

**Before the  
DEPARTMENT OF COMMERCE  
National Telecommunications and Information Administration  
Washington, D.C.**

Notice and Request for Comment	)	
	)	
Improving the Quality and Accuracy of Broadband Availability Data	)	Docket No. 180427421-8421-01 RIN 0660-XC042
	)	

**COMMENTS OF MICROSOFT CORPORATION**

In response to the Department of Commerce and National Telecommunications and Information Administration’s (“NTIA”) Notice and Request for Comment, 83 Fed Reg. 24747 (May 30, 2018) (“Notice”), Microsoft Corporation provides the following comments in the above-captioned proceeding.

**I. Introduction**

Eighteen years ago, access to the Internet was rarely more than a DSL connection or extra capacity on a coaxial cable connection and most of the tools, web sites, and apps that we now take for granted did not exist. Today, access to a high-quality broadband connection is a necessity of modern life – it is not a stretch to say that broadband is as large of a driver of economic development as electricity or the interstate highway system. Unfortunately, many Americans, especially those located in rural areas, are stuck in the past, lacking access to broadband internet access services that so many of us take for granted. In an age of 1 Gbps+ connectivity, there is a widening gap between those with access to broadband and those

without access to broadband. And, this is impacting whether and how those without broadband access – especially those located in rural America – can participate in the global digital economy.

Identifying where unserved populations are located is a longstanding national policy goal that is taking on increasing urgency. As part of the Telecommunications Act of 1996, Congress directed the FCC to annually report on broadband availability.<sup>1</sup> To accomplish this goal, the FCC established rules to facilitate the collection of basic information from Internet service providers (“ISPs”). Over the past twenty-two years, as broadband has proliferated and tools to measure it have become more sophisticated, Congress, the NTIA, and the FCC have each contributed to improving accuracy and granularity of mapping data to assist policymakers in measuring progress, as well as identifying areas that require improvement and the investment of public resources.

These efforts include the Broadband Data Improvement Act (“BDIA”) in 2008, followed by § 6001(1) of the American Recovery and Reinvestment Act of 2009 (“Recovery Act”), and the NTIA’s State Broadband Initiative Program, ushering in by 2011 the National Broadband Map. In 2018, the Consolidated Appropriations Act of 2018 gave NTIA \$7.5 million to update the NBM in cooperation with the FCC and the state partnerships formed under the SBI Program.

Nearly two decades into the 21<sup>st</sup> Century, the imperative for accurate broadband data has never been greater. And yet, we do not have accurate maps of where broadband is available, at what speeds, prices, and quality.

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<sup>1</sup> See 47 U.S.C. § 1302(b).

## II. Microsoft's Visualization Tools Can Assist NTIA in Validating Data.

NTIA asks 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?” At the outset, Microsoft agrees with NTIA’s recent submission to the FCC in WC Docket 11-10, that the FCC should, “expand the audience for [Form 477] data by enhancing their accessibility with tables, charts and maps, granular visualization tools for both localized areas and specific technologies, and other mechanisms that summarize the information.”<sup>2</sup> Improving NTIA and the FCCs’ data by making it more accessible serves the public interest by significantly increasing accountability.

Microsoft has visualization and analytic tools that can aggregate, disaggregate, and mash up information, identify patterns and outlier submissions, and accelerate the process of cross-checking data submissions.<sup>3</sup> These tools can help users better understand broadband availability. For example, in the FCC’s Form 477 process, an online and near-real time visualization and analytics tool can reduce data input errors by showing a filer the geographic areas and corresponding analytics for census tracts and census blocks, prior to transmitting the file to the Commission.

To fulfill its obligation to Congress in this proceeding, NTIA must necessarily view third party data sets that are sometimes disparate and difficult to compare. Visualization and

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<sup>2</sup> *Ex Parte Comments of NTIA*, WC Docket No. 11-10 (Jan. 2, 2018) at p. 10; <https://ecfsapi.fcc.gov/file/1010253887875/NTIA%20Comments%20on%20Modernizing%20the%20FCC%20Form%20477%20Data%20Program.pdf>.

<sup>3</sup> For example, Microsoft’s Power BI is a suite of business analytics tools that deliver insights, allowing users to connect to hundreds of data sources, simplify data prep, and produce reports that are available on the web or mobile devices. <https://powerbi.microsoft.com/en-us/>. Microsoft’s PowerApps allows users to build and use custom business apps that connect to user data and work across the web and mobile, without the time and expense of custom software development. <https://powerapps.microsoft.com/>.

analytics tools, whether from Microsoft or another vendor, can assist NTIA in validating and comparing various broadband availability data sources with the goal of developing consistent, accurate data and reducing conflicts among them.

### **III. NTIA Should Seek to Improve How Information is Reported on FCC Form 477.**

NTIA asks for, “new approaches, tools, technologies or methodologies that could be used to capture broadband availability data, particularly in rural areas,”<sup>4</sup> noting that “Congress directed the NTIA to acquire and display available third-party data sets to the extent it is able to negotiate inclusion to augment data from the FCC, other federal government agencies, state government and the private sector.”<sup>5</sup>

One modest adjustment would be for the FCC to limit Form 477 data to only those areas where broadband is actually deployed. Under the current Form 477 instructions, a census block is considered to have fixed broadband when a carrier “could, within a service interval that is typical for that type of connection,” deploy service to a requesting customer “without extraordinary commitment of resources.” Since the Form 477 instructions provide no guidance, it is unclear how a particular filer would or should define terms like “could”, “typical”, “extraordinary”, “commitment”, and “resources.”<sup>6</sup> Currently, it is possible for an entire census block to be considered “covered” when a carrier “could” serve a very small portion, but in fact serves none of it. This further exacerbates the accuracy of the broadband map, given that if a

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<sup>4</sup> Notice at 24749.

<sup>5</sup> Notice at 24748.

<sup>6</sup> See FCC Form 477 Instructions, at <https://transition.fcc.gov/form477/477inst.pdf>.

broadband provider “could” serve one residence or one business in a census block then, under the current definition for FCC Form 477, broadband is considered deployed in the census block.

This shortcoming leads to a potentially systematic overstatement of where broadband is actually available, as carriers using fiber, copper, coax, or wireless can all draw maps showing broadband availability that is larger than the actually deployed area, even if they have no near-term intention of actually extending service to the outlying unserved areas. In practice, there are likely to be numerous instances in which rural census blocks are misleadingly reported as having access to broadband.

To highlight the situation, we are aware of a rural county in which the FCC’s data reports six fixed broadband providers and 100 percent of the 2000-plus census blocks as having broadband access meeting the FCC’s 25/3 Mbps definition. Interestingly, about two-thirds of the census blocks in that county have a population of zero. Although two broadband providers have reported to the FCC that they can provide broadband service exceeding the FCC’s 25/3 Mbps definition throughout this county, neither of those providers offer services to residential customers, and neither include this county as being served on their websites. Further, the customer service representatives for these providers confirmed that they do not provide residential services in these communities.

This situation is all too common in rural America and is frustrating for the people who live there. A local real estate agent explains that the availability of broadband access (or lack thereof) guides whether people will move to his county and is causing many people to leave to better connected areas: “As a realtor I can tell you one of the first things people ask about is if high-speed Internet is available.” The following comment from a local citizen on a community

chat board sums up the situation, “Our internet is pathetic! Literally one step above dial up. It is through [company name removed], but there wouldn't be any way that you could run a business off of this service. Slow.... Trying to watch a video is painful!”

In the FCC’s proceeding to improve FCC Form 477,<sup>7</sup> Microsoft recommends a simple modification to Section 5.3 of the FCC Form 477 instructions:

fixed broadband connections are available in a census block if the provider ~~does or could, within a service interval that is typical for that type of connection — that is, without extraordinary commitment of resources —~~ provisions two-way data transmissions to and from the Internet with advertised speeds exceeding 200 kbps in at least one direction to end-user premises in the census block.

If this modification were adopted, it would no longer be possible for an entire census block to be considered “covered” when a carrier “could” serve a very small portion, but in fact serves none of it, a problem that NTIA specifically called out in its comments to the FCC.<sup>8</sup> Moreover, areas that do not have service will no longer show up on the map as “served.”

Microsoft encourages NTIA to work with the FCC to adjust its Form 477 process to limit broadband reporting to areas actually served, so as to provide a more accurate mapping output that increases utility for policymakers and the public.

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<sup>7</sup> *Modernizing the FCC Form 477 Data Program*, Further Notice of Proposed Rulemaking, FCC 17-103 (rel. Aug. 4, 2017) (“Further Notice”).

<sup>8</sup> See *Ex Parte Comments of NTIA*, supra, at pp. 6-7; FCC Form 477 Frequently Asked Questions, at p. 20 (“Should we include blocks that we can offer service in and where there is population, but we currently have 0 subscribers? A. Yes.” <https://transition.fcc.gov/form477/477faq.pdf>).

#### **IV. Conclusion**

Telemedicine, remote learning, self-driving vehicles, artificial intelligence, the Internet of Things, 5G, and many other applications are all driving dramatic increases in demand for bandwidth. Ensuring that our national policies enable market participants to meet these onrushing demands with sufficient infrastructure and spectrum (licensed and unlicensed) is a huge challenge, best met with accurate and current data that enables Congress to ensure that our nation's public resources are accurately targeted.

Microsoft is prepared to assist NTIA in its mission to improve broadband data quality and accessibility.

Respectfully submitted,

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