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Marlene H. Dortch, Esq., Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: **WISPA Written *Ex Parte* Presentation**
Modernizing the FCC Form 477 Data Program, WC Docket No. 11-10 and
Connect America Fund, WC Docket No. 10-90

Dear Ms. Dortch:

The Wireless Internet Service Providers Association (“WISPA”), by its counsel, hereby submits this letter to provide additional information pertaining to the collection of more granular level data from fixed wireless broadband providers in connection with the modernization of FCC Form 477 in the aforementioned docket.¹ Attached hereto (and summarized below) is WISPA’s proposal describing a two-pronged deployment reporting approach that reflects the unique characteristics of the fixed wireless industry. WISPA asks the Commission to adopt this proposal.

Generally, the *FNPRM* seeks comment on ways in which the Commission might streamline its current FCC Form 477 requirements and thereby reduce the burdens on filers but also collect more detailed and accurate data regarding broadband deployment. The Commission acknowledges that this data is “the principal tool used by the Commission to gather data on communications services, including broadband services, to help inform our policymaking.”² Other governmental entities, including Congress, Tribal policymakers, the U.S. Department of Agriculture and state agencies have a critical need for accurate deployment data,³ especially for improvements in deployment in rural areas and to administer state and federal government funding such as the Commission's Connect America Fund (“CAF”) and the Rural Utilities

¹ *Modernizing the FCC Form 477 Data Program*, Further Notice of Proposed Rulemaking, FCC 17-103, 32 FCC Rcd 6329 (2017) (“*FNPRM*”).

² *Id.*

³ *See id.* at 6331.



Service's Broadband e-Connectivity Fund Pilot Program established pursuant to the Consolidated Appropriations Act of 2018.⁴

In its Comments WISPA emphasized that it strongly supports an effort to modernize FCC Form 477.⁵ Nonetheless, in order to fulfill the overall objectives for accurate data for all areas of the country, especially rural areas, modernization must take into account the inherent differences in deployment and technology between wired broadband services and fixed wireless broadband services, as well as recognize and reduce the significant financial burdens on small providers imposed by some proposals.⁶ WISPA explained that many of the questions and proposals in the *FNPRM* related to “road segments,” “street segments” and “street addresses” are applicable and appropriate to the nature of fixed *wired* broadband services, not the fixed *wireless* services provided by WISPA's members.⁷ Cable and telecommunications providers that offer fixed wired broadband services using copper, cable or fiber know exactly where their plant is located, and such services generally are constructed using roads and streets as a controlling parameter where service is currently provided and where “available.”⁸ By contrast, fixed wireless deployment is very different because streets and roads do not dictate how or where service is constructed, and therefore, where service currently provided and where is available. Instead, the location of access points, the propagation characteristics of the various available spectrum bands, obstructions between the tower and the customer, and the presence of potential harmful interference are controlling parameters for where service is provided is currently or may be made available.⁹

Unlike AT&T's recent proposal to standardize address data and geocoding and require reporting via road segments, one size certainly does *not* fit all.¹⁰ While WISPA does not object to a cooperative process, there are significant parts of AT&T's proposal that are not realistic, feasible nor practical for fixed wireless providers – the fastest growing broadband technology in the U.S.¹¹ Reporting via road segments or street addresses is not only unrealistic for fixed wireless providers given the technology used, it is also extremely burdensome from a financial and human resources perspective as extensively detailed in our Comments.¹² So are requirements to geocode the data.¹³

⁴ See generally U.S. Dept. of Agriculture, Rural Utilities Service, *Broadband e-Connectivity Pilot Program*, Notice of Inquiry and Request for Comments, 83 Fed. Reg. 35,609 (July 27, 2018) (“RUS is directed to use the most current data of the National Broadband Map or any other data regarding the availability of broadband service that may be collected or obtained through reasonable efforts.”)

⁵ See Comments of the Wireless Internet Service Providers Association, WC Docket No. 11-10 (filed Oct. 10, 2017) at 1 (“WISPA Form 477 Comments”).

⁶ See *id.* at 2.

⁷ See *id.* at 2, n.8.

⁸ See *id.*

⁹ See *id.* at 9-10.

¹⁰ See *Ex Parte* Letter from Ola Oyefusi, AT&T to Marlene H. Dortch, FCC Secretary, WC Docket No. 11-10; Connect America Fund, WC 10-90 (Oct. 12, 2018) (“AT&T *Ex Parte* Letter”).

¹¹ The Commission recognized that residential fixed wireless connections quadrupled from June 2012 to June 2016, the largest percentage increase of any terrestrial broadband technology. See *Internet Access Services: Status as of June 30, 2016*, Industry Analysis and Technology Division, Wireline Competition Bureau (April 2017) at 18.

¹² WISPA Form 477 Comments at 11-13.

¹³ *Id.* at 14.



Significantly, AT&T has acknowledged that the “major flaw” in its road segment proposal is “that the result would not provide information that could be used to solve the rural unserved broadband problem.”¹⁴ And solving the rural unserved broadband problem – “achieving e-connectivity for rural America” – is the number one priority of this Administration.¹⁵ WISPA agrees with AT&T that its road segment proposal would fail to provide any information on the locations and characteristics of areas that are unserved.¹⁶ A road segment (or a street address) is not an indicator in a rural area of where the actual house or building that needs broadband service is located; a house or other structure could be miles away from the actual road or street address.¹⁷

WISPA therefore supports the Commission’s proposal to allow fixed wireless providers to submit geospatial data that show coverage areas (i.e., polygons of coverage filed via shapefiles or rasters) as an alternative to reporting via census blocks, street addresses, road segments or geocoding.¹⁸ Such geospatial data would provide more accurate deployment data for broadband services, especially in rural areas – the parts of the country that need more accurate data reporting the most. As discussed in its Comments, such data would also be a less burdensome reporting metric for WISPA’s members than reporting via census blocks, road segments or street addresses, or conducting geocoding.

To address the submission of geospatial data, including what propagation models and parameters should be used to measure coverage of fixed wireless technology, WISPA hereby illustrates the differences between *mobile* wireless and *fixed* wireless technology, and recommends a two-pronged process to be used by fixed wireless providers to create propagation maps that better illustrate deployment coverage for various fixed wireless spectrum bands. WISPA recognizes that the Commission has concerns that “current Form 477 filings typically do not include meaningful information about the methodologies by which service providers are generating their coverage contours.”¹⁹ WISPA believes that the reporting process detailed herein addresses this concern.

As summarized in the attachment hereto, the first prong is the use of pre-determined and typical industry parameters that will serve as a “safe harbor” for the good faith creation of propagation maps based on the height of the access point and customer antenna, signal strength, and the computed coverage assuming a given customer antenna gain. WISPA has provided these parameters in the attached.

The second prong allows providers to use different parameters if there are material differences in their networks that warrant deviation from the safe harbor. The reporting provider

¹⁴ AT&T *Ex Parte* Letter at 5.

¹⁵ U.S. Department of Agriculture Task Force, *Report to the President of the United States from the USDA Task Force on Agriculture and Rural Prosperity*, (Oct. 2017) at 17. Chairman Pai is also a member of the USDA Task Force and he has emphasized that “[s]ince my first day as Chairman of the FCC, I’ve said repeatedly that my number one priority is closing the digital divide and bringing the benefits of the Internet age to all Americans.” Remarks of FCC Chairman Ajit Pai at “Broadband For All” Seminar, Stockholm Sweden (June 26, 2017) at 1; *see also* <https://www.fcc.gov/about-fcc/fcc-initiatives/bridging-digital-divide-all-americans>.

¹⁶ AT&T *Ex Parte* Letter at 5.

¹⁷ WISPA Form 477 Comments at 12, n.40 (commenting on rural route signs).

¹⁸ *See id.* at 6.

¹⁹ *FNPRM* at 6332.



would be required to identify the name of the propagation model or modeling tool, and explanation of the methodology with the FCC Form 477.

WISPA's proposed two-pronged process for the submission of geospatial data using more uniform parameters, where possible, accommodates small, mid-sized and large providers, and meets the need for more granular data in all areas of the country, especially rural and other unserved or underserved areas. This proposal also minimizes the significant economic impact of revisions to FCC Form 477 reporting requirements on small providers, consistent with the Regulatory Flexibility Act, as amended,²⁰ as well as helps to consider and reduce market entry barriers pursuant to Sections 257 and 163 of the Communications Act of 1934, as amended.²¹

WISPA appreciates the opportunity to provide more information to the Commission and looks forward to working on solutions that better serve the needs of all stakeholders.

Sincerely,

/s/ S. Jenell Trigg

S. Jenell Trigg

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cc: Steve Rosenberg
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²⁰ 5 U.S.C. §§ 601 et seq.

²¹ See 47 U.S.C. § 257; see also the RAY BAUM'S Act of 2018, Pub. L. No. 115-141, Div. P, § 401, 132 Stat. at 1087-88, which requires the FCC to assess the state of competition and consider regulatory barriers for entrepreneurs and other small businesses in accordance with the national policy under section 257(b). 47 U.S.C. § 163(d)(3).

FCC Form 477 Propagation Methodology for Fixed Wireless Providers

It is commonly understood that fixed wireless broadband providers do not and should not use the same propagation parameters or models used by the cellular industry. WISPA proposes a two-pronged approach to measuring coverage for the purposes of submitting FCC Form 477 deployment data:

- 1) Typical industry parameters that will serve as a “safe harbor” for the good faith creation of propagation maps based on the height of the access point and customer antenna, signal strength, and the computed coverage assuming a given antenna gain.
- 2) Where the “safe harbor” parameters would not provide accurate coverage data, an alternative calculation would be used. The name of the propagation model or modeling tools used, and an explanation of the methodology appropriate for the frequency band utilized to provide coverage would accompany the submission of FCC Form 477.

I. BACKGROUND

Here is a brief overview of the pertinent differences between cellular/mobile and fixed wireless technologies:

- Cellular/mobile modeling metrics are more standardized across the industry because of the inherent nature of cellular/mobile:
 - Universal use of fewer spectrum bands
 - Equipment is interchangeable between carriers
 - Fewer carriers (compared to 2,000 plus fixed wireless operators)
 - Varying factors that could cause interference (e.g., clutter, terrain, location (indoor or outdoor user location), weather, congestion, type of connected device and other users)
- Fixed wireless providers have much more variability due to the inherent nature of this technology:
 - Widely varying spectrum bands (licensed, unlicensed, and shared)
 - Wide variety of equipment and technology (e.g., WiFi, proprietary, LTE, WiMax)
 - Significant variation in SNR and interference (e.g., clutter, terrain, trees, buildings, congestion, other users)

II. SUGGESTED SAFE HARBOR PARAMETERS

WISPA recommends the following “safe harbor” parameters to set a reasonable estimation of the coverage area for FCC Form 477 Reporting by the Fixed Wireless Industry. Coverage metrics for the fixed wireless industry will vary based on the spectrum band given different types of antennas, power levels, propagation characteristics and potential interference allowed for each. Fixed wireless providers can factor in customer antenna gain and height, and signal strength based on the parameters for each spectrum band. WISPA recommends that the following parameters be adopted for the good faith creation of propagation maps:

5 GHz

- Customer antenna up to 10 meters above ground; or higher or lower antenna heights as needed to reach the customer and as explained by the provider
- Signal strength as low as -75 dBm
- Coverage computed assuming up to 25 dB customer antenna gain, or as allowed by the Commission

3550 -3700 MHz (CBRS)

- Customer antenna up to 10 meters above ground; or higher or lower antenna heights as needed to reach the customer and as explained by the provider
- Receiver signal strength as low as -77 dBm (uncertain because of new band)
- Coverage computed assuming up to 17 dB customer antenna gain, or as allowed by the Commission

2.4 GHz

- Customer antenna up to 10 meters above ground; or higher or lower antenna heights as needed to reach the customer and as explained by the provider
- Signal strength as low as -77 dBm
- Coverage computed assuming up to 16 dB customer antenna gain, or as allowed by the Commission

900 MHz

- Customer antenna up to 10 meters above; or higher or lower antenna heights as needed to reach the customer and as explained by the provider
- Signal strength as low as -72 dBm
- Coverage computed assuming up to 11 dB customer antenna gain, or as allowed by the Commission

600 MHz (TV White Spaces)

- Customer antenna up to 10 meters above ground; or higher or lower antenna heights as needed to reach the customer and as explained by the provider
- Signal strength as low as -74 dBm
- Coverage computed assuming up to 8 dB customer antenna gain, or as allowed by the Commission

Suggested Models to Use:

Overall, the specific model used should be the provider's choice; providers must have flexibility given differences in terrain, as well as software and/or third party modeling services that have already been acquired or are under contract. Providers will need to factor "local parameters" used by a propagation model (e.g., height of trees, buildings). The only requirement is that the model used must be reasonably accurate at the time of filing.

As an example, an inexpensive modeling tool named "Radio Mobile," written by Roger Coudé, is widely used in the fixed wireless industry for the purpose of RF planning. The RF model used by Radio Mobile is largely based on the ITM standard with enhancements for clutter data. At least one commercial vendor (i.e., TowerCoverage.com) uses the same model to generate coverage maps for fixed wireless providers and to generate FCC Form 477 coverage data. WISPA recommends that this model be accepted as a safe harbor model for FCC Form 477 filing purposes.

III. ALTERNATIVE MODELS USING DIFFERENT METRICS & PARAMETERS

If a provider uses a different propagation model having metrics other than the "safe harbor" parameters stated above or uses different spectrum to provide service than the five (5) bands stated above, then WISPA proposes that the provider should submit with its FCC Form 477 filing to the FCC the name of the propagation model or modeling tool, and an explanation of the methodology appropriate for the frequency band utilized to provide coverage. In addition, a provider may submit additional data to the Commission showing the impact that local conditions or interference have on the "safe harbor" parameters stated above.

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