WEST VIRGINIA
BROADBAND
ENHANCEMENT COUNCIL

W. Clayton Burch, *Interim Cabinet Secretary* Robert Hinton, *Chairman*

July 16, 2018

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

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

Dear Mr. Kinkoph:

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

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

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

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

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

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

Priority Comments

1. *Identifying additional broadband availability data:*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- Address Level Data
- Centerline Level Data

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

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

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

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

4. *Validating broadband availability data:*

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

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

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

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

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

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

b. Do examples or studies of such validation exist?

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

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

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

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

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

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

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

5. *Identifying gaps in broadband availability:*

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

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

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

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

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

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

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

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

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

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

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

State Broadband Councils, Offices and Authorities

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

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

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

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

U.S. Census Bureau

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

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

National Emergency Number Association (NENA)

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

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

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

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

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

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

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

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

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

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

Conclusion

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

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

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

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

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

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

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

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

Sincerely,

Robert Hinton
Chairman

cc: West Virginia Broadband Enhancement Council