EXHIBIT #4
Improving the Quality and Accuracy of Broadband Availability Data

The NTIA

The National Telecommunications and Information Administration (NTIA), located within the Department of Commerce, is the Executive Branch agency that is principally responsible by law for advising the President on telecommunications and information policy issues. NTIA's programs and policymaking focus largely on expanding broadband Internet access and adoption in America, expanding the use of spectrum by all users, and ensuring that the Internet remains an engine for continued innovation and economic growth. These goals are critical to America's competitiveness in the 21st century global economy and to addressing many of the nation's most pressing needs, such as improving education, health care, and public safety.

Specific NTIA activities include:

- Managing the Federal use of spectrum and identifying additional spectrum for commercial use;
- Administering grant programs that further the deployment and use of broadband and other technologies in America;
- Developing policy on issues related to the Internet economy, including online privacy, copyright protection, cybersecurity, and the global free flow of information online;
- Promoting the stability and security of the Internet's domain name system through its participation on behalf of the U.S. government in Internet Corporation for Assigned Names and Numbers (ICANN) activities; and
- Performing cutting-edge telecommunications research and engineering with both Federal government and private sector partners.

In addition to working with other Executive Branch agencies to develop Administration positions, NTIA represents the Executive Branch in both domestic and international telecommunications and information policy activities. NTIA is also a leading source of research and data on the status of broadband availability and adoption in America.

The Initiative to Improve the Quality and Accuracy of Broadband Availability Data

On May 30, 2018, NTIA, on behalf of the Department of Commerce (Department), requested comment on actions that can be taken to improve the quality and accuracy of broadband availability data, particularly in rural areas, as part of the activities directed by Congress in the Consolidated Appropriations Act of 2018.

Through this Request for Comments, NTIA seeks input from a broad range of interested stakeholders—including private industry; academia; federal, state, and local government; not-for-profits; and other stakeholders with an interest in broadband availability—on ways to improve the nation's ability to analyze broadband availability, with the intention

of identifying gaps in broadband availability that can be used to improve policymaking and inform public investments.

NTIA's Request for Comments and NBNCBC Responses

NTIA invited 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 were 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 Response: 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?

NBNCBC Response: 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.

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.

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).

2. *Technology type, service areas, and bandwidth:*

Please consider providing a 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.

NBNCBC Response: 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.

b. Describe how frequently the data set 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.

NBNCBC Response: 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.

NBNCBC Response: No comment.

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

NBNCBC Response: 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 Response: 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?

NBNCBC Response: 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?

NBNCBC Response: 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?

NBNCBC Responses:

Bandwidth. 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.

Latency. 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.

Geographic Coverage. 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.

5. *Identifying gaps in broadband availability:*

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

NBNCBC Response: 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?

NBNCBC Response: 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.

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