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Broadband Internet Access and the Digital Divide: Federal Assistance Programs

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Summary

The "digital divide" is a term that has been used to characterize a gap between "information haves and have-nots," or in other words, between those Americans who use or have access to telecommunications and information technologies and those who do not. One important subset of the digital divide debate concerns high-speed internet access and advanced telecommunications services, also known as broadband. Broadband is provided by a series of technologies (e.g., cable, telephone wire, fiber, satellite, mobile and fixed wireless) that give users the ability to send and receive data at volumes and speeds necessary to support a number of applications including voice communications, entertainment, telemedicine, distance education, telework, ecommerce, civic engagement, public safety, and energy conservation.

Broadband technologies are currently being deployed primarily by the private sector throughout the United States. While the numbers of new broadband subscribers continue to grow, studies and data suggest that the rate of broadband deployment in urban/suburban and high-income areas is outpacing deployment in rural and low-income areas. Some policymakers, believing that disparities in broadband access across American society could have adverse economic and social consequences on those left behind, assert that the federal government should play a more active role to address the "digital divide" in broadband access.

With the conclusion of the grant and loan awards established by the American Recovery and Reinvestment Act of 2009 (P.L. 111-5), there remain two ongoing federal vehicles which direct federal money to fund broadband infrastructure: the broadband and telecommunications programs at the Rural Utilities Service (RUS) of the U.S. Department of Agriculture and the Universal Service Fund (USF) programs under the Federal Communications Commission (FCC). The USF High Cost Fund is undergoing a major transition to the Connect America Fund, which is targeted to the deployment, adoption, and utilization of both fixed and mobile broadband. Similarly, the USF Lifeline Program is transitioning from one that traditionally subsidized voice telephone service to now support mobile and fixed broadband internet access services on a stand-alone basis, or with a bundled voice service. Additionally, subsidies provided by USF's Schools and Libraries Program and Rural Health Care Program are used for a variety of telecommunications services, including broadband access.

On February 12, 2018, the Trump Administration released its *Legislative Outline for Rebuilding Infrastructure in America*. The plan does not dedicate any funding exclusively for broadband, but does include rural broadband among the types of infrastructure projects that would be eligible for funding. The *Outline* also contains many recommendations for reducing the costs of infrastructure deployment by streamlining permitting regulations and procedures. Meanwhile, rural broadband was included in the $20 billion carved out for infrastructure in the two-year budget agreement reached between the House and Senate in February 2018 (P.L. 115-123).

To the extent that Congress may consider various options for further encouraging broadband deployment and adoption, a key issue is how to strike a balance between providing federal assistance for unserved and underserved areas where the private sector may not be providing acceptable levels of broadband service, while at the same time minimizing any deleterious effects that government intervention in the marketplace may have on competition and private sector investment.

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Introduction

The "digital divide" is a term used to describe a perceived gap between "information haves and have-nots," or in other words, between those Americans who use or have access to telecommunications and information technologies and those who do not.[1] Whether or not individuals or communities fall into the "information haves" category depends on a number of factors, ranging from the presence of computers in the home, to training and education, to the availability of affordable internet access.

Broadband technologies are currently being deployed primarily by the private sector throughout the United States. While the numbers of new broadband subscribers continue to grow, studies and data suggest that the rate of broadband deployment in urban/suburban and high-income areas is outpacing deployment in rural and low-income areas.

Status of Broadband in the United States

Prior to the late 1990s, American homes accessed the internet at maximum speeds of 56 kilobits per second by dialing up an Internet Service Provider over the same copper telephone line used for traditional voice service. A relatively small number of businesses and institutions used broadband or high-speed connections through the installation of special "dedicated lines" typically provided by their local telephone company. Starting in the late 1990s, cable television companies began offering cable modem broadband service to homes and businesses. This was accompanied by telephone companies beginning to offer DSL service (broadband over existing copper telephone wireline). Growth in broadband service has been steep, rising from 2.8 million high-speed lines reported as of December 1999, to 376 million connections as of December 31, 2016.[2] Of the 376 million high-speed connections reported by the FCC, 322 million serve residential users.[3]

Table 1 depicts the relative deployment of different types of broadband technologies. A distinction is often made between "current generation" and "next generation" broadband (commonly referred to as next generation networks or NGN). "Current generation" typically refers to initially deployed cable, DSL, and many wireless systems, while "next generation" refers to dramatically faster download and upload speeds offered by fiber technologies and also by successive generations of cable, DSL, and wireless technologies. In general, the greater the download and upload speeds offered by a broadband connection, the more sophisticated (and potentially valuable) the application that is enabled.

[1] The term "digital divide" can also refer to international disparities in access to communications and information technology. This report focuses on domestic issues only.

[2] FCC, *Internet Access Services: Status as of December 31, 2016*, released February 2018, p. 12, available at https://apps.fcc.gov/edocs_public/attachmatch/DOC-349074A1.pdf.

[3] Ibid.

Table 1. Percentage of Broadband Technologies by Types of Connection

	Connections over 200 kbps in at least one direction	Residential connections over 200 kbps in at least one direction	Fixed Connections at least 10 Mbps downstream and 1 Mbps upstream	Residential fixed connections at least 10 Mbps downstream and 1 Mbps upstream	Fixed Connections at least 25 Mbps downstream and 3 Mbps upstream	Residential fixed connections at least 25 Mbps downstream and 3 Mbps upstream
Cable modem	16.8%	18.4%	71.8%	72.3%	82.2%	82.8%
DSL	7.1%	7.3%	12.8%	12.7%	2.3%	2.4%
Mobile wireless	71.9%	70%	—	—	—	—
Fiber	3.2%	3.4%	13.1%	12.8%	15.0%	14.6%
All other	1.0%	0.9%	2.3%	2.2%	0.5%	0.3%

Source: FCC, *Internet Access Services: Status as of December 31, 2016*, pp. 16-22.

Broadband Availability

FCC data show where fixed broadband service is and is not being deployed.[4] The FCC has set a speed benchmark of 25 Mbps (download speed)/3 Mbps (upload speed) as the measure by which it determines whether a fixed service provides advanced telecommunications capability. **Table 2** shows the percentage of Americans in urban, rural, and tribal areas with access to terrestrial fixed broadband at speeds of 25 Mbps/3Mbps, as presented in the FCC's *2018 Broadband Deployment Report*.[5] In total, as of December 31, 2016, 92.3% of all Americans had access to fixed terrestrial broadband at speeds of 25 Mbps/3 Mbps, with over 24 million Americans still lacking fixed terrestrial broadband at those speeds.[6] **Table 3** shows the percentage of Americans in 2016 with access to fixed 25 Mbps/3Mbps terrestrial broadband by state.

[4] See FCC *Fixed Broadband Deployment Data*, available at https://www.fcc.gov/maps/fixed-broadband-deployment-data/.

[5] Federal Communications Commission, *2018 Broadband Deployment Report*, In the Matter of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, GN Docket no. 17-199, FCC 18-10, adopted and released February 2, 2018, 89 pp., available at https://www.fcc.gov/document/fcc-releases-2018-broadband-deployment-report.

[6] Fixed terrestrial broadband at speeds of 25 Mbps/3Mbps includes cable modem, fiber, and a limited number of DSL connections. It does not include satellite broadband, which is also a fixed (nonmobile) broadband service. According to the *2018 Broadband Deployment Report*, overall fixed deployment (including satellite) of 25 Mbps/3 Mbps service was 95.6% in 2016, with deployment to 81.7% of Americans in rural areas and 99% in urban areas. According to the FCC, "[W]e acknowledge that these data could overstate the availability of these services. While satellite operators may be able to offer service to wide swaths of the country, overall satellite capacity may limit the number of consumers that can actually subscribe to satellite service at any one time." Ibid., p. 22, footnote 148.

Table 2. Percentage of Americans with Access to Fixed Terrestrial Broadband at Minimum Speed of 25 Mbps/3 Mbps

	2013	2014	2015	2016
United States	83.6%	89.4%	89.6%	92.3%
Rural Areas	47.6%	60.4%	60.7%	69.3%
Urban Areas	92.3%	96.4%	96.5%	97.9%
Tribal Lands	37.1%	57.2%	57.8%	64.6%

Source: FCC, *2018 Broadband Deployment Report*, p. 22.

Table 3. Percentage of Americans with Access to Fixed Terrestrial Broadband by State

(2016 data, minimum speed of 25 Mbps/3 Mbps)

	% of population with access, all areas	% of population with access, rural areas	% of population with access, urban areas
United States	**92.3%**	**69.3%**	**97.9%**
Alabama	83.1	63.8	96.6
Alaska	78.8	46.4	96.4
Arizona	85.6	34.4	92.2
Arkansas	77.6	57.6	93.5
California	94.7	46.2	97.7
Colorado	94.9	72.1	99.0
Connecticut	99.1	99.2	99.1
Delaware	97.4	92.2	98.4
District of Columbia	98.1	not applicable	98.1
Florida	95.8	75.2	98.0
Georgia	90.8	71.9	97.0
Hawaii	95.3	63.1	98.5
Idaho	88.7	67.6	98.0
Illinois	94.7	63.5	98.8
Indiana	86.9	58.5	97.8
Iowa	90.5	77.4	97.9
Kansas	89.2	66.5	97.2
Kentucky	85.8	68.8	97.7
Louisiana	84.5	56.9	94.7
Maine	89.9	85.7	96.9
Maryland	97.5	93.7	98.1
Massachusetts	97.7	90.3	98.3
Michigan	90.2	66.4	98.5

	% of population with access, all areas	% of population with access, rural areas	% of population with access, urban areas
Minnesota	92.6	74.9	98.9
Mississippi	72.3	49.9	95.3
Missouri	83.5	49.5	97.9
Montana	77.1	59.2	92.1
Nebraska	88.9	65.5	97.5
Nevada	96.0	53.0	99.1
New Hampshire	94.2	87.9	98.4
New Jersey	99.0	97.3	99.1
New Mexico	80.6	42.8	92.2
New York	98.0	84.7	99.8
North Carolina	93.7	82.0	99.5
North Dakota	91.2	84.1	96.7
Ohio	92.4	71.1	98.4
Oklahoma	77.0	46.0	93.1
Oregon	91.0	64.0	97.7
Pennsylvania	94.9	82.7	98.2
Rhode Island	98.1	97.6	98.2
South Carolina	88.3	69.5	98.0
South Dakota	88.3	75.1	98.9
Tennessee	91.1	76.8	98.3
Texas	93.4	72.3	97.6
Utah	96.6	73.4	99.7
Vermont	86.1	78.5	98.3
Virginia	90.8	71.1	97.2
Washington	98.3	91.7	99.7
West Virginia	82.2	69.2	95.7
Wisconsin	86.4	56.9	99.1
Wyoming	78.2	45.5	97.6

Source: Federal Communications Commission, *2018 Broadband Deployment Report*, FCC 18-10, released February 2, 2018, Appendix D. pp. 58-64, available at https://www.fcc.gov/document/fcc-releases-2018-broadband-deployment-report.

While the FCC has not set a mobile broadband speed benchmark, the *2018 Broadband Deployment Report* includes data on the deployment of mobile LTE wireless broadband at a minimum advertised speed of 5 Mbps/1 Mbps and at a median actual speed of 10 Mbps/3 Mbps (see **Table 4**).

Table 4. Percentage of Americans with Access to Mobile LTE Wireless Broadband, 2016

	minimum advertised speed of 5 Mbps/1 Mbps	median actual speed of 10 Mbps/3 Mbps
United States	99.6%	87.3%
Rural Areas	98.2%	70.1%
Urban Areas	100%	90.5%
Tribal Lands	94.9%	63.7%

Source: FCC, *2018 Broadband Deployment Report*, pp. 23-24.

Notes: Minimum 5 Mbps/1 Mbps advertised speed data are based on the FCC's Form 477 data. Median 10 Mbps/3 Mbps actual speed data are from data collected by the Ookla Speedtest mobile app.

Broadband Adoption

In contrast to broadband *availability*, which refers to whether or not broadband service is offered, broadband *adoption* refers to the extent to which American households actually subscribe to and use broadband. According to Census data released by the Department of Commerce, *Computer and Internet Use in the United States: 2015*, 76.7% of American households have a broadband internet subscription.[7] Other Census data from July 2015 show that 68% of Americans use the internet at home.[8] The Census data also show that Americans increasingly are connecting to the internet through other devices in addition to desktop computers: 52% of Americans used two or more devices to connect, including tablets, laptops, mobile phones, and TV connected boxes (gaming consoles and streaming video players).[9]

Data from the Pew Research Center show that populations continuing to lag behind in broadband adoption include people with low incomes, seniors, minorities, the less-educated, and households in rural areas (see **Table 5**). According to Pew's broadband adoption survey, *Home Broadband 2015*, home broadband adoption rates decreased slightly between 2013 and 2015, a drop-off mirrored by the increase in "smartphone-only" users. Pew reported that the cost of monthly subscriptions is the main reason some people do not have broadband connections.[10]

[7] Camille Ryan and Jamie M. Lewis, U.S. Census Bureau, Economics and Statistics Administration, Department of Commerce, *Computer and Internet use in the United States: 2015*, American Community Survey Reports, September 2017, p. 8, available at https://www.census.gov/library/publications/2017/acs/acs-37.html.

[8] For other metrics, see NTIA's Digital Nation Data Explorer tool at https://www.ntia.doc.gov/data/digital-nation-data-explorer#sel=internetUser&disp=map.

[9] Guila McHenry, NTIA, "Majority of Americans Use Multiple Internet-Connected Devices, Data Shows," December 7, 2015, available at https://www.ntia.doc.gov/blog/2015/majority-americans-use-multiple-internet-connected-devices-data-shows.

[10] John B. Horrigan and Maeve Duggan, Pew Research Center, *Home Broadband 2015*, December 21, 2015, available at http://www.pewinternet.org/files/2015/12/Broadband-adoption-full.pdf.

Table 5. Broadband Adoption

(percentage of U.S. adults who are home broadband users)

	2016
All	73%
White	78%
African American	65%
Hispanic	58%
18-29	77%
30-49	81%
50-64	75%
65+	51%
Less than $30K	53%
$30K-$50K	71%
$50K-$75K	83%
$75K-$100K	90%
$100K-$150K	94%
Less than high school	34%
High school diploma	62%
Some college	80%
College degree +	91%
Rural	63%
Urban	73%
Suburban	76%

Source: Pew Research Center, *Digital Divides—Feeding America*, February 9, 2017, available at http://www.pewinternet.org/2017/02/09/digital-divides-feeding-america/.

Finally, GAO released a report in June 2015 (*Intended Outcomes and Effectiveness of Efforts to Address Adoption Barriers Are Unclear*) which found that affordability, lack of perceived relevance, and lack of computer skills are the principal barriers to broadband adoption.[11] GAO examined adoption efforts by NTIA and the FCC, and identified three key approaches used to address broadband adoption barriers: discounts on computer equipment and broadband subscriptions; outreach efforts to promote broadband availability and benefits; and training to help people develop skills in using computers and broadband.[12]

[11] Government Accountability Office, *Intended Outcomes and Effectiveness of Efforts to Address Adoption Barriers Are Unclear*, GAO-15-473, June 2, 2015, p. 11, available at http://www.gao.gov/assets/680/670588.pdf.

[12] Ibid., p. 17.

Broadband in Rural Areas[13]

While the number of new broadband subscribers continues to grow, the rate of broadband deployment in urban areas appears to be outpacing deployment in rural areas. While there are many examples of rural communities with state of the art telecommunications facilities,[14] recent surveys and studies have indicated that, in general, rural areas (and particularly tribal areas[15]) tend to lag behind urban and suburban areas in broadband deployment.

For example:

- According to the FCC's *2018 Broadband Deployment Report*, "the gap in rural and Tribal America remains notable: 30.7 percent of Americans in rural areas and 35.4 percent of Americans in Tribal lands lack access to fixed terrestrial 25 Mbps/3 Mbps broadband, as compared to only 2.1 percent of Americans in urban areas."[16]
- Also according to the FCC's *2018 Broadband Deployment Report*, "Rural and Tribal areas continue to lag behind urban areas in mobile broadband deployment. Although evaluated urban areas saw an increase of 10 Mbps/3 Mbps mobile LTE from 81.9% in 2014 to 90.5% in 2016, such deployment in evaluated rural and Tribal areas remained flat at about 70% and 64%, respectively. Approximately 14 million rural Americans and 1.2 million Americans living on Tribal lands still lack mobile LTE broadband at speeds of 10 Mbps/3 Mbps."[17]
- According to 2016 survey data from the Pew Research Center, 63% of adults in rural areas said they have a high-speed broadband connection at home, as opposed to 73% of adults in urban areas and 76% of adults in suburban areas.[18]
- The National Telecommunications and Information Administration (NTIA) Computer and Internet Use Supplement to the Census Bureau's Current Population Survey found that a rural/urban gap remained in 2015, with 69% of rural residents reporting using the internet, versus 75% of urban residents. According to NTIA, the data "indicates a fairly constant 6-9 percentage point gap between rural and urban communities' internet use over time."[19]

The comparatively lower population density of rural areas is likely the major reason why broadband is less deployed than in more highly populated suburban and urban areas. Particularly for wireline broadband technologies—such as cable modem and fiber—the greater the

[13] For more information on rural broadband and broadband programs at the Rural Utilities Service, see CRS Report RL33816, *Broadband Loan and Grant Programs in the USDA's Rural Utilities Service*, by (name redacted) .

[14] See for example: National Exchange Carrier Association (NECA), *Trends: A Report on Rural Telecom Technology*, December 2015, available at https://www.neca.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=12331&libID=12351.

[15] For more information on tribal broadband, see CRS Report R44416, *Tribal Broadband: Status of Deployment and Federal Funding Programs*, by (name redacted) .

[16] *2018 Broadband Deployment Report*, p. 22.

[17] FCC summary of *2018 Broadband Deployment Report*, February 2, 2018, available at https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2018-broadband-deployment-report.

[18] Pew Research Center, *Digital Gap Between Rural and Nonrural America Persists*, May 19, 2017, available at http://www.pewresearch.org/fact-tank/2017/05/19/digital-gap-between-rural-and-nonrural-america-persists/.

[19] U.S. Department of Commerce, National Telecommunications and Information Administration, "The State of the Urban/Rural Digital Divide," August 10, 2016, available at https://www.ntia.doc.gov/blog/2016/state-urbanrural-digital-divide.

geographical distances among customers, the larger the cost to serve those customers. Thus, there is often less incentive for companies to invest in broadband in rural areas than, for example, in an urban area where there is more demand (more customers with perhaps higher incomes) and less cost to wire the market area.

The terrain of rural areas can also be a hindrance, in that it is more expensive, for example, to deploy broadband technologies in a mountainous or heavily forested area. An additional added cost factor for remote areas can be the expense of "backhaul" (e.g., the "middle mile"), which refers to the installation of a dedicated line which transmits a signal to and from an internet backbone, which is typically located in or near an urban area.

Some policymakers believe that disparities in broadband access across American society could have adverse consequences on those left behind, and that advanced telecommunications applications critical for businesses and consumers to engage in ecommerce are increasingly dependent on high-speed broadband connections to the internet. Thus, some say, communities and individuals without access to broadband could be at risk to the extent that connectivity becomes a critical factor in determining future economic development and prosperity. A February 2006 study done by the Massachusetts Institute of Technology for the Economic Development Administration of the Department of Commerce marked the first attempt to quantitatively measure the impact of broadband on economic growth. The study found that "between 1998 and 2002, communities in which mass-market broadband was available by December 1999 experienced more rapid growth in employment, the number of businesses overall, and businesses in IT-intensive sectors, relative to comparable communities without broadband at that time."[20]

Subsequently, other studies have attempted to assess the economic impact of broadband deployment. For example:

- A June 2007 report from the Brookings Institution found that for every one percentage point increase in broadband penetration in a state, employment is projected to increase by 0.2% to 0.3% per year. For the entire U.S. private nonfarm economy, the study projected an increase of about 300,000 jobs.[21]
- A July 2009 study commissioned by the Internet Innovation Alliance found net consumer benefits of home broadband on the order of $32 billion per year, up from an estimated $20 billion in consumer benefits from home broadband in 2005.[22]
- A January 2009 study conducted by the Information Technology and Innovation Foundation (ITIF) found that investing an additional $10 billion in one year on broadband networks will create or retain 498,000 U.S. jobs for that year.[23]

[20] Gillett, Sharon E., Massachusetts Institute of Technology, *Measuring Broadband's Economic Impact*, report prepared for the Economic Development Administration, U.S. Department of Commerce, February 28, 2006, p. 4, available at http://cfp.mit.edu/publications/CFP_Papers/Measuring_bb_econ_impact-final.pdf.

[21] Crandall, Robert, William Lehr, and Robert Litan, *The Effects of Broadband Deployment on Output and Employment: A Cross-sectional Analysis of U.S. Data*, June 2007, 20 pp., available at https://www.brookings.edu/research/the-effects-of-broadband-deployment-on-output-and-employment-a-cross-sectional-analysis-of-u-s-data/.

[22] Mark Dutz, Jonathan Orszag, and Robert Willig, *The Substantial Consumer Benefits of Broadband Connectivity for U.S. Households*, Internet Innovation Alliance, July 2009, p. 4, available at http://internetinnovation.org/files/special-reports/CONSUMER_BENEFITS_OF_BROADBAND.pdf.

[23] Robert D. Atkinson, Daniel Castro and Stephen Ezell, Information Technology and Innovation Foundation, *The Digital Road to Recovery: A Stimulus Plan to Create Jobs, Boost Productivity and Revitalize America*, January 2009, 22 p, available at https://www.itif.org/files/roadtorecovery.pdf.

- A study (first published in 2013)[24] funded by the National Agricultural and Rural Development Policy Center found that nonmetropolitan counties that had high levels of broadband adoption (greater than 60%) in 2010 had significantly higher growth in median household income—23.4% versus just over 22%—between 2001 and 2010 when compared to counties that had similar characteristics in the 1990s but were not as successful at adopting broadband.
- A 2016 study from the Hudson Institute found that rural broadband providers directly and indirectly added $24.1 billion to the U.S. economy in 2015. The rural broadband industry supported 69,595 jobs in 2015, both through its own employment and the employment that its purchases of goods and services generated.[25]

Broadband and the Federal Role

Section 706 of the Telecommunications Act of 1996

Section 706 of the Telecommunications Act of 1996 (P.L. 104-104) requires the FCC to regularly initiate an inquiry assessing the availability of broadband to all Americans and to determine whether broadband is "being deployed to all Americans in a reasonable and timely fashion." If the determination is negative, the act directs the FCC to "take immediate action to accelerate deployment of such capability by removing barriers to infrastructure investment and by promoting competition in the telecommunications market."

Starting in 1999, there have been eleven Section 706 reports, each providing a snapshot and assessment of broadband deployment.[26] As part of this assessment, and to help determine whether broadband is being deployed in "a reasonable and timely fashion," the FCC has set a minimum broadband speed that essentially serves as the benchmark the FCC uses to determine what it considers broadband service for the purposes of its Section 706 determination. In 2015 the FCC, citing changing broadband usage patterns and multiple devices using broadband within single households, raised its minimum fixed broadband benchmark speed from 4 Mbps (download)/1 Mbps (upload) to 25 Mbps/3 Mbps. The designation of minimum benchmark speeds for fixed broadband, and how mobile broadband speeds should be benchmarked and factored into an overall determination of broadband deployment, has proven controversial.[27]

On February 2, 2018, the FCC adopted and released its latest 706 report, the *2018 Broadband Deployment Report.* The FCC concluded that advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion. This determination was based on

[24] Brian Whitacre, Roberto Gallardo, and Sharon Strover, "Broadband's Contribution to Economic Health in Rural Areas," *Research & Policy Brief Series*, Community and Regional Development Institute, Cornell University, February 2015, available at https://cardi.cals.cornell.edu/sites/cardi.cals.cornell.edu/files/shared/documents/ResearchPolicyBriefs/Policy-Brief-Feb15-draft03.pdf.

[25] Hanns Kuttner, Hudson Institute, *The Economic Impact of Rural Broadband*, April 2016, available at https://s3.amazonaws.com/media.hudson.org/files/publications/20160419KuttnerTheEconomicImpactofRuralBroadband.pdf.

[26] An archive of notices of inquiry and released broadband progress reports is available at https://www.fcc.gov/general/archive-released-broadband-progress-notices-inquiry.

[27] See CRS Report R45039, *Defining Broadband: Minimum Threshold Speeds and Broadband Policy*, by (name redacted) .

evaluating progress—comparing deployment in the present year to deployment in previous years. According to the *Report*:

> We find that analyzing progress to determine whether deployment is occurring in a reasonable and timely fashion is the approach that is most consistent with the language of section 706, as the analysis of such progress enables the Commission to determine whether advanced telecommunications capability "is being deployed" in the manner that section 706 requires. The use of the present progressive tense—"is being deployed"—as well as the language requiring an evaluation of whether that deployment is "reasonable and timely" indicates that Congress intended that the Commission evaluate the current state of deployment to all Americans, not a rigid requirement that each and every American be served *at this moment*.[28]

The FCC's latest 706 determination that broadband is being deployed in a reasonable and timely fashion is a departure from the FCC's previous five determinations that broadband is not being deployed in a reasonable and timely fashion. The latest 706 determination was approved by the three Republican FCC Commissioners, with the remaining two Democratic commissioners dissenting. According to FCC Commissioner Rosenworcel's dissent:

> This report concludes that in the United States the deployment of broadband to all Americans is reasonable and timely. This is ridiculous—and irresponsible. Today there are 24 million Americans without access to broadband. There are 19 million Americans in rural areas who lack the ability to access high-speed services at home. There are 12 million school-aged children who are falling into the Homework Gap because they do not have the broadband at home they need for nightly schoolwork. Ask any one of them if they think the deployment of the most essential digital age infrastructure is reasonable and timely and you will get a resounding "No." To call these numbers a testament to our national success is insulting and not credible.[29]

In gathering data, information, and viewpoints for the *Report*, the August 8, 2017, *Notice of Inquiry*[30] proposed to maintain the 25 Mbps/3 Mbps benchmark for fixed broadband, while at the same time soliciting comments on whether to establish a lower benchmark speed specifically for mobile broadband. One proposal under consideration was whether the presence of fixed *or* mobile broadband should indicate that an area has adequate broadband service. Ultimately, the *Report* concluded that adoption of a single mobile benchmark is currently unworkable, given available data and the inherent variability of actual mobile speeds, and that mobile broadband service is not a full substitute for fixed service at this time.

The National Broadband Plan

As mandated by the American Recovery and Reinvestment Act of 2009 (ARRA), on March 16, 2010, the FCC released its report, *Connecting America: The National Broadband Plan*.[31] The National Broadband Plan (NBP) sought to "create a high-performance America," which the FCC defined as "a more productive, creative, efficient America in which affordable broadband is available everywhere and everyone has the means and skills to use valuable broadband

[28] *2018 Broadband Deployment Report*, p. 4.

[29] Ibid., p. 89.

[30] FCC, *Thirteenth Section 706 Report Notice of Inquiry*, GN Docket No. 17-199, FCC 17-109, August 8, 2017, available at https://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0808/FCC-17-109A1.pdf.

[31] Available at http://www.broadband.gov/plan/. For more information on the National Broadband Plan, see CRS Report R41324, *The National Broadband Plan*, by (name redacted) et al., available by request to CRS.

applications."[32] In order to achieve this mission, the NBP recommended that the country set six goals for 2020:

- Goal No. 1: At least 100 million U.S. homes should have affordable access to actual download speeds of at least 100 megabits per second and actual upload speeds of at least 50 megabits per second.
- Goal No. 2: The United States should lead the world in mobile innovation, with the fastest and most extensive wireless networks of any nation.
- Goal No. 3: Every American should have affordable access to robust broadband service, and the means and skills to subscribe if they so choose.
- Goal No. 4: Every American community should have affordable access to at least 1 gigabit per second broadband service to anchor institutions such as schools, hospitals, and government buildings.
- Goal No. 5: To ensure the safety of the American people, every first responder should have access to a nationwide, wireless, interoperable broadband public safety network.
- Goal No. 6: To ensure that America leads in the clean energy economy, every American should be able to use broadband to track and manage their real-time energy consumption.

The National Broadband Plan was categorized into three parts:

- **Part I (Innovation and Investment)**, which "discusses recommendations to maximize innovation, investment and consumer welfare, primarily through competition. It then recommends more efficient allocation and management of assets government controls or influences."[33] The recommendations address a number of issues, including spectrum policy, improved broadband data collection, broadband performance standards and disclosure, special access rates, interconnection, privacy and cybersecurity, child online safety, poles and rights-of-way, research and experimentation (R&E) tax credits, and R&D funding.
- **Part II (Inclusion)**, which "makes recommendations to promote inclusion—to ensure that all Americans have access to the opportunities broadband can provide."[34] Issues include reforming the Universal Service Fund, intercarrier compensation, federal assistance for broadband in tribal lands, expanding existing broadband grant and loan programs at the Rural Utilities Service, enabling greater broadband connectivity in anchor institutions, and improved broadband adoption and utilization especially among disadvantaged and vulnerable populations.
- **Part III (National Purposes)**, which "makes recommendations to maximize the use of broadband to address national priorities. This includes reforming laws, policies and incentives to maximize the benefits of broadband in areas where government plays a significant role."[35] National purposes include health care, education, energy and the environment, government performance, civic

[32] Federal Communications Commission, Connecting America: *The National Broadband Plan*, March 17, 2010, p. 9.

[33] Ibid., p. 11.

[34] Ibid.

[35] Ibid.

engagement, and public safety. Issues include telehealth and health IT, online learning and modernizing educational broadband infrastructure, digital literacy and job training, smart grid and smart buildings, federal support for broadband in small businesses, telework within the federal government, cybersecurity and protection of critical broadband infrastructure, copyright of public digital media, interoperable public safety communications, next generation 911 networks, and emergency alert systems.

The release of the National Broadband Plan was seen by many as a precursor toward the development of a national broadband policy—whether comprehensive or piecemeal—that would likely be shaped and developed by Congress, the FCC, and the Administration.[36]

Federal Broadband Programs

With the conclusion of grant and loan awards established by the American Recovery and Reinvestment Act of 2009 (P.L. 111-5),[37] there remain two ongoing major federal vehicles which direct federal money to fund broadband: the Universal Service Fund (USF) programs under the Federal Communications Commission (FCC), and the broadband and telecommunications programs at the Rural Utilities Service (RUS) of the U.S. Department of Agriculture.

In June 2017, the National Telecommunications and Information Administration released an updated comprehensive *Guide to Federal Funding of Broadband Projects*.[38] The guide provides a summary and contact information for a variety of federal programs that may fund projects involving broadband infrastructure, adoption, access, planning, or research. The Universal Service Concept and the FCC[39]

Since its creation in 1934 the Federal Communications Commission (FCC) has been tasked with "mak[ing] available, so far as possible, to all the people of the United States ... a rapid, efficient, Nation-wide, and world-wide wire and radio communications service with adequate facilities at reasonable charges."[40] This mandate led to the development of what has come to be known as the universal service concept.

The universal service concept, as originally designed, called for the establishment of policies to ensure that telecommunications services are available to all Americans, including those in rural, insular, and high cost areas, by ensuring that rates remain affordable. Over the years this concept has evolved and expanded, fostering the development of various FCC policies and programs that target both providers of and subscribers to telecommunications and, more recently, broadband services. Passage of the Telecommunications Act of 1996 (P.L. 104-104) codified the long-standing commitment by U.S. policymakers to ensure universal service in the provision of

[36] See for example, Office of Science and Technology Policy and National Economic Council, The White House, *Four Years of Broadband Growth*, June 2013, available at https://obamawhitehouse.archives.gov/sites/default/files/broadband_report_final.pdf.

[37] See CRS Report R40436, *Broadband Infrastructure Programs in the American Recovery and Reinvestment Act*, by (name redacted) .

[38] U.S. Department of Commerce, National Telecommunications and Information Administration, *BroadbandUSA: Guide to Federal Funding of Broadband Projects*, June 2017, 44 p., available at https://www2.ntia.doc.gov/files/ntia_guidetofedfunding_062317.pdf.

[39] The section on universal service was prepared by Angele Gilroy, Specialist in Telecommunications, Resources, Science and Industry Division.

[40] Communications Act of 1934, As Amended, Title I §1 (47 U.S.C. 151).

telecommunications services, and the FCC established, in 1997, a federal Universal Service Fund (USF) to meet the expanded objectives and principles contained in the act. The USF is administered by the Universal Service Administrative Company (USAC), an independent not-for-profit organization, under the direction of the FCC. The USF is being transformed in stages, over a multiyear period, from a mechanism to support voice telecommunications services to one that supports the deployment, adoption, and utilization of both fixed and mobile broadband. The USF currently administers four programs: the High Cost/Connect America Fund Program, the Schools and Libraries Program, the Rural Health Care Program, and the Low Income Program. The USF disbursed $8.8 billion in 2016 with all 50 states, the District of Columbia, and all territories receiving some benefit.[41]

Universal Service and Broadband

One of the major policy debates surrounding universal service in the last decade was whether access to advanced telecommunications services (i.e., broadband) should be incorporated into universal service objectives. The 1996 Telecommunications Act tasked the federal-state Joint Board with defining the services which should be included in the definition of services to be eligible for universal service support. The Joint Board's recommendation, which was adopted by the FCC in May 1997, largely limited the definition to voice telecommunications services. Some policymakers expressed concern that the FCC-adopted definition was too limited and did not take into account the importance and growing acceptance of advanced services such as broadband and internet access. They pointed to a number of provisions contained in the universal service principles of the 1996 act to support their claim. Universal service principles contained in Section 254(b)(2) state that "Access to advanced telecommunications services should be provided to all regions of the Nation." The subsequent principle (b)(3) calls for consumers in all regions of the nation, including "low-income" and those in "rural, insular, and high cost areas," to have access to telecommunications and information services including "advanced services" at a comparable level and a comparable rate charged for similar services in urban areas. Such provisions, they state, dictate that the FCC expand its universal service definition.

The 1996 act does take into consideration the changing nature of the telecommunications sector and allows, if future conditions warrant, for the modification of the universal service definition. Section 254(c) of the act states that "universal service is an evolving level of telecommunications services" and that the FCC is tasked with "periodically" reevaluating this definition "taking into account advances in telecommunications and information technologies and services." Furthermore, the Joint Board is given specific authority to recommend "from time to time" to the FCC modification in the definition of the services to be included for federal universal service support. The Joint Board, on November 19, 2007, concluded such an inquiry and recommended that the FCC change the mix of services eligible for universal support. The Joint Board recommended, among other things, that "the universal availability of broadband Internet services" be included in the nation's communications goals and hence be supported by federal universal service funds.[42]

[41] *2016 Annual Report, Universal Service Administrative Company*, p. 62. Total funding approved for disbursement for the months of January-December 2016, available at http://www.usac.org/_res/documents/about/pdf/annual-reports/usac-annual-report-interactive-2016.pdf.

[42] The Joint Board recommended that the definition of those services that qualify for universal service support be expanded and that the nation's communications goals include the universal availability of: mobility services (i.e., wireless); broadband internet services; and voice services at affordable and comparable rates for all rural and nonrural areas. For a copy of this recommendation see http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07j-4A1.pdf.

This debate was put to rest when provisions contained in the American Recovery and Reinvestment Act of 2009 (ARRA) called for the FCC to develop, and submit to Congress, a national broadband plan to ensure that every American has "access to broadband capability."[43] The FCC in its national broadband plan, *Connecting America: the National Broadband Plan*, recommended that access to and adoption of broadband be a national goal. Furthermore the national broadband plan proposed that the Universal Service Fund be restructured to become a vehicle to help reach this goal. The FCC, in an October 2011 decision, adopted an Order that calls for the USF to be transformed, in stages, over a multiyear period, from a mechanism to support voice telephone service to one that supports the deployment, adoption, and utilization of both fixed and mobile broadband. This transformation includes the phaseout of the USF's legacy High Cost Program and the creation of a new fund, the Connect America Fund, to replace it as well as an expansion and modification of the Schools and Libraries, Rural Health Care, and Low Income programs.[44]

The High Cost/Connect America Fund Program

Historically the High Cost Program provided support for eligible telecommunications carriers to help offset the higher-than-average costs of providing voice telephone service in rural, insular, or other high cost areas. This mechanism has been the largest USF program based on disbursements and has been particularly important to rural areas due to the lack of subscriber density often combined with higher costs. The High Cost Program is undergoing a transition from one that primarily supports voice communications to one that supports a broadband platform that enables multiple applications, including voice. The High Cost program is being phased out in stages and is being replaced by the Connect America Fund (CAF), which will support the provision of affordable voice and broadband services, both fixed and mobile, in high cost areas. The CAF will eventually replace all of the existing support mechanisms in the High Cost Program and contains a Mobility Fund and a Remote Areas Fund to meet these needs. According to data released by program administrators, from 1998 to 2016 a total of approximately $68.7 billion in funding has been approved for disbursement.[45]

The Schools and Libraries, and Rural Health Care Programs

Congress, through the 1996 act, not only codified, but also expanded the concept of universal service to include, among other principles, that elementary and secondary schools and classrooms, libraries, and rural health care providers have access to telecommunications services for specific purposes at discounted rates. (See §§254(b)(6) and 254(h) of the 1996 Telecommunications Act, 47 U.S.C. 254.)

1. The Schools and Libraries (E-Rate) Program. Under universal service provisions contained in the 1996 act, elementary and secondary schools and classrooms and libraries are designated as beneficiaries of universal service discounts. Universal service principles detailed in Section 254(b)(6) state that "Elementary and secondary schools and classrooms ... and libraries should

[43] American Recovery and Reinvestment Act of 2009, P.L. 111-5, Section 6001 (k)(2)(D).

[44] For a detailed discussion of this Order and USF transition see *In the Matter of the Connect America Fund, et. al.,* WC Docket No. 10-90 et. al., Report and Order and Further Notice of Proposed Rulemaking, FCC 11-161, adopted October 27, 2011, and released November 18, 2011, available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-11-161A1.pdf.

[45] For additional information and data on this program see *2016 Annual Report, Universal Service Administrative Company*, p. 54, available at http://www.usac.org/_res/documents/about/pdf/annual-reports/usac-annual-report-interactive-2016.pdf.

have access to advanced telecommunications services." The act further requires in Section 254(h)(1)(B) that services within the definition of universal service be provided to elementary and secondary schools and libraries for education purposes at discounts, that is at "rates less than the amounts charged for similar services to other parties."

The FCC established the Schools and Libraries Division within USAC to administer the schools and libraries or "E (education)-rate" program to comply with these provisions. Under this program, eligible schools and libraries receive discounts ranging from 20% to 90% for telecommunications services depending on the poverty level of the school's (or school district's) population and its location in a high cost (i.e., rural) telecommunications area. Two categories of services are eligible for discounts: category one services (telecommunications, telecommunications services, and internet access), and category two services that deliver internet access within schools and libraries (internal connections, basic maintenance of internal connections, and managed internal broadband services). The funding cap for funding year 2017 (July 1, 2017 to June 30, 2018) is $3.99 billion. According to data released by program administrators, from 1998 to 2016 a total of approximately $44.4 billion in funding has been approved for disbursement.[46]

2. The Rural Health Care Program. Section 254(h) of the 1996 act requires that public and nonprofit rural health care providers have access to telecommunications services necessary for the provision of health care services at rates comparable to those paid for similar services in urban areas. Subsection 254(h)(1) further specifies that "to the extent technically feasible and economically reasonable" health care providers should have access to advanced telecommunications and information services. The FCC established the Rural Health Care Division (RHCD) within USAC to administer the universal support program to comply with these provisions. The Rural Health Care Program provides funding through three programs: the Telecommunications Program, the Healthcare Connect Fund, and the rural Health Care Pilot Program. The goal of these programs is to improve the quality of health care for those living in rural areas by ensuring access to broadband and telecommunications services. Under FCC established rules only public or nonprofit health care providers are eligible to receive funding.

The Telecommunications Program, established in 1997, provides discounts for telecommunications services to ensure that eligible rural health care providers pay no more than urban providers for telecommunications services. The primary use of the funding is to provide reduced rates for telecommunications and information services necessary for the provision of health care.[47]

The Rural Health Care Pilot Program was established in 2006, to help public and nonprofit health care providers build state and region-wide broadband networks dedicated to the provision of health care services. The program provides funding up to 85% of eligible costs. No new funding is available under this program and current participants that need additional support will transfer to the most recently created program, the Healthcare Connect Fund.

The FCC in December 2012 created the Healthcare Connect Fund,[48] a program to expand health care provider access to broadband, particularly in rural areas, and replace the Rural Health Care

[46] For additional information and data on this program see *2016 Annual Report, Universal Service Administrative Company*, p. 60, available at http://www.usac.org/_res/documents/about/pdf/annual-reports/usac-annual-report-interactive-2016.pdf.

[47] For additional information on this program see the RHCD website: http://www.universalservice.org/rhc/.

[48] Title II (the Rural Healthcare Connectivity Act of 2016) of P.L. 114-182 includes skilled nursing facilities to the list of health care providers eligible to receive RHC program support. This change became effective June 21, 2017.

Pilot Program with a permanent program. The Healthcare Connect Fund program supports high-capacity broadband connectivity and encourages the development of state and regional networks. This program provides a 65% discount on eligible expenses related to broadband connectivity and is available to individual rural health care providers and consortia. Consortia can include nonrural providers but at least 50% of providers must be located in a rural area.

The total annual funding cap for all of the above mentioned USF rural health care programs is $400 million.[49] According to data released by program administrators, from 1998 to 2016 a total of approximately $1.9 billion in funding has been approved for disbursement.[50]

The Low Income Program

As initially designed the Low Income Program provided a discount for voice telephony service for eligible low-income consumers. The major program has two subprograms, Lifeline and Link Up,[51] with the Lifeline Program providing the vast majority of support. In March 2016 the FCC adopted an Order to expand the Lifeline Program to support mobile and fixed broadband internet access services on a stand-alone basis, or with a bundled voice service.[52] Households must meet a needs-based criteria for eligibility. The Lifeline Program provides assistance to only one line per eligible household either wired or wireless, in the form of a monthly subsidy of, in most cases, $9.25.[53] Support is not given directly to the subscriber but to the designated service provider. According to data released by program administrators, from 1998 to 2016 a total of approximately $20.2 billion in funding has been approved for disbursement.[54]

Rural Utilities Service Programs

RUS implements three programs specifically targeted at providing assistance for broadband infrastructure deployment in rural areas: the Rural Broadband Access Loan and Loan Guarantee Program (also referred to as the Farm Bill Broadband Loans), the Telecommunications Infrastructure Loans and Loan Guarantees (previously the rural telephone loan program dating back to 1949), and the Community Connect Grant Program.[55] Additionally, RUS houses the Distance Learning and Telemedicine Grant Program, which supports broadband-based applications. The 113th Congress reauthorized and reformed the Rural Broadband Access Loan and Loan Guarantee program as part of the 2014 farm bill (P.L. 113-79 Agricultural Act of 2014).

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[49] For more details on the USF rural health care support mechanism and the Healthcare Connect Fund see *In the Matter of Rural Health Care Support Mechanism*, WC Docket No. 02-60, Federal Communications Commission, adopted December 12, 2012, available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-12-150A1.pdf.

[50] For additional information and data on this program see *2016 Annual Report, Universal Service Administrative Company*, p. 58, available at http://www.usac.org/_res/documents/about/pdf/annual-reports/usac-annual-report-interactive-2016.pdf.

[51] The Link Up program assists eligible low-income subscribers to pay the costs associated with the initiation of service and is no longer available except for on Tribal Lands.

[52] For additional information on the Lifeline Program see CRS Report R44487, *Federal Lifeline Program: Frequently Asked Questions*, by (name redacted) .

[53] Tribal Lands Lifeline provides an additional discount of up to $25 for eligible low-income consumers living on Tribal Lands for a total discount of up to $34.25.

[54] For additional information and data on this program see *2016 Annual Report, Universal Service Administrative Company*, p. 56, available at http://www.usac.org/_res/documents/about/pdf/annual-reports/usac-annual-report-interactive-2016.pdf.

[55] For more information on these programs, see CRS Report RL33816, *Broadband Loan and Grant Programs in the USDA's Rural Utilities Service*, by (name redacted) .

RUS rural broadband programs could be further modified in the 2018 farm bill, which is expected to reauthorize the Farm Bill Broadband Loan Program.

P.L. 111-5: The American Recovery and Reinvestment Act of 2009

On February 17, 2009, President Obama signed P.L. 111-5, the American Recovery and Reinvestment Act (ARRA). Broadband provisions of the ARRA provided a total of $7.2 billion, for broadband grants, loans, and loan/grant combinations. The total consisted of $4.7 billion to NTIA/DOC for a newly established Broadband Technology Opportunities Program (grants) and $2.5 billion to the RUS/USDA Broadband Initiatives Program (grants, loans, and grant/loan combinations).

Regarding the $2.5 billion to RUS/USDA broadband programs, the ARRA specified that at least 75% of the area to be served by a project receiving funds shall be in a rural area without sufficient access to high-speed broadband service to facilitate economic development, as determined by the Secretary of Agriculture. Priority was given to projects that provide service to the most rural residents that do not have access to broadband services. Priority was also given to borrowers and former borrowers of rural telephone loans.

Of the $4.7 billion appropriated to NTIA:

- $4.35 billion was directed to a competitive broadband grant program, of which not less than $200 million shall be available for competitive grants for expanding public computer center capacity (including at community colleges and public libraries); not less than $250 million to encourage sustainable adoption of broadband service; and $10 million transferred to the Department of Commerce Office of Inspector General for audits and oversight; and
- $350 million was directed for funding the Broadband Data Improvement Act (P.L. 110-385) and for the purpose of developing and maintaining a broadband inventory map, which shall be made accessible to the public no later than two years after enactment. Funds deemed necessary and appropriate by the Secretary of Commerce may be transferred to the FCC for the purposes of developing a national broadband plan, which shall be completed one year after enactment.

Final BTOP and BIP program awards were announced by September 30, 2010. With a few exceptions, all ARRA broadband projects were concluded as of September 30, 2015.[56]

Infrastructure Initiative and Broadband

On February 12, 2018, the Trump Administration released its *Legislative Outline for Rebuilding Infrastructure in America*.[57] The plan does not dedicate any funding exclusively for broadband, but does include rural broadband among the types of infrastructure projects that would be eligible for funding. Proposed funding streams that include broadband include

[56] For more information on implementation of the broadband provisions of the ARRA, see CRS Report R40436, *Broadband Infrastructure Programs in the American Recovery and Reinvestment Act*, by (name redacted) . For information on the distribution and oversight of ARRA broadband grants and loans, see CRS Report R41775, *Background and Issues for Congressional Oversight of ARRA Broadband Awards*, by (name redacted) .

[57] The White House, *Legislative Outline for Rebuilding Infrastructure in America*, released February 12, 2018, 53 pages, available at https://www.whitehouse.gov/wp-content/uploads/2018/02/INFRASTRUCTURE-211.pdf.

- *$50 billion* for a Rural Infrastructure Program. Funding would be block-granted to the states under a formula distribution for infrastructure projects including transportation, water and waste, power and electric, water resources, and broadband (including other high-speed data and communication conduits). Governors "would have the discretion to choose investments to respond to the unique rural needs of their states."[58] Eligible infrastructure projects would serve rural areas with populations of less than 50,000. An unspecified portion of the Rural Infrastructure Program funds would be set aside for tribal infrastructure and territorial infrastructure.
- *$20 billion* for a Transformative Projects Program, which would "provide Federal funding and technical assistance for bold, innovative, and transformative infrastructure projects that could dramatically improve infrastructure."[59] Funding would be awarded on a competitive basis to projects "that are likely to be commercially viable, but that possess unique technical and risk characteristics that otherwise deter private sector investment."[60] The program would be led by the Department of Commerce, which would chair an interagency project selection and evaluation committee. Federal funding would be available for up to 30% of eligible costs for project demonstration, up to 50% of eligible costs for project planning, and up to 80% of eligible costs for capital construction.
- *$14 billion* for expanding existing federal credit programs that address infrastructure. This would include additional budget authority to the USDA's Rural Utilities Service for RUS loan programs (which include telecommunications and broadband loans and loan guarantees).
- *$6 billion* for expanding the scope of Public Activity Bonds (PABs). The proposal would expand and modify eligible exempt facilities for PABs to include a number of new categories, including rural broadband service facilities.

It will be up to Congress to determine the extent to which the Administration infrastructure proposal will be implemented, and how an infrastructure initiative will be legislated. Whether dedicated rural broadband funding should or should not be part of the legislative response will likely be debated.[61] Meanwhile, rural broadband was included in the $20 billion carved out for infrastructure in the two-year budget agreement ($10 billion per year for two years) reached between the House and Senate in February 2018 (P.L. 115-123). However, the amount of targeted funding specifically for broadband was not specified.

The Trump Administration's *Legislative Outline* also contains many recommendations for reducing the costs and improving the time-effectiveness of infrastructure deployment by streamlining permitting regulations and procedures. In the 115th Congress, the House and Senate have begun considering legislation that would streamline permitting for broadband deployment.[62]

[58] Ibid., p. 6.

[59] Ibid., p. 8.

[60] Ibid.

[61] Democrats in Congress have released infrastructure proposals that include specific funding for broadband. See for example: the Lift America Act which would provide $40 billion over five years to deploy broadband (https://democrats-energycommerce.house.gov/newsroom/press-releases/ec-democrats-unveil-comprehensive-infrastructure-package); and the 21st Century New Deal for Jobs Act, which would provide $100 billion for broadband over ten years (https://cpc-grijalva.house.gov/21st-century-new-deal-for-jobs/).

[62] See for example, S. 19 (Section 6, "Communications Deployment on Federal Property), which was passed by the Senate on August 3, 2017. Also see legislation being considered by the House Committee on Energy and Commerce, (continued...)

The FCC has also begun a process to develop recommendations for lowering or removing regulatory barriers to broadband deployment (see section below, "Broadband Development Advisory Committee").

Other Federal Programs and Initiatives

Broadband Development Advisory Committee

Aside from funding, another way the federal government can facilitate broadband deployment is by taking steps to lower or remove regulatory barriers to broadband deployment facing private sector providers. On January 31, 2017, FCC Chairman Ajit Pai announced the formation of a new federal advisory committee, the Broadband Deployment Advisory Committee (BDAC), which will provide advice and recommendations for the FCC on how to accelerate the deployment of broadband by reducing and/or removing regulatory barriers to infrastructure investment.[63] The BDAC is composed of stakeholders, appointed by the FCC chairman, representing industry, states, localities, tribes, academia, and others. Five working groups have been formed; these are: Model Code for Municipalities, Model Code for States, Competitive Access to Broadband Infrastructure, Removing State and Local Regulatory Barriers, and Streamlining Federal Siting.[64] At the January 23-24, 2018, meeting of the BDAC, the Working Groups presented reports, recommendations, and discussion drafts.[65]

The FCC has also initiated proceedings addressing the issue of reducing regulatory barriers for the deployment of wireless and wireline broadband

- On April 20, 2017, the FCC adopted a *Notice of Proposed Rulemaking* and *Notice of Inquiry* to identify and address unnecessary regulatory barriers to wireless infrastructure deployment. The proceeding examined how state and local processes affect the speed and cost of infrastructure deployment, and asked for comment on improving state and local infrastructure reviews, and whether siting applications that are not acted on by state or local governments within a reasonable period of time should be "deemed granted" by FCC rules.[66] The FCC adopted a *Report and Order* on November 16, 2017, determining that replacement utility poles that have no potential effect on historic properties do not need to complete historic preservation review.[67]
- Also on April 20, 2017, the FCC adopted a *Notice of Proposed Rulemaking*, *Notice of Inquiry*, and *Request for Comment* on ways to accelerate next-generation networks by removing regulatory barriers to wireline broadband infrastructure development. The NPRM sought comment on pole attachment

(...continued)

available at https://energycommerce.house.gov/hearings/closing-digital-divide-broadband-infrastructure-solutions/.

[63] See https://www.fcc.gov/broadband-deployment-advisory-committee.

[64] FCC, *Public Notice*, "FCC Announced Membership and First Meeting of the Broadband Development Advisory Committee," GN Docket No. 17-83, April 6, 2017, available at https://apps.fcc.gov/edocs_public/attachmatch/DA-17-328A1.pdf.

[65] Available at https://www.fcc.gov/broadband-deployment-advisory-committee.

[66] FCC, *Notice of Proposed Rulemaking and Notice of Inquiry*, "In the Matter of Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment," WT Docket No. 17-79, FCC 17-38, adopted April 20, 2017, available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-17-38A1.pdf.

[67] Available at https://www.fcc.gov/document/fcc-streamlines-requirements-utility-pole-replacements-0.

reforms, expediting copper network retirement, using the FCC's preemption authority to prospectively prohibit the enforcement of state and local laws that pose barriers to broadband deployment, and input on when carriers must obtain FCC permission to alter or discontinue a service.[68] On November 16, 2017, the FCC adopted a *Report and Order, Declaratory Ruling*, and *Further Notice of Proposed Rulemaking*.[69]

BroadbandUSA

BroadbandUSA is housed at the Department of Commerce's National Telecommunications and Information Administration (NTIA). Using the expertise gained during administration of the ARRA Broadband Technology Opportunities Program (BTOP), BroadbandUSA program offers one-to-one technical assistance to communities seeking to plan and implement broadband initiatives. BroadbandUSA will leverage knowledge of federal funding and its network of contacts to help communities identify and leverage funding opportunities; provide support to communities seeking public-private partnerships; review, analyze, and provide recommendations and guidance associated with community-level reports, studies, and procurements; and provide background information and training to organizations that need assistance navigating the broadband landscape.[70] BroadbandUSA also organizes regional events and workshops bringing together broadband stakeholders and publishes guides and tools[71] that can serve as resources for communities seeking to launch broadband initiatives.

Appalachian Regional Commission

Section 1436 of the Fixing America's Surface Transportation Act (FAST Act, P.L. 114-94) authorized a high-speed broadband deployment initiative for the 13-state Appalachian region consisting of $10 million in available broadband grants annually through FY2020. In August 2016, ARC published a *Broadband Planning Primer and Toolkit*.[72]

Broadband Opportunity Council

On March 23, 2015, President Obama signed a Presidential Memorandum, "Expanding Broadband Deployment and Adoption by Addressing Regulatory Barriers and Encouraging Investment and Training."[73] The memorandum established an interagency Broadband Opportunity Council (BOC) chaired by the Department of Commerce (DOC) and the USDA, and consisting of 25 other member agencies. The council's objectives were to engage with industry and other stakeholders to understand ways the government can better support the needs of communities seeking to expand broadband access and adoption; identify regulatory barriers unduly impeding broadband deployment, adoption, or competition; survey and report back on

[68] FCC, *Notice of Proposed Rulemaking, Notice of Inquiry, and Request for Comment*, "In the Matter of Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment," WC Docket No. 17-84, FCC 17-37, adopted April 20, 2017, available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-17-37A1.pdf.

[69] Available at https://www.fcc.gov/document/fcc-acts-enable-investment-next-generation-networks-0.

[70] For more information on the types of technical assistance BroadbandUSA offers, see http://www2.ntia.doc.gov/technical_assistance.

[71] See http://www2.ntia.doc.gov/publications.

[72] Available at https://www.arc.gov/images/programs/telecom/ARCBroadbandPlanningPrimerToolkit.pdf.

[73] Available at https://www.whitehouse.gov/the-press-office/2015/03/23/presidential-memorandum-expanding-broadband-deployment-and-adoption-addr.

existing programs that currently support or could be modified to support broadband competition, deployment, or adoption; and take all necessary actions to remove these barriers and realign existing programs to increase broadband competition, deployment, and adoption. On April 29, 2015, DOC and USDA put out a notice and request for public comment in the *Federal Register*.[74]

On September 21, 2015, the Obama Administration released the *Broadband Opportunity Council Report and Recommendations*.[75] In its report, the Council issued nine recommendations encompassing 36 immediate actions that federal agencies committed to undertake. The Council recommendations emphasized actions that federal agencies can take under existing authority, and without additional appropriated funding. This encompasses such measures as making broadband projects eligible for funding from other existing federal grant and loan programs; modifying agency rules and regulations in order to maximize broadband-related uses of federal assets such as highways and federal lands; upgrading public dissemination of broadband information, data, and best practices; and researching new broadband technologies and applications.

In January 2017, NTIA released the *Broadband Opportunity Council Agency's Progress Report*. According to NTIA, 15 of the 36 original agency action items were deemed completed, with the rest in progress.[76] NTIA is maintaining a points-of-contact list of Broadband Interagency Working Group (BIWG) Members to answer questions about their respective agencies' participation in the BIWG and the status of their activities in meeting the Broadband Opportunity Council recommendations and action items.[77]

Concluding Observations

To the extent that Congress may consider various options for encouraging broadband deployment and adoption, a key issue is how to strike a balance between providing federal assistance for unserved and underserved areas where the private sector may not be providing acceptable levels of broadband service, while at the same time minimizing any deleterious effects that government intervention in the marketplace may have on competition and private sector investment.

The 115th Congress may address the digital divide issue by considering various approaches to providing support for infrastructure deployment, including support for rural broadband. Legislative vehicles that might be part of a rural broadband infrastructure initiative could include the 2018 farm bill (which authorizes RUS broadband programs), the FY2019 appropriations bills, and a variety of introduced legislation (see the **Appendix**).

[74] Department of Commerce and Department of Agriculture, "Broadband Opportunity Council Notice and Request for Comment," *Federal Register*, Vol. 80, No. 82, April 29, 2015, pp. 23785-23787, available at http://www.ntia.doc.gov/files/ntia/publications/fr_boc_notice_and_rfc_4-29-15.pdf.

[75] Department of Commerce and Department of Agriculture, *Broadband Opportunity Council Report and Recommendations*, August 20, 2015, available at https://www.ntia.doc.gov/files/ntia/publications/broadband_opportunity_council_report_final.pdf. For a summary of the BOC report, see CRS Insight IN10367, *Broadband Opportunity Council Report and Recommendations*, by (name redacted), available by request to CRS.

[76] Department of Commerce and Department of Agriculture, *Broadband Opportunity Council Agency's Progress Report*, January 2017, p. 8, available at https://www.ntia.doc.gov/files/ntia/publications/broadband_opportunity_council_agencies_progress_report_jan2017.pdf.

[77] NTIA, *Broadband Interagency Working Group (BIWG) Members*, January 2018, available at https://www.ntia.doc.gov/other-publication/2018/broadband-interagency-working-group-biwg-members.

In addition to loans, loan guarantees, and grants for broadband infrastructure deployment, a wide array of policy instruments are available to policymakers, including universal service reform, tax incentives to encourage private sector deployment, broadband bonds, demand-side incentives (such as assistance to low-income families for purchasing computers), reducing regulatory barriers to broadband deployment, and spectrum policy to spur rollout of wireless broadband services. In assessing federal incentives for broadband deployment, Congress may consider the appropriate mix of broadband deployment incentives to create jobs in the short and long term, the extent to which incentives should target next-generation broadband technologies, and the extent to which unserved and underserved areas with existing broadband providers should receive federal assistance.

Appendix. Broadband Legislation in the 115th Congress

Funding and Federal Assistance

H.R. 547 (DeLauro), introduced on January 13, 2017, would facilitate efficient investments and financing of infrastructure projects (including broadband projects) through the establishment of a National Infrastructure Development Bank. Referred to multiple committees.

H.R. 800 (Huffman), introduced on February 1, 2017, as the New Deal Rural Broadband Act of 2017, would establish an Office of Rural Broadband within USDA; authorize a "Breaking Ground on Rural Broadband Program" to make grants, loans, or loan guarantees to eligible entities for serving rural and underserved areas ($20 billion to remain available until September 30, 2022); establish a Tribal Broadband Assistance Program ($25 million for each of fiscal years 2017 through 2022); establish a broadband grant program to accompany the Rural Broadband Loan program; and modify the Telecommunications Infrastructure Loan program by raising the threshold for an eligible rural area from 5,000 to 20,000 population and by permitting RUS to give preference to loan applications that support regional telecommunications development. Referred to the Committee on Agriculture, and in addition to the Committees on Natural Resources and Energy and Commerce.

H.R. 1139 (Cramer), introduced February 16, 2017, as the Preserving State Commission Oversight Act of 2017, would amend the Communications Act of 1934 to protect low-income Lifeline subscribers by mandating a continued role for states in designating eligible telecommunications carriers for participation in the Universal Service Program, and for other purposes. Referred to the House Committee on Energy and Commerce.

H.R. 1581 (Ruiz), introduced on March 16, 2017, as the Tribal Digital Access Act of 2017, would amend the Communications Act of 1934 to add access to telecommunications and information services in Indian country and areas with high populations of Indian people to the universal service principle relating to access to such services in rural, insular, and high cost areas. Referred to the Committee on Energy and Commerce.

H.R. 1591 (Welch), introduced on March 16, 2017, would direct the FCC to adopt rules and conduct outreach to offer recipients of assistance under the Lifeline Assistance Program mobile devices that are capable of receiving a WiFi signal and are capable of tethering with other WiFi compatible hardware or devices. Referred to the Committee on Energy and Commerce.

H.R. 2479 (Pallone), introduced on May 17, 2017, as the LIFT America Act, would provide $40 billion over five years to deploy secure and resilient broadband to expand access for communities nationwide while promoting security by design. Three quarters of this funding will be used to deploy broadband in unserved areas of the country through a national reverse auction. The remaining funds will be given to states to distribute through separate statewide reverse auctions. If there are no unserved areas in a state, the state may use the funding to deploy broadband in underserved areas, to deploy broadband or connective technology to schools and libraries, or to fund the deployment of Next Generation 9-1-1. Requires that grant recipients offer a service tier of 25 Mbps (download)/3Mbps (upload) at $60 per month. Referred to multiple committees.

H.R. 3268 (Aderholt), introduced on July 17, 2017, as the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2018, would provide $4.5 million to subsidize a loan level of $27 million for the broadband loan program, and $122.7

million for the new Rural Economic Infrastructure Account, which would include both Community Connect and Distance Learning and Telemedicine grants, along with Community Facilities grants and Home Repair grants. The bill included language requiring at least 15% of the account resources ($18 million) be allocated to each program area. Reported by the Committee on Appropriations, July 17, 2017 (H.Rept. 115-232); placed on Union Calendar.

H.R. 3314 (Polis), introduced on July 19, 2017, as the 100 by '50 Act, would include broadband grants and loans under a community need-based economic transition assistance program. Referred to multiple committees.

H.R. 3546 (Austin Scott of Georgia), introduced on July 28, 2017, as the End Taxpayer Funded Cell Phones Act of 2017, would prohibit universal service support of commercial mobile service and commercial mobile data service through the Lifeline program. Referred to the Committee on Energy and Commerce.

H.R. 3621 (Russell), introduced on July 28, 2017, as the Rechecking Eligibility of Applicants to the Lifeline Program to Prevent Losses Yearly Act of 2017 (REAPPLY Act), would require Lifeline subscribers to reapply for such services on an annual basis. Referred to Committee on Energy and Commerce.

H.R. 3912 (Walorski), introduced on October 2, 2017, as the Move America Act of 2017, would include rural broadband service infrastructure as eligible for funding under Move America bonds. Referred to the Committee on Ways and Means.

H.R. 3994 (Tonko), introduced on October 6, 2017, as the ACCESS Broadband Act, would establish the Office of Internet Connectivity and Growth within NTIA at the Department of Commerce. Referred to the Committee on Energy and Commerce.

H.R. 4209 (Larson), introduced on November 1, 2017, as the American Wins Act, would establish a Build America Trust Fund in the Department of the Treasury, which would provide $3 billion to the Department of Commerce to carry out a program to expand access to broadband to communities throughout the United States, with an emphasis on communities unserved by broadband. Referred to multiple committees.

H.R. 4232 (Pocan), introduced on November 2, 2017, as the Broadband Connections for Rural Opportunities Program (BCROP) Act, would amend Section 601 of the Rural Electrification Act of 1936 (7 U.S.C. 950bb) to establish a broadband grant program to accompany the Rural Broadband Loan program. Also would raise the broadband loan program authorization from $25 million to $50 million. Referred to the Committees on Energy and Commerce and on Agriculture.

H.R. 4287 (Ben Ray Lujan), introduced on November 7, 2017, as the Broadband Infrastructure Finance and Innovation Act of 2017, would establish in the Department of Commerce a broadband infrastructure finance and innovation program to make available loans, loan guarantees, and lines of credit for the construction and deployment of broadband infrastructure. Referred to the Committee on Energy and Commerce.

H.R. 4291 (Stefanik), introduced on November 7, 2017, as the Precision Farming Act, would utilize Rural Utilities Service loans and loan guarantees under the rural broadband access program to provide broadband service for agricultural producers, and would provide universal service support for installation charges for broadband service for agricultural producers in order to improve precision farming and ranching. Referred to the Committees on Energy and Commerce and on Agriculture.

H.R. 4308 (Lujan Grisham), introduced on November 8, 2017, as the Rural Broadband Expansion Act, would authorize the Rural Utility Service's Community Connect broadband grant program at

$100 million for each of fiscal years 2019 through 2023. Referred to the Committees on Agriculture and on Energy and Commerce.

H.R. 4677 (Moulton), introduced on December 18, 2017, as the Small Business Broadband and Emerging Information Technology Enhancement Act of 2017, would improve certain programs of the Small Business Administration to better assist small business customers in accessing broadband technology. Referred to the Committee on Small Business.

H.R. 4817 (Long), introduced on January 17, 2018, as the Promoting Exchanges for enhanced Routing of Information so Networks are Great Act of 2018 (PEERING Act of 2018), would direct NTIA to make grants for the establishment or expansion of internet exchange facilities. Referred to the Committee on Energy and Commerce.

H.R. 4832 (Cramer), introduced on January 18, 2018, as the Restoring Economic Strength and Telecommunications Operations by Releasing Expected Dollars Act of 2018 (RESTORED Act of 2018), would amend the Communications Act of 1934 to clarify that an eligible telecommunications carrier may use high cost universal service support to aid in the restoration of telecommunications capabilities in an area in which the President has declared a major disaster or emergency and may elect to receive an advance payment of such support. Referred to the Committee on Energy and Commerce.

H.R. 4986 (Blackburn), introduced on February 8, 2018, as the Repack Airwaves Yielding Better Access for Users of Modern Services Act of 2018 (RAY BAUM's Act). Reauthorizes FCC. Section 505 would direct the FCC to promulgate regulations to establish a methodology that shall apply to the collection of mobile service coverage data for the purposes of the Universal Service program. Referred to Committee on Energy and Commerce, and in addition to the Committees on Transportation and Infrastructure, and Oversight and Government Reform.

H.R. 5016 (Abraham), introduced on February 14, 2018, as the Revitalize Rural America Act, would direct the Secretary of Transportation to establish a $2.1 billion Revitalize Rural America Grant Program that would fund infrastructure projects, including rural broadband. Referred to Committee on Transportation and Infrastructure, and in addition to the Committee on Energy and Commerce.

S. 277 (Manchin), introduced on February 2, 2017, as the Rural Telecommunications and Broadband Service Act of 2017, would establish a Rural Telecommunications and Broadband Advisory Committee within the Federal Communications Commission. Referred to the Committee on Commerce, Science, and Transportation.

S. 421 (Fischer), introduced February 16, 2017, as the Preserving State Commission Oversight Act of 2017, would amend the Communications Act of 1934 to protect low-income Lifeline subscribers by mandating a continued role for States in designating eligible telecommunications carriers for participation in the Universal service program, and for other purposes. Referred to the Committee on Commerce, Science, and Transportation.

S. 987 (Merkley), introduced on April 27, 2017, as the 100 by '50 Act, would include broadband grants and loans under a community need-based economic transition assistance program. Referred to the Committee on Finance.

S. 1229 (Hoeven), introduced on May 25, 2017, as the Move America Act of 2017, would include rural broadband service infrastructure as eligible for funding under Move America bonds. Referred to the Committee on Finance.

S. 1377 (Wicker), introduced on June 19, 2017, as the Reaching Underserved Rural Areas to Lead Telehealth Act, would remove the limitation on certain amounts for which large nonrural

hospitals may be reimbursed under the Healthcare Connect Fund of the Federal Communications Commission, and for other purposes. Referred to the Committee on Commerce, Science, and Transportation.

S. 1603 (Hoeven), introduced on July 20, 2017, as the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2018, would provide $4.5 million to subsidize a loan level of $27 million for the broadband loan program, and $30 million for the Community Connect grants. Reported by the Committee on Appropriations, July 20, 2017 (S.Rept. 115-131); placed on Senate Legislative Calendar.

S. 1676 (Gillibrand), introduced on July 31, 2017, as the Broadband Connections for Rural Opportunities Program (BCROP) Act, would amend Section 601 of the Rural Electrification Act of 1936 (7 U.S.C. 950bb) to establish a broadband grant program to accompany the Rural Broadband Loan program. Also would raise the broadband loan program authorization from $25 million to $50 million. Referred to the Committee on Agriculture, Nutrition, and Forestry.

S. 2165 (Sanders), introduced on November 28, 2017, as the Puerto Rico and Virgin Islands Equitable Rebuild Act of 2017, would provide $300 million in FY2018 to Department of Agriculture and Department of Commerce broadband programs to expand access to, and the quality of, broadband service across Puerto Rico and the Virgin Islands. Referred to the Committee on Finance.

S. 2205 (Heinrich), introduced on December 7, 2017, as the Tribal Connect Act of 2017, would improve access by Indian tribes to support from the Schools and Libraries Universal Service Support program (E-rate) of the Federal Communications Commission. Referred to the Committee on Indian Affairs.

Broadband Data, Studies, Reports

H.R. 1084 (Kelly of Illinois), introduced on February 15, 2017, as the Today's American Dream Act, would direct GAO to submit to Congress a report on the efficiency and effectiveness of efforts by federal agencies to expand access to broadband service. Referred to multiple committees.

H.R. 1546 (Loebsack), introduced on March 15, 2017, as the Rural Wireless Access Act of 2017, would direct the FCC to establish a methodology for the collection by the commission of mobile service coverage data. Referred to the Committee on Energy and Commerce.

H.R. 2903 (McKinley), introduced on June 15, 2017, as the Rural Reasonable and Comparable Wireless Access Act of 2017, would direct the FCC to promulgate regulations that establish a national standard for determining whether mobile and broadband services available in rural areas are reasonably comparable to those services provided in urban areas. Referred to the Committee on Energy and Commerce.

H.R. 3523 (Young of Alaska), introduced on July 27, 2017, would require the Comptroller General of the United States to conduct a study and submit a report on filing requirements under the Universal Service Fund programs. Referred to the Committee on Energy and Commerce.

H.R. 3839 (Kelly of Illinois), introduced on September 26, 2017, as the Today's American Dream Act, would direct GAO to submit to Congress a report on the efficiency and effectiveness of efforts by federal agencies to expand access to broadband service. Referred to multiple committees.

H.R. 3995 (McNerney), introduced on October 10, 2017, as the Improving Broadband Access for Veterans Act of 2017, would require the FCC to submit to Congress a report on promoting

broadband internet access service for veterans. Referred to the Committee on Energy and Commerce.

H.R. 4506 (Torres), introduced on November 30, 2017, as the Jobs for Tribes Act, would direct GAO to conduct a study assessing a range of federal programs (including broadband and telecommunications programs) available to assist Indian communities with business and economic development. Referred to the Committees on Natural Resources; Foreign Affairs; and Education and the Workforce.

H.R. 4810 (Johnson of Ohio), introduced on January 17, 2018, as the Making Available Plans to Promote Investment in Next Generation Networks without Overbuilding and Waste Act of 2018 (MAPPING NOW Act of 2018), would direct the Department of Commerce to carry out activities relating to the development and maintenance of a broadband inventory map through NTIA and not through an agreement with any other agency. Referred to the Committee on Energy and Commerce.

H.R. 4876 (Rush), introduced on January 22, 2018, as the Connecting Broadband Deserts Act of 2018, would amend the Communications Act of 1934 to direct the FCC to conduct an annual inquiry on the availability of advanced telecommunications capability in broadband deserts. Referred to the Committee on Energy and Commerce.

H.R. 4881 (Latta), introduced on January 25, 2018, as the Precision Agriculture Connectivity Act of 2018, would require the FCC to establish a task force for meeting the connectivity and technology needs of precision agriculture in the United States. Referred to the Committee on Energy and Commerce.

H.R. 4986 (Blackburn), introduced on February 8, 2018, as the Repack Airwaves Yielding Better Access for Users of Modern Services Act of 2018 (RAY BAUM's Act). Reauthorizes FCC. Section 504 would direct the FCC to submit a report to Congress on promoting broadband for veterans, in particular low-income veterans and veterans residing in rural areas. Section 508 would require the FCC to submit a report to Congress evaluating broadband coverage in Indian country and on land held by a Native Corporation pursuant to the Alaska Native Claims Settlement Act; the FCC shall complete a proceeding to address the unserved areas identified in the report. Referred to Committee on Energy and Commerce, and in addition to the Committees on Transportation and Infrastructure, and Oversight and Government Reform.

H.R. 5007 (Ruiz), introduced on February 13, 2018, would direct the FCC to submit to Congress a report evaluating broadband coverage in Indian country and on land held by a Native Corporation and to complete a proceeding to address the unserved areas identified in the report. Referred to the Committee on Energy and Commerce.

S. 645 (Klobuchar), introduced on March 15, 2017, as the Measuring the Economic Impact of Broadband Act of 2017, would require the Secretary of Commerce to conduct an assessment and analysis of the effects of broadband deployment and adoption on the economy of the United States. In conducting the assessment, the Secretary shall consider matters relating to employment, including job creation, business headcount, online commerce, income, education and distance learning, telehealth, telework, agriculture, population growth, population density, broadband speed, and geography. Referred to the Committee on Commerce, Science, and Transportation.

S. 875 (Sullivan), introduced on April 6, 2017, would require the Comptroller General of the United States to conduct a study and submit a report on filing requirements under the Universal Service Fund programs. Referred to the Committee on Commerce, Science, and Transportation and ordered to be reported with an amendment in the nature of a substitute favorably (S.Rept. 115-192).

S. 1104 (Manchin), introduced on May 11, 2017, as the Rural Wireless Access Act of 2017, would require the FCC to establish a methodology for the collection by the commission of information about commercial mobile service and commercial mobile data service. Referred to the Committee on Commerce, Science, and Transportation.

S. 1116 (Hoeven), introduced on May 11, 2017, as the Indian Community Economic Enhancement Act of 2017, would direct GAO to conduct a study assessing a range of federal programs (including broadband and telecommunications programs) available to assist Indian communities with business and economic development. Referred to the Committee on Senate Indian Affairs; reported by Committee on October 17, 2017 (S.Rept. 115-174).

S. 1621 (Wicker), introduced on July 24, 2017, as the Rural Wireless Access Act of 2017, would require the FCC to establish a methodology for the collection by the commission of information about commercial mobile service and commercial mobile data service. Referred to the Committee on Commerce, Science, and Transportation. Reported by the Committee on February 7, 2018 (S.Rept. 115-206).

S. 1950 (Blumenthal), introduced on October 5, 2017, as the Improving Broadband Access for Veterans Act of 2017, would require the FCC to submit to Congress a report on promoting broadband internet access service for veterans. Referred to the Committee on Commerce, Science, and Transportation.

S. 2418 (Hassan), introduced on February 13, 2018, as the Rural Reasonable and Comparable Wireless Access Act of 2017, would direct the FCC to promulgate regulations that establish a national standard for determining whether mobile and broadband services available in rural areas are reasonably comparable to those services provided in urban areas. Referred to the Committee on Commerce, Science, and Transportation.

Spectrum for Wireless Broadband

H.R. 686 (Paulsen), introduced on January 24, 2017, as the DIGIT Act, would ensure appropriate spectrum planning and interagency coordination to support the Internet of Things. Referred to the Committee on Energy and Commerce.

H.R. 1814 (Kinzinger), introduced on March 30, 2017, would encourage spectrum licensees to make unused spectrum available for use by rural and smaller carriers in order to expand wireless coverage. Referred to the Committee on Energy and Commerce.

H.R. 1888 (Guthrie), introduced on April 4, 2017, as the Federal Spectrum Incentive Act of 2017, would amend the National Telecommunications and Information Administration Organization Act to provide incentives for the reallocation of federal government spectrum for commercial use. Referred to the Committee on Energy and Commerce, and in addition to the Committee on Armed Services.

H.R. 4109 (Guthrie), introduced on October 24, 2017, as the Spectrum Auction Deposits Act of 2017, would amend the Communications Act of 1934 to provide for the deposits of bidders in auctions of spectrum frequencies to be deposited in the Treasury. Referred to the Committee on Energy and Commerce.

H.R. 4813 (Costello of Pennsylvania), introduced on January 17, 2018, as the Wireless Internet Focus on Innovation in Spectrum Technology for Unlicensed Deployment Act (WIFI STUDy Act), would direct GAO to conduct a study to evaluate the role of unlicensed spectrum in offloading broadband traffic. Referred to the Committee on Energy and Commerce.

H.R. 4986 (Blackburn), introduced on February 8, 2018, as the Repack Airwaves Yielding Better Access for Users of Modern Services Act of 2018 (RAY BAUM's Act). Reauthorizes FCC. Section 101 would amend the Communications Act of 1934 to provide for the deposits of bidders in auctions of spectrum frequencies to be deposited in the Treasury. Referred to Committee on Energy and Commerce, and in addition to the Committees on Transportation and Infrastructure, and Oversight and Government Reform.

H.R. 4953 (Lance), introduced on February 6, 2018, as the AIRWAVES Act, would facilitate a national pipeline of spectrum for commercial use. Referred to the Committee on Energy and Commerce.

S. 19 (Thune), introduced on June 3, 2017, as the MOBILE Now Act, would make more spectrum available for wireless broadband, facilitate broadband infrastructure deployment on federal lands, establish a national broadband facilities asset database, and encourage consultation between telecommunications providers and state highway authorities receiving federal highway money. Reported (S.Rept. 115-4) by the Committee on March 21, 2017. Passed Senate on August 3, 2017.

S. 88 (Fischer), introduced on January 10, 2017, as the DIGIT Act, would ensure appropriate spectrum planning and interagency coordination to support the Internet of Things. Referred to the Committee on Commerce, Science, and Transportation. Reported (S.Rept. 115-90) by the Committee on June 5, 2017. Passed Senate on August 3, 2017.

S. 1682 (Gardner), introduced on August 1, 2017, as the AIRWAVES Act, would facilitate a national pipeline of spectrum for commercial use, including wireless broadband internet access. Referred to the Committee on Commerce, Science, and Transportation.

Addressing Barriers to Broadband Deployment

H.R. 800 (Huffman), introduced on February 1, 2017, as the New Deal Rural Broadband Act of 2017, includes language that would direct USDA to establish and maintain an inventory of any real property that is owned, leased, or otherwise managed by the federal government on which a broadband facility could be constructed, as determined by the Under Secretary for Rural Broadband Initiatives. Referred to the Committee on Agriculture, and in addition to the Committees on Natural Resources and Energy and Commerce.

H.R. 2425 (Huffman), introduced on May 17, 2017, as the Public Lands Telecommunications Act, would support the establishment and improvement of communications sites on or adjacent to federal lands under the jurisdiction of the Secretary of the Interior or the Secretary of Agriculture through the retention and use of rental fees associated with such sites. Referred to the Committee on Natural Resources and in addition to the Committee on Agriculture. Ordered to be reported (amended) by the Committee on Natural Resources on June 27, 2017.

H.R. 2870 (Collins), introduced on June 12, 2017, as the Gigabit Opportunity Act, would provide tax incentives for low-income communities in states that adopt Uniform Model Broadband Deployment laws developed by FCC and that have been designated by state as gigabit opportunity zones. Referred to the Committees on Energy and Commerce and Ways and Means.

H.R. 4682 (Blackburn), introduced on December 19, 2017, as the Open Internet Preservation Act, would amend the Communications Act of 1934 to ensure internet openness, to prohibit blocking of lawful content, applications, services, and nonharmful devices, to prohibit impairment or degradation of lawful internet traffic, to limit the authority of the FCC and to preempt state law with respect to internet openness obligations, to provide that broadband internet access service

shall be considered to be an information service. Referred to the Committee on Energy and Commerce.

H.R. 4795 (Walters of California), introduced on January 16, 2018, as the Communications Facilities Deployment on Federal Property Act of 2018, would streamline communications facilities deployment on federal property. Referred to the Committee on Transportation and Infrastructure, and in addition to the Committee on Energy and Commerce.

H.R. 4800 (Eshoo), introduced on January 17, 2018, as the Broadband Conduit Deployment Act of 2018, would provide for the inclusion of broadband conduit installation in certain highway construction projects. Referred to the Committee on Transportation and Infrastructure.

H.R. 4802 (Kinzinger), introduced on January 16, 2018, as the Streamlining and Expediting Approval for Communications Technologies Act, would track applications to locate or modify communications facilities on federal real property. Referred to the Committee on Transportation and Infrastructure, and in addition to the Committees on Oversight and Government Reform, and Energy and Commerce.

H.R. 4814 (Eshoo), introduced on January 17, 2018, as the Community Broadband Act of 2018, would amend the Telecommunications Act of 1996 to preserve and protect the ability of local governments to provide broadband capability and services. Referred to the Committee on Energy and Commerce.

H.R. 4824 (Curtis), introduced on January 18, 2018, as the Rural Broadband Permitting Efficiency Act of 2018, would allow certain state permitting authority to encourage expansion of broadband service to rural communities. Referred to the Committee on Natural Resources, and in addition to the Committee on Agriculture.

H.R. 4839 (Ben Ray Lujan of New Mexico), introduced on January 18, 2018, as the Broadband Inventory Infrastructure Act of 2018, would provide for the establishment of an inventory of federal assets to provide information to entities that construct or operate communications facilities or provide communications service. Referred to the Committee on Transportation and Infrastructure, and in addition to the Committee on Energy and Commerce.

H.R. 4842 (Shimkus), introduced on January 18, 2018, as the Streamlining Permitting to Enable Efficient Deployment of Broadband Infrastructure Act of 2018, would amend the Communications Act of 1934 to provide that the FCC is not required to perform any review under the National Environmental Policy Act of 1969 or division A of subtitle III of title 54, United States Code, as a condition of permitting the placement and installation of a communications facility. Referred to the Committee on Energy and Commerce, and in addition to the Committee on Natural Resources.

H.R. 4845 (Olson), introduced on January 19, 2018, as the Connecting Communities Post Disasters Act of 2018, would provide that the FCC and communications service providers regulated by the FCC shall not be subject to certain provisions of the National Environmental Policy Act of 1969 and the National Historic Preservation Act with respect to the construction, rebuilding, or hardening of communications facilities following a major disaster or an emergency declared by the President. Referred to the Committee on Energy and Commerce, and in addition to the Committee on Natural Resources.

H.R. 4847 (Brooks of Indiana), introduced on January 19, 2018, as the Broadband Deployment Streamlining Act, would streamline the process for consideration of applications for the placement of communications facilities on certain federal lands. Referred to the Committee on Transportation and Infrastructure, and in addition to the Committees on Agriculture, Natural Resources, and Energy and Commerce.

H.R. 4858 (Eshoo), introduced on January 19, 2018, as the Clearing Local Impediments Makes Broadband Open to New Competition and Enhancements (CLIMB ONCE Act), would clarify Section 224 of the Communications Act of 1934 as not limiting the ability of a state to adopt a one touch make ready policy for pole attachments. Referred to the Committee on Energy and Commerce.

S. 19 (Thune), introduced on June 3, 2017, as the MOBILE Now Act, would make more spectrum available for wireless broadband, facilitate broadband infrastructure deployment on federal lands, establish a national broadband facilities asset database, and encourage consultation between telecommunications providers and state highway authorities receiving federal highway money. Reported (S.Rept. 115-4) by the Committee on Commerce, Science, and Transportation on March 21, 2017.

S. 604 (Hatch), introduced on March 9, 2017, as the Highway Rights-of-Way Permitting Efficiency Act of 2017, would allow certain state permitting authority to encourage expansion of broadband service to rural communities. Referred to the Committee on Environment and Public Works.

S. 742 (Booker), introduced on March 28, 2017, as the Community Broadband Act of 2017, would remove state barriers for constructing municipal broadband networks and encourage public-private partnerships. Referred to the Committee on Commerce, Science, and Transportation.

S. 1013 (Moore), introduced on May 3, 2017, as the Gigabit Opportunity Act, would provide tax incentives for low income communities in states that adopt Uniform Model Broadband Deployment laws developed by FCC and that have been designated by state as gigabit opportunity zones. Referred to the Committee on Finance.

S. 1363 (Heller), introduced on June 15, 2017, as the Rural Broadband Deployment Streamlining Act, would streamline the process for broadband facility location applications on Department of Interior and Forest Service land. Referred to the Committee on Energy and Natural Resources.

S. 1988 (Wicker), introduced on October 19, 2017, as the Streamlining Permitting to Enable Efficient Deployment of Broadband Infrastructure Act of 2017 (the SPEED Act), would streamline broadband infrastructure permitting on established public rights-of-way. Referred to the Committee on Environment and Public Works.

S. 2381 (Klobuchar), introduced on February 6, 2018, as the Streamlining and Investing in Broadband Infrastructure Act, would direct the Secretary of Transportation to require that broadband conduits be installed as a part of certain highway construction projects. Referred to the Committee on Environment and Public Works.

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