North Bay/North Coast
Broadband Consortium

July 13th, 2018
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue NW
Room 4725, Washington, DC 20230

RE: NTIA REQUEST FOR COMMENTS ON IMPROVING THE QUALITY AND ACCURACY OF BROADBAND AVAILABILITY DATA

On behalf of the North Bay/North Coast Broadband Consortium (NBNCBC), I am writing in response to NTIA's request for comments given we have had issues similar to those NTIA identified and addressed to the Federal Communications Commission (FCC) in modernizing the Form 477 reporting requirements.[1] Much of the NBNCBC region lies in rural America and faces ongoing obstacles that obstruct our goal of closing the Digital Divide, providing fast and affordable broadband access to all, and in this case, our rural communities. NBNCBC believes Form 477 should be modernized to effectively and accurately depict broadband availability in rural America and the NBNCBC region.

After the 2017 Northern California Wildfires that primarily affected three of the four counties in the NBNCBC region, NBNCBC identified gaps in the FCC's Network Outage Reporting System (NORS) and Disaster Information Reporting System (DIRS), showing how rural telecommunications outages and their reporting standards are a major issue for rural America's public safety and also require modernization to account for all geographical locations to improve accuracy.[2] It is clear to the NBNCBC that the FCC should modernize many of its reporting systems for both urban and rural America, and assess both individually what is best for them and recognize "one size does not fit all".

I. CONSORTIUM INTRODUCTION AND OVERVIEW

In 2014 and 2015 The California Public Utilities Commission (CPUC) awarded the North Bay/North Coast Broadband Consortium (NBNCBC) a two-year grant for $250,000 to help plan for telecommunications broadband deployment and services to unserved and underserved areas in Marin, Mendocino, Napa and Sonoma counties. This grant was augmented by county funding and a significant amount of in-kind and volunteer resources in each county. The consortium received a second $250,000 CPUC grant for 2017 and 2018 to continue its planning efforts.

[1] Ex Parte Comments Of The National Telecommunications And Information Administration: https://www.ntia.doc.gov/files/ntia/publications/ntia_comments_on_modernizing_the_fcc_form_477_data_program.pdf

[2] http://www.mendocinobroadband.org/wp-content/uploads/1.-NBNCBC-Telecommunications-Outage-Report-2017-Firestorm.pdf

The mission of NBNCBC is to ensure the needs for broadband access and adoption are met in every corner of all four counties. NBNCBC's top priority and immediate focus is bringing broadband services to unserved and underserved areas in our four counties. The leadership of NBNCBC involves an Oversight Committee and a Management Team. Mendocino County Supervisor Dan Hamburg and County Supervisors Dennis Rodoni (Marin), Diane Dillon (Napa) and Lynda Hopkins (Sonoma) comprise the current Oversight Committee.

II. NTIA COMMENTS AND DATA REQUEST

NBNCBC provides responses to NTIA's request below.

Request for Comments: NTIA invites comment on the full range of issues that may be presented by this inquiry, including issues that are not specifically raised in the questions below. Commenters are encouraged to address any or all of the questions below. Comments that contain references to studies, research, and other empirical data that are not widely published should include copies of the referenced materials with the submitted comments.

1. Identifying additional broadband availability data:

a. What additional data on broadband availability are available from federal, state, not-for-profit, academic, or private-sector sources to augment the FCC Form 477 data set?

NBNCBC is not aware of any additional quantitative or ground truth testing data on wireline broadband availability other than what is already available at the California Public Utilities Commission (CPUC) and the Federal Communications Commission (FCC). The only data that has not been shared is available through NBNCBC staff, which is usually qualitatively backed by residential outreach and has not been validated via ground truth testing.

In 2014, NBNCBC identified nearly 40 areas across our four counties that we rated as unserved or underserved. Unfortunately, the CPUC mapping and official database declared those areas as served by virtue of providers' reporting on Form 477, identifying those areas were served by wireless services. NBNCBC engaged CSU Chico GIC to conduct ground truth testing in 30 of those areas. Of the 30 areas tested that the CPUC official database declared as served, the test results concluded that 28 of areas were actually underserved or unserved. That experience has made us skeptical of all the data reported by providers to the CPUC and FCC using Form 477.

b. What obstacles—such as concerns about the quality, scope, or format of the data, as well as contractual, confidentiality, or data privacy concerns—might prevent the collaborative use of such data?

It is important to note that NBNCBC has embraced the FCC standards of 25 Mbps downstream and 3 Mbps upstream. We reject the current CPUC standards as being inadequate to meet the needs of Californians. Furthermore, we believe the future needs will go beyond 25/3. As a consequence, we have urged incumbents to deploy new infrastructure that will start at 25/3

and be able to expand over time. We have not been very successful given the major providers tend not to be as collaborative as hoped.

2017 Northern California Wildfire Impacted Communities

NBNCBC is concerned with the quality of current data held at the CPUC and FCC for broadband availability in all locations, especially areas impacted by the 2017 Northern California Wildfires. Specifically, we believe any location within a fire perimeter should be identified as 'pending until restored and verified' – meaning, the location is neither served nor unserved; and, until services are restored with the same quality of service or better, services in the wildfire impacted perimeter should be identified as 'pending until restored and verified'. Furthermore, any additional locations within wildfire or previous/future disaster perimeters should be identified as 'pending until restored and verified'. Since these data are already available at the FCC and CPUC, NBNCBC requests the data and maps be updated to account for past and future disasters' concurrent effect on telecommunications infrastructure and their replacement.

Ground Truth Testing in CAFII Territories

NBNCBC is also reluctant to pursue ground truth testing in any Connect America Fund Phase II (CAFII) territories as any speed testing done would not ensure eligibility for grant funding from sources like CPUC's California Advanced Services Fund (CASF). The CPUC uses a software application called CalSPEED[3] which validates broadband availability in California and is used to verify a community's eligibility for CASF grant funding; however, if the community is already within a CAFII territory, CASF grant funding cannot be awarded if the incumbent providers use their Right of First Refusal (ROFR) to upgrade services to a minimum threshold of 10/1 service by the year 2020. NBNCBC agrees with what NTIA has mentioned in their comments to the FCC,

> *"To more accurately capture areas currently served or very likely to be served, NTIA recommends that covered Census block data only include areas currently served and areas that the provider expects to serve or could serve, upon request, within a maximum timeframe of several weeks or months, at the reasonable expense of the provider. This would also avoid the risk that individuals or a community could understand from Form 477 data that they can get access to service, only to learn that such access might be extremely costly or not be available for a long period of time."*

Though NBNCBC believes it is necessary to ground truth test broadband availability in these areas, we see no use to do so if the speed test results required to utilize any CASF grant funding are obstructed by CAFII areas and incumbent providers' Right of First Refusal (ROFR). This issue gives incumbents the ability to block off a provider willing to provide faster service (e.g. gigabit) to the community rather than a minimum of 10/1 service supported by CAFII funding.

[3] http://www.calspeed.org/

2. Technology type, service areas, and bandwidth: Please consider providing table or spreadsheet attachment when responding to question 2, if needed.

a. For each broadband availability data source, please define the specific broadband technologies (e.g., wireline, cable, fixed wireless, satellite, multiple sources, etc.) included in the data set. Please explain the service areas or geographic scope of the data set (e.g. Census block, county, cable franchises, publicly funded service areas, etc.) And describe how records from the data set could be matched with records from Form 477 data.

Qualitative data collected and held by NBNCBC staff includes some to all of the following: mapping, home/business addresses, description of broadband technologies available, point of contact from the community, cost estimates for service/line extensions, and conversations held with providers regarding service, or lack thereof, in the unserved area. Ground truth data is either not included, or in the process of being collected and will be processed through CPUC's CalSPEED software application. If the NTIA or FCC finds these qualitative data sufficient for validation to update the broadband availability maps, NBNCBC will organize and provide such data upon request or further notice.

b. Describe how frequently the dataset is updated and the methodology used for collection and what measures are employed to validate or otherwise ensure the data is accurate. Please explain whether the data set differentiates between subscribed bandwidth and maximum available speeds.

As an example, and with regard to the qualitative data described above, Sonoma County's staff received residential outreach from roughly ten different unserved communities in the last year that collectively include over 3,000 residents. The input we have received from each community varies; however, some residents who do have connectivity have issues with the difference in the quality of service between their subscribed service and the actual service they receive. As NBNCBC gradually identifies more unserved communities, data for these unserved communities can be provided to the NTIA and FCC on a rolling basis.

c. For each data set, please provide the name(s) and type(s) of entity that collects the data.

No comment.

d. Finally, please specify the format of the data (e.g., CSV, specific database, specific Geographic Information System (GIS) format, etc.)

Mapping for the unserved areas can be provided in GIS format. The remaining qualitative data is in a combination of picture files, word documents, pdfs, etc.

3. New approaches: Are there new approaches, tools, technologies, or methodologies that could be used to capture broadband availability data, particularly in rural areas?

NBNCBC is attempting to partner with major Agriculture stakeholders throughout the region and State of California to create and distribute a survey intended for rural agricultural

communities and businesses to identify broadband availability needs. The survey will ask respondents to verify their broadband availability via speed testing, what they have available to them *now*; and finally, ask questions relating to their needs for the *future*. The survey will focus on the premise of Precision Agriculture and the demand for Agriculture Technology "AgTech". As the demand for AgTech steadily increases among the agriculture industry, the demand for connectivity to rural farming communities concurrently increases – which is required to support future technologies.

4. Validating broadband availability data:

a. 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?

Local information seems to be the most practical method to validate broadband availability in the NBNCBC region. It is more effective for NBNCBC staff to listen to local broadband consumers and their customer experiences rather than relying on inaccurate data collected and supported through Form 477. As the NTIA mentioned in their comments to the FCC,

> *"In the case of broadband deployment, local governments and even individuals may in some cases be in the best position to validate the data."*

NBNCBC agrees - allowing individuals or local governments to validate data themselves could be a more effective route to validate broadband availability accuracy.

The process NBNCBC has historically followed to identify broadband availability proceeds as such:

1.) A local resident reaches out to a NBNCBC member county department responsible for broadband, explaining their community either has inadequate broadband service, or no service at all.
2.) Further data are collected from the community via in-person meetings, community emails, and if eligible for CASF grants - CalSPEED tests are pursued.
3.) NBNCBC staff reaches out to broadband providers in the residential area to determine whether or not services can be improved or delivered to the unserved communities.
4.) Based on data collected from the community and the provider's response, NBNCBC staff can identify communities as unserved and in need of improved services.

Based on the results from above, NBNCBC attempts to orchestrate broadband deployment projects by connecting unserved communities with broadband providers that are willing to deliver fast and affordable broadband services to the unserved communities using grants from CPUC's CASF program.

b. Do examples or studies of such validation exist?

Yes. There are many unserved communities NBNCBC staff has encountered; and, each community has its own 'champion', or rather, local member(s) leading the community's efforts to receive better broadband services. Each NBNCBC member county has its own county department for residents to contact, from which we direct them to follow the process described above.

c. What thresholds or benchmarks should be taken into account when validating broadband availability, such as bandwidth, latency, geographic coverage, technology type, etc.? How can conformance to such standards be used to evaluate the accuracy of broadband data sets? How could those standards be used to improve policymaking, program management, or research in broadband-related fields?

Bandwidth

Proposal: NBNCBC believes bandwidth should be taken into account when validating broadband availability. NBNCBC proposes the following to identify broadband availability and unserved communities using 25/3 as the minimum.

Rationale: NBNCBC contends 25/3 should be a minimum broadband service speed a consumer should be provided for access. A lower/minimum speed threshold such a 10/1 is inadequate. In urban areas providers are delivering 25/3 and more.

Once identified as unserved, any federal grants to deploy broadband to the unserved communities should prioritize bids from providers who are willing to deliver the best quality service to the area (e.g. gigabit) rather than projects that only aim to provide a minimum of 10/1 or 25/3 broadband speeds.

Latency

Proposal: NBNCBC believes latency should be taken into account as well when validating broadband availability. NBNCBC commends Ihiji's latency guide below and recommends a maximum round trip latency of 30ms be used as a threshold for identifying broadband availability. If an area does not have access to broadband service that provides latency less than 30ms, it should be identified as unserved.

Rationale: Ihiji, an online platform that provides technical expertise, suggests the following thresholds for latency:[4]

- *A round trip latency of 30ms or less is healthy.*
- *Round trip latency between 30ms and 50ms should be monitored closely. Consider looking deeper at the network for potential issues.*
- *Round trip latency over 50ms quires immediate attention to determine the cause of the latency and potential remedied. Continue monitoring to track improvements*

[4] http://www.ihiji.com/how-lan-latency-impacts-streaming-video/

Geographic Coverage

Proposal: NBNCBC believes geographic coverage should be taken into account when validating broadband availability. NBNCBC believes the use of census blocks is not an effective measurement for geographic coverage, but instead, more granular identification should be used.

Rationale: In NBNCBC region, census blocks can dramatically vary in size among rural and urban areas. In a rural area for example, a census block can be miles in distance while a census block in an urban area can be much smaller in distance. Under current CPUC standards, should one household in a census block be identified as having access to a minimum of 10/1 broadband speeds, the entire census block is considered served.

It is evident that broadband service to a smaller census block is easier to achieve rather than one that is miles in distance. For example, in the NBNCBC region, a community on one side of a mountain or redwood forest may have connectivity, but a community on the other side who is within the same census block may not. Since one of the communities is connected to broadband services, the census block is identified as served, even though one of the communities within the census block is not served.

Instead of using census blocks to identify geographical coverage, Form 477 should require broadband providers to report broadband availability using a method that increases granularity, such as a form of geocoding that captures providers' installed technology on individual parcels or households. As NTIA mentioned in their comments to the FCC,

> *"Alternatively, the Commission could request that broadband service providers report service areas as polygons, road segments, or other geographic representations, rather than in terms of Census blocks. Then using its estimates, the Commission could project the total numbers of housing units and population covered."*

NBNCBC believes NTIA's recommendation could also be an effective method to pursue. Overall, NBNCBC believes census blocks are an ineffective boundary to identify broadband availability; and, more granular boundaries are preferred for both rural and urban communities.

5. Identifying gaps in broadband availability:

a. What data improvements can the government implement to better identify areas with insufficient broadband capacity?

NBNCBC agrees with NTIA that an online public validation system should be streamlined to a simpler and more effective process.

> *"The present requirement to file a formal comment is too burdensome to encourage constructive responses from individual stakeholders. In the case of broadband deployment, local governments and even individuals may in some cases be in the best position to validate the data. The Commission should develop a methodology for reviewing and responding to public input—in concert with broadband service providers—aimed at meaningful data quality improvement. This process should be*

streamlined and efficient, and avoid being overly burdensome to small, particularly rural providers."

As mentioned earlier, NBNCBC routinely engages with the public, and our best way of validating broadband availability is through public outreach and qualitative research. If the public can validate broadband availability themselves, the national broadband availability maps would reflect much more accuracy. In addition, NBNCBC commends NTIA's idea of creating a robust mapping system for public use,

"Specifically, NTIA recommends several ways the Commission can make the broadband deployment map more effective. First, it should enable users to customize the speeds and technologies on display, and to receive contextual information as they zoom in on particular localized communities. Second, the Commission could provide an additional map layer identifying community anchor institutions, public housing, and other important landmarks. "

NBNCBC believes the best tool to validate and identify broadband availability are the consumers of the broadband services; and, creating a user-friendly platform for the public to use could effectively improve accuracy for broadband availability.

b. What other inputs should NTIA seek to inform data-driven broadband policy- and decision-making?

Telecommunications Outage Reporting

As mentioned in the introduction, NBNCBC created a Telecommunications Outage Report in response to the 2017 Northern California Wildfires.[5] The report is the first of its kind using data from a regional survey that received over 3,700 responses from residents. The report includes recommendations in the executive summary for how our nation can better improve telecommunications outage reporting that effectively captures rural and urban demographics separately. Both NTIA and FCC should understand the issues we face in rural NBNCBC regions regarding telecommunications outages and how public safety is a priority concern involved.

Prioritizing Best Quality Service

In a recent California Department of Food and Agriculture meeting on June 5th 2018, CPUC Commissioner Martha Guzman stated that the California speed threshold of 6/1, enacted by AB 1665, allows their department to identify the *most critically* unserved communities in California; but, that doesn't mean the CPUC is funding 6/1 broadband deployment projects - rather projects offering best quality service such as gigabit.[6]

This is an important concept the FCC should understand and implement: once unserved communities are identified using a minimum metric of 25/3, any resulting grants should be

[5] http://www.mendocinobroadband.org/wp-content/uploads/1.-NBNCBC-Telecommunications-Outage-Report-2017-Firestorm.pdf
[6] https://www.cdfa.ca.gov/State_Board/

awarded competitively to any provider willing to deliver the best quality service that is sustainable for the future.

III. CONCLUSION

Broadband is a significant component to economic development not only for urban areas, but also for rural communities. Rural broadband access is recognized at the Economic Development Administration (EDA) to be a key component for economic development; and, for any businesses in rural areas, a majority of which are agricultural, they require adequate broadband connectivity to remain competitive in the nation's growing economy.[7] NBNCBC believes fast and affordable broadband access should be available to all individuals for reasons not limited to: public safety, education, business, healthcare, agriculture, and much more. To continue developing broadband infrastructure into unserved rural areas, the FCC should consider all recommendations NTIA and NBNCBC have offered as they will help identify more unserved communities, and we can continue to provide aid and resources to close the Digital Divide.

On behalf of NBNCBC,

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[7] https://www.eda.gov/news/press-releases/2017/04/07/in.htm