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Broadband Mapping: Small Carrier Perspectives on a Path Forward
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Background

Good morning Chairman Golden, Ranking Member Stauber and members of this Subcommittee. My name is Jason Hendricks, and I am the Chief Regulatory Officer of the Range Companies and a Board member for WTA – Advocates for Rural Broadband. I am providing testimony today on behalf of the Range Companies and WTA. It is a pleasure and honor to testify before you this morning.

The Range Companies are comprised of the parent company – Range Telephone Cooperative – and its subsidiaries – RT Communications, Dubois Telephone Exchange ("DTE"), and Advanced Communications Technology. Together, the four companies provide telecommunications and broadband service in rural areas in Montana, Wyoming, Colorado, and South Dakota. Our combined incumbent carrier serving area is approximately 30,000 square miles, with a customer density of 0.54 customers per square mile. The largest town we serve has a population of about 5,500 and the smallest communities we serve have populations in low double digits. Despite the low density and high-cost challenges of our serving areas, we provide very high-speed, quality Internet services, including fiber-to-the-premise service, in many of the communities we serve. But like most small, rural providers, we have very rural areas that are cost prohibitive to serve with speeds comparable to those that are available in more densely populated areas. It is these areas for which the accuracy of broadband mapping is most important and for which the current Federal Communications Commission ("FCC") mapping mechanism is the least accurate. My testimony focuses on goals to improve broadband mapping without being overly burdensome to small providers with limited resources.

Problems with the Existing FCC Broadband Map and Location Assumptions

The FCC's current broadband map is derived from data reported by broadband providers twice a year in FCC Form 477 (Local Telephone Competition and Broadband Reporting). There are concerns that many observers have with the current broadband map and they derive from the way in which the data is reported and mapped. These concerns include:

- <u>Use of advertised speeds rather than actual speeds</u> - Per FCC Form 477 formatting instructions, the speeds reported are often advertised speeds, which may not equate with speeds a customer can expect to receive, particularly in sparsely populated areas.

- Lack of granularity - Availability of service is determined on a census block basis and census blocks can be very large in rural areas.
- Overstatement of availability - An entire census block can be shown as having broadband available if service is offered to just one location in that census block, resulting in many premises appearing to have broadband available to them when they do not.
- Understatement of availability - There is typically a delay of more than a year between the time data is reported via Form 477 to the time a map is created showing the availability of service, resulting in possible understatements of broadband availability if providers have expanded their broadband services in the interim.
- Funding decisions based on inaccurate data - In some of its high cost universal service fund (USF) programs, the FCC uses Form 477 data to determine where to target USF support and if the underlying data is not accurate, limited USF support dollars may not go to places where it is needed or may go to places where broadband already exists.
- Regulatory burdens - Form 477 remains burdensome for providers to complete with the FCC estimating in its instructions that the annual reporting burdens for this collection of information is 387 hours per each of the two responses, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data and completing and reviewing the collection of information.

Between our four companies, we are required to provide broadband data on over 7,000 census blocks. Yet, census blocks can be upwards of hundreds of square miles in size and are often ill-fitted to population clusters and network boundaries. For example, we are required to report on a census block of 366 square miles with 19 locations.

I will provide you with an example of the problems that can occur when census blocks are used to determine broadband availability. RT Communications serves the town of Hulett, Wyoming (population 383), which is near the nation's first National Monument, Devil's Tower. It provides 100 Mbps service in town and has fiber south of town. But there are locations outside of town that we haven't been able to serve at speeds of 25 Mbps or more due to high construction costs. We have looked at pursuing state or federal grants to defray some of the construction costs to serve those locations. However, the large census block in which the locations exist is considered served because it includes a portion of the town in which we provide 100 Mbps service. Were an alternative mapping system used that was better tied to existing provider networks, the outlying locations could be properly identified as unserved so that universal service support or broadband grants could be targeted to the locations in need. Similar examples can be found throughout our serving areas.

Moreover, there can also be problems with the data the FCC uses to determine customer locations for purposes of distributing model-based universal service support. Recently, the FCC announced Alternative Connect America Fund (ACAM) offers to carriers not already receiving model-based support. Carriers have until July 17 to make decisions on whether to accept ACAM universal service support or continue to receive funding via the existing cost-based support methodology. In Wyoming, if we accept ACAM support, we would receive an annual

support amount in return for deploying broadband service to a specified number of locations. Like many companies reviewing the ACAM buildout obligations, we are finding many discrepancies between census data locations used by the model and the real-world locations of where people actually live. For example, in examining tribal buildout obligations in DTE's territory, we have discovered a census block for which the model assumes 10 locations exist. In reality, the census block is mostly hayfields and sagebrush grazing with only one customer location. In total for DTE, accepting ACAM may necessitate broadband deployment to 268 tribal locations when our analysis shows that there are 241 locations, at most, in the census blocks at issue. Similar examples of locations assumed in the model that don't exist in reality can be found throughout our serving areas.

The Range Companies strongly believe that improvements can be made to the FCC's broadband mapping system and customer location databases. I will first lay out some goals we have to achieve a higher level of granularity in broadband mapping to ensure that broadband support flows to areas most in need. Then I will talk about some of the solutions being considered in the industry and will comment on their workability from a small company perspective.

Proposed Goals for Broadband Mapping Changes

The Range Companies are supportive of efforts to achieve a higher level of granularity in broadband mapping to ensure that broadband support funds go to areas most in need. We offer four goals for consideration in the establishment of a new system.

First, we request that the reporting requirements for a new broadband mapping system not be overly burdensome for small providers. Specifically, the reporting requirements should be consistent with capabilities easily available to providers, match the network characteristics of providers, and allow for easy upload with minimal effort.

Second, we request that the methodology be used for all state and federal broadband support, loan, and grant decisions so that providers need not be subjected to reporting requirements that differ across jurisdictions. Currently, we provide broadband mapping data in Wyoming and Colorado, as well as to the FCC though 477 data submissions and High Cost Universal Broadband (HUBB) reporting via the Universal Service Administrative Corporation. Having one data submission for all jurisdictions and for all purposes would greatly reduce compliance burdens.

Third, the process used by regulators to verify the accuracy of data should be meaningful and minimally burdensome to small providers. For example, if broadband speed and latency tests are used to verify the accuracy of data, then these tests should be for those portions of the networks the provider controls, the data samples should reflect the size of the carrier and the demographics they serve, and the tests should be conducted in a manner unobtrusive to the customers receiving the service.

Fourth, a challenge process should be enacted to allow other providers, government entities, customers, and interested third parties to challenge the accuracy of data provided by a

provider. A challenge process will help ensure broadband availability is not overstated and that support is not precluded from going to areas that are unserved.

Broadband Mapping Proposals

I will now provide a summary of some of the main proposals submitted to the FCC to improve its broadband mapping system.

First, NCTA - The Internet and Television Association, has proposed that fixed broadband providers be required to submit polygon shapefiles in lieu of the census block availability data. According to NCTA, the use of shapefiles would increase the accuracy of the reported data because shapefiles are more closely tied to a provider's service area and the shapefiles could be generated based on a provider's footprint using a variety of sources, such as network maps or homes passed data. As further explained by Connected Nation, mapping programs like those it administers in Minnesota offer proven examples of where granular polygons, contained within shapefiles, have been created to depict service availability footprints and where the resulting map is used to guide the state's broadband grant program.

Second, with respect to customer location data, USTelecom, with the help of its vendor CostQuest, has developed a proposal to create a "Broadband Serviceable Location Fabric" ("BSLF") that would generate an individual latitude and longitude for buildings to where broadband is, or would be, deployed. Its proposal would create a consistent location fabric for which all serviceable locations would be located using a single methodology and thus provide a harmonized reference point for broadband reporting. To create the BSLF, multiple data sources would be required. USTelecom is conducting a pilot program in Virginia and Missouri to demonstrate the viability of its proposal and to validate its assumptions. CostQuest has estimated that if the FCC adopts the BSLF methodology it would take an additional 12 months to complete a nationwide fabric after the pilot closes. The coalition intends to provide a report on the pilot program to the FCC by the end of July.

In conjunction with their shapefile proposal, NCTA and others have also advocated for the use of crowdsourcing, in which the FCC would: 1) establish a verification process to allow consumers to report potential inaccuracies in the data, and 2) the FCC staff would forward any submissions to the relevant providers, who would make any necessary corrections in subsequent filings. According to NCTA, the primary goal of this process is to improve the accuracy of the map, not to generate enforcement activity.

Reactions to Broadband Mapping Proposals

The Range Companies believe that these proposals do not have to be mutually exclusive and both can be adopted over time. In the near-term, we are supportive of the NCTA shapefile proposal. First, it can be easily accommodated with our existing mapping capabilities. Two, it can be more representative of network architecture, community boundaries, and the locations of outlying customers and rights of way. Three, it can be overlaid on multiple types of premise location platforms.

I will provide you with an example of a typical exchange of ours and how we envision shapefile mapping would work. In one of our typical exchanges, there is a small town that is relatively concentrated and has high bandwidth availability with either fiber to the premise service or a fiber-copper combination with very short copper loop lengths. Outside of town, there are typically developments with larger lot sizes and with more distance between homes than what occurs in town but with more cluster characteristics than what occurs in more remote locations. In the more remote locations, there are often farms and ranches with customer premises separated by miles from one another and which are many miles from the town in which switches and network concentrators are located. With shapefiles for this typical town, we could have one polygon for the town where we are very confident that most customers can get high-speed broadband service. Then we could have multiple polygons for the clusters of premises located on the outskirts of town that would align with the network characteristics present in those clusters. Then we could use lines to represent bandwidth available along the roadways leading further away from town and along which there may be the occasional home or business. Lastly, we could use dots to represent bandwidth available for the individual locations in remote locations many miles from the town. With this type of mapping, one could clearly see the locations with the lowest broadband speeds, which should better inform policy decisions on how best to address the broadband needs of those that are unserved or underserved. In addition, shapefiles for other exchanges and from other companies could be consolidated into one master file that would more accurately display broadband availability by town, county, state, or country. Further, such files can be more easily updated as network characteristics improve and bandwidth increases than the exiting method that requires one to first match bandwidth availability to the census block for which locations may be less logically assigned.

However, policymakers should consider how to achieve even higher granularity in the future. At Range, we are cautiously optimistic about the USTelecom group's location fabric proposal. We are fully aware of the errors contained in the current location databases and are hopeful that a more accurate database can developed. We look forward to the results of the pilot projects and will be able to comment further when more information is known. If a better customer location fabric is developed, it appears that it can be complementary to the shapefile proposal so that polygons can be more accurately overlaid on customer location maps. We do believe, however, that shapefile reporting processes can be created and used prior to the development of a customer location fabric and that development of the latter should not delay the development of the former.

With respect to crowd-sourcing, while we are supportive of opportunities for customers to challenge broadband speeds reported by companies, it is with the caveat that broadband speed and latency tests within a home over customer equipment may not be as accurate as those performed by companies for the portions of the networks they control. There are numerous factors within a home that can show speeds lower than what a customer is receiving, or capable of receiving, such as the age of the customer's hardware and software, inside wiring, and whether other devices are using the Internet at the time of the test, or whether the customer has subscribed to the highest speed available. Thus, while crowdsourcing could be

used for data points in limited instances, we don't believe there should be an over-reliance on the results of customer speed tests.

We do believe that before any decision is made on whether to provide funding to a new entity in an area where a provider has already received universal service support or broadband/infrastructure grants, or whether to eliminate or reduce universal service support for an existing recipient, or whether to deem an area served and thereby ineligible for support, there should be a challenge process whereby existing providers, state commissions, customers, and interested third parties can challenge the broadband availability for which the decision is being made to grant new support or reduce current support. Any map, no matter how carefully constructed, can be inaccurate either through errors or simply because it is out of date by the time a funding decision is being made. A challenge process need not be overly time-consuming and burdensome. We believe a streamlined process can be established to ensure that scarce funding is targeted to the areas that are most truly in need.

Concluding Remarks

There appears to be broad agreement that the FCC's current broadband mapping methodology needs to be changed. FCC Chairman Ajit Pai acknowledged as much in his testimony on June 12 to the Senate Commerce, Science, and Transportation Committee when he stated that he intends to "to circulate a Report and Order at the FCC's monthly meeting in August that would result in a more granular and more accurate broadband map. That means requiring broadband providers to report where they actually offer service below the census block level, and looking to incorporate public feedback into our mapping efforts." I will work with WTA and others in the industry to provide comments to the FCC in advance of the Order's release that are consistent with positions I provided in my testimony today. We are committed to doing our part to achieve a more granular broadband availability map via a less-burdensome reporting methodology that better reflects real-world network characteristics and customer locations, and that contains a meaningful challenge process.