the Universal Service Administration Company's (USAC) Broadband Deployment Data by State, currently available only to State Utility Commissions.

**4 through 7. *Enhancing the Current Data Collection as it relates to mobile broadband service and the actual consumer experience.***

The WVGIS maintains that requiring providers to submit data on a sub-census block level is crucial to understanding and evaluating gaps in coverage, especially in rural areas where census blocks can be quite large. In this regard, data should be made available for mobile and fixed technologies in the same formats. The publication of mobile broadband speeds that are already being gathered as part of Form 477 data collection process would ensure that mobile providers are treated equally relative to non-mobile broadband providers that currently must report this information.

**8. *Should the Commission require filers to use predictive propagation models to prepare their Form 477 deployment filings?***

In a mountainous state such as West Virginia, requiring the submission of standardized propagation models for 4G LTE and later-generational technologies would allow detailed analysis by stakeholders. While a standard methodology for determining mobile and fixed wireless broadband coverage (signal propagation) is desirable, it may prove to be a difficult or burdensome requirement. In this case, filers should be required to describe the methodology employed to arrive at the coverage areas that they are reporting.

The Commission should consider guidance for best practices for both mobile and fixed wireless service modeling so that data users can see propagated models that reflect the actual coverage area and speeds available to the consumer. The specified speeds should at minimum include tiers at two Mbps intervals. The WVGIS believe the edge should be four Mbps. Most of the current funding opportunities provided by the Federal government require or include this speed as the baseline when defining unserved, underserved and served areas. An upload of one Mbps would be compliant with funding opportunities mentioned above.

All speeds should be made publicly available to inform policy and funding decisions, and to not give preference to broadband service providers according to the types of technology they have deployed. Access to USAC's Broadband Deployment Data by State intended for public utility commissions should be expanded to state agencies that are required by state statute to submit reports to their Legislatures, as is the case in West Virginia.

**10. *Supplemental Data Collections with On-The-Ground-Data.***

The WVGIS asserts that collecting this data would not create nor add additional efforts for providers as this data is already collected. Because this data is used to inform funding decisions, the Commission should develop a data verification standard for each applicable technology to ensure the broadband service data is accurate.

**11. *Incorporation of New Mobile Wireless Technologies.***

The Commission should consider collecting 5G data when services are being deployed or offered in conjunction with a data package. Accordingly, 5G is a technology that offers higher speeds and it should not be bundled with other technologies. The existing form should be designed for 5G mobile data to be collected when that technology is implemented. However, the form should be somewhat open ended to allow providers to describe speeds and technologies utilized as the Commission determines an appropriate standard.

**12. *Mobile Satellite Broadband Service.***

Requiring a view-shed propagation analysis of satellite services should be mandatory. This analysis would consider satellite position in the sky and the use of the latest digital terrain elevation model for the area of service. If the Commission determines that this is a burden then it should at the very least require data related to provider's satellite actual position in the sky so the Commission and, policy makers, and researchers can perform the view-shed propagation studies.

**13. *The 2013 Form 477 Order, while modernizing the data collection generally, also ensured that, for the first time, the Form 477 data collection would require the submission of mobile broadband deployment data.***

This requirement should remain.

**14. *Under the current Form 477 reporting framework, facilities-based providers of mobile wireless broadband service are required to submit shapefiles depicting their broadband network coverage areas for each transmission technology deployed in each frequency band.***

The fact that the Commission has not used the spectrum band information it has collected does not demonstrate the need to eliminate the requirement. This does, however, demonstrate the need for the Commission to include this information in its coverage analysis.

**15. *The Commission proposes to eliminate the requirement that mobile broadband providers submit their broadband deployment data by spectrum band.***

Collecting spectrum data in different shapefiles would not create nor add additional efforts for providers as they already collect this data as part of their business.

*Moreover, currently the Commission is not aware of any significant purpose for which these data might be used, although the Commission seeks comment on whether to continue to collect these data as they might be helpful for analysis in future proceedings.*

The question would be how the Commission, policy makers, and other researchers would be able to connect the list to a "single" shapefile.

*Would this approach be less burdensome than the requirement to submit shapefiles for each spectrum band, particularly for smaller providers?*

No, this data is already captured.

*Would this approach be beneficial by providing data that would allow the Commission to track more easily new spectrum deployments?*

If the Commission requires one shapefile with bundled spectrums, the Commission would not be able to track new spectrum deployments.

*Would it, for instance, provide a valuable source of information regarding the timing and*

*provision of LTE on 3.5 GHz spectrum as well as the deployment of 5G services in the various low, mid, and high spectrum bands?*

Spectrums should not be bundled together.

**16. *Additionally, the Commission seeks comment about whether to eliminate or modify the requirement that mobile broadband providers report coverage information for each technology deployed in their networks. Are these categories defined and distinct enough to ensure accurate and meaningful reporting?***

Yes.

*Are the distinctions between categories, such as 4G versus 5G, clear enough for the data to be meaningful and for respondents to accurately submit data?*

Yes.

*Will the Commission need to specify which technologies correspond to which category?*

Yes.

*Currently, the Form 477 instructions set out specific technology codes for nine different mobile technologies. In the Commission's experience, the separate reporting of coverage information by every one of these nine specific mobile technologies has not added useful information for the purposes of Commission decision-making, and such information is not currently used in its analysis of the data received. The Commission seeks comment on whether eliminating the requirement or modifying the information required to be reported in this manner would be a significant reduction in the filing burden.*

*As the Commission continues to collect broadband coverage data through the Form 477 process, the reporting of mobile broadband coverage information should be simplified using categories more directly aligned to consumer understanding of available coverage and their actual user experience, with specific designations for 3G, 4G Non-LTE, and 4G LTE. However, the data should be accompanied by speed data. The Commission should also specify which technologies fit into each category so that data users can understand the data collection method.*

- a. In addition to speed, the Commission should consider other factors, including the type of technology, latency, cost, competition, data caps and potential usage. It is suggested that the Commission create an Availability Index, using data points listed below, to determine access and reasonable deployment.
- b. Infrastructure or type of technology
- c. Latency, whether low, middle, or high, based upon technology averages
- d. Cost
- e. Competition and its effect on innovation and affordability
- f. Data caps
- g. Potential Usage (videos, number of devices)

Creating an index would give a more accurate diagnosis of the county's broadband health. This may be more comprehensive than determining access, but it would more accurately assess the deployment of broadband and not just internet access or access to a speed threshold. How valuable is access if the cost of service is prohibitive and only one provider serves the location?

**17. *The Commission turns next to its consideration of mobile broadband service availability data. Currently, mobile broadband providers are required to submit data where their service is “available.”***

This also creates a false sense of where service is available.

**18. *The Commission's experience with the collection of this information, however, has shown that the mobile broadband service availability data that providers submit generally do not reflect their local retail presence.***

The Commission should require providers to submit their real 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

**19. *The Commission seeks comment about how the Commission might revise its data collection on the deployment of mobile voice services.***

These requirements should not be changed.

**20. *The Commission continues to view the collection of mobile voice deployment data as important for tracking changes in the mobile landscape and informing the Commission's analysis of mobile voice services that are available to consumers.***

Technology and spectrum band determine the level of service a consumer receives.

***Is the distinction between voice and broadband coverage significant, or do providers most often include mobile voice coverage wherever they have some form of broadband coverage?***

Yes, the distinction between voice and broadband is still significant.

***If providers include mobile voice coverage wherever they have broadband coverage, should the Commission revise its requirements to allow providers to simply check a box indicating that they provide voice coverage wherever they have a particular mobile broadband technology?***

No, voice coverage should be kept separate.

***How would the Commission account for areas in which a provider provides only mobile voice services?***

In support of public safety and rural economic activity, it is still valuable to gather coverage information for service categories below 3G that support voice and/or texting. This data should include geographic data on where these services are available.

**24. *While the Commission's 2011 Form 477 NPRM, 76 FR 10827, February 28, 2011, raised the issue of requiring mobile subscribership reporting at a more granular level, the 2013 Form 477 Order did not change the state-level reporting requirement.***

Providers should be required to list the number of subscribers on any given census block. The CSV should include a field that indicates the number of subscribers in that census block.

**25. *Would collecting subscribership data at the census-tract level be sufficient to improve the quality of the Commission's data on subscribership?***

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 also assist in assessing broadband adoption levels. Counts should be publicly reported as a

total across all providers, both 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 true level of service and competition for Universal Service Fund decisions.

**28. *Should the Commission require filers to report the maximum bandwidths of business service offered in a given census block and indicate whether the service is best efforts and/or contractually guaranteed?***

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 Commission should also require reporting the number of businesses served within a census block.

**30. *It seeks comment on whether all fixed broadband providers should be required to identify on Form 477 three categories of service areas for each technology code: (1) Areas where there are both existing customers served by a particular last-mile technology, and total number of customers using that technology can, and would, be readily increased within a standard interval upon request; (2) areas where existing customers are served but no net-additional customers using that technology will be accommodated; and (3) areas where there are no existing customers for a particular technology but new customers will be added within a standard interval upon request.***

A fourth and fifth category would complement the ones mentioned above. This would include the number of current subscribers in that census block, and the number of customers using the technology that would readily increase within a standard interval upon request. This would only require two additional fields in the CSV.

**34. *Should the Commission assume that the fraction of a partially served block with the service correlates with a fraction of homes within that block that have service?***

Despite the difficulties with collecting street-level or specific location data from providers, an attempt should be made to collect more granular data from providers. If the current collection methods remain the same the providers should state the number of locations they are capable of serving. A more statistically accurate calculation could then be made using Census household data.

If the Commission decides to continue gathering data at a census block level it should require that providers list a census block as served based on a percentage of possible customers within the census block. For instance, census blocks where at more than 75 percent of possible homes and businesses are served it should be marked as served. Census blocks within a range of 40 percent of possible customers served to 75 percent of possible customers are served could be marked as underserved. Census blocks where less than 40 percent of the possible customers subscribe could be marked as unserved.

Accurate data collection is crucial to evaluating and encouraging the expansion of broadband services. Programs administered by the Commission, the National Telecommunications and Information Administration (NTIA), the U.S. Department of Agriculture (USDA) and other federal and state agencies rely on the accuracy and precision of mapping data. The Commission should consider refining its broadband data collection processes to meet the needs of funding and

planning efforts at all levels of government.

Basing data collection, planning efforts, and funding decisions on census blocks under the current methodology is problematic. This is particularly damaging in large, rural census blocks with challenging terrain. These characteristics present challenges in states like West Virginia. Under the current Form 477 submission process, any census block that is partially covered would be ineligible for all federal broadband programs, even if only a small percentage of households or census block area is covered.

It is strongly suggested that the Commission work with providers and state broadband mapping programs to coordinate data collection and mapping efforts 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.

The difficulty found by stakeholders that have no GIS capabilities when trying to assess broadband service in their community points to the need of updating of the National Broadband Map.

Other data deficiencies exist with the current Form 477. Among the most notable are the length of time between receipt and publishing, and the preferential treatment given to mobile wireless service providers by not publishing speed data. This makes it difficult for state and local planning entities to evaluate local broadband needs. The Commission should work with states to display more refined data when available on the National Broadband Map.

***35. The Commission also seeks comment on collecting data at a sub-census-block level. While collection of data by street address, for example, could increase the complexity and burden of the collection for both the Commission and the filers, the Commission seeks comment on the scope of this burden and potential corresponding benefits.***

The State of West Virginia maintains statewide datasets that could be used by providers when submitting more granular data.

The National Emergency Number Association (NENA) in conjunction with other geospatial organizations and the Commission have been working on the development of a national address dataset in preparation for NG911 and FirstNet. The U.S. Department of Transportation is partnering with other federal agencies, and professional organizations in the development of a National Address Database. In addition, the U.S. Census Bureau is currently working on the 2020 Census and as part of that it's working with all states and territories on its Local Update of Census Addresses Operation (LUCA) initiative. These efforts could be leveraged by the Commission to obtain more granular data.

Address formatting should be based on the NENA standard. This standard was developed to meet NG911 and FirstNet needs and includes a three-dimensional (3D) data-point standard for multi-family and multi-level dwellings.

***36. As an alternative, the Commission seeks comment on whether it should require providers to geocode all the addresses at which service is available?***

- a. If the address has not been identified with a lat-log, providers will have the same geocoding problem as the Commission when locating those addresses.
- b. Both methodologies would work. But field gathered lat-log tied to the NENA addressing standard would be more accurate.
- c. If the NENA addressing standard is followed this problem would be minimized.
- d. In the case of fixed wireline providers, they should. This is somewhat difficult when dealing with mobile because billing may go to a P.O. Box and not to a fixed address in some rural areas.
- e. If providers follow the same standard, there should not be a problem

***37. The Commission also seeks comment on other sub-census block alternatives, such as collecting data about what street segments providers cover.***

Though street segments with address ranges would be beneficial because they would allow the understanding of service availability, the well-articulated precision issues mentioned in this section of the FNPRM, the use of road centerlines to express broadband service availability would be a cumbersome and otherwise mediocre solution at best. Street segments were used by States while developing their own State Broadband Initiative mapping programs funded by NTIA. Though street segments were collected only for those census blocks larger than two square miles. Since fixed providers have their infrastructure mapped, and when providing last mile service to a home or business they in general use public streets this should not be a burden. Number of customers served and number of potential customers should also be provided for each street segment

***39 through 40. How burdensome would it be for providers to make such a determination for each block in their footprint? In sum, the Commission seeks comment on whether it should move to a more granular basis for reporting deployment data and, if so, what basis would be appropriate.***

As the Commission continues to mandate provider reporting of broadband services through Form 477, the requirements, reporting process, and publishing timeframe should be streamlined to ensure the maximum benefit to industry and citizens, with minimum expenditure of resources.

The two primary map data layers that are most valuable to informing consumer experience, setting strategy, and managing investment to expand broadband capabilities are:

- a. The providers' current capabilities (coverage, speed and technology), and
- b. The precision location of unserved/underserved address points.

Taken together, these layers should emphasize last mile connections to locations where broadband service is not yet at expected levels.

The Commission should consider sustaining this dataset overtime, and should inventory address point locations that have been upgraded to meet national service level goals.

As part of their business, providers know where their infrastructure is located and how fast and if they can serve a population. Consumers call providers to inquire about service availability. It can be reasonably concluded that providers are aware of the locations they can and cannot serve and the associated timeline. This collection of data to determine the number of customers served and number of potential customers in a census block should also be mandatory

The Commission should support the use of existing address data sets and work with the U.S. Department of Transportation and its partner organizations in the development of a National Address Database on the National Address Data program. The cost of obtaining address data is

an existing cost as providers know the locations of their customers. Providers also have a billing address. Therefore, the cost of collecting this data to fit a given standard should not be significant. 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/underserved points to the Commission.

***47. The Commission proposes that certain collected data that are currently treated as confidential be made public.***

This type of data should also be made available to the public, to aid in independent competitive analyses and better understand consumer experience for both mobile and fixed technologies. Maximum advertised speeds, for example, are currently marketed by providers and do not threaten proprietary information. Publicly publishing mobile broadband speeds that are already being gathered as part of Form 477 would ensure that mobile providers are treated similarly relative to their non-mobile broadband provider counterparts. This information is useful to business, government, and residents.

***48. Similarly, the Commission proposes that, if detailed propagation model parameters are submitted in the Form 477 filings, some of these parameters should be treated as public information, as the Commission believes that such parameters are not competitively sensitive.***

Terrain resolution, signal strength, and the loading factor are higher-level aggregate parameters and should not be treated as confidential as to allow replication of the results and better understanding of consumer experience and true coverage by policy makers. Propagation model results have already been made publicly available through past federal programs, specifically through the State Broadband Initiative programs and the National Broadband Map. Releasing model parameters would help federal agencies, states and other stakeholders assess data quality, consistency and broadband needs, as validating unserved areas is crucial in promoting broadband deployment in the private sector.

***49. National-Level, Fixed Broadband Subscriber Counts.***

The WVGIS believes disclosure of the information mentioned in this section will be beneficial. The disclosure will allow analysis of the data by researchers and policy makers. [Since research and analysis will surely focus on service identity of individual provider may be kept out of the public dataset.] Though someone willing to check different provider's websites would be able to determine who the provider is. Aggregation of subscriber count data within established speed tiers, perhaps using the tiers established under the National Broadband Map, would provide a useful benchmark for broadband policy considerations and a more informed market for broadband services.

This information could help assess broadband adoption levels, for example. 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 agreements, to assist in assessing competition levels for Universal Service Fund decisions.

***50. Release of Disaggregated Subscriber Data?***

Personal identifiable information (PII) if present should be left out. Individual service received by individuals should be aggregated by number of subscribers with the same service in a census block.



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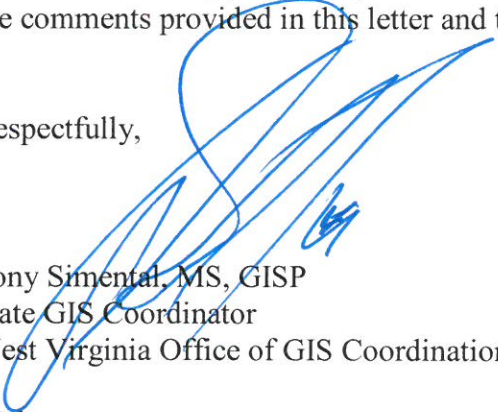
Non-disclosure agreements could be entered with researchers, state, or local entities that require additional access to conduct research related to the service offered by providers in particular areas. Regardless of the number of times the data is collected annually, the biggest issue with the timeframe is the amount of time it has taken for the Commission to release the data. Currently, the Commission has taken as long as 18 months to release data. The Commission should release broadband data within 6 months of the collection deadline.

***What would be the public interest and legal justifications for releasing or not releasing different types of raw data files?***

Non-disclosure agreements could be entered with researchers, state, or local entities that require additional access to conduct research related to the service offered by providers in particular areas. Regardless of the number of times the data is collected, the biggest issue with the timeframe is the amount of time it has taken for the Commission to release the data. Currently, the Commission has taken as long as 18 months to release data. The Commission Should release broadband data within 6 months of the collection deadline.

The WVGIS appreciates the Commission's continued support of initiatives designed to enhance broadband service, particularly in the State of West Virginia. We request your careful consideration of the comments provided in this letter and thank you for your service to the Commission.

Respectfully,



Tony Simental, MS, GISP  
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West Virginia Office of GIS Coordination

TS:kw

cc: West Virginia Broadband Enhancement Council

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