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Broadband Data and Mapping: Background and Issues for the 116th Congress

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SUMMARY

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Broadband Data and Mapping: Background and Issues for the 116th Congress

Access to high-speed internet, also known as broadband, is increasingly important in the 21st century, as more and more aspects of everyday life, such as job applications and homework assignments, become digital. Some areas of the United States—particularly rural areas—have limited or no access to broadband due to market, geographic, or demographic factors. The gap between those who have access to broadband and those who do not is referred to as the digital divide.

The Federal Communications Commission (FCC), National Telecommunications and Information Administration (NTIA), and Rural Utilities Service (RUS) have developed maps to help guide resources toward closing the digital divide. Since 2018, the FCC has had the responsibility for developing a comprehensive map of broadband access in the United States. However, the data available to determine where to invest resources may be incomplete or inaccurate. For example, the FCC's current methodology considers a census block served if at least one home or business in that census block has broadband access. In addition, the data is self-reported by broadband service providers and not independently verified outside the FCC.

On August 1, 2019, the FCC adopted a *Report and Order* introducing a new process, called the Digital Opportunity Data Collection (DODC), for collecting fixed broadband data. The new process would require broadband service providers to provide geospatial broadband coverage maps—which provide greater granularity than census blocks—indicating where fixed broadband service is actually made available. The new process would also implement a crowdsourcing mechanism for public feedback, as individual consumers will likely know whether they have access to broadband. The FCC also adopted a *Second Further Notice of Proposed Rulemaking (FNPRM)*, seeking comment on issues including the need for additional granularity and the potential sunset of the current data collection process upon complete implementation of the DODC.

As the FCC implements the DODC process, Congress has a wide variety of options for oversight and legislation. For example, Congress may continue to consider issues such as the optimal level of data granularity, the process for independent validation, and costs and burdens of broadband data collection on both consumers and broadband service providers. Congress could consider providing federal funding for a broadband mapping pilot to thoroughly assess these factors and assist in determining how to strike the desired balance, as well as exploring what funding levels for ongoing broadband map maintenance would be sustainable and where the necessary funding would come from.

Congress may debate whether to leave factors within the proposed DODC, such as the current delegation of broadband data collection authority to the Universal Service Administrative Company, to the discretion of the FCC, or Congress may wish to enact legislation to keep broadband data collection efforts under the purview of the FCC. To assist with future federal action, Congress may take into consideration successful state broadband mapping efforts, which could provide additional insight into models that could be replicated on a national scale.

Congress may continue to debate potential short-term and long-term broadband mapping solutions, including whether federal funding for rural broadband expansion should be withheld until mapping issues are resolved. In conjunction, Congress may also contemplate whether to provide oversight over federal agency broadband activities or enact legislation regarding interagency coordination efforts on broadband deployment to reduce the potential for duplicative funding. Another consideration for Congress may be whether the FCC's Fixed Broadband Deployment Map could be updated more frequently so that data reflects continuing network changes and, if so, whether that would impose a significant burden on broadband service providers.

Bills addressing many of these broadband mapping issues have been introduced in the 116th Congress, including the Save the Internet Act of 2019 (H.R. 1644), passed by the House on April 10, 2019, and the ACCESS Broadband Act (H.R. 1328), passed by the House on May 8, 2019.

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Introduction

Mapping broadband availability,[1] which means graphically displaying where broadband is and is not available on a map, is complex and depends on data—with the accuracy of the map depending on the accuracy of the data used to compose the map. Congress has an interest in accurate broadband mapping data, because accurate data can help ensure that federal broadband programs target areas of the country that are most in need of assistance. The Telecommunications Act of 1996 (P.L. 104-104) requires the Federal Communications Commission (FCC) to determine annually whether broadband is being deployed to all Americans on a timely basis, and the FCC relies on broadband mapping data to make this determination. Additionally, the FCC uses broadband mapping data to direct billions of dollars per year to deploy broadband in unserved or underserved areas. Congress has also taken an interest in broadband mapping due to concerns from constituents that certain areas, especially rural areas, remain underserved or unserved.

Pinpointing where broadband is and is not available in the United States has been an ongoing challenge. Current data on broadband availability is provided by private telecommunications providers, collected by the FCC, and displayed on the FCC's Fixed Broadband Deployment Map.[2] Difficulty in accurately mapping broadband availability has been attributed to a number of factors, including the adequacy of census block data, the lack of independent data validation outside the FCC, and the absence of a challenge process for consumers and other entities that believe the Fixed Broadband Deployment Map may overstate availability in their area. In early 2019, it came to the FCC's attention that inaccuracies in the Fixed Broadband Deployment Map's broadband data may cause broadband deployment to be overstated. The Fixed Broadband Deployment Map may indicate that areas have access to broadband when in reality, they do not. Inaccurate data on broadband deployment could lead to overbuilding in areas that currently have broadband while leaving other areas underserved or unserved.

In the 116th Congress, numerous pieces of legislation on improving broadband mapping efforts have been introduced, and multiple hearings have been held on the issue. In August 2019, the FCC adopted a *Report and Order* to establish a new Digital Opportunity Data Collection (DODC).[3] The goal of this effort is to make the Fixed Broadband Deployment Map more accurate and reliable by—among other things—incorporating public feedback and obtaining additional granularity of data. Options for Congress in this area could include oversight of the FCC effort and additional legislative action to improve the accuracy of broadband mapping.

Broadband Defined

The term *broadband* commonly refers to high-speed internet access that is faster than dial-up access and is immediately accessible. Broadband includes several high-speed transmission technologies, such as:

- digital subscriber line (DSL),

[1] *Broadband availability* refers to whether or not broadband service is offered, while *broadband adoption* refers to the extent to which American households actually subscribe to and use broadband.

[2] FCC, "Fixed Broadband Deployment," https://broadbandmap.fcc.gov/.

[3] Mark Wigfield, "FCC Establishes New Digital Opportunity Data Collection," FCC, August 1, 2019, https://docs.fcc.gov/public/attachments/DOC-358832A1.pdf.

- cable modem,
- fiber,
- wireless,
- satellite, and
- broadband over power lines (BPL).[4]

The internet became publicly available in the 1990s and has evolved since that time as information has continually become digital (e.g., job applications and government forms have moved online). However, not all Americans currently have equal access to broadband.

As methods to reach the internet have evolved, so have speeds, with the FCC's current broadband benchmark speed set at 25 megabits per second (Mbps) download and 3 Mbps upload (25/3). **Table 1** shows how the FCC's broadband definition has changed from 1996 to its current definition, which was adopted in 2015.

Table 1. FCC Broadband Definitions over Time

Date Adopted	Minimum Download	Minimum Upload
1996	200 Kbps	200 Kbps
2010	4 Mbps	1 Mbps
2015	25 Mbps	3 Mbps

Source: Jameson Zimmer, "FCC Broadband Definition Has Changed Before and Will Change Again," BroadbandNow, February 10, 2018, https://broadbandnow.com/report/fcc-broadband-definition/.

Notes: *Mbps* means megabits per second and *Kbps* means kilobits per second.

The Urban/Rural Digital Divide

The term *digital divide* refers to a gap between those Americans who use or have access to telecommunications and information technologies and those who do not.[5] While urban areas likely see speeds close to 25/3, broadband speeds in rural[6] areas often do not approach that speed—with some areas having no access to broadband. Several factors contribute to geographic disparity, including terrain, population density, demography, and other market factors. These factors discourage build-out to areas that are not as densely populated, because they typically result in a lower return on investment for broadband providers. Although strides have been made in the deployment of broadband to rural areas, the urban/rural digital divide persists. In a survey conducted by the Pew Research Center in 2018, adults who live in rural areas were more likely to

[4] DSL uses copper telephone wires. Cable modem uses coaxial cables—the same used for cable television. Fiber uses pulses of light shot by lasers through thin strands of glass. Wireless uses a radio connection between the consumer and the service provider's terrestrial antennae. Satellite uses a radio connection to a space-based antenna. BPL uses power lines to deliver broadband to consumers. For further information, see FCC, "Types of Broadband Connections," June 23, 2014, https://www.fcc.gov/general/types-broadband-connections.

[5] For more information on the digital divide, see CRS Report RL30719, *Broadband Internet Access and the Digital Divide: Federal Assistance Programs*, by Lennard G. Kruger and Angele A. Gilroy.

[6] The FCC's definition of *rural* is based on the Census Bureau's Core Based Statistical Areas. See *Rural Health Care Support Mechanism*, WC Docket No. 02-60, Second Report and Order, Order on Reconsideration, and Further Notice of Proposed Rulemaking, 19 FCC Rcd 24613, 24619, para. 11 (Rural Health Care Second Report and Order) (2004) (adopting the Core Based Statistical Area-based definition of *rural area*).

say that getting access to high-speed internet is a major problem in their local communities.[7] The primary goal of broadband mapping is to identify areas without access to broadband so that policymakers can make informed decisions on policies to address the urban/rural digital divide.

Federal Agency Roles in Broadband Mapping

The major federal agencies involved in broadband mapping are the National Telecommunications and Information Administration (NTIA) in the Department of Commerce, the FCC, and the Department of Agriculture (USDA).

National Telecommunications and Information Administration

The Broadband Data Improvement Act (P.L. 110-385), enacted on October 10, 2008, directed the Department of Commerce to establish a state broadband data and development grant program.[8] One of the purposes of the program was to assist states in gathering data twice a year on the availability, speed, and location of broadband service as well as on the broadband services used by community institutions, such as schools, libraries, and hospitals. This data was used to establish the National Broadband Map, the first public, searchable, nationwide map of broadband availability, which was launched in 2011.[9]

This program, known as the State Broadband Initiative (SBI), was administered by NTIA, an agency in the Department of Commerce, and funded under the American Recovery and Reinvestment Act of 2009 (P.L. 111-5). Through the SBI program, NTIA awarded a total of $293 million to 56 grantees—one from each of the 50 states, five territories, and the District of Columbia. The grantees were required to use the funds to promote broadband adoption and access tailored to their local needs and collect broadband-related data and provide it to NTIA. In 2015, the SBI program ended, collecting its last data as of June 30, 2014. The National Broadband Map was decommissioned on December 21, 2018, due to the age of the data. Mapping responsibility shifted to the FCC.[10]

In the Consolidated Appropriations Act of 2018 (P.L. 115-141), Congress provided $7.5 million to NTIA to develop a National Broadband Availability Map. Specifically, Congress directed NTIA to acquire and display available third-party data sets to augment data from the FCC, other federal government agencies, state governments, and the private sector. The stated objective of this funding was "to help identify regions with insufficient service, especially in rural areas."[11]

In response, NTIA announced in February 2019 it had partnered with eight states—California, Maine, Massachusetts, Minnesota, North Carolina, Tennessee, Utah, and West Virginia—for a pilot to improve the FCC's Fixed Broadband Deployment Map. The first phase of NTIA's new National Broadband Availability Map was published in October 2019. It is available only to state and federal partners due to the inclusion of nonpublic data, which may be business sensitive or

[7] Andrew Perrin, "Digital Gap Between Rural and Nonrural America Persists," Pew Research Center, May 31, 2019, https://www.pewresearch.org/fact-tank/2019/05/31/digital-gap-between-rural-and-nonrural-america-persists/.

[8] P.L. 110-385 directed, but did not provide funding for, the establishment of a state broadband data and development grant program.

[9] NTIA, "State Broadband Initiative," https://www2.ntia.doc.gov/SBDD.

[10] Rich Mansfield, "Decommissioning of the National Broadband Map and Its APIs," FCC, December 7, 2018, https://www.fcc.gov/news-events/blog/2018/12/07/decommissioning-national-broadband-map-and-its-apis.

[11] "Joint Explanatory Statement," *Congressional Record*, vol. 164, part 50—Book II (March 22, 2018), pp. H2084-H2085.

have other restrictions that prevent public disclosure.[12] The conference report on the Consolidated Appropriations Act of 2019 (P.L. 116-6) directed an additional $7.5 million to NTIA to continue this mapping effort.[13]

Federal Communications Commission

In 2000, the FCC established the Form 477 Data Program to collect from providers "data regarding broadband services, local telephone service competition, and mobile telephony services on a single form and in a standardized manner."[14] In 2013, an FCC *Report and Order* on Form 477 expanded the scope of the data collection program just as NTIA's National Broadband Map was nearing its end. Among the notable changes to the FCC program were:

- the collection of fixed broadband data by census block and of mobile broadband and mobile voice data by network coverage area;
- a requirement for providers of broadband services to provide maximum advertised speeds in each census block for fixed broadband and the minimum advertised speed in each coverage area for mobile broadband;
- provisions for providers to file all data in a single, uniform format instead of different formats across states; and
- the elimination of the use of speed tiers for broadband subscription data.[15]

The FCC collects data on both fixed and mobile broadband availability through Form 477. It does not combine the two sets of data into a single map; rather, it uses the fixed data to create the Fixed Deployment Broadband Map, and it uses the mobile broadband data to determine which areas are eligible for the Mobility Fund Phase II program (see "Eligibility for Federal Assistance" below).

Form 477 Fixed Broadband Data Methodology

Every six months, all facilities-based providers[16] of fixed broadband are required to submit a list of all census blocks where they provide, or could provide, fixed broadband service to at least one location. For each census block, the provider is required to submit data specifying the last-mile technology used;[17] whether the provider can or does offer consumer, mass market, or residential service; the maximum advertised download and upload speeds for consumer service; and whether the service is also available for business, enterprise, or government customers.[18]

In 2017, the FCC acknowledged some shortcomings of this methodology:

> Facilities-based providers of fixed broadband must provide in their Form 477 submissions a list of all census blocks where they make broadband connections available to end-user

[12] NTIA, "National Broadband Availability Map," October 2, 2019, https://broadbandusa.ntia.doc.gov/map.

[13] H.Rept. 116-9.

[14] FCC, "In the Matter of Modernizing the FCC Form 477 Data Program," June 27, 2013, p. 3, https://docs.fcc.gov/public/attachments/FCC-13-87A1.doc.

[15] FCC, "Form 477 Orders and Releases," May 21, 2019, https://www.fcc.gov/general/form-477-orders-and-releases.

[16] A facilities-based provider is a provider that owns (as opposed to leases) networks used to provide telecommunications services.

[17] *Last mile* refers to the type of connection between a broadband service provider and the consumer (e.g., fiber or cable).

[18] For a more detailed list of the data elements required, see FCC, "Explanation of Broadband Deployment Data," May 1, 2019, https://www.fcc.gov/general/explanation-broadband-deployment-data.

> premises, along with the last-mile technology or technologies used. These deployment data represent the areas where a provider does, or could, without an extraordinary commitment of resources, provide service. Thus, the meaning of "availability" in each listed census block can be multifaceted, even within the data of a single filer. In a particular listed block, the provider may have subscribers or it may not. At the same time, the provider may be able to take on additional subscribers or it may not. The various combinations have varying implications that make it difficult to understand availability. Specifically, if a block was listed by a provider, it is impossible to tell whether residents of that block seeking service could turn to that provider for service or whether the provider would be unable or unwilling to take on additional subscribers. This may limit the value of these data to inform our policymaking and as a tool for consumers and businesses to determine the universe of potential broadband service providers at their location.[19]

Form 477 Mobile Broadband Data Methodology

The collection of accurate and reliable mobile broadband data is particularly challenging, because a user's mobile wireless experience varies and is affected by factors such as terrain, user location, weather, network congestion, and the type of connected service. Under Form 477 filing rules, facilities-based providers of mobile broadband service are required to submit and certify, for each technology and frequency band employed, polygons in shapefiles[20] that digitally represent the geographic areas in which a customer could expect to receive at least the minimum speed the provider advertises for that area. Additionally, mobile broadband providers must report the census tracts in which their service is advertised and available to potential customers.[21]

Digital Opportunity Data Collection

In August 2019, the FCC adopted a *Report and Order* introducing the DODC. The DODC is intended to address some of the issues that currently lead to inaccurate broadband mapping data by collecting coverage polygons from broadband service providers, incorporating public input, and revising Form 477. Specifically, the DODC would:

- require all fixed providers to submit broadband coverage polygons depicting areas where they actually have broadband-capable networks and make fixed broadband service available to end-user locations;
- reflect the maximum download and upload speeds actually made available in each area, technology used, and differentiation between types of customer (e.g., residential, business, or a combination);
- incorporate public feedback on fixed broadband coverage; and

[19] FCC, "FCC Proposes Improvements to Broadband/Voice Services Data Collection," pp. 11-12, https://www.fcc.gov/document/fcc-proposes-improvements-broadbandvoice-services-data-collection-0.

[20] Shapefiles are a data storage format for recording data associated with particular geographic locations. A polygon in a shapefile indicates the boundaries of the geographical area to which a particular set of data applies. For more information on how the FCC uses polygons in shapefiles for mobile broadband mapping, see FCC, "Mobile Broadband Deployment," June 23, 2014, https://transition.fcc.gov/form477/MBD/definitions_mbd.pdf.

[21] FCC, "FCC Proposes Improvements to Broadband/Voice Services Data Collection," August 4, 2017, p. 2, https://www.fcc.gov/document/fcc-proposes-improvements-broadbandvoice-services-data-collection-0.

- require Universal Service Administrative Company (USAC)[22] verification of broadband data.[23]

In conjunction, the FCC is seeking stakeholder comment on using the DODC exclusively for its broadband mapping and discontinuing use of Form 477.

DODC for Fixed Providers

The new data collection obligations will initially be limited to fixed broadband providers. For purposes of the DODC, service is considered to be available in an area if the broadband service provider has an active broadband connection or if it could provide such a connection within 10 business days of a customer request, without an extraordinary commitment of resources, and without construction charges or fees exceeding an ordinary service activation fee.[24]

DODC for Mobile Providers

The FCC is currently seeking comment on how best to incorporate mobile broadband data into the DODC. The August 2019 *Report and Order* proposes revising the existing Form 477 data process for mobile providers by:

- transitioning the collection of mobile broadband-capable network deployment data to a USAC-administered portal created for fixed data;
- maintaining the commission's current Form 477 data collection for mobile broadband and voice data in the interim; and
- reducing the burden on service providers required to submit the form.[25]

These changes suggest that the FCC may be planning to add mobile broadband data to the Fixed Broadband Deployment Map.

Department of Agriculture

USDA's Rural Utilities Service (RUS) oversees federal programs that fund the deployment of broadband infrastructure. To help determine where to direct federal resources, USDA also maps broadband availability. However, USDA maps are used differently than the FCC's Fixed Broadband Deployment Map. While the FCC's map is used to determine where broadband is and is not, USDA uses its maps to provide a resource for visualizing existing or proposed broadband service areas. For example, the USDA's Broadband Program Mapping Tool is used by:

- existing borrowers or those interested in applying for funding under the Infrastructure Loan Program, Broadband Loan and Loan Guarantee Program, or Community Connect Grant Program, enabling them to draw existing or proposed service area maps;

[22] USAC is an independent, not-for-profit corporation designated by the FCC to administer federal universal service funds.

[23] FCC, "FCC Fact Sheet: Digital Opportunity Data Collection," July 11, 2019, https://docs.fcc.gov/public/attachments/DOC-358433A1.pdf.

[24] FCC, *Report and Order and Second Further Notice of Proposed Rulemaking*, August 6, 2019, p. 6, https://docs.fcc.gov/public/attachments/FCC-19-79A1.pdf.

[25] FCC, "FCC Fact Sheet."

- RUS to post Public Notices of proposed funded service areas for received loan applications, as well as by existing service providers to submit information on their service offerings;
- other entities that wish to upload an authenticated map of existing broadband services.[26]

USDA's other mapping tool is part of the ReConnect Program, which was established under the Consolidated Appropriations Act, 2018 (P.L. 115-141), and is administered by RUS.[27] For ReConnect, RUS established an eligibility area map and application mapping tool designed to assist in the determination of service area eligibility across the United States by displaying four categories of data: the FCC's Connect America Fund winners, nonrural areas, pending applications, and protected broadband borrower service areas.[28]

Why Broadband Mapping Accuracy Matters

Accurate broadband data and mapping helps policymakers to make informed decisions about where federal funding should be directed, such as with the FCC's upcoming Rural Digital Opportunity Fund, and enables federal agencies to fulfill certain statutory requirements, such as the FCC's annual "reasonable and timely deployment" determination.

Eligibility for Federal Assistance

Accurate maps are important in federal funding decisions designed to target areas where broadband is needed the most. Without accurate data, maps may not be reliable indicators of need, and federal assistance may be provided to areas that already have adequate broadband services. This may result in overbuild in some areas and neglect of other areas, further widening the disparities between areas that are served and those that are not. In December 2018, FCC Commissioner Jessica Rosenworcel stated:

> Getting [the broadband map] right matters because we cannot manage what we do not measure. If we don't have proper maps, we will not be able to target policy solutions effectively. The FCC distributes billions of dollars each year to help accelerate the build-out of broadband so we can connect all our communities. It's irresponsible for the agency to do so without having a truly accurate picture of where those resources should go.[29]

A recent example of how inaccurate data has affected eligibility for federal assistance occurred in the FCC's Mobility Fund II program. In August 2018, the FCC published initial eligibility maps for Mobility Fund II, which were to be used in allocating up to $4.53 billion in support for rural wireless broadband expansion. In December 2018, the FCC announced it would launch an investigation into whether one or more major carriers violated the Mobility Fund reverse

[26] USDA, "Broadband Program Mapping Tool," https://broadbandsearch.sc.egov.usda.gov/.

[27] For more information on the ReConnect Program, see CRS In Focus IF11262, *The ReConnect Broadband Pilot Program*, by Alyssa R. Casey.

[28] RUS, "Broadband Pilot (ReConnect) Program," 84 *Federal Register* 14911, April 12, 2019.

[29] Quoted in Lindsay Conrad, "Despite Bipartisan Support, Accurate Broadband Data Is Still Lacking," Connected Nation, March 14, 2019, https://connectednation.org/texas/2019/03/14/despite-bipartisan-support-accurate-broadband-data-is-still-lacking-2/. The FCC distributes billions of dollars each year through the FCC's Universal Service Fund Programs. For additional information, see FCC, "Universal Service," https://www.fcc.gov/general/universal-service; and CRS Report R42524, *Rural Broadband: The Roles of the Rural Utilities Service and the Universal Service Fund*, by Angele A. Gilroy and Lennard G. Kruger.

auction's mapping rules and submitted incorrect coverage maps.[30] Until this investigation concludes, the FCC will not distribute the $4.53 billion. This incident drew congressional attention, including a letter to the FCC from a bipartisan group of 30 Senators, who wrote:

> As you know, many of us have expressed concern about the accuracy of the Federal Communications Commission's map of eligible areas for Mobility Fund Phase II Support (MFII). This map is intended to reflect areas that lack unsubsidized mobile 4G LTE service, but it unfortunately falls short of an accurate depiction of areas in need of universal service support.[31]

Another example is the FCC's recent announcement of the Rural Digital Opportunity Fund, which would distribute $20.4 billion over 10 years to expand broadband in rural areas. Though this initiative aims to help close the urban/rural digital divide, without accurate broadband mapping, it will be difficult to determine which areas are in most need of funds. FCC Chairman Ajit Pai stated:

> One important reason I'm so pleased that we are moving forward with this item is that we'll be putting the new maps to work right away. The Rural Digital Opportunity Fund Notice of Proposed Rulemaking that we adopted earlier today specifically proposes to use the new map to direct more than $4 billion in Phase II funding to deploy high-speed broadband networks to serve Americans living in areas of the country that Form 477's census-block level reporting deems served, but where some residents are actually not served.[32]

Reasonable and Timely Deployment Determination

The Telecommunications Act of 1996 (P.L. 104-104) requires the FCC to "initiate a notice of inquiry concerning the availability of advanced telecommunications capability to all Americans." In conducting this inquiry, the FCC must "determine whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion." If that determination is negative, the commission "shall take immediate action to accelerate deployment of such capability by removing barriers to infrastructure investment and by promoting competition in the telecommunications market."[33]

Using data from Form 477, the FCC develops an annual Broadband Deployment Report, also referred to as the Section 706 Report, in which the FCC evaluates the availability of fixed and mobile broadband services. In its 2019 analysis, the FCC made a Section 706 finding that advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion. This finding was supported by Chairman Pai, Commissioner Michael O'Reilly, and Commissioner Brendan Carr, with Commissioners Jessica Rosenworcel and Geoffrey Starks dissenting.[34] The 2019 report makes frequent references to broadband mapping and concerns about data quality.

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[30] Tina Pelkey, "FCC Launches Investigation into Potential Violations of Mobility Fund Phase II Mapping Rules," FCC, December 7, 2018, https://docs.fcc.gov/public/attachments/DOC-355447A1.pdf.

[31] U.S. Senate, letter to FCC Chairman Ajit Pai, 115th Cong., May 30, 2018, https://www.wicker.senate.gov/public/_cache/files/96625dc0-cbc9-456f-a529-4c6d27fc6424/053018wickerhassanmoranmfiiletter-final.pdf.

[32] FCC, "Statement of Chairman Ajit Pai," August 6, 2019, p. 2, https://docs.fcc.gov/public/attachments/FCC-19-79A2.pdf.

[33] 47 U.S.C. §1302(b).

[34] FCC, "2019 Broadband Deployment Report," May 29, 2019, https://docs.fcc.gov/public/attachments/FCC-19-44A1.pdf.

Broadband Mapping Challenges and Criticisms

Difficulty in mapping broadband availability has been attributed to a number of factors, including lack of data granularity, overstated availability, lack of independent data validation, and the difficulty in keeping up with real-time deployments.

Adequacy of Census Block Data

The FCC requires each broadband service provider to submit information on the services it offers at the census block level. Census blocks are the smallest unit of geography defined by the Census Bureau and are "statistical areas bounded by visible features, such as streets, roads, streams, and railroad tracks, and by nonvisible boundaries, such as selected property lines and city, township, school district, and county limits and short line-of-sight extensions and roads."[35] Census blocks vary in size and population, and their geographical area can be especially large in rural areas.

For the purposes of Form 477, the FCC considers a census block served if even one house or business in the block is served. Since census blocks in rural areas can be large, this may provide a misleading impression. For example, if fiber is connected to a home in one part of a census block, it may not be connected to another home in the same census block that is a mile down the road.

With the use of census blocks, areas within a large block that might otherwise be eligible for federal assistance may not be considered eligible. The Utah Governor's Office of Economic Development told the NTIA:

> Basing data collection, planning efforts, and funding decisions on census blocks is problematic, particularly in blocks which are large, remote, and include terrain that makes it difficult to install infrastructure. For example, in Utah, the largest populated census block is 947 square miles. Under the current Form 477 submission process, any census block that is partially covered would be ineligible for all federal broadband programs, even if only a small percentage of households or census block area is covered.[36]

Overstated Availability

Although staff examine FCC Form 477 data for quality and consistency, the FCC acknowledges that the data may understate or overstate deployment of services to the extent that broadband providers misreport or fail to report.[37] For example, after the FCC released a draft annual Broadband Deployment Report in February 2019, it was discovered that a relatively new company, Barrier Communications Corporation, had apparently submitted data claiming presence in every single census block in Connecticut, the District of Columbia, Maryland, New Jersey, New York, Pennsylvania, Rhode Island, and Virginia—which collectively contain nearly 62 million people.[38] A subsequent correction of this data resulted in the FCC issuing a revised Broadband Deployment Report.

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[35] FCC, "More About Census Blocks," March 26, 2015, https://transition.fcc.gov/form477/Geo/more_about_census_blocks.pdf.

[36] Kelleigh Cole, "Comments on (NTIA) Docket No. 180427421-8421-01, 'Improving the Quality and Accuracy of Broadband Availability Data,'" Utah Governor's Office of Economic Development, June 18, 2016, pp. 1-2, https://www.ntia.doc.gov/files/ntia/publications/2018_ntia_mapping_comments_utah.pdf.

[37] FCC, "2019 Broadband Deployment Report."

[38] Devin Coldewey, "FCC 'Looking Into' Reported Error Throwing Broadband Deployment Numbers Off by Millions," Tech Crunch, March 7, 2019, https://techcrunch.com/2019/03/07/fcc-looking-into-reported-error-throwing-

In April 2019, Microsoft asserted that the percentage of Americans without broadband access is much higher than the figures reported by the FCC. Microsoft claimed that although the FCC indicates that 24.7 million people do not have broadband available, Microsoft's own data indicates that 162.8 million people do not use the internet at broadband speeds of 25 Mbps or more.[39] Microsoft released a map showing differences between the FCC's claimed broadband access and actual usage of broadband. NCTA—The Internet and Television Association criticized this analysis, however, saying that it "conflates availability and usage" and, as a result, draws "a number of unsupportable conclusions."[40]

Lack of Validation and Challenge Process

Broadband service providers self-report information on Form 477. Although the FCC reviews the data, it is not verified independently outside of the agency. There is also no challenge process in place if a consumer, provider, or other entity identifies any of the data as potentially inaccurate.

Stakeholders who testified at an April 2019 hearing before the Senate Committee on Commerce, Science, and Transportation asserted that a challenge process is needed, citing the problems with the FCC's mobility fund auction and how it was difficult for wireless carriers to challenge mobile broadband availability data that the FCC had intended to use as a basis for awarding funding.[41]

Real-Time Deployments

The FCC currently updates the Fixed Broadband Deployment Map every six months, but the map reflects data that is a year or more behind the current date. For example, as of October 2019, the Map reflects June 2018 data.

The telecommunications industry is fluid. Broadband service providers are constantly changing, building new networks, or revising older networks. Once implemented, the FCC's new DODC will require broadband service providers to submit updates within six months of completing new broadband deployments, making changes to (including upgrading or discontinuing) existing offerings, or acquiring new or selling existing broadband-capable network facilities that affect the data submitted on their DODC filings.[42] This may help produce maps that are more up to date.

Policy Issues for Congress

As Congress considers broadband mapping, it may consider ways to address the challenges of data granularity and lack of validation, the frequent differences between advertised and actual broadband speeds, the balance between short-term and long-term solutions, ways to improve

broadband-deployment-numbers-off-by-millions/.

[39] John Kahan, "It's Time for a New Approach for Mapping Broadband Data to Better Serve Americans," Microsoft, April 8, 2019, https://blogs.microsoft.com/on-the-issues/2019/04/08/its-time-for-a-new-approach-for-mapping-broadband-data-to-better-serve-americans/.

[40] Victor Reklaitis, "It's Microsoft vs. Comcast in Infrastructure Push to Expand Rural Broadband," Market Watch, May 20, 2019, https://www.marketwatch.com/story/its-microsoft-vs-comcast-in-infrastructure-push-to-expand-rural-broadband-2019-05-06.

[41] U.S. Congress, Senate Committee on Commerce, Science, and Transportation, *Broadband Mapping: Challenges and Solutions*, testimony of Tim Donovan, SVP, Legislative Affairs, Competitive Carriers Association, 116th Cong., April 10, 2019, https://www.commerce.senate.gov/public/_cache/files/335dcd54-07d6-4140-a286-0b59f6527f6b/C2717D2DE1A24F364CAC37068A0EF5CE.04-10-19donovan-testimony.pdf.

[42] FCC, *Report and Order and Second Further Notice of Proposed Rulemaking*, August 6, 2019, p. 8, https://docs.fcc.gov/public/attachments/FCC-19-79A1.pdf.

interagency coordination, and state efforts that might be models for future federal action. Some of these issues are address by legislation already introduced in the 116th Congress (see **Appendix A**).

Granularity

How much more granular maps need to be to serve policymakers remains an open question. Increasing the granularity of data costs money, and costs may not be shared equally among stakeholders. Some stakeholders have expressed concern that requiring additional granularity might place a larger burden on smaller broadband service providers. As stated by WTA—Advocates for Rural Broadband:

> The Commission's decision to use polygon shapefile reporting, and potentially create a location fabric, is a vast improvement over the current Form 477 regime that has overstated the amount of locations served. However, as the Commission is well aware, small providers have limited staff and resources such that new reporting requirements should be carefully balanced so as to provide necessary information without becoming overly burdensome.[43]

USTelecom has proposed a methodology to the FCC to provide additional granularity called the Broadband Serviceable Location Fabric (BSLF). The methodology contains:

- multiple sources of address, building, and parcel data to develop and validate a comprehensive database of all broadband serviceable locations in the two pilot states;
- a vendor to conform address formats, remove duplicates, and assign a unique latitude and longitude to the actual building where broadband service is most likely to be installed using a georeferencing tool;
- a mediated crowdsourcing platform that will enable consumers to submit information to improve the accuracy of the database; and
- customer address lists provided by participating companies to augment the validation process that will be automatically indexed to the final database to facilitate accurate broadband availability reporting. Different methods for reporting service availability will be tested.[44]

To test this methodology, USTelecom launched a Broadband Mapping Initiative Pilot in Virginia and Missouri. The results were released to the public in August 2019 and revealed that in Virginia and Missouri combined, over 450,000 homes and business are counted as served under the FCC's Form 477 process but are not receiving service from participating providers. Further, USTelecom stated that the pilot demonstrates it is now possible to identify and precisely locate virtually every structure in a geographic area that is capable of receiving broadband service.[45]

On one hand, USTelecom's initiative might yield better data; on the other hand, the cost of collecting that data would be higher than current methods. USTelecom's proposal estimates that the cost to implement the initial nationwide BSLF would be between $8.5 million and $11 million and, because the BSLF would be a living database, keeping it updated would cost approximately

[43] Gerard J. Duffy et al., "Comments of WTA—Advocates for Rural Broadband," WTA—Advocates for Rural Broadband, September 23, 2019, p. i, https://ecfsapi.fcc.gov/file/1092359216860/WTA.mapping.final.092319.pdf.

[44] USTelecom, "Issue Brief: Broadband Mapping Initiative," April 10, 2019, https://www.ustelecom.org/issue-brief-broadband-mapping-initiative/.

[45] USTelecom et al., letter to FCC Secretary Marlene H. Dortch, August 20, 2019, p. 1, https://prodnet.www.neca.org/publicationsdocs/wwpdf/82019ustelecom.pdf.

$3 million to $4 million per year.[46] If Congress were to contemplate an initiative of this type, it might wish to consider whether funding at such levels for ongoing broadband map maintenance is sustainable and where the necessary funding would come from.

Lack of Validation

When broadband service providers submit Form 477, the FCC reviews the data, but there is no validation process outside of the agency to verify that the data is accurate. Having no validation process can be problematic, as there may be instances in which submitted data may be erroneous. In conjunction, there is also no present process in place for the public, providers, or other entities to challenge the data if they believe it to be incorrect.

To improve accuracy, the FCC and other stakeholders have cited crowdsourcing as one method to get "boots-on-the-ground" information into the Fixed Broadband Deployment Map. For example, NCTA has proposed that after the FCC publishes maps based on the new FCC reporting regime, consumers and other stakeholders could submit evidence demonstrating potential inaccuracies.[47]

In its August 2019 *Report and Order*, the FCC directed USAC, under the oversight of the Commission's Office of Economics and Analytics, to create an online portal for local, state, and tribal governmental entities—as well as members of the public—to review and dispute coverage under the new DODC. However, NCTA raised a concern with delegating the responsibility to USAC:

> The delegation of such broad authority to USAC is unusual and raises many questions. NCTA suggests that a more traditional approach, i.e., delegating authority to the relevant Commission bureaus and offices, which would then direct USAC to take action where needed, is the better approach in this case.[48]

One option for Congress might be to enact legislation either confirming the delegation to the USAC or directing the FCC to conduct this activity in-house. Alternatively, Congress might choose to leave that decision to the FCC while focusing congressional oversight on how the USAC handles the DODC to determine whether the effort is being handled judiciously.

Actual versus Advertised Speeds

The FCC currently requires broadband service providers to submit maximum advertised upload and download speeds. However, in some cases these speeds can vary greatly from speeds the customer is actually receiving. For example, the FCC has identified Iowa as the only Midwestern state with virtually complete access to high-speed internet, with every county covered by download speeds of 25 Mbps. Speed tests conducted by the Open Technology Institute—a technology program of the New America Foundation that formulates policy and regulatory reforms—claims that internet users in Iowa actually experience download speeds of 25 Mbps only 22% of the time.[49]

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[46] USTelecom et al., letter to Dortch, p. 7.

[47] NCTA, "Improving Broadband Reporting and Mapping," March 21, 2019, https://www.ncta.com/whats-new/improving-broadband-reporting-and-mapping.

[48] Steven F. Morris, NCTA, letter to FCC Secretary Marlene H. Dortch, July 26, 2019, p. 2, https://ecfsapi.fcc.gov/file/1072698747078/072619%2011-10%2019-195%2019-126%20NCTA%20Form%20477%20ex%20parte.pdf.

[49] Sam Bloch, "The FCC Says All of Iowa Has Access to Broadband Internet. Speed Tests Tell a Different Story," New Food Economy, June 20, 2018, https://newfoodeconomy.org/rural-iowa-broadband-data-fcc/.

Rather than the previous requirement of maximum advertised speeds, the FCC's August 2019 adopted *Report and Order* now requires broadband service providers to provide the maximum upload and download speeds actually made available in each area. This will provide greater insight into what speeds consumers are actually receiving, but relying on available maximum upload and download speeds may still not reflect the actual user experience due to network congestion or weather. Collecting information on actual speeds would provide additional insight into the broadband experience of actual consumers, but this might impose a burden on broadband service providers. One option for Congress might be to mandate a pilot project to assess the feasibility of download and upload speed collection that accurately reflects the consumer experience as well as the burden on providers. Alternatively, Congress might choose to leave this issue to the FCC's discretion.

Short-Term versus Long-Term Solutions

Should the FCC should adopt a short-term solution to fix mapping issues quickly, but perhaps not thoroughly? Or should it adopt a longer-term solution that might delay the distribution of funds of other initiatives but might ultimately achieve a more accurate result?

NCTA's proposed solution of using shapefiles—instead of census blocks and similar to what is currently used for mobile broadband reporting through Form 477—for fixed broadband data collection has been criticized as being overly vague, but NCTA believes its proposal offers the fastest solution:

> [For this reason], we agree with the FCC and members of Congress that the current broadband map must be meaningfully improved. We also believe that a pragmatic approach can yield significant improvements in the shortest timeframe. That is why NCTA has proposed a solution that can be implemented nationwide very quickly, without any need for a pilot, and would result in the granular data needed to more accurately identify areas that currently are not served by a fixed broadband provider.[50]

USTelecom disputes NCTA's approach, stating:

> We agree with NCTA that shapefiles are one of several reasonable methods for broadband providers to report their service data. The difference is that NCTA wants the FCC to stop at shapefiles and not create the BSLF, but shapefiles alone do not produce the detailed data the Commission needs to responsibly close the digital divide.[51]

The DODC will include the collection of polygons, but the FCC's *Second Notice of Proposed Rulemaking* seeks comment on ways that location-specific data could be overlaid onto the polygon-based data to precisely identify the homes and small businesses that have and do not have broadband access.[52] A consideration for Congress is whether the need for more granular and accurate data justifies withholding federal broadband funding until better data are available or whether the goal of closing the urban/rural digital divide is so pressing that funding should proceed based on the data currently available.

[50] NCTA, "Improving Broadband Reporting and Mapping," March 21, 2019, https://www.ncta.com/whats-new/improving-broadband-reporting-and-mapping.

[51] Lynn Follansbee, USTelecom, letter to FCC Secretary Marlene H. Dortch, July 1, 2019, p. 2, https://ecfsapi.fcc.gov/file/1070166873111/062719%20Mapping%20ExParte%20FINAL.pdf.

[52] FCC, *Report and Order and Second Further Notice of Proposed Rulemaking*, August 6, 2019, p. 2, https://docs.fcc.gov/public/attachments/FCC-19-79A1.pdf.

Frequent Updates

The FCC collects data from broadband service providers every six months through Form 477 and updates the Fixed Broadband Deployment Map twice a year. However, the Fixed Broadband Deployment Map's data lags approximately a year and a half behind. For example, as of October 2019, the Fixed Broadband Deployment Map contains data with the latest public release as of June 2018. A consideration for Congress may be whether the Fixed Broadband Deployment Map could be updated more frequently (e.g., data could be collected every month) to reflect continuing network changes and, if so, whether that would impose a significant burden on broadband service providers.

Agency Roles and Interagency Coordination

The involvement of multiple agencies—NTIA, FCC, and USDA—in broadband mapping and the provision of broadband subsidies and technical assistance may present challenges for interagency coordination and communication. For example, without interagency coordination, there is a potential for federal broadband funding efforts to be duplicative. The 116th Congress is considering additional legislation regarding interagency coordination (see **Appendix B**).

Interagency coordination was also a major focus of the February 2019 USDA *American Broadband Milestones Initiatives Report*. As an example, the report discusses how NTIA is working on creating a "one-stop shop" for broadband permitting and deployment.[53]

Finally, the conference agreement for the 2019 Consolidated Appropriation (P.L. 116-6) has language regarding interagency coordination:

> To ensure these investments are maximized, the conference agreement reminds the Department to avoid efforts that could duplicate existing networks built by private investment or those built leveraging and utilizing other federal programs and directs the Secretary of Agriculture to coordinate with the Federal Communications Commission (FCC) and the National Telecommunications Information Administration (NTIA) to ensure wherever possible that broadband loans and grants issued under the broadband programs are targeted to areas that are currently unserved.

State Broadband Efforts

Some state broadband offices have undertaken broadband mapping efforts, which could serve as models for federal efforts. For example:

- Kansas' new map published in July 2019 shows service availability at the street level for broadband across the state;[54]
- North Carolina's broadband map has a new user-reporting tool that allows residents to provide feedback and identify pockets of unserved and underserved areas;[55] and

[53] USDA, *American Broadband Initiative Milestones Report*, February 2019, p. 16, https://www.usda.gov/sites/default/files/documents/American%20Broadband%20Initiative%20Milestones%20Report_Feb_2019.pdf.

[54] Mary Clarkin, "New Broadband Map for Kansas Coming Soon," *Hutchinson News*, July 26, 2019, https://www.hutchnews.com/news/20190726/new-broadband-map-for-kansas-coming-soon.

[55] North Carolina Department of Information Technology, "N.C. Broadband Map," https://www.ncbroadband.gov/map/.

- Wyoming's interactive map shows the results of internet-speed tests and broadband availability across the state. The map displays a color-coded dot for every speed test that has been completed in the state, creating a visual demonstration of served and unserved areas, along with quality of service at those locations.[56]

Concluding Observations

Broadband mapping has garnered congressional interest since the creation of the SBI under the Broadband Data Improvement Act (P.L. 110-385) and introduction of the NTIA's National Broadband Map. Mapping efforts have continually improved since that time, but congressional interest in mapping accuracy has been heightened due to recent challenges that have resulted in potential overstatement of broadband availability.

The FCC's DODC, which will take effect once specifications for the coverage polygons are defined through the FCC's comment-and-reply process, is a first step in obtaining more granular and accurate broadband mapping data. As the new collection effort unfolds, Congress may take an interest in monitoring whether the effort seems sufficient to alleviate the current broadband mapping issues, whether to wait on distribution of federal funding until the map is determined accurate, or whether additional legislative action should be taken.

[56] Buckrail, "Wyoming Wants to Know More About Your Internet Speeds," July 19, 2019, https://buckrail.com/wyoming-wants-to-know-more-about-your-internet-speeds/.

Appendix A. Broadband Mapping Legislation in the 116th Congress

H.R. 1644 (Doyle), introduced on March 8, 2019, as the Save the Internet Act of 2019, includes provisions that would require the Government Accountability Office to prepare reports on broadband internet access service competition, ways to improve broadband infrastructure in rural areas, challenges to accurate broadband mapping, and the benefits of standalone broadband. It would require the FCC to engage with tribal communities to address broadband needs, delay release of its 706 Report until broadband data inaccuracies are corrected, and submit to Congress a report containing a plan for how the FCC will evaluate and address problems with Form 477 broadband data. Passed by the House on April 10, 2019. Placed on the Senate Legislative Calendar under General Orders on April 29, 2019.

H.R. 2643 (Latta), introduced on May 9, 2019, as the Broadband MAPS Act of 2019, would direct the FCC to establish a challenge process to verify fixed and mobile broadband service coverage data. Referred to the Committee on Energy and Commerce.

H.R. 2741 (Pallone), introduced on May 15, 2019, as the LIFT America Act, would provide $40 billion to the FCC to establish a reverse auction (nationally and by states) that would fund broadband infrastructure deployment in unserved and underserved areas (Title I, Subtitle A). Section 11001 of the bill would direct how existing broadband data/mapping should be used and challenged. Referred to the Committee on Natural Resources, Subcommittee for Indigenous Peoples of the United States.

H.R. 3055 (Serrano), introduced June 3, 2019, as the Commerce, Justice, Science, Agriculture, Rural Development, Food and Drug Administration, Interior, Environment, Military Construction, Veterans Affairs, Transportation, and Housing and Urban Development Appropriations Act, 2020. As passed by the House, includes broadband mapping-related provisions. One provision would prevent NTIA from using funding to update broadband maps using only Form 477 data, and the other would provide $1 million in broadband mapping funding to NTIA. Placed on Senate Legislative Calendar under General Orders. Calendar No. 141.

H.R. 3162 (McMorris Rodgers), introduced June 6, 2019, as the Broadband Data Improvement Act of 2019, would require the FCC to establish a reporting requirement under which each provider submits accurate and granular information regarding the geographic availability of broadband internet access and to establish a framework for an ongoing challenge process through which a provider or a member of the public may submit information challenging the accuracy of the information reflected on the National Broadband Map. Referred to the Committee on Energy and Commerce.

H.R. 4024 (Finkenauer), introduced on July 25, 2019, as the Broadband Transparency and Accountability Act of 2019, would direct the FCC to require an entity to report data that reflects the average speed and characteristics of broadband service. It would also require the FCC to establish a process to use data that is reported by consumers, businesses, and state and local governments to verify the data used in the Broadband Map. Referred to the Committee on Energy and Commerce.

H.R. 4128 (Luján), introduced on July 30, 2019, as the Map Improvement Act of 2019, would direct the FCC to establish a standardized methodology for collecting and mapping accurate fixed broadband internet service and mobile broadband internet service coverage data. It would also establish an Office of Broadband Data Collection and Mapping within the FCC. Referred to the Committee on Energy and Commerce.

H.R. 4227 (McEachin), introduced on September 6, 2019, as the Mapping Accuracy Promotes Services Act, would prohibit the submission to the Federal Communications Commission of broadband internet access service coverage information or data for the purposes of compiling an inaccurate broadband coverage map. Referred to the House Committee on Energy and Commerce.

H.R. 4229 (Loebsack), introduced on September 6, 2019, as the Broadband Deployment Accuracy and Technological Availability Act, would require the FCC to issue rules relating to the collection of data with respect to the availability of broadband services. Referred to the House Committee on Energy and Commerce.

S. 842 (Klobuchar), introduced on March 14, 2019, as the Improving Broadband Mapping Act of 2019, would require the FCC to establish a process to use coverage data reported by consumers and state, local, and tribal government entities to verify coverage data reported by wireless carriers. Additionally, it would direct the FCC to consider other measures, including, but not limited to, an evidence-based challenge process, to help in verifying coverage data reported by providers of both fixed and mobile broadband services. Referred to the Committee on Commerce, Science, and Transportation.

S. 1485 (Manchin), introduced on May 15, 2019, as the Map Improvement Act of 2019, would require the FCC, in coordination with NTIA, to establish a standardized methodology for collecting and mapping accurate fixed and mobile broadband coverage data. It would establish an Office of Broadband Data Collection and Mapping at the FCC to serve as the central point of collection, aggregation, and validation of data. It would establish a technical assistance grant program at NTIA to support state and local entities in broadband mapping and assessing broadband adoption and pricing within their communities. Referred to the Committee on Commerce, Science, and Transportation.

S. 1522 (Capito), introduced on May 16, 2019, as the Broadband Data Improvement Act of 2019, would direct the FCC to establish rules that require providers to submit more accurate and granular broadband data; a three-pronged data validation process involving public feedback, third-party commercial datasets, and an on-the-ground field validation process; and a periodic challenge process. It would require the National Broadband Map to be used by federal agencies to identify areas that remain unserved and track where awarded funds have actually resulted in broadband buildout. Referred to the Committee on Commerce, Science, and Transportation.

S. 1822 (Wicker), introduced on June 12, 2019, as the Broadband Deployment Accuracy and Technological Availability Act, would require the FCC to issue rules to collect more granular broadband coverage data, including a decision on whether to collect verified information from others, such as state, local, and tribal governmental entities that are primarily responsible for mapping or tracking broadband internet access service coverage for their respective jurisdictions. Referred to the Committee on Commerce, Science, and Transportation.

S. 2275 (Bennet), introduced on July 25, 2019, as the Broadband Transparency and Accountability Act of 2019, would direct the FCC to require an entity to report data that reflects the average speed and characteristics of broadband service. It would also require the FCC to establish a process to use data that is reported by consumers, businesses, and state and local governments to verify the data used in the Broadband Map. Referred to the Committee on Commerce, Science, and Transportation.

Appendix B. Broadband Interagency Coordination Legislation in the 116th Congress

H.R. 292 (Curtis), introduced on January 8, 2019, as the Rural Broadband Permitting Efficiency Act of 2019, would coordinate federal broadband permitting to encourage expansion of broadband service to rural and tribal communities. Referred to the Subcommittee on Conservation and Forestry.

H.R. 1328 (Tonko), introduced on February 25, 2019, as the ACCESS Broadband Act, would establish the Office of Internet Connectivity and Growth within NTIA. The office would provide outreach to communities seeking improved broadband connectivity and digital inclusion, track federal broadband dollars, and facilitate streamlined and standardized applications for federal broadband programs. Passed by the House on May 8, 2019.

H.R. 2601 (Peterson), introduced on May 8, 2019, as the Office of Rural Telecommunications Act, would direct the FCC to establish the Office of Rural Telecommunications, which would coordinate with RUS within the USDA, NTIA, and other federal broadband programs. Referred to the House Committee on Energy and Commerce.

H.R. 3278 (Loebsack), introduced on June 13, 2019, as the Connect America Act of 2019, would provide for the establishment of a program to expand access to broadband and coordinate with other federal programs that expand access to broadband, such as the Connect America Fund or the Broadband e-Connectivity Pilot Program, to ensure the efficient use of program funds. Referred to the House Committee on Energy and Commerce.

H.R. 3676 (Khanna), introduced on July 10, 2019, as the Measuring Economic Impact of Broadband Act of 2019, would direct the Secretary of Commerce to conduct an assessment and analysis of the effects of broadband deployment and adoption on the economy, including consultation with the heads of agencies and offices of the federal government as the Secretary considers appropriate. Referred to the House Committee on Energy and Commerce.

H.R. 4283 (Pence), introduced on September 11, 2019, as the Broadband Interagency Coordination Act of 2019, would require federal agencies with jurisdiction over broadband deployment to enter into an interagency agreement related to certain types of funding for broadband deployment. Referred to the Committee on Energy and Commerce and the Committee on Agriculture.

S. 454 (Cramer), introduced on February 12, 2019, as the Office of Rural Broadband Act, would establish an Office of Rural Broadband within the FCC that would coordinate with RUS/USDA, NTIA, and other FCC broadband-related activities. Referred to the Committee on Commerce, Science, and Transportation.

S. 1046 (Cortez Masto), introduced on April 4, 2019, as the ACCESS Broadband Act, would establish the Office of Internet Connectivity and Growth within NTIA. The office would provide outreach to communities seeking improved broadband connectivity and digital inclusion, track federal broadband dollars, and facilitate streamlined and standardized applications for federal broadband programs. Referred to the Committee on Commerce, Science, and Transportation.

S. 1289 (Klobuchar), introduced on May 2, 2019, as the Measuring Economic Impact of Broadband Act of 2019, would direct the Secretary of Commerce to conduct an assessment and analysis of the effects of broadband deployment and adoption on the economy, including consultation with the heads of agencies and offices of the federal government as the Secretary considers appropriate. Referred to the House Committee on Energy and Commerce.

S. 1294 (Wicker), introduced on May 2, 2019, as the Broadband Interagency Coordination Act of 2019, would require federal agencies with jurisdiction over broadband deployment (FCC, USDA, NTIA) to enter into an interagency agreement related to certain types of funding for broadband deployment. Referred to the Committee on Commerce, Science, and Transportation.

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