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**VIA ECFS**

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
455 12th Street SW  
Washington, DC 20554

**Re: Modernizing the Form 477, WC Docket No. 11-10**

Dear Ms. Dortch,

NCTA – The Internet & Television Association (NCTA) submits this letter to provide additional information regarding our proposal to reform the Form 477 broadband data collection process for fixed broadband providers.<sup>1</sup> NCTA’s proposal to move to a reporting regime based on the submission of shapefiles that represent the areas served by a broadband provider offers the prospect of collecting more accurate broadband data without undue time or expense. We encourage the Commission to quickly move forward with our proposal so that policymakers and the public can see a more accurate assessment of the state of broadband in the United States.

**Overview of Proposal**

NCTA has proposed that the Commission modify the Form 477 regime for reporting broadband availability by moving from the current census block-based approach to a framework based on submission of shapefiles that represent the area where each provider makes service available. By requiring submitted shapefiles to be based on each provider’s service area, NCTA’s proposal would address the problem of unserved areas being inaccurately treated as served if they are located within served census blocks. NCTA also has proposed that the Commission use crowdsourcing to supplement its verification process and create a permanent feedback loop designed to continually improve the accuracy of the national broadband map.

NCTA recognizes that more detail regarding our proposal would be helpful in moving this proceeding forward. Below we discuss a number of issues that the Commission likely would need to address in an order adopting NCTA’s reforms to the Form 477 process. We also briefly address recent submissions from Microsoft that mischaracterize the Commission’s broadband reporting regime and the data on broadband availability in the United States.

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<sup>1</sup> See Letter from Steven F. Morris, NCTA – The Internet & Television Association, to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 11-10 (Feb. 28, 2019) (NCTA Letter).

### **Definition of Availability**

A primary reason the Commission collects broadband data on the Form 477 is to create a map that accurately displays where broadband service is available and where it is not. Accordingly, a critical component of the Form 477 regime is the definition of availability that is used by reporting providers. Pursuant to the instructions to the Form 477, the Commission currently states that:

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 an extraordinary commitment of resources—provision two-way data transmission to and from the Internet with advertised speeds exceeding 200 kbps in at least one direction to end-user premises in the census block.<sup>2</sup>

The current approach to defining availability reasonably focuses on whether service could be deployed to a location “without an extraordinary commitment of resources.” But the phrasing of the instruction (“does, or could, . . . provision”) can serve to exacerbate the potential for overstatement of coverage that already exists with the use of census blocks. For example, a census block with no existing service may be considered served if a single provider “could provision” service to a single customer in the block “without an extraordinary commitment of resources.”

We think the transition to a shapefile-based reporting regime would largely address this concern even if the Commission retains the current definition of availability. Specifically, only areas where the provider could provision service without a commitment of extraordinary resources would be considered served, but areas that are more difficult to serve would not be counted as served like they are today. Nevertheless, given concerns that have been raised in the record, a clearer definition may be warranted. For example, the following phrasing might be more effective than the current approach:

Fixed broadband connections are available in any area in which the provider can install service to a location without special charges or delays attributable to the extension of the provider’s broadband network or other network construction beyond the installation of a drop connecting the home to the network.

The intent of this instruction is to distinguish between served areas that require only routine installations (i.e., no network construction beyond installation of a drop connecting the home to the network) and unserved areas where installations would require extra charges or delays because the network itself must be extended.<sup>3</sup> A more stringent definition, e.g., counting areas as unserved unless a drop to the home already has been provisioned, would risk severely undercounting coverage, particularly in areas where new construction is taking place.

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<sup>2</sup> FCC Form 477 Instructions at 17, <https://transition.fcc.gov/form477/477inst.pdf>.

<sup>3</sup> Our focus here is on delays within the control of the broadband provider. An area should not be considered unserved based on delays attributable to factors beyond the provider’s control, such as extreme weather conditions, property access issues, or the customer’s availability.

Regardless of any other changes the Commission makes, NCTA also proposes that it should make clear that an area with only business customers is considered served if a provider makes best efforts broadband services available to those businesses. As documented in the *Business Data Services* proceeding, cable operators offer best efforts services to business customers in virtually any place where they offer residential broadband.<sup>4</sup> But under the current Form 477 reporting rules, a census block will be reported as unserved by a cable operator if the block only includes business customers and the operator offers or provides only best efforts services.<sup>5</sup> In this sense, the current approach understates coverage. Adopting NCTA's proposal would address this concern, but it should be corrected even if the Commission does not transition to a shapefile-based reporting regime.

### **Creation of Shapefiles**

The heart of NCTA's proposal is the transition from a regime based on census block reporting to one based on submission of shapefiles by broadband providers. The intent of the proposal is that the shapefiles that a provider submits must accurately represent the area in which that provider makes service available, however availability is defined. The manner in which providers create shapefiles will depend in part on the datasets they use as the basis for the creation of the shapefile. We have identified at least four approaches companies are likely to follow.

*Network Maps.* If a company is using its network map as a starting point, its shapefile typically would follow the contours of the network plus an additional buffer reflecting the typical distance the company is willing to extend facilities without extra charges or unreasonable delays. Such an approach necessarily would produce a smaller, and more accurate, coverage map than one based on census block reporting because areas that are not served or that require special network construction will no longer be treated as served.

*Homes Passed Data.* If a company instead uses its homes passed database as the starting point, the process would be somewhat different. In that scenario, the provider likely would take a list of addresses in a particular area and develop an algorithm that draws a polygon that surrounds these addresses. The provider would perform this exercise for each area it serves and then generate a map that combines the resulting shapefiles.

*Node Boundary Data.* Companies also may refer to node boundary data, which is a database of the locations that can be reached from any particular node in the network. A provider using node boundary data as the starting point typically would draw its shapefile based

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<sup>4</sup> *Business Data Services in an Internet Protocol Environment*, WC Docket No. 16-143, Report and Order, 32 FCC Rcd 3459, 3521, ¶ 133 (2017) (“[W]e treat as competitive census blocks in price cap incumbent LEC study areas that the Form 477 data show have a cable presence—whether serving business or residential clients.”).

<sup>5</sup> Currently, the Form 477 instructions require best efforts broadband to report a speed of 0 as the “Maximum Contractual Bandwidth” for business/government customers. See Form 477 Fixed Broadband Deployment Formatting Instructions, [https://transition.fcc.gov/form477/FBD/formatting\\_fbd.pdf](https://transition.fcc.gov/form477/FBD/formatting_fbd.pdf) (Dec. 5, 2016) (“If your company markets business Internet access services in this block that don’t have a contractual or guaranteed data throughput rate (i.e., they are ‘best efforts’ services) enter 0 for this field.”).

on the outer edge of the property lines for all of the lots that are serviceable from the relevant node. As with the other approaches described above, this will produce a smaller, more accurate, coverage map than the current census block approach.

*Grids.* A fourth approach that also could be used would be to overlay a grid onto a street level map and the provider would then identify which squares (or tiles) in the grid it is able to serve and use that as the basis for its shapefile.<sup>6</sup> This approach is similar to the current census block approach in that providers would make a binary yes/no election for each geographic area, but in this case each tile in the grid is the same size and the size can be set small enough so that it is reasonable to assume a provider serving any portion of the tile could serve all of it. As with the other approaches, the shapefile that results from this exercise will more accurately reflect where service is available than the current census block approach.

Given the variety of data sources companies are likely to rely on in creating the shapefiles they submit on the Form 477, it is critical that the Commission's rules provide sufficient flexibility for companies to use whatever source data makes the most sense for the them.

### **Verification of Submitted Data**

NCTA envisions two levels of verification for the shapefile data submitted on the Form 477. First, as is the case today, the Commission staff would be able to review any filing and ask questions about anomalous reports. In addition, NCTA also proposed that the Commission establish a process by which crowdsourcing could be used to fine tune the map.<sup>7</sup> Such an approach is not really feasible with today's census block-based approach because the fact that a customer's location is incorrectly identified as served is not evidence that the provider has incorrectly reported its coverage or that a change is warranted. But in a regime with shapefile-based reporting, consumers should have a greater expectation that areas identified as served are, in fact, served. A crowdsourcing tool would enable consumers to report concerns about areas that they believe are incorrectly reported as served. Such concerns would be passed along to the relevant provider and, to the extent those concerns prove to be valid, the provider can address them in its next Form 477 submission.

### **Section 706 Calculations**

The transition to a shapefile-based reporting mechanism will require the Commission to revise how it calculates national availability figures for purposes of the annual Section 706 report. The Commission should embrace this opportunity to move to a more accurate approach than the current assumption that any partially served census block is fully served. Moving to shapefile-based reporting would enable the Commission to determine the percentage of land area

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<sup>6</sup> Alexicon recently submitted a proposal based on the use of grids. *See* Letter from Chris Barron, Alexicon, to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 11-10 (Apr. 5, 2019), Attachment at 9 ("The GRID automates the shape file process, an indicator can be used to identify grid blocks without population, and accuracy parameters are automatically defined by the GRID block size that is ultimately chosen.").

<sup>7</sup> NCTA Letter at 3.

that is served within each partially served census block. In conjunction with Census Bureau data on the number of households in each block and the population density of each block, the Commission could derive an estimate of the number of people that are served and unserved in each partially served block. While such an approach may somewhat understate the level of coverage (because the served portion of a census block is likely to have higher density than the unserved portion) it should nevertheless be more accurate than the current approach. For an interim period, the Commission would want to perform this new calculation as well as a calculation that reflects its current assumption that any partially served census block is fully served. Performing the new calculation and the old calculation for some period of time will provide the Commission the ability to monitor year-to-year trends in deployment that are not associated with the shift in reporting methods.

### **Availability vs. Usage**

In a series of recent ex parte presentations, Microsoft has suggested that Form 477 data vastly overstates the real availability of broadband services in the United States.<sup>8</sup> Based on a proprietary testing methodology and dataset, Microsoft asserts that the percentage of people using the Internet at the 25/3 threshold the Commission uses for the Section 706 report is so low relative to reported availability that it calls into question the validity of the Form 477 data.<sup>9</sup> While Microsoft raises some interesting questions, many of its assertions regarding the validity and importance of the Form 477 data miss the mark.

At a high level, we agree with Microsoft that inaccurate broadband mapping based on census blocks undercounts the number of Americans without access to broadband. That's why we have proposed moving to a reporting regime based on shapefiles as a solution to the undercounting problem caused by census block reporting that can be achieved fairly quickly to address the mapping problem. We also have proposed increased verification through the use of crowdsourcing, which can help identify inaccurate reporting. We also agree that more work is needed to promote broadband adoption in areas where service is available and that areas with extremely low adoption rates may warrant a closer look.

But beyond that high-level agreement, we have serious concerns about the significance of Microsoft's analysis. As a threshold matter, Microsoft's ad hoc test regime offers little visibility into what is being measured, how that measurement is being performed, and what the results represent. For example, we have no idea how many test servers Microsoft uses, whether those test servers have adequate capacity to process requests at the speeds offered by broadband providers, or whether Microsoft's services or equipment might be causing some degradation in performance. All of these factors are critical to assessing the validity of Microsoft's measurements. At a minimum, the Microsoft testing regime presumably suffers from all the flaws the Commission previously has identified with online speed testing regimes.<sup>10</sup>

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<sup>8</sup> See, e.g., Letter from Paula Boyd, Microsoft, to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 11-10 (Mar. 29, 2019) at 1.

<sup>9</sup> *Id.*, Attachment at 4-5. The Commission has established the 25/3 standard for fixed broadband services but has not identified a specific standard for mobile broadband services. Thus, to the extent Microsoft is assessing the performance of mobile broadband services, its reference to 25/3 is inapt.

<sup>10</sup> See NCTA Letter at 3 n.12.

More importantly, even if Microsoft can demonstrate that the results are a valid representation of the speeds consumers are experiencing, Microsoft has drawn a number of unsupportable conclusions from that data because it conflates availability and usage. In any given geographic area, broadband providers offer, and consumers purchase, services using a variety of technologies and at a variety of speeds. There is no reason to expect that the average speed purchased would be anything close to the highest speed offered, even within a single technology. For example, most cable operators now offer service tiers with gigabit downstream speeds, but the vast majority of cable customers still choose to purchase slower tiers of service. And focusing on the gap between the highest speed available and the average speed purchased makes even less sense if that average blends the performance of technologies that are incapable of achieving the highest speed offered. For example, if the cable operator in an area offers gigabit speeds, but the dataset includes a significant portion of tests for DSL and mobile wireless services that cannot achieve gigabit speeds, the fact that there is a gap between the highest speed reported and the average usage speed is utterly meaningless.

### **Conclusion**

NCTA's proposal to move to a broadband reporting regime based on shapefiles offers the promise of far more accurate data without undue time or expense. As described in this letter, the key to successfully navigating this transition is for the Commission to recognize the variations among broadband providers in the technologies they use and the data they maintain and to establish rules that balance the need for uniformity in reporting with sufficient flexibility so that all providers will be able to comply with these new requirements. In moving forward with this regime, the Commission should not be distracted by Microsoft's unsubstantiated attack on the Form 477 process.

Respectfully submitted,

**/s/ Steven F. Morris**

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