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Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Portals II, Room TW-A325
Washington, DC 20554

Re: *Modernizing the FCC Form 477 data Program, WC Docket No. 11-10;
Connect America Fund, WC 10-90*

Dear Ms. Dortch:

On October 10, 2018, Mary Henze, Terri Hoskins, and the undersigned, of AT&T, met with the following Commission Staff: Steve Rosenberg, Rodger Woock, Ying Ke, John Emmett, Suzanne Yelen, Ken Lynch, and Suzanne Mendez. The purpose of the meeting was to discuss how to achieve a more granular view of broadband deployment than that provided by the current Form 477 reporting.

AT&T summarized the challenges providers face when trying to report address or location specific data, especially for rural parts of the country.¹ To date, AT&T has reported the address and latitude/longitude for over 500,000 Connect America Fund Phase II (CAF II) locations in mostly rural areas. It is our experience that rural address and geocoding information varies widely among the best commercially available resources. In every instance, we have found that the quality and completeness of the data available for rural areas lags dramatically behind what is available for urban and suburban areas. Staff agreed that their analysis of data sources reached the same conclusion.

AT&T believes that the pressure to require more granular Form 477 reporting is being driven primarily by the desire to identify *and then remedy* the lack of broadband service in rural areas of the country. We fully support this goal. While it may seem logical to map where broadband is available in order to determine where it is lacking, collecting data only on deployed areas *does not* provide the information necessary to effectively promote deployment to areas that still have no broadband. To support the deployment of broadband to unserved areas, it is also necessary to have detailed information about the locations of homes and businesses in those areas. As AT&T and others have found,² this type of information is not readily available, but it is critical to accurately estimating the cost of

¹ See Comment of AT&T, *Modernizing the FCC Form 477 Data Program*, WC Docket No. 11-10 (filed October 10, 2017).

² See Letter of Jonathan Banks, Senior Vice-President Law & Policy, USTelecom, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 10-90 (filed January 19, 2018) ("*US Telecom Ex Parte*").

deployment, designing efficient networks, and assessing when adequate deployment has been achieved. The national broadband goal will not be efficiently met with the data tools that are available to companies today and it is not realistic to expect every broadband company to overcome these data challenges alone simply by updating Form 477 mandates.

Rather, AT&T believes that these data challenges must be tackled with a cooperative effort between the industry and the Commission. We urged the Commission to consider an address-based approach to fill the data gaps. The result of the approach we proposed would be a data source that enables the Commission and other policy makers to more accurately target and direct funding to the communities and locations that do not have broadband.³ We discussed: how such a proposal could be cooperatively implemented, the pros and cons of address vs. road segment vs. census block reporting, how long it would take to implement each methodology, and various ways the cost and time “to-market” could be reduced. The public policy benefits of creating such a database are numerous, but the most obvious and immediate use would be to improve the location accuracy of the CAF cost model which relied on the best geolocation software available in 2011, but inevitably reflects the data weaknesses discussed above.⁴

To overcome the lack of consistent address and geocoding data while generating granular information on areas that lack broadband today, AT&T proposed a four-step cooperative process. Because the data quality issues as well as the unserved broadband problems are most acute in rural areas, this proposal could be implemented initially for rural areas and expanded to other parts of the country at a later date. The proposal relies on the FCC and/or USAC playing a critical role in this effort by performing standardized address and geocoding functions.⁵ The four-step process could be conducted as follows:

Step 1: *Collecting street address information.* The FCC begins the process by developing a database of all residential and small business street addresses in the U.S. by a) requesting street address information from all wireline/fixed Form 477 filers⁶ and b) supplementing the carrier data from public resources and a crowd-sourcing campaign. At this stage, these street address submissions would not contain any service status information. Carriers would be asked to submit, on a best efforts basis, only the street addresses of all current and if possible former service addresses. The goal is to leverage the unprecedented reach of the public switched telecommunications network to create a database of location addresses. Billing addresses could be accepted as well but in rural areas the use of rural routes and P.O. boxes

³ See State of Georgia, Achieving Connectivity Everywhere (ACE), Overview for Providers: September 24, 2018 (Attachment).

⁴ *US Telecom Ex Parte.*

⁵ USAC already has developed expertise in this area due to the implementation of the NLAD/Lifeline National Verifier as well as the through its CAF location validation and mapping functions.

⁶ While the initial service addresses would be collected only from wireline/fixed providers, the resulting database could be used as the basis for both fixed and mobile broadband reporting.

limits the utility of mailing addresses as location identifiers. Filers would submit this information on a confidential basis to the FCC and/or USAC.

AT&T estimates that it would take three to six months to accomplish the initial submission of street address information if basic data formats that require minimal reformatting are utilized. Given the well-known vagaries of address data, all address submissions by providers would be on a best effort basis and not subject to any penalty or enforcement action. The intent would be to cooperatively create as complete as possible an address database to form the foundation for broadband service availability reporting. Because address information is not static, we understand that a process may need to be developed to update and refresh this foundational address database on a periodic basis.

Step 2: *Standardized address harmonization and geocoding.* Once addresses are submitted the FCC, USAC, or a vendor specializing in this field would be tasked with harmonizing the addresses to remove duplicates, conform address formats as needed, and thus create a standardized master address database. Conforming address formats involves steps such as using consistent abbreviations for terms such as street, road, apartment or deciding to use no abbreviations, purging duplicate addresses, as well as consulting publicly available address databases to validate and augment the carrier submissions. AT&T believes that this address harmonization would be more efficiently and accurately performed on a centralized basis using standardized protocols and algorithms. Address “clean up” is probably one of the most challenging steps in this process due to data entry inconsistencies both within companies and in public data sources. Requiring every company to perform this step would delay submissions without ensuring data quality as the FCC/USAC would very likely still have to harmonize the submissions.

After address harmonization, the FCC/USAC would use a geocoding methodology of its choosing to identify the latitude and longitude for each street address in the master address database. Again, standardized, centralized geocoding will be more efficient and consistent than having individual providers separately geocode the addresses and submit the results to the FCC. Most telecommunications providers do not have a business reason to geocode all their service addresses and requiring this step would not only place a new burden on carriers but would again delay submissions without improving data accuracy. As already noted, geocoding resources and methods are of varying quality and almost universally weak in rural areas.⁷ It would be more efficient and consistent for the FCC to adopt and apply single geocoding method across the database. Based on discussions with vendors experienced in this type of process, AT&T estimates that it would take six to eight months for a centralized entity to perform these address harmonization and geocoding functions for the entire U.S.

⁷ See Letter of Mary Henze, Assistant Vice President, AT&T Services, Inc., to Marlene H. Dortch, Secretary, FCC, WC Docket No. 10-90 (filed September 4, 2018).

Step 3: Database augmentation/crowdsourcing. In a step that could, over time, substantially improve the quality of the database, the FCC could enable consumers and other entities to augment the database by submitting addresses that are missing or providing more accurate latitude and longitude information for their own locations. For example, while the FCC cannot compel rural electric companies to submit address information, they can be allowed and encouraged to submit addresses and latitude and longitude data which many electric companies do collect. Likewise, consumers who live in areas unserved by broadband could be encouraged to make sure their location information is in the database and add it if it is not. Consumers with access to handheld GPS devices should also be allowed to submit more accurate latitude and longitude data. In rural areas it is not uncommon for geocoding software to return a latitude and longitude for the central point of a land parcel rather than for the location of the housing unit to which broadband would be deployed. The difference between the latitude/longitude in the middle of a 200-acre parcel and the latitude/longitude of the home built in the far south west corner of that parcel is significant in terms of estimating the cost to deploy broadband to the home.

Step 4: Reporting broadband service availability. Once the geocoded address database is complete, the FCC would require Form 477 filers, both fixed and mobile, to submit data that “overlays” the foundational address data to identify areas where they currently can provide broadband service, including the technology and speed. AT&T suggested that the Commission use the same “can provide” or “served” standard adopted for CAF purposes which defines a location as “served” if a carrier could provide broadband service to a customer within 10 business days of a request. We also readily acknowledged that exactly how carriers would submit or report their broadband service availability is a topic that requires more discussion. The solution will depend to a large degree on the design and technology platform of the address database and once that is known, a further proceeding may be warranted. AT&T noted, however, that the FCC-ordered USAC HUBB database and CAF broadband map could serve as an example, if not the base, for this more comprehensive effort. The HUBB data fields already include address, latitude and longitude, and broadband speed.

During the meeting we discussed and compared the pros and cons of the above proposal with the suggestion made by staff in an earlier meeting with USTelecom, that carriers report broadband availability by road segments. AT&T agreed that road segment reporting of service availability would be an improvement over the current CB-based program in terms of granularity. Based on our discussion, it also appears it would be easier for the FCC to implement. A road segment database would require changes to FCC systems, but the complexity and sheer size of the data set would likely be smaller than an address database. Carriers, however, would have to change their own systems to report by road segment since it is not a data element that is used for any business purpose. AT&T estimates it would take it eight months to adapt to road segment reporting, but we cannot speak to the time it would take smaller entities to comply. While submitting large address lists to the

FCC would likely challenge some entities, it is data that is generally maintained in the normal course of business.

The major flaw in the road segment proposal, AT&T pointed out, is that the result would not provide information that could be used to solve the rural unserved broadband problem. A road segment database would display the roads where broadband is available, but it would not provide any information on the locations and characteristics of areas that are unserved. While it is doable and would provide more granular information than the broadband availability that is produced by the current 477 process, the areas that lack broadband would presumably appear simply as empty space or empty roads. We would still not have a more accurate count of how many homes/locations are unserved or better information on where they are located.

While it is always difficult to estimate implementation time frames, based on our discussion with staff it appears that the time it would take to implement the address-based proposal would be roughly equal or slightly longer than the time it would take to adapt to road segment reporting. We estimate it would take 9 to 12 months to create and release a geocoded address-database and perhaps another six months to complete the submission of broadband availability for a total of 18 months. Unless implementation of a road segment methodology is *substantially* shorter, AT&T questioned the wisdom of expending FCC and carrier resources to generate a new data set that is not a useful tool for solving the broadband deployment problem, even as a so-called “interim” step. Rural Americans would be better served by directing those same resources towards the creation of a geocoded address-based system that would not only reveal areas that are unserved but provide the missing data needed to support new deployment.

AT&T looks forward to continuing to work with the Commission and other stakeholders to create a tool that will truly help the U.S. reach its broadband deployment goals. Pursuant to Section 1.1206 of the Commission’s rules, an electronic copy of this letter is being filed for inclusion in this docket.

Sincerely,

/s/ Ola Oyefusi

cc: Steve Rosenberg
Rodger Woock
Ying Ke
John Emmett
Suzanne Yelen
Ken Lynch
Suzanne Mendez