



FEDERAL COMMUNICATIONS COMMISSION
CHAIRMAN JULIUS GENACHOWSKI

**BRINGING BROADBAND TO RURAL AMERICA:
UPDATE TO REPORT ON A RURAL
BROADBAND STRATEGY**

GN Docket No. 11-16

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I. INTRODUCTION

1. The 2008 Farm Bill directed the Chairman of the Federal Communications Commission (Commission), in coordination with the Secretary of Agriculture, to submit to Congress a report describing a “comprehensive rural broadband strategy” in 2009.¹ The 2008 Farm Bill also required the Chairman, in coordination with the Secretary of Agriculture, to “update and evaluate” the Rural Broadband Report in 2011.² This Report constitutes that update and evaluation. It focuses on key actions at the Commission, the U.S. Department of Agriculture’s (USDA’s) Rural Utilities Service (RUS), and the Department of Commerce’s National Telecommunications and Information Administration (NTIA) to meet the demand for affordable, high quality broadband services in rural communities, including historic investments made under the American Recovery and Reinvestment Act (Recovery Act).³ While significant progress has been made to increase rural broadband deployment and adoption since the publication of the 2009 Rural Broadband Report, and a number of private- and public-sector initiatives are underway, additional efforts and new policies—including major universal service policy reform—are still required to ensure that rural America fully shares in the benefits of the emerging broadband economy.

2. All Americans, whether they live in rural or urban areas, should have access to robust and affordable broadband services—as well as the ability to use those services—in order to take

¹ Food, Conservation, and Energy Act of 2008, Pub. L. No. 110-246, § 6112, 122 Stat. 923, 1966 (2008) (2008 Farm Bill); *see also* ACTING CHMN. MICHAEL J. COPPS, FCC, BRINGING BROADBAND TO RURAL AMERICA: REPORT ON A RURAL BROADBAND STRATEGY (2009) (2009 RURAL BROADBAND REPORT), *attached to Rural Broadband Report Published in FCC Record*, GN Docket No. 09-29, Public Notice, 24 FCC Rcd 12791 (2009).

² 2008 Farm Bill, § 6112(b), 122 Stat. at 1966 (“The Chairman of the Federal Communications Commission, in coordination with the Secretary, shall update and evaluate the report described in subsection (a) during the third year after the date of enactment of this Act.”).

³ *See* American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115, 118, 128, 512 (2009) (Recovery Act).

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advantage of the many opportunities the digital revolution has created.⁴ Broadband can unlock new opportunities for Americans with respect to “consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, worker training, private-sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes.”⁵ As the Rural Broadband Report noted, broadband is critical to bringing these benefits to rural areas,⁶ which are less likely than urban areas to have broadband available.⁷ RUS, NTIA, and the Commission are working collaboratively to evaluate and support the communications needs of rural communities.

3. The nation has made significant progress in the two years since the Rural Broadband Report was released in deploying broadband infrastructure and in implementing and modernizing policies and programs to facilitate broadband deployment and adoption across the nation. During this time, the public and private sectors have made substantial investments to extend and upgrade broadband networks—including in some instances as a result of voluntary commitments to the Commission.⁸ This investment has included approximately \$8 billion in grants and loans to expand broadband deployment and adoption in unserved and underserved areas under RUS’s Broadband Initiatives Program (BIP) and NTIA’s Broadband Technology Opportunities Program (BTOP), as well as grants and loans provided by RUS for rural communications networks through ongoing programs.⁹ By working cooperatively with

⁴ Broadband access and literacy are growing increasingly important. *See Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps To Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 10-159, Seventh Broadband Progress Report and Order on Reconsideration, FCC 11-78, para. 4 (May 20, 2011) (*Seventh Broadband Progress Report*) (recognizing that “[t]he costs of digital exclusion are high and growing”); *see also* OMNIBUS BROADBAND INITIATIVE (OBI), FCC, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN, GN Docket No. 09-51 (2010) (NATIONAL BROADBAND PLAN), at 3–5, 14–31, 129, *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-296935A1.pdf; 2009 RURAL BROADBAND REPORT, 24 FCC Rcd at 12802, 12844–46, paras. 16, 117–18 (discussing “network effects”).

⁵ 47 U.S.C. § 1305(k)(2)(D).

⁶ 2009 RURAL BROADBAND REPORT, 24 FCC Rcd at 12801–06, paras. 14–25.

⁷ *See infra* Tables 1–2; *see generally* NTIA, BROADBAND STATISTICS REPORT: BROADBAND AVAILABILITY IN URBAN VS. RURAL AREAS (NTIA, BROADBAND STATISTICS REPORT), *available at* <http://www.broadbandmap.gov/download/reports/national-broadband-map-broadband-availability-in-rural-vs-urban-areas.pdf>; *see also* Rural Broadband Policy Group Comments at 2–3; NCTA Comments at 3–4 (discussing investment in rural areas and one provider’s efforts since the *2009 Rural Broadband Report* to expand deployment into areas that were previously not economically viable to serve); John Horrigan, *Broadband Adoption and Use in America* 7 (OBI Working Paper No. 1, 2010) (Horrigan, *Broadband Adoption and Use in America*) (finding that American adults in rural areas are less likely to have broadband available), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-296442A1.pdf.

⁸ *See, e.g., Applications Filed by Frontier Communications Corporation and Verizon Communications Inc. for Assignment or Transfer of Control*, WC Docket No. 09-95, Memorandum Opinion and Order, 25 FCC Rcd 5972 (2010) (*Frontier/Verizon Order*); *infra* para. 28 (discussing voluntary commitments).

⁹ The Recovery Act allocated \$2.5 billion for RUS’s BIP program and \$4.7 billion for grants for NTIA’s BTOP program, for a total of \$7.2 billion in budget authority. *See* Recovery Act, 123 Stat. at 118, 128. RUS used its \$2.5 billion allocation for both grants and loans. According to RUS, it may award and obligate funds in excess of its budget authority when it makes loans. Therefore, RUS notes, the total investment under the BIP and BTOP exceeded \$7.2 billion. *See* GAO, GAO-11-371T, RECOVERY ACT: BROADBAND PROGRAMS AWARDS AND RISKS TO OVERSIGHT 2–3 (Feb. 10, 2011) (GAO, BROADBAND PROGRAMS AWARDS AND RISKS TO OVERSIGHT) (“RUS (continued....)”).

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Tribal, federal, state, and local government entities and industry and consumer groups, the Commission is collecting better broadband data, reducing barriers to broadband deployment by improving access to poles and rights of way for wireline and wireless facilities, and working to reform a number of other policies and programs that will encourage rural broadband deployment. NTIA, in cooperation with the Commission and entities in every state, has unveiled the National Broadband Map—“a searchable and interactive website that allows users to view broadband availability across every neighborhood in the United States.”¹⁰

4. Many of these actions to expand broadband deployment and use are nascent; their full impact has not yet been realized and may be difficult to measure for some time. But it is clear that much more remains to be done to ensure that every American has the opportunity to participate in the broadband era. The best data available indicate that more than 20 million Americans lack access to broadband that meets the benchmark set forth in the *Seventh Broadband Progress Report*.¹¹ Significantly, approximately 73 percent of these Americans reside in rural areas.¹²

5. Closing the broadband gap in rural areas and building a world-leading broadband infrastructure requires smart government policies that enable broadband providers to extend and expand broadband availability.¹³ These policies must ensure fiscal responsibility and accountability, and should

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awarded funds to 320 projects, including more than \$2.3 billion for grants and about \$87 million for loans. According to RUS, the budget authority of \$87 million for loans supports almost \$1.2 billion in total loans, and a combined loan and grant award amount of more than \$3.5 billion.”)

¹⁰ See *About National Broadband Map*, NATIONAL BROADBAND MAP, <http://www.broadbandmap.gov/about>; see also 47 U.S.C. § 1305(l) (directing NTIA to “develop and maintain a comprehensive nationwide inventory map of existing broadband service capability and availability in the United States”).

¹¹ *Seventh Broadband Progress Report* at para. 1 (also concluding that broadband is not being deployed to all Americans in a reasonable and timely fashion and stating that “[m]any of these Americans live in areas where there is no business case to offer broadband, and where existing public efforts to extend broadband are unlikely to reach”). The Commission defined broadband “as a transmission service that actually enables an end user to download content at speeds of at least 4 megabits per second (Mbps) and to upload content at speeds of at least 1 Mbps over the broadband provider’s network (4 Mbps/1 Mbps).” *Id.* at para. 1 n.2. Because the data primarily relied upon by the Commission—NTIA’s State Broadband Data and Development Grant Program data (SBDD Data), described below—are collected by pre-determined speed tiers, none of which are identical to this 4 Mbps/1 Mbps benchmark, the *Seventh Broadband Progress Report* relied upon the speed tier closest to this benchmark, the 3 Mbps download and 768 kilobits per second upload (3 Mbps/768 kbps) speed tier. *Id.* at para. 25; see *infra* paras. 10–12. We follow that same approach here.

¹² See *infra* Table 1 (showing that 72.5% of the population without access to 3 Mbps/768 kbps broadband is in rural areas). The identification of unserved rural areas relies upon NTIA’s SBDD Data and the U.S. Census Bureau’s (Census Bureau) designation of rural areas from the 2000 Census. See *infra* para. 9; *Census 2000 Urban and Rural Classification*, CENSUS BUREAU (Dec. 3, 2009), http://www.census.gov/geo/www/ua/ua_2k.html. For purposes of that census, the Census Bureau classified areas located outside urban areas and urban clusters as “rural.” *Id.* In general, urban areas are “census block groups or blocks that have a population density of at least 1,000 people per square mile,” and urban clusters are the “surrounding census blocks that have an overall density of at least 500 people per square mile.” *Id.* A census block is the smallest geographic entity for which the Census Bureau collects and tabulates complete data. See *Decennial Management Division Glossary*, CENSUS BUREAU, <http://www.census.gov/dmd/www/glossary.html> (*Census Bureau Glossary*) (defining “census block”). The standards used by NTIA for determining whether broadband is available in a census block are detailed in the *Seventh Broadband Progress Report*. *Seventh Broadband Progress Report* App. F at para. 7.

¹³ Innovative government policies are essential to closing the broadband gap in rural America. To enhance the (continued....)

utilize market-driven approaches wherever appropriate. The Commission, NTIA, and the states must further improve data collection and mapping so we know more precisely where resources should be targeted. The Commission must reform and modernize the Universal Service Fund (USF) programs and intercarrier compensation system to ensure that broadband providers have appropriate incentives to deploy and encourage adoption of broadband in rural areas. The Commission also must continue to remove barriers to rural broadband deployment to promote further private and public investment, innovation, and job creation. And the Commission must increase the deployment of wireless infrastructure in rural areas.¹⁴ These actions, many of which are underway, seek to increase the opportunities for rural residential and business consumers so that they can participate fully in today's global economy.

II. DEVELOPMENTS IN RURAL BROADBAND

A. Improving Our Understanding of the State of Broadband in Rural America

6. Good data drive good policymaking. The 2009 Rural Broadband Report recognized that a lack of comprehensive and reliable data on the extent of broadband deployment, speeds, and subscribership, among other information, constituted a significant obstacle to improving policies to bring affordable and robust broadband services to rural America.¹⁵ Since publication of that report, the collective efforts of federal, state, and private interests have resulted in some improvement in available broadband data.

7. *Commission Data Collection.* As part of the Data Innovation Initiative that it launched in 2010,¹⁶ the Commission is continuing to improve its broadband data collection.¹⁷ In addition, the

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Federal government's efforts to address the needs of rural America, President Obama recently issued an Executive Order establishing a White House Rural Council to better coordinate Federal programs and maximize the impact of Federal investment to promote economic prosperity and quality of life in rural communities. *See* Exec. Order, Establishment of the White House Rural Council, Jun. 9, 2011, *available at* <http://www.whitehouse.gov/the-press-office/2011/06/09/executive-order-establishment-white-house-rural-council>. The Council is chaired by the Secretary of Agriculture and includes representatives from various agencies, including the Commission. *Id.* Among other things, the Council is tasked with coordinating and increasing the effectiveness of Federal engagement with rural stakeholders, including telecommunications services providers. *Id.*

¹⁴ We note that President Obama has called for a National Wireless Initiative to make high-speed wireless services available to 98 percent of Americans. *See* President Barack Obama, Remarks in State of Union Address (Jan. 25, 2011) (“[T]his isn’t about faster Internet or fewer dropped calls. It’s about connecting every part of America to the digital age.”), *available at* <http://www.whitehouse.gov/the-press-office/2011/01/25/remarks-president-state-union-address>; *see also* Press Release, Office of the Press Secretary, White House, President Obama Details Plan to Win the Future through Expanded Wireless Access (Feb. 10, 2011), *available at* <http://www.whitehouse.gov/the-press-office/2011/02/10/president-obama-details-plan-win-future-through-expanded-wireless-access>.

¹⁵ *See* 2009 RURAL BROADBAND REPORT, 24 FCC Rcd at 12806, para. 26 (stating that the Commission lacked data sufficient to “detail where broadband facilities are deployed, their speeds, and the number of broadband subscribers throughout rural America”); *id.* at 12832, para. 88.

¹⁶ *See* Press Release, FCC, FCC Launches Data Innovation Initiative (Jun. 29, 2010), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-299269A1.pdf.

¹⁷ *See Modernizing the FCC Form 477 Data Program; Development of Nationwide Broadband Data To Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscribership Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscribership; Service Quality, Customer Satisfaction, Infrastructure and Operating Data Gathering; Review of Wireline Competition Bureau Data Practices*, WC Docket Nos. 11-10, 07-38, 08-190, 10-132, Notice of Proposed (continued....)

Commission has partnered with SamKnows Limited (SamKnows), a company that specializes in measuring broadband availability and performance, to collect and analyze data on consumers' fixed broadband service quality across the United States. This will result in the most reliable and accurate statistics available to date on the performance of fixed broadband connections.¹⁸ The Commission also has made tools available that can provide any consumer with real-time information about the quality of his or her fixed or mobile broadband connection.¹⁹ In developing the National Broadband Plan, the Commission also engaged in extensive data collection and analysis of broadband deployment, adoption, and national purposes, which remain relevant in informing the Commission's deliberations.²⁰ Finally, the Commission, NTIA, and others conduct periodic surveys on broadband adoption.²¹

8. *National Broadband Map.* NTIA, in collaboration with the Commission, and in partnership with state, Tribal, and territorial governments, collected detailed data on broadband deployment as part of its development of the National Broadband Map.²² That map is a powerful tool for

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Rulemaking, 26 FCC Rcd 1508 (2011) (*Form 477 Modernization NPRM*). The *Form 477 Modernization NPRM*, which is part of the larger Data Innovation Initiative, seeks to build on improvements in the Form 477 data collection rules adopted in 2008. See *id.* at 1508, para. 1. Those rules require Form 477 fixed broadband filers to report, by census tract, the total number of fixed broadband subscribers, the proportion of those subscribers that are residential subscribers, and the number of subscribers broken down by speed tier and technology. See *Development of Nationwide Broadband Data To Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscribership Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscribership*, WC Docket No. 07-38, Report and Order and Further Notice of Proposed Rulemaking, 23 FCC Rcd 9691, 9695–9703, paras. 10–16, 19–22 (2008) (*2008 Broadband Data Gathering Order*), *recon. in part*, Order on Reconsideration, 23 FCC Rcd 9800 (2008). A census tract is a small, relatively permanent statistical subdivision of a county or statistically equivalent entity that generally contains between 1,000 and 8,000 people. See *Census Bureau Glossary* (defining “census tract”). Whereas data on fixed broadband connections are reported at the census-tract level, the Commission collects data on terrestrial mobile broadband connections (at speeds exceeding 200 kbps in at least one direction) at the state level. See *2008 Broadband Data Gathering Order*, 23 FCC Rcd at 9698, para. 16. The Commission has sought comment on collecting broadband data at a more granular level. See *Form 477 Modernization NPRM*, 26 FCC Rcd at 1529–33, 1536–37, paras. 55–65, 79–82.

¹⁸ *SamKnows & the FCC: American Broadband Performance Measurement*, SAMKNOWS (2011), http://www.samknows.com/broadband/fcc_and_samknows. The Commission also has issued a Request for Information about the capabilities of businesses to collect and report mobile broadband performance measurement and coverage data to the Commission and/or the general public. See FCC, *Request For Information: Measurement and Reporting of Mobile Broadband Performance and Coverage*, FEDBIZOPPS.GOV (Oct. 8, 2010), available at https://www.fbo.gov/index?s=opportunity&mode=form&id=987657347a39a85e109ee4e057517340&tab=core&_cview=1.

¹⁹ *Consumer Broadband Test*, BROADBAND.GOV, <http://www.broadband.gov/qualitytest/about/>.

²⁰ See, e.g., NATIONAL BROADBAND PLAN App. D (listing the data-gathering workshops); see also *id.* at ix (noting that the proceeding yielded 23,000 comments and 1,100 ex parte filings).

²¹ See, e.g., ECONOMICS AND STATISTICS ADMINISTRATION & NTIA, EXPLORING THE DIGITAL NATION: HOME BROADBAND INTERNET ADOPTION THE UNITED STATES vi (2010) (NTIA ADOPTION SURVEY), available at <http://www.esa.doc.gov/sites/default/files/reports/documents/report.pdf>; Horrigan, *Broadband Adoption and Use in America* at 3–7.

²² See Recovery Act § 6001(l), 123 Stat. at 118, 128 (directing that NTIA create a “comprehensive nationwide inventory map of existing broadband service capability and availability” showing the geographic extent to which that capability is deployed and available for each state); 2009 RURAL BROADBAND REPORT, 24 FCC Rcd at 12837, para. 102. NTIA obtains the data used in the National Broadband Map through the SBDD Program, a matching grant (continued....)

consumers, researchers, and policymakers seeking to understand the broadband options available in particular areas.²³ The SBDD Data underlying the map constitute the best available data on rural broadband deployment in the United States to date.²⁴

9. *What the Data Show About Broadband Deployment and Adoption in Rural America.* Like the Commission's *Seventh Broadband Progress Report*,²⁵ this report examines where consumers do and do not have access to services meeting the Commission's broadband benchmark, as well as examining subscription rates.²⁶ The best available data for these purposes are the SBDD Data and the Commission's Form 477 subscription data.²⁷ Because of concerns about the accuracy or lack of granularity of the available mobile wireless data for this purpose, consistent with the approach followed in the *Seventh Broadband Progress Report*, this report does not analyze data on mobile broadband deployment or adoption.²⁸ In other contexts, where the focus of the Commission's analysis is not on determining the availability of services at specific speed thresholds, the Commission has analyzed rural coverage by third-generation (3G) and fourth-generation (4G) mobile wireless networks based on American Roamer coverage data and Census population data, finding that 8 percent of the U.S. rural

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program that implements the joint purposes of the Recovery Act and the Broadband Data Improvement Act (BDIA). Anne Neville, *NTIA Launches National Broadband Map*, BROADBANDUSA (NTIA BLOG) (Feb. 17, 2011), <http://www2.ntia.doc.gov/node/764> (Feb. 17, 2011).

²³ For example, a consumer can use this map to obtain a list of the companies that offer broadband service in the area where the consumer lives, as well as information regarding the service speeds those companies offer. The map also allows users to generate an overview of broadband availability for any state, county, state legislative district, metropolitan statistical area, USF study area, or Native Nation. *See generally* NATIONAL BROADBAND MAP, www.broadbandmap.gov. In addition, the data used to create the map—over 25 million records—are publicly available for download “for use by all stakeholders, including consumers, policymakers, and researchers.” Tom Power, *Broadband Data Beyond the Map*, NATIONAL BROADBAND MAP BLOG (Mar. 18, 2011), <http://www.broadbandmap.gov/blog/2510/broadband-data-beyond-the-map>.

²⁴ NTIA, Dep't of Commerce, State Broadband Data and Development Grant Program, RIN 0660-ZA29, Notice of Funds Availability, 74 Fed. Reg. 32545 (July 8, 2009); *see also* NTIA, Dep't of Commerce, State Broadband Data and Development Grant Program, RIN 0660-ZA29, Notice of Funds Availability; Clarification, 74 Fed. Reg. 40569 (Aug. 12, 2009); *Seventh Broadband Progress Report* at para. 21.

²⁵ *Seventh Broadband Progress Report* at paras. 23–27, 58–61.

²⁶ *See supra* note 11 for an explanation of Commission's broadband benchmark.

²⁷ Our analysis reflects the limitations in these data sources. *Cf. Seventh Broadband Progress Report* App. F (discussing the limitations of SBDD and Form 477 data and how these limitations may affect analyses that rely on those data). NTIA and the Commission are working to improve the accuracy of the available data, including the data on which the National Broadband Map is based, in part by relying on input from the grantees that collected the data and from the public. *See* Press Release, NTIA, Commerce's NTIA Unveils National Broadband Map and New Broadband Adoption Survey Results (Feb. 17, 2011), *available at* http://www.ntia.doc.gov/press/2011/NationalBroadbandMap_02172011.html; *see also Seventh Broadband Progress Report* App. F at paras. 8, 23; *supra* paras. 7–8.

²⁸ *See Seventh Broadband Progress Report* at paras. 26–27 (declining to draw conclusions based on SBDD Data about mobile wireless services because of a concern that these data do not accurately reflect where mobile wireless subscribers actually are able to obtain service that meets the broadband performance threshold); *see also id.* at para. 33 (excluding mobile wireless from the Commission's analysis of Form 477 data because Form 477 collects mobile wireless data only at the state level).

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population was not covered by either type of network as of November 2009, compared to only 2 percent of the entire U.S. population.²⁹

10. The data show that the broadband deployment and adoption gaps in rural areas remain significant.³⁰ Table 1 reports the number of Americans without access to 3 Mbps/768 kbps or faster fixed broadband services according to SBDD Data. As that table indicates, 72.5 percent of the 26.2 million Americans that still lack access to 3 Mbps/768 kbps or faster fixed broadband services reside in rural areas, even though only 21.7 percent of all Americans reside in rural areas. Close to three out of ten rural Americans—28.2 percent—lack access to fixed broadband at 3 Mbps/768kbps or faster, a percentage that is more than nine times as large as the 3.0 percent that lack access in non-rural areas.³¹ Moreover, other data indicate that rural consumers have fewer choices among broadband technologies and providers than other consumers have.³²

Table 1			
Fixed Broadband Availability			
(SBDD Census Block Data as of June 2010)³³			
Area	Population	Population Without Access to 3 Mbps/768 kbps or Faster Fixed Broadband Service	Percentage of Population Without Access to 3 Mbps/768 kbps or Faster Fixed Broadband Service
Rural Areas	67,224,943	18,974,285	28.2%
Non-Rural Areas	243,181,422	7,186,053	3.0%
All Areas	310,406,365	26,160,338	8.4%
Percentage in Rural Areas	21.7%	72.5%	

11. Subscription to broadband services in rural areas also lags the nation as a whole.³⁴ Table 2 compares the overall subscription rate in the nation to the subscription rate in census tracts in which at

²⁹ See *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services*, WT Docket No. 09-66, Fourteenth Report, 25 FCC Rcd 11407, 11614, para. 355 (2010) (*Fourteenth Mobile Wireless Competition Report*). In the context of the *Fourteenth Mobile Wireless Competition Report*, the designation of “rural” population refers to persons living in counties with a population density of 100 persons or fewer per square mile. *Id.* at 11611, para. 351. The *Fourteenth Mobile Wireless Competition Report* notes that the American Roamer analysis likely overstates the coverage actually experienced by consumers, because American Roamer reports advertised coverage as reported to it by many mobile wireless service providers, each of which uses a different definition of coverage. *Id.* at 11413, para. 4 n.5.

³⁰ See, e.g., *infra* Table 1; *supra* note 12.

³¹ See Appendix C, which shows that the populations lacking access to 768 kbps/200 kbps or faster fixed service and 6 Mbps/1.5 Mbps or faster fixed broadband service are disproportionately rural.

³² NTIA, BROADBAND STATISTICS REPORT. As state grantees gather additional data from broadband providers, over time the SBDD Data and map will show the deployment of broadband projects currently under construction, including those networks financed by RUS and NTIA.

³³ See Appendix B and notes. Appendix B shows the total rural and total non-rural population unserved in each state and U.S. Territory included in our analysis. Guam and the Northern Mariana Islands are not included in our analysis because these territories did not provide information in time to be included in the SBDD Data underlying our analysis.

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least 50 percent of the population of the tract resides in a census block that was designated as “rural” in the 2000 Census. As the table shows, only 18.9 percent of households in rural areas subscribe to a 3 Mbps/768 kbps or faster fixed broadband service compared to 33.6 percent of households in the U.S. as a whole.

Table 2				
Comparison of Overall Subscription Rate for Fixed Broadband Services Between the U.S. as a Whole and Census Tracts in which At Least 50% of the Population Reside in a Rural Area (Form 477 Broadband Subscription Data June 2009 and June 2010)³⁵				
	U.S. as a Whole		Rural Areas	
	June 2009	June 2010	June 2009	June 2010
768 kbps/200 kbps or Faster	55.9%	59.7%	41.4%	45.9%
3 Mbps/768 kbps or Faster	26.8%	33.6%	13.4%	18.9%
6 Mbps/1.5 Mbps or Faster	13.8%	19.2%	4.6%	7.1%

12. These results are consistent with the Commission’s findings in the *Seventh Broadband Progress Report*, which suggests a correlation between broadband subscription and education and income levels.³⁶ Even within rural areas, areas that lack access to broadband tend to have a population with less education and lower income levels than rural areas with access to broadband.³⁷ On average,

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³⁴ The subscription data shown below are based on the residential broadband subscription data the Commission collects on Form 477. The Commission generally collects Form 477 broadband data at the census tract level. See *supra* note 17. Subscription rates in rural and non-rural areas are calculated by dividing the number of residential fixed broadband subscriptions by the number of households. We note that the Commission has questioned the accuracy of the Form 477 Broadband data at the census tract level because the subscription rates in some census tracts exceed 100 percent. See *Seventh Broadband Progress Report* at para. 29. While aggregating census tract data to the county level would alleviate this particular problem—see *id.*—taking that approach here would capture only 35.1 million of the 67.2 million Americans that reside in rural areas given our determination that to qualify as “rural,” at least 50 percent of the population must reside in a rural area. In contrast, the analysis in Table 2 captures 61.8 million of those the 67.2 million Americans residing in rural areas.

³⁵ See Appendix D for the overall subscription rates in rural census tracts in each State and U.S. Territory included in our analysis.

³⁶ See *Seventh Broadband Progress Report* at paras. 43–44; see also INDUSTRY ANALYSIS AND TECHNOLOGY DIVISION, FCC, INTERNET ACCESS SERVICES: STATUS AS OF JUNE 30, 2010, at 35, charts 17, 18, 21, 22 (Mar. 2011).

³⁷ To examine the demographics of rural areas without access to fixed broadband services, we aggregate the SBDD Data up to the census tract level because demographic information is not available at the census block level. The demographic analysis above relies upon the American Community Survey (ACS) Five-Year Estimates 2005–2009 census tract level data. These ACS data are based upon surveys conducted from January 1, 2005 to December 31, 2009 and are significant because these data are the most recent demographic information to date. *American Community Survey*, CENSUS BUREAU, http://factfinder.census.gov/jsp/saff/SAFFInfo.jsp?_pageId=sp1_acs&_submenuId=&ds_name=&_ci_nbr=&qr_name=&_industry=. The ACS data do not represent any one year or the midpoint of a period, but are estimates for the time period 2005–2009. The ACS surveys were conducted only for the fifty states, the District of Columbia, and Puerto Rico; they did not include American Samoa, Guam, Northern Mariana Islands, or the U.S. Virgin Islands. Median Household Income is measured in 2009 Inflation-Adjusted Dollars. Educational attainment is measured as the portion of the population aged 25 years old and older that has attained at least an Associate’s Degree. See *id.*

households in rural areas without access to a 3 Mbps/768 kbps fixed broadband service have an average median household income of \$48,331 compared to \$57,075 in rural areas with access to such service. Similarly, for rural areas without access to this service, on average, 25.5 percent of the population aged 25 or older have at least an Associate's degree compared to 30 percent of the population aged 25 or older in rural areas with access to this service. Moreover, according to one survey, in 2010 only 50 percent of adults in rural areas use broadband at home, compared to 70 percent of adults living in urban areas.³⁸ Thus, it appears reasonable to conclude that lower broadband adoption in rural areas reflects less deployment as well as demographic factors, including lower income levels.

B. Ensuring the Availability of Adequate Resources

13. This section briefly discusses improvements made in the last two years in directing public resources towards closing the broadband gap in rural areas. We recognize that actors other than the federal government—including private-sector companies large and small, cooperatives, municipalities, and other state and local entities—are the primary forces for increasing broadband availability in rural America. Broadband providers' investment in rural areas has been substantial to date, and we note that three large providers of communications services, CenturyLink, Comcast, and Frontier, have committed to expanding their broadband footprints—at least in part to fulfill voluntary commitments to the Commission.³⁹ Other smaller companies are rolling out state-of-the-art services in rural communities where broadband was previously unavailable.⁴⁰ Efforts by the federal government to help close the broadband gap in rural areas complement, facilitate, and accelerate these investments by broadband providers.

1. Grants and Loans

14. Recognizing the unique difficulties in deploying broadband to rural and Tribal areas, Congress allocated \$7.2 billion to RUS and NTIA to expand access to and adoption of broadband services in communities across America.⁴¹ At the time the Rural Broadband Report was released in May 2009, the implementation of the Recovery Act had just begun.⁴² Now, funds have been dedicated to projects that will bring robust broadband to unserved and underserved areas of the country.⁴³ The

³⁸ See AARON SMITH, PEW INTERNET & AMERICAN LIFE PROJECT, HOME BROADBAND 2010 at 8 (Aug. 2010) (SMITH, HOME BROADBAND ADOPTION), *available at* <http://www.pewinternet.org/~media/Files/Reports/2010/Home%20broadband%202010.pdf>.

³⁹ See *Applications Filed by Qwest Communications International Inc. and CenturyTel, Inc. d/b/a CenturyLink for Consent to Transfer Control*, WC Docket No. 10-110, Memorandum Opinion and Order, 26 FCC Rcd 4194, 4218, App. C (2011) (*CenturyLink/Qwest Merger*); CenturyLink Comments, WC Docket No. 01-92, at i (filed Apr. 18, 2011); *Frontier/Verizon Order*, 25 FCC Rcd at 6001, App. C; Frontier Comments, WC Docket No. 01-92, at 2 (filed Apr. 18, 2011).

⁴⁰ See, e.g., NCTA Comments at 3–4; see also SPX Comments Exh. A.

⁴¹ See *supra* note 9. These funds were allocated as a one-time appropriation. See Recovery Act, 123 Stat. at 128. The Recovery Act required that a website be created to “foster greater accountability and transparency in the use of covered funds.” *Id.* § 1526(a), 123 Stat. at 293. Recovery.gov gives taxpayers user-friendly tools to track Recovery Act funds. The site also offers the public an opportunity to report suspected fraud, waste, or abuse related to Recovery Act funding. See RECOVERY.GOV: TRACK THE MONEY, <http://www.recovery.gov/About/Pages/Recoverygov.aspx>.

⁴² See 2009 RURAL BROADBAND REPORT, 24 FCC Rcd at 12815–16, paras. 46–47.

⁴³ See generally NTIA, DEP'T. OF COMMERCE, THE BROADBAND TECHNOLOGY OPPORTUNITIES PROGRAM: EXPANDING BROADBAND ACCESS AND ADOPTION IN COMMUNITIES ACROSS AMERICA, OVERVIEW OF GRANT AWARDS (2010) (BTOP OVERVIEW OF GRANT AWARDS), *available at* (continued....)

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projects funded under RUS's BIP program will bring new or improved broadband service to 2.8 million households, reaching nearly 7 million people, 364,000 businesses, and 32,000 critical community institutions such as schools, healthcare facilities, and public safety agencies.⁴⁴ These projects also overlap with 31 Tribal lands and 124 persistent poverty counties.⁴⁵ The BTOP program, administered by NTIA, funded awards to eligible entities to develop and expand broadband services to rural and underserved areas and improve access to broadband by public safety agencies. NTIA invested approximately \$4 billion in 233 BTOP projects benefitting every state, territory,⁴⁶ and the District of Columbia.⁴⁷ These projects included: 123 infrastructure projects totaling \$3.5 billion to construct broadband networks; 66 public computer center projects totaling \$201 million to provide access to broadband, computer equipment, computer training, job training, and educational resources to the public and specific vulnerable populations; and 44 sustainable broadband adoption projects totaling \$250.7 million to support innovative projects that promote broadband adoption, especially among vulnerable population groups that traditionally have underused broadband technology.⁴⁸ While we anticipate significant progress in broadband deployment and adoption from these programs, it is too soon to quantify the full impact of these investments. And these investments will not fully resolve the need for robust and affordable broadband in rural areas.⁴⁹

15. RUS also continues to administer a variety of non-BIP loan and grant programs targeted specifically to communities and regions that have inadequate access to telecommunications and broadband service or investment capital. RUS provides loans at or near the U.S. Treasury rate of interest

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http://www.ntia.doc.gov/reports/2010/NTIA_Report_on_BTOP_12142010.pdf; *About the Recovery Act BIP*, USDA: RURAL DEVELOPMENT, http://www.rurdev.usda.gov/utp_bip.html.

⁴⁴ See RUS, USDA, UNITED STATES DEPARTMENT OF AGRICULTURE: ADVANCING BROADBAND—A FOUNDATION FOR STRONG RURAL COMMUNITIES: BROADBAND INITIATIVES PROGRAM—AWARDS REPORT 1, 3 (Jan. 2011) (RUS AWARDS REPORT). By the completion of the awards phase of the BIP in September 2010, RUS had made 320 awards for infrastructure, satellite, and technical assistance, including over \$2.3 billion in grants, and almost \$1.2 billion in loans. *Id.* at 2. RUS has put into place a multifaceted oversight framework to monitor compliance and progress for recipients of BIP funding. See GAO, BROADBAND PROGRAMS AWARDS AND RISKS TO OVERSIGHT 6.

⁴⁵ RUS AWARDS REPORT at 3.

⁴⁶ Many of the actions undertaken within the last two years have benefited the U.S. Territories. *Cf.* Virgin Islands Telephone Corporation Comments (noting the benefit of broadband to the territories and reminding the Commission that the U.S. Territories should not be overlooked). BTOP grants and BIP loans are contributing to improved broadband infrastructure in these areas. See, e.g., BTOP OVERVIEW OF GRANT AWARDS at 17 (discussing grants that will lead to 244 miles of new fiber on the U.S. Virgin Islands); RUS AWARDS REPORT at 12 (discussing loans that will benefit American Samoa). Moreover, we expect that our data will improve in the future allowing us to better understand availability of broadband in each territory. See, e.g., *Seventh Broadband Progress Report* at para. 24 (stating that as the SBDD Data improves, so will our deployment estimates).

⁴⁷ See NTIA, DEP'T OF COMMERCE, BROADBAND TECHNOLOGY OPPORTUNITIES PROGRAM QUARTERLY PROGRAM STATUS REPORT, 8th Report at 1 (Feb. 2011), available at http://www.ntia.doc.gov/recovery/BTOP/BTOP_QuarterlyReport_Feb_2011.pdf. NTIA has implemented a program-wide oversight strategy to “mitigate waste, fraud, and abuse; ensure compliance with award conditions; and monitor each project’s progress toward its timely completion.” *Id.* at 2.

⁴⁸ *Id.* at 1.

⁴⁹ In fact, the National Broadband Plan estimated that it would take several times this amount to close the rural broadband gap. See NATIONAL BROADBAND PLAN at 136–37 (estimating that approximately \$24 billion would be required to close the broadband deployment gap for the unserved alone).

for the construction of broadband facilities in rural areas. Since publication of the 2009 Rural Broadband Report, RUS has invested \$1.52 billion in loans for telecommunications infrastructure that is broadband capable,⁵⁰ \$13.4 million in grants for broadband in remote rural areas,⁵¹ and \$71 million in distance learning and telemedicine (DLT) grants.⁵² The agency is currently evaluating a new round of grant applications for distance learning and telemedicine projects and community connect broadband grant applications,⁵³ and expects to announce results of those competitive funding opportunities before the end of the year. These programs, combined with BIP investments, have invested more than \$4.3 billion in loans, grants, and combined loan/grant awards to rural service providers and communities.⁵⁴

16. Additionally, RUS is in the final stages of completing a set of new regulations to implement the substantially underserved trust area (SUTA) provisions of the 2008 Farm Bill.⁵⁵ These provisions authorize RUS to waive matching requirements, give projects on trust lands the highest funding priority, and authorize loans with interest rates as low as 2 percent. The SUTA provisions apply to most RUS loan and grant programs, including the RUS broadband and telecommunications loan programs. To implement those provisions, RUS conducted 20 government-to-government consultations on how to craft regulations that ensure maximum impact. SUTA provides a pathway for Tribal communities to access the RUS telecommunications loan and grant programs more easily as a means for increasing the rate of deployment and adoption across all Tribal communities.

⁵⁰ See USDA, USDA RURAL DEVELOPMENT 2010 PROGRESS REPORT 32 (USDA 2010 PROGRESS REPORT), available at <http://www.rurdev.usda.gov/supportdocuments/ProgReport2010.pdf>; see generally RUS, Farm Bill Broadband Loan Program, http://www.rurdev.usda.gov/utp_farbill.html.

⁵¹ See USDA, USDA RURAL DEVELOPMENT 2009 PROGRESS REPORT 10 (USDA 2009 PROGRESS REPORT); see also RUS, SUMMARIES OF 2009 COMMUNITY CONNECT BROADBAND GRANTS (Sept. 30, 2009), available at <http://www.rurdev.usda.gov/SupportDocuments/2009CommConnectAwards.pdf>; see generally RUS, Community Connect Grant Program, http://www.rurdev.usda.gov/utp_commconnect.html.

⁵² See, e.g., RUS, USDA, PROJECT SELECTION NOTICES FOR DLT GRANT AWARDS FISCAL YEAR 2010 (RUS 2010 DLT GRANT AWARDS), available at <http://www.rurdev.usda.gov/supportdocuments/2010-DLT-Grants.pdf>; USDA 2009 PROGRESS REPORT.

⁵³ The Federal Register published notice of the RUS DLT grant program application window for awards in FY 2011 on February 24, 2011. See Announcement of Solicitation of Applications and Grant Application Deadlines, 76 Fed. Reg. 10321 (Feb. 24, 2011), available at http://www.rurdev.usda.gov/supportdocuments/DLTNOSA_FRNotice.pdf. The application window closed on April 25, 2011. *Id.*

⁵⁴ See USDA 2010 PROGRESS REPORT 17; USDA 2009 PROGRESS REPORT.

⁵⁵ 2008 Farm Bill, § 6105, 122 Stat. at 1196; see also USDA Rural Development—Programs Overview, Rural Utilities Service, Implementation of the SUTA Initiative, available at <http://www.rurdev.usda.gov/suta.html>. Substantially underserved trust areas are trust lands that the Secretary of Agriculture determines have a high need for the benefits of RUS's programs. See, e.g., 7 C.F.R. § 1738.3(a). The Federal Register published the 2008 Farm Bill Broadband Loan program interim final regulations on March 14, 2011. These regulations include specific instructions for all applicants, including SUTA applicants, seeking the U.S. Treasury rate of interest for broadband loans. See Department of Agriculture, Rural Utilities Service, Rural Broadband Access Loans and Loan Guarantees, Interim Rule, 76 Fed. Reg. 13770, 13791 (Mar. 14, 2011). These provisions will enable those seeking to benefit from SUTA through the broadband loan program to do so immediately. The publication of the new regulations mark the first time that the broadband loan program has been opened for new applications during the Obama Administration. The broadband loan program had been in hiatus to give the agency time to draft rules which took into account the lessons learned from the Recovery Act broadband programs.

2. Universal Service/Intercarrier Compensation Reforms

17. In areas of the country where it is particularly costly to deploy and operate broadband networks, including many rural areas, federal and state support mechanisms have been used to spur rural infrastructure investment. The availability of high-quality networks capable of delivering voice and broadband services lies at the core of our policy objectives. The distance-conquering benefits of broadband can be a catalyst for community development and economic growth, among other benefits, in America's more remote small towns, rural and insular areas, and Tribal lands. After the release of the National Broadband Plan, the Commission committed to re-examining and modernizing all aspects of its universal service programs to increase accountability and efficiency while supporting broadband deployment and adoption. To date, the Commission has adopted some reforms and proposed others.

18. In February 2011, the Commission proposed near and long-term reforms to modernize and streamline its universal service and intercarrier compensation rules, and help bring affordable broadband to all Americans.⁵⁶ As described in the 2009 Rural Broadband Report, the Commission's high-cost USF program has traditionally been focused on ensuring the availability of telecommunications networks capable of delivering voice services.⁵⁷ In many cases, rural carriers have used high-cost USF support to build networks that are also capable of providing data services.⁵⁸ The *USF/ICC Transformation NPRM* proposes to transform the existing high-cost program into a new, more efficient, broadband-focused Connect America Fund (CAF) to help make broadband available and affordable in rural communities.⁵⁹ The Commission proposes to eliminate waste and inefficiency throughout the current program, and use the savings to spur investment in broadband in unserved areas.⁶⁰

19. The Commission also proposed reforms to the intercarrier compensation system to reduce waste and inefficiency caused by distorted incentives for many broadband providers, freeing up

⁵⁶ See generally *Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support; Developing an Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service; Lifeline and Link-Up*, CC Docket Nos. 96-45, 01-92, GN Docket No. 09-51, WC Docket Nos. 03-109, 05-337, 07-135, 10-90, Notice of Proposed Rulemaking and Further Notice of Proposed Rulemaking, 26 FCC Rcd 4554 (2011) (*USF/ICC Transformation NPRM*).

⁵⁷ See 2009 RURAL BROADBAND REPORT, 24 FCC Rcd at 12850-51, para. 127.

⁵⁸ The USF/intercarrier compensation and the RUS loan programs are interrelated. RUS has historically assumed that its borrowers would receive USF support flows and intercarrier compensation revenues, which can be used for loan repayment. Annual financial reports that borrowers file with RUS indicate that virtually all of the 487 active borrowers with outstanding principal from RUS loan programs receive high cost support as well as intercarrier compensation and that roughly 60% of all BIP awardees collect either federal or state universal service support.

⁵⁹ See 2009 RURAL BROADBAND REPORT, 24 FCC Rcd at 4562, para. 18; see also NECA et al. Comments at 6 (asserting that reform of the high-cost USF program should promote the deployment of scalable broadband networks in rural areas that can keep pace with evolving bandwidth demand); NCTA Comments at 2-3, 10-11 (asserting that steps should be taken to coordinate federal policy so that government subsidies are targeted to areas where there is no business case for building broadband networks, and to eliminate policies that provide government funding to incumbent LECs in markets where cable operators and others are willing and able to provide service without government support).

⁶⁰ The *USF/ICC Transformation NPRM* proposes to increase accountability for recipients and for government, and to more effectively measure program performance. See *USF/ICC Transformation NPRM*, 26 FCC Rcd at 4567, para. 27; see also NCTA Comments at 6 (supporting the proposal to "keep spending at current levels by eliminating inefficiencies in the existing support mechanisms and using the savings to create a new mechanism that will provide targeted support only to those areas where there is no business case for investing in broadband facilities").

more funds for deployment. To obtain input and engage the public on the reform process, the Commission has held a series of open workshops on these issues.⁶¹ In addition, the Commission sought comment on the creation of a new Mobility Fund that would significantly expand the availability of 3G (or better) mobile wireless data networks in areas where availability is currently inadequate.⁶² The Mobility Fund would promote deployment by using reclaimed USF funds to provide one-time support to accelerate efforts to close gaps in mobile wireless service, including in rural areas.⁶³ The proposal asks about using a reverse auction mechanism in order to make this support available.⁶⁴

20. The Commission has also proposed reforms to its low-income programs, which will benefit all low-income consumers, including those in rural areas.⁶⁵ For more than two decades, the Commission's Lifeline and Link Up programs have helped tens of millions of Americans afford basic phone service, providing a "lifeline" for essential daily communications as well as emergencies. Currently, these programs provide eligible households with discounts on initial connection charges (the Link Up program) and recurring monthly charges (the Lifeline program).⁶⁶ In March 2011, the Commission proposed reforming and modernizing the Lifeline and Link Up programs in light of significant marketplace developments and sought comment on whether to allow eligible households to use Lifeline discounts on bundled voice and broadband service offerings. The Notice of Proposed Rulemaking (NPRM) also proposed to create a broadband pilot program that would provide a transition to a potential permanent broadband Lifeline/Link Up program.⁶⁷

21. The Commission already has modernized its E-rate program to help schools and libraries obtain faster and more affordable Internet connections and access 21st century learning tools.⁶⁸ The changes to this program include allowing schools and libraries to lease either dark or lit fiber from the

⁶¹ See *FCC Announces First in a Series of Workshops on Intercarrier Compensation/Universal Service Fund Reform*, FCC Commissioners Seek Public Input in Series of Workshops Aimed at Helping Shape Reforms, CC Docket Nos. 96-45, 01-92, WC Docket Nos. 03-109, 05-337, 07-135, 10-90, GN Docket No. 09-51, Public Notice, 26 FCC Rcd 3879 (WCB 2011); *FCC Announces Second Workshop on Intercarrier Compensation/Universal Service Fund Reform*, FCC Commissioners Seek Public Input Aimed at Helping Shape Reforms, CC Docket Nos. 96-45, 01-92, WC Docket Nos. 03-109, 05-337, 07-135, 10-90, GN Docket No. 09-51, Public Notice, 26 FCC Rcd 4997 (WCB 2011); *FCC Announces May 18 Field Workshop in Omaha, Nebraska on Universal Service Fund/Intercarrier Compensation Reform*, CC Docket Nos. 96-45, 01-92, WC Docket Nos. 03-109, 05-337, 07-135, 10-90, GN Docket No. 09-51, Public Notice, 26 FCC Rcd 6232 (WCB 2011).

⁶² See generally *Universal Service Reform; Mobility Fund*, WT Docket Nos. 10-208, 10-182, Notice of Proposed Rulemaking, 25 FCC Rcd 14716 (2010) (*Mobility Fund NPRM*).

⁶³ *Id.* at 14719, para. 5.

⁶⁴ *Id.*

⁶⁵ See generally *Lifeline and Link Up Reform and Modernization; Federal-State Joint Board on Universal Service; Lifeline and Link Up*, WC Docket Nos. 03-109, 11-42, CC Docket No. 96-45, Notice of Proposed Rulemaking, 26 FCC Rcd 2770 (2011) (*Lifeline and Link Up Reform and Modernization NPRM*).

⁶⁶ See 47 C.F.R. Part 54, Subpart E; 2009 RURAL BROADBAND REPORT, 24 FCC Rcd at 12854, para. 135.

⁶⁷ See generally *Lifeline and Link Up Reform and Modernization NPRM*, 26 FCC Rcd at 2850–52, 2855–62, paras. 258–65, 275–302 (seeking comment on the best design for such a program); see also, e.g., NCTA Comments at 8 (asserting that the Lifeline/Linkup programs provide an "excellent opportunity for the Commission to make progress in giving all Americans the opportunity to benefit from broadband services").

⁶⁸ See generally *Schools and Libraries Universal Service Support Mechanism, A National Broadband Plan for Our Future*, CC Docket No. 02-6, GN Docket No. 09-51, Sixth Report and Order, 25 FCC Rcd 18762 (2010) (*E-rate Sixth Report and Order*).

most cost-effective provider, including non-profit entities.⁶⁹ The *E-rate Sixth Report and Order* allows the use of E-rate funds to support broadband connections to residential areas of schools on Tribal lands or schools for children with physical, cognitive, or behavioral difficulties.⁷⁰ That Order also establishes a “Learning On-The-Go” pilot program to test the merits and challenges of supporting off-premise wireless connectivity for mobile learning.⁷¹

22. The Commission is assessing telecommunications needs of rural health care providers through its 2010 NPRM to reform the Rural Health Care Program.⁷² Among other reforms, the Commission proposed to replace the existing rural health care Internet access program with a new “health broadband services program” that would subsidize 50 percent of an eligible rural health care provider’s recurring monthly costs for any advanced telecommunications and information services that provide point-to-point broadband connectivity, including dedicated Internet access.⁷³ The Commission also sought comment on whether it should define a minimum level of broadband capability for purposes of providing support under this program as well as whether that minimum capability should vary depending on the type of health care provider.⁷⁴ The Commission’s proposed rules would largely benefit rural health care providers that have not participated significantly in the existing program, expanding the interpretation of “eligible health care provider” to include acute care facilities and administrative offices and data centers that do not share the same building as the clinical offices.⁷⁵ These proposals should help the rural health care program improve health care where the need for it is most acute while making better use of the currently underutilized \$400 million annual funding cap for this program.⁷⁶

23. Collectively, these universal service reforms seek to use market-driven and incentive-based policies to enable all Americans, including those living in rural areas, to share in the benefits of modern communications technology and to be full participants in the broadband economy.

3. Spectrum Initiatives

24. As noted in the 2009 Rural Broadband Report, wireless service plays a critical role in extending the reach of broadband to rural areas, where wireless technology can provide a less expensive

⁶⁹ *Id.* at 18766–73, paras. 9–19.

⁷⁰ *Id.* at 18778–79, paras. 31–32.

⁷¹ *Id.* at 18783–87, paras. 41–50. The Commission recently announced the award of a total of approximately \$9 million to 20 projects as part of this pilot program, including projects proposed by the following rural applicants: the Foxfire Center for Student Success, the Haralson County Board of Education, Roy Municipal Schools, and the Greater Southern Tier Board of Cooperative Educational Services. See *Wireline Competition Bureau Announces Selected Applications for the E-Rate Deployed Ubiquitously (EDU) 2011 Wireless Pilot Program*, WC Docket No. 10-222, Public Notice, 26 FCC Rcd 3469, 3469–70 (2011).

⁷² See generally *Rural Health Care Universal Service Support Mechanism*, WC Docket No. 02-60, Notice of Proposed Rulemaking, 25 FCC Rcd 9371 (2010) (*2010 Rural Health Care Reform NPRM*).

⁷³ *Id.* at 9408, para. 93. The existing program provides a flat percent discount on monthly charges for access to the public Internet for rural health care providers. The discount is 50 percent for health care providers in states that are entirely rural, and 25 percent for all other rural health care providers. *Id.* at 9375, para. 5.

⁷⁴ *Id.* at 9409, para. 97.

⁷⁵ *Id.* at 9373–74, para. 3.

⁷⁶ *Id.* at 9376, paras. 8–9. At the time the *2010 Rural Health Care Reform NPRM* was released, the program had only provided \$60.7 million in support to eligible health care providers for funding year 2009. *Id.* at 9376, para. 9.

means of delivering backhaul and “last-mile” access services.⁷⁷ By enabling mobility, wireless service can be particularly important to rural consumers and schoolchildren, who may travel further distances to reach work and school. Mobile broadband also is vital to public safety in rural areas. Many RUS telecommunications borrowers have built fiber capacity throughout rural areas that provide much-needed backhaul to wireless providers as well as public safety entities.

25. Given the increasing demand for wireless broadband connectivity, the Commission seeks to make additional spectrum available for wireless broadband.⁷⁸ The Commission has taken a number of steps towards repurposing spectrum for the provision of mobile broadband service, including in the 2.3 GHz,⁷⁹ Mobile Satellite Service,⁸⁰ and TV bands.⁸¹ The Commission also has made additional spectrum available for unlicensed broadband wireless devices in unused portions of the TV bands, where propagation characteristics that allow signals to reach farther can be particularly effective in enhancing broadband access in rural areas.⁸²

26. In addition, the Commission has pursued a number of other spectrum initiatives that can increase wireless broadband access in rural areas, including: proposing actions to enable more flexible and cost-effective microwave backhaul services, which can lower the cost of 3G and 4G wireless service in rural areas;⁸³ initiating an inquiry regarding how secondary market arrangements can better facilitate

⁷⁷ See 2009 RURAL BROADBAND REPORT, 24 FCC Rcd at 12856, para. 142; see also *id.* at 12827–32, paras. 78–87 (discussing technological considerations in deploying broadband in rural areas).

⁷⁸ The National Broadband Plan recommends that the Commission make 500 megahertz of spectrum newly available for broadband use within the next ten years, of which 300 megahertz between 225 MHz and 3.7 GHz should be made newly available for mobile use within five years. NATIONAL BROADBAND PLAN at 75–76.

⁷⁹ The Commission has revised its Wireless Communications Service (WCS) technical rules to facilitate the provision of mobile broadband services, including services to rural areas, in 25 megahertz of spectrum in the 2.3 GHz band. See *Amendment of Part 27 of the Commission’s Rules To Govern the Operation of Wireless Communications Services in the 2.3 GHz Band*, WT Docket No. 07-293, Report and Order and Second Report and Order, 25 FCC Rcd 11710, 11711, para. 1 (2010).

⁸⁰ The Commission has taken steps to remove regulatory barriers that would allow access to 90 megahertz of spectrum allocated to the Mobile Satellite Service (MSS) to be available for terrestrial broadband use, while retaining MSS capability for rural services. See *Fixed and Mobile Services in the Mobile Satellite Service Bands at 1525-1559 MHz and 1626.5-1660.5 MHz, 1610-1626.5 MHz and 2483.5-2500 MHz, and 2000-2020 MHz and 2180-2200 MHz*, ET Docket No. 10-142, Report and Order, 26 FCC Rcd 5710, para. 1 (2011).

⁸¹ The Commission has taken preliminary steps to consider repurposing a portion of the TV frequency bands, which it later expects to make available for flexible use by fixed and mobile wireless communications services, including mobile broadband. See *Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF*, ET Docket No. 10-235, Notice of Proposed Rulemaking, 25 FCC Rcd 16498 (2010).

⁸² See *Unlicensed Operation in the TV Broadcast Bands, Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band*, ET Docket Nos. 04-186, 02-380, Second Memorandum Opinion and Order, 25 FCC Rcd 18661, 18662, para. 1 (2010) (*TV White Spaces Second MO&O*).

⁸³ See generally *Amendment of Part 101 of the Commission’s Rules To Facilitate the Use of Microwave for Wireless Backhaul and Other Uses and To Provide Additional Flexibility to Broadcast Auxiliary Service and Operational Fixed Microwave Licensees*, WT Docket No. 10-153, Notice of Proposed Rulemaking and Notice of Inquiry, 25 FCC Rcd 11246 (2010); see also NATIONAL BROADBAND PLAN at 77. In the *TV White Spaces Second MO&O*, the Commission noted that it intends to consider whether to make available additional spectrum for fixed licensed backhaul to support broadband services in future proceedings. *TV White Spaces Second MO&O*, 25 FCC Rcd at 18717, para. 137.

dynamic spectrum use;⁸⁴ proposing to address the use of signal boosters to fill gaps in wireless coverage;⁸⁵ proposing to modify renewal and performance obligations to increase incentives for build out in rural areas;⁸⁶ and proposing mechanisms for promoting greater use of spectrum over Tribal lands.⁸⁷ The Commission also has required facilities-based providers of commercial mobile data services to offer data roaming arrangements to other such providers.⁸⁸ The Commission also has adopted rules and proposed further rules to ensure the deployment and operation of a nationwide interoperable public safety broadband network.⁸⁹ Moreover, as part of a data-driven and transparent approach to spectrum management, the Commission has completed a baseline spectrum inventory that has resulted in the release of two tools—LicenseView⁹⁰ and the Spectrum Dashboard⁹¹—that reflect the Commission’s understanding of where the most significant spectrum opportunities lie.⁹²

27. These initiatives should increase spectrum access for wireless broadband in all areas of the country, including in rural areas, and should spur substantial innovation, investment, and economic growth of the nation.

⁸⁴ See *Promoting More Efficient Use of Spectrum Through Dynamic Spectrum Use Technologies*, ET Docket No. 10-237, Notice of Inquiry, 25 FCC Rcd 16632 (2010).

⁸⁵ See generally *Amendment of Parts 1, 2, 22, 24, 27, 90 and 95 of the Commission’s Rules To Improve Wireless Coverage Through the Use of Signal Boosters*, WT Docket No. 10-4, Notice of Proposed Rulemaking, 26 FCC Rcd 5490 (2011).

⁸⁶ See generally *Amendment of Parts 1, 22, 24, 27, 74, 80, 90, 95, and 101 To Establish Uniform License Renewal, Discontinuance of Operation, and Geographic Partitioning and Spectrum Disaggregation Rules and Policies for Certain Wireless Radio Services*, WT Docket No. 10-112, Notice of Proposed Rulemaking and Order, 25 FCC Rcd 6996 (2010). Among other things, the Commission proposed rules to require an applicant for renewal of a geographic-area authorization in the Wireless Radio Services to show the extent to which service is provided to rural areas, and also proposed to standardize its rules regarding the satisfaction of performance obligations in the context of geographic partitioning and spectrum disaggregation arrangements. See *id.* at 7006, 7029–33, paras. 23, 91–97.

⁸⁷ See generally *Improving Communications Services for Native Nations by Promoting Greater Utilization of Spectrum Over Tribal Lands*, WT Docket No. 11-40, Notice of Proposed Rulemaking, 26 FCC Rcd 2623 (2011) (*Native Nations Spectrum NPRM*).

⁸⁸ See generally *Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services*, WT Docket No. 05-265, Second Report and Order, 26 FCC Rcd 5411 (2011) (*Commercial Data Roaming Order*).

⁸⁹ *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, WT Docket No. 06-150, PS Docket No. 06-229, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 26 FCC Rcd 733 (2011); see also *Requests for Waiver of Various Petitioners to Allow the Establishment of 700 MHz Interoperable Public Safety Wireless Broadband Networks*, PS Docket No. 06-229, Order, 25 FCC Rcd 5145 (2010) (granting, with conditions, waivers to public safety entities seeking early deployment of statewide or local public safety broadband networks in the 700 MHz public safety spectrum); *Requests for Waiver of Various Petitioners to Allow the Establishment of 700 MHz Interoperable Public Safety Wireless Broadband Networks*, PS Docket No. 06-229, Order, 25 FCC Rcd 17156, 17162, para. 23 (2010) (requiring each operator of an early-deployed network to submit a plan for achieving significant population coverage within its jurisdiction within ten years of its date of service availability).

⁹⁰ See *FCC License View*, REBOOT.FCC.GOV, <http://reboot.fcc.gov/license-view>.

⁹¹ See *Spectrum Dashboard*, REBOOT.FCC.GOV, <http://reboot.fcc.gov/reform/systems/spectrum-dashboard>.

⁹² See 2009 RURAL BROADBAND REPORT, 24 FCC Rcd at 12861, para. 150.

C. Other Commission Initiatives

28. The Commission has taken a number of other actions to improve access to robust, affordable broadband services throughout the country, and to reduce barriers to broadband adoption.

- *Coordination with Native Nations.* The Commission established an Office of Native Affairs and Policy in order to develop and advance an agenda aimed at bringing the benefits of a modern communications infrastructure to all Native communities.⁹³ To further promote government-to-government relations with federally recognized American Indian Tribes and Alaska Native Village governments, the Commission launched the FCC-Native Nations Broadband Task Force to assist the Commission in fulfilling its commitment to increasing broadband deployment and adoption on Tribal lands.⁹⁴
- *Services on Tribal Lands.* The Commission has initiated proceedings to strengthen and improve access to broadband and telecommunications services for Native Americans. In a recent Notice of Inquiry, the Commission sought government-to-government consultation and coordination with federally recognized Tribes and the input of inter-Tribal government associations, Native representative organizations, and the public on rule and policy changes aimed at ensuring Native Nations have access to emerging broadband services and technologies.⁹⁵ The Commission also proposed amending its rules to expand the efficient use of spectrum over Tribal lands so as to improve access to mobile wireless communications in Tribal areas.⁹⁶ In addition, the Commission included specific proposals related to broadband access, availability, and service on Tribal lands in the universal service reform context.⁹⁷
- *Access to Poles and Rights of Way.* Timely and reasonably priced access to poles and rights of way is critical to the buildout of broadband infrastructure in rural areas.⁹⁸ The National Broadband Plan found that the impact of utility pole attachment rates on broadband can be particularly acute in rural areas, where there often are more poles per mile than households. In April 2011, as part of its Broadband Acceleration Initiative,⁹⁹ the Commission took two

⁹³ *Establishment of the Office of Native Affairs and Policy in the Consumer and Governmental Affairs Bureau*, Order, 25 FCC Rcd 11104 (2010).

⁹⁴ *Chairman Genachowski Names Members to the FCC-Native Nations Broadband Task Force*, Public Notice, 26 FCC Rcd 2467 (CGB 2011). The Task Force is comprised of elected and appointed leaders from across the Native Nations and senior staff and decision-makers from across the Commission. Task Force responsibilities include assisting in developing and executing a Commission consultation policy, eliciting input to ensure that Native concerns are considered in all Commission proceedings related to broadband, developing additional recommendations for promoting broadband deployment and adoption on Tribal lands, and coordinating with external entities, including other federal departments and agencies. *Id.*

⁹⁵ *See Improving Communications Services for Native Nations*, CG Docket No. 11-41, Notice of Inquiry, 26 FCC Rcd 2672, 2674-75, para. 3 (2011).

⁹⁶ *See Native Nations Spectrum NPRM*, 26 FCC Rcd 2623.

⁹⁷ *See, e.g., USF/ICC Transformation NPRM*, 26 FCC Rcd at 4602, para. 136; *Mobility Fund NPRM*, 25 FCC Rcd at 14727, para. 33; *see generally Further Inquiry into Tribal Issues Relating to Establishment of a Mobility Fund*, WT Docket No. 10-208, Public Notice, 26 FCC Rcd 5997 (2011).

⁹⁸ *See 2009 RURAL BROADBAND REPORT*, 24 FCC Rcd at 12864, para. 157.

⁹⁹ The Commission's Broadband Acceleration Initiative was launched to explore ways to reduce obstacles to broadband deployment in partnership with state and local governments and the private sector. Press Release, FCC, (continued....)

- significant actions to reduce costs and speed access to poles and rights of way. First, the Commission comprehensively revised its access, rate, and enforcement rules for pole attachments to improve the efficiency, shorten the time to attach, and reduce the potentially excessive costs of deploying telecommunications, cable, and broadband networks, in order to accelerate broadband buildout.¹⁰⁰ Second, the Commission launched a comprehensive inquiry into how it can work with its state, local, Tribal, and federal partners to improve policies for access to rights of way and for wireless facility siting.¹⁰¹
- *Tower Siting Shot Clock.* The 2009 Rural Broadband Report noted that wireless broadband development in rural areas will depend in part on the ability of providers to access towers and other structures for the deployment of their network facilities.¹⁰² In November 2009, the Commission adopted a “shot-clock” to speed the deployment of wireless services, establishing timeframes of 90 days for state and local governments to review collocations of antennas on existing structures and 150 days for them to review all other wireless facilities siting applications.¹⁰³
 - *Commercial Data Roaming.* The Commission recently adopted a data roaming rule that requires facilities-based providers of commercial mobile data services to offer data roaming arrangements to other such providers, which may be particularly important for consumers in rural areas.¹⁰⁴ Widespread availability of data roaming capability will allow consumers with mobile data plans to remain connected when they travel outside their own provider’s network coverage areas by using another provider’s network, and thus promote connectivity for and

(Continued from previous page) _____

The FCC’s Broadband Acceleration Initiative: Reducing Regulatory Barriers To Spur Broadband Buildout (Feb. 9, 2011), available at http://www.fcc.gov/Daily_Releases/Daily_Business/2011/db0209/DOC-304571A2.pdf; see generally Julius Genachowski, Chairman, FCC, Remarks at Broadband Acceleration Conference (Feb. 9, 2011), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-304571A1.pdf.

¹⁰⁰ See *Implementation of Section 224 of the Act; A National Broadband Plan for Our Future*, WC Docket No. 07-245, GN Docket No. 09-51, Report and Order and Order on Reconsideration, 26 FCC Rcd 5240 (2011). In addition, in May 2010, the Commission adopted rules that clarified the statutory right of attaching communications providers to use the same space- and cost-saving techniques that pole owners use, and established that attachers have a statutory right to timely access to poles. See *Implementation of Section 224 of the Act; A National Broadband Plan for Our Future*, WC Docket No. 07-245, GN Docket No. 09-51, Order and Further Notice of Proposed Rulemaking, 25 FCC Rcd 11864, 11865, para. 1 (2010). We note that the Commission’s jurisdiction over poles does not extend to poles regulated by states nor to pole attachment arrangements that involve cooperatives. See 47 U.S.C. § 224(a)(1), (c).

¹⁰¹ *Acceleration of Broadband Deployment: Expanding the Reach and Reducing the Cost of Broadband Deployment by Improving Policies Regarding Public Rights of Way and Wireless Facilities Siting*, WC Docket No. 11-59, Notice of Inquiry, 26 FCC Rcd 5384 (2011) (*Rights of Way and Wireless Facilities Siting NOI*).

¹⁰² See 2009 RURAL BROADBAND REPORT, 24 FCC Rcd at 12864, para. 158.

¹⁰³ See *Petition for Declaratory Ruling To Clarify Provisions of Section 332(c)(7)(B) To Ensure Timely Siting Review and To Preempt Under Section 253 State and Local Ordinances that Classify All Wireless Siting Proposals as Requiring a Variance*, WT Docket No. 08-165, Declaratory Ruling, 24 FCC Rcd 13994 (2009), recon. denied, Order on Reconsideration, 25 FCC Rcd 11157 (2010), appeal pending sub nom., *City of Arlington and City of San Antonio v. FCC*, Nos. 10-60039 and 10-60805 (5th Cir.). The Commission is seeking ways to improve wireless facilities siting in the *Rights of Way and Wireless Facilities Siting NOI* proceeding described above. See supra note 101.

¹⁰⁴ See *Commercial Data Roaming Order*, 26 FCC Rcd 5411.

nationwide access to mobile data service.

- *Network Openness.* In December 2010, the Commission adopted rules to protect network openness, which will provide greater clarity and certainty regarding the continued freedom and openness of the Internet, and support the marketplace's cycle of investment and innovation, driving increased investment in broadband infrastructure.¹⁰⁵
- *Voluntary Commitments.* Several applicants of proposed transactions have made voluntary commitments that will increase rural broadband deployment. Frontier committed to significantly increase broadband deployment for the 4.8 million lines it purchased from Verizon, 38 percent of which lacked broadband capability.¹⁰⁶ CenturyLink committed to provide broadband capable of 5 Mbps (download) to almost 80 percent of the living units in legacy Qwest territory within seven years of closing its merger with Qwest.¹⁰⁷ Comcast will expand its broadband networks to reach approximately 400,000 additional homes, provide broadband Internet access service in six additional rural communities, and provide free video and high-speed Internet service to 600 new anchor institutions, such as schools and libraries, in underserved, low-income areas.¹⁰⁸ Comcast and CenturyLink have also committed to work to improve broadband adoption by offering discounts to qualifying low-income customers on service and computer equipment, as well as taking actions to improve digital literacy in their areas.¹⁰⁹

III. CONCLUSION

29. The benefits of a fully interconnected broadband nation are many. As this update illustrates, we have progressed in the past two years toward ensuring that all areas of the nation, including rural areas, have access to robust and affordable broadband and the ability to use it. Programs such as NTIA's BTOP and RUS's BIP programs and RUS's ongoing telecommunications loan and grant programs are helping to expand the reach of broadband to rural areas where access has been limited or unavailable because of cost, distance, density, demographics, and topography. Other actions, such as completing the modernization of the Commission's USF program and intercarrier compensation rules, facilitating wireless solutions, and reducing the costs of deploying broadband facilities on poles, also will empower entrepreneurs to find cost-effective ways to extend broadband to high-cost rural areas. But bringing broadband to rural and insular areas of the country is a task of significant cost and complexity that will require continuation of each of these efforts as well as new initiatives to address any additional obstacles that come to light. Going forward, industry and policymakers at all levels must work collaboratively to support and facilitate investment in broadband networks capable of delivering high-quality broadband services throughout rural America. Notwithstanding the substantial progress to date, there remains much for the industry as well as the Commission and its partners in federal, state, and

¹⁰⁵ See generally *Preserving the Open Internet; Broadband Industry Practices*, GN Docket No. 09-191, WC Docket No. 07-52, Report and Order, 25 FCC Rcd 17905 (2010).

¹⁰⁶ See *Frontier/Verizon Order*, 25 FCC Rcd at 5978, 6001-07, para. 2, App. C. Frontier will also launch an anchor institution initiative to deploy fiber to libraries, hospitals, and government buildings, particularly in unserved and underserved communities. *Id.*

¹⁰⁷ *CenturyLink/Qwest Merger*, 26 FCC Rcd at 4218-20, App. C.

¹⁰⁸ *Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. for Consent To Assign Licenses and Transfer Control of Licensees*, MB Docket No. 10-56, Memorandum Opinion and Order, 26 FCC Rcd 2638, 4378-83, App. A at Part XVI (Jan. 20, 2011).

¹⁰⁹ *Id.* at 4379-81, App. A at Part XVI.2; *CenturyLink/Qwest Merger*, 26 FCC Rcd at 4200-23, App. C at Part II.

UPDATE TO 2009 RURAL BROADBAND REPORT

Tribal governments to accomplish before the promise of broadband is realized for all Americans. Our collective efforts can help the nation reach its goal of bringing broadband to rural America.

UPDATE TO 2009 RURAL BROADBAND REPORT

**Appendix A
List of Commenters
GN Docket No. 11-16**

Commenter	Abbreviation
Access Humboldt; Appalshop; California Center for Rural Policy; Center for Media Justice; Center for Rural Strategies; Center for Social Inclusion; Housing Assistance Council; Institute for Local Self Reliance; Main Street Project; Media Literacy Project; Mountain Area Information Network	Rural Broadband Policy Group
FiberTower Corporation	FiberTower
Hawaiian Telecom, Inc.	Hawaiian Telecom
ID Insight	ID Insight
Mountain Area Information Network	MAIN
National Cable & Telecommunications Association	NCTA
National Exchange Carrier Association, Inc.; National Telecommunications Cooperative Association; Organization for the Promotion and Advancement of Small Telecommunications Companies; Western Telecommunications Alliance; and Eastern Rural Telecom Association	NECA et al.
SPX Corporation	SPX
Wireless Communications Association International	WCA
Virgin Islands Telephone Corporation	Virgin Islands Telephone

UPDATE TO 2009 RURAL BROADBAND REPORT

**Appendix B
Areas Without Access to Fixed Broadband Services
(SBDD Census Block Data as of June 2010)**

State	State Population	Non-Rural Population	Proportion of Non-Rural Population Without Access to Fixed Broadband Service			Rural Population	Proportion of Rural Population Without Access to Fixed Broadband Service		
			768 kbps/ 200 kbps	3 Mbps/ 768 kbps	6 Mbps/ 1.5 Mbps		768 kbps/ 200 kbps	3 Mbps/ 768 kbps	6 Mbps/ 1.5 Mbps
Alabama	4,642,855	2,596,703	2.1%	2.6%	14.4%	2,046,152	23.7%	27.9%	47.8%
Alaska	699,160	456,792	1.0%	7.0%	98.1%	242,368	38.7%	50.9%	98.8%
American Samoa	57,291	3,282	2.7%	21.1%	46.8%	54,009	85.1%	86.1%	98.1%
Arizona	6,640,137	5,827,580	2.6%	5.5%	16.4%	812,557	36.1%	54.7%	81.6%
Arkansas	2,862,065	1,534,788	1.1%	1.4%	21.6%	1,327,277	21.1%	29.6%	44.8%
California	37,273,531	35,146,813	1.6%	8.1%	9.0%	2,126,718	30.9%	49.6%	63.7%
Colorado	4,912,003	4,129,198	0.4%	1.4%	61.2%	782,805	16.4%	27.3%	87.6%
Connecticut	3,526,996	3,092,683	0.0%	0.2%	1.5%	434,313	0.6%	4.3%	11.4%
Delaware	884,837	688,916	0.4%	0.4%	1.3%	195,921	4.8%	5.0%	12.3%
District of Columbia	588,461	588,461	0.0%	0.1%	0.1%	0	0.0%	0.0%	0.0%
Florida	18,960,414	16,740,803	0.9%	3.1%	3.2%	2,219,611	17.3%	20.3%	27.3%
Georgia	9,869,616	7,135,630	0.5%	1.5%	6.0%	2,733,986	13.5%	19.3%	48.1%
Hawaii	1,305,670	1,180,933	1.2%	1.2%	98.7%	124,737	14.4%	14.4%	100.0%
Idaho	1,537,189	1,046,910	0.7%	1.5%	53.6%	490,279	22.5%	44.1%	83.4%
Illinois	12,919,307	11,368,631	0.1%	0.2%	1.8%	1,550,676	12.9%	23.4%	41.8%
Indiana	6,389,470	4,552,673	7.4%	16.8%	27.6%	1,836,797	49.3%	57.0%	62.5%
Iowa	2,986,982	1,873,321	0.0%	0.5%	2.9%	1,113,661	8.7%	29.9%	59.0%
Kansas	2,781,452	2,018,346	0.4%	0.8%	4.8%	763,106	11.3%	28.1%	53.1%
Kentucky	4,273,951	2,358,095	2.1%	15.1%	55.2%	1,915,856	29.8%	42.9%	78.7%
Louisiana	4,353,196	3,056,115	0.3%	0.9%	7.4%	1,297,081	16.2%	25.1%	44.9%
Maine	1,323,446	525,403	0.3%	0.3%	89.3%	798,043	5.6%	9.9%	93.5%
Maryland	5,726,030	4,898,593	0.3%	0.4%	4.7%	827,437	11.9%	12.3%	27.5%

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**Appendix B
Areas Without Access to Fixed Broadband Services
(SBDD Census Block Data as of June 2010)**

State	State Population	Non-Rural Population	Proportion of Non-Rural Population Without Access to Fixed Broadband Service			Rural Population	Proportion of Rural Population Without Access to Fixed Broadband Service		
			768 kbps/ 200 kbps	3 Mbps/ 768 kbps	6 Mbps/ 1.5 Mbps		768 kbps/ 200 kbps	3 Mbps/ 768 kbps	6 Mbps/ 1.5 Mbps
Massachusetts	6,452,290	5,887,771	0.5%	0.5%	0.5%	564,519	5.2%	5.5%	5.6%
Michigan	10,121,483	7,483,890	0.3%	0.5%	6.1%	2,637,593	12.6%	23.2%	37.9%
Minnesota	5,257,716	3,707,002	0.0%	0.1%	2.2%	1,550,714	10.2%	25.3%	56.7%
Mississippi	2,925,456	1,404,579	2.2%	3.7%	50.4%	1,520,877	30.2%	33.4%	78.7%
Missouri	5,933,305	4,059,962	0.7%	1.3%	8.5%	1,873,343	29.6%	40.1%	64.8%
Montana	962,763	522,173	2.5%	5.0%	12.1%	440,590	39.8%	56.8%	74.7%
Nebraska	1,783,383	1,271,699	2.3%	5.9%	9.5%	511,684	23.0%	49.3%	83.3%
Nevada	2,721,138	2,499,412	0.0%	0.2%	2.9%	221,726	15.6%	26.1%	47.9%
New Hampshire	1,336,212	784,283	0.2%	0.3%	11.3%	551,929	9.4%	9.8%	50.3%
New Jersey	8,764,303	8,253,905	0.3%	0.3%	1.3%	510,398	2.8%	2.8%	6.4%
New Mexico	1,997,928	1,511,411	2.7%	8.0%	16.5%	486,517	41.2%	65.9%	77.0%
New York	19,367,631	16,945,181	0.3%	0.5%	9.9%	2,422,450	11.3%	19.3%	48.9%
North Carolina	9,258,426	5,630,139	0.2%	0.3%	34.9%	3,628,287	9.4%	11.6%	44.7%
North Dakota	634,427	355,458	2.3%	5.7%	6.0%	278,969	14.0%	39.9%	59.2%
Ohio	11,478,141	8,799,083	0.2%	0.2%	16.5%	2,679,058	8.2%	10.0%	54.1%
Oklahoma	3,638,334	2,363,957	2.2%	4.5%	11.8%	1,274,377	34.2%	51.4%	71.9%
Oregon	3,808,054	3,015,524	0.8%	2.5%	5.9%	792,530	12.7%	25.1%	33.7%
Pennsylvania	12,435,962	9,469,216	0.9%	1.1%	6.0%	2,966,746	7.9%	9.2%	24.2%
Puerto Rico	3,967,329	1,300,658	5.9%	16.2%	64.8%	2,666,671	64.1%	71.7%	90.5%
Rhode Island	1,063,614	965,903	0.1%	0.2%	0.2%	97,711	2.6%	2.8%	2.8%
South Carolina	4,478,631	2,717,142	1.2%	4.9%	25.4%	1,761,489	16.0%	25.2%	48.4%
South Dakota	802,483	426,069	0.0%	3.4%	4.0%	376,414	9.1%	53.0%	67.5%

UPDATE TO 2009 RURAL BROADBAND REPORT

**Appendix B
Areas Without Access to Fixed Broadband Services
(SBDD Census Block Data as of June 2010)**

State	State Population	Non-Rural Population	Proportion of Non-Rural Population Without Access to Fixed Broadband Service			Rural Population	Proportion of Rural Population Without Access to Fixed Broadband Service		
			768 kbps/ 200 kbps	3 Mbps/ 768 kbps	6 Mbps/ 1.5 Mbps		768 kbps/ 200 kbps	3 Mbps/ 768 kbps	6 Mbps/ 1.5 Mbps
Tennessee	6,246,411	3,957,214	0.3%	1.0%	2.4%	2,289,197	14.1%	19.6%	34.0%
Texas	24,542,407	20,216,340	0.6%	0.9%	9.4%	4,326,067	16.1%	24.0%	44.9%
U.S. Virgin Islands	108,599	73,199	0.0%	100.0%	100.0%	35,400	27.1%	100.0%	100.0%
Utah	2,732,286	2,425,015	0.5%	1.9%	4.7%	307,271	15.7%	31.3%	57.1%
Vermont	621,520	237,143	1.0%	1.0%	3.5%	384,377	4.8%	10.5%	32.4%
Virginia	7,884,044	5,724,695	0.7%	0.8%	2.6%	2,159,349	20.0%	21.7%	39.8%
Washington	6,590,248	5,381,330	0.5%	0.7%	2.4%	1,208,918	11.8%	15.9%	26.8%
West Virginia	1,803,723	810,400	4.9%	5.7%	16.4%	993,323	38.1%	45.3%	56.1%
Wisconsin	5,651,858	3,825,905	3.9%	4.1%	8.8%	1,825,953	20.7%	27.9%	58.5%
Wyoming	522,201	335,095	2.3%	34.9%	69.3%	187,106	34.6%	67.3%	90.3%
All Areas	310,406,365	243,181,422	1.0%	3.0%	11.3%	67,224,943	19.9%	28.2%	51.7%

Notes:

1. This appendix shows the total rural and total non-rural population without access to fixed broadband services in each State and U.S. Territory included in our analysis. Guam and the Northern Mariana Islands are not included in our analysis because these territories did not provide information in time to be included in the SBDD Data underlying our analysis. For a definition of “rural,” see *supra* note 12.
2. We include the following broadband services (with corresponding technology codes): Asymmetric xDSL (10), Symmetric xDSL (20), Other Wireline (all copper-wire based technologies other than xDSL) (30), Cable Modem—DOCSIS 3.0 (40), Cable Modem—Other (41), optical carrier (fiber to the home) (50), Terrestrial Fixed Wireless (provisioned/equipped over licensed spectrum (71) or over spectrum used on an unlicensed basis (70)), Electric Power Line (90), and a catch all category, All Other (0). We do not include mobile wireless services in our analysis because of concerns with the accuracy of the mobile wireless data. See *Seventh Broadband Progress Report*, paras. 26–27 & App. F (Technical Appendix) at paras. 17–18.
3. The speed tiers included are 768 kbps/200 kbps, 3 Mbps/768 kbps, and 6 Mbps/1.5 Mbps.
4. For a description of the assumptions underlying the population data used in our analysis, see the *Seventh Broadband Progress Report*, App. F (Technical Appendix). Because our source for population data, 2009 GeoLytics data, does not make data available at the census-block level for the U.S. Territories, the population for these areas was distributed uniformly across each U.S. Territory’s component areas. *Id.* at para. 38. As a result, the population estimates for the U.S. Territories may not reflect the actual population in those areas. *Id.*

UPDATE TO 2009 RURAL BROADBAND REPORT

**Appendix C
Population Without Access to Fixed Broadband Services
(SBDD Census Block Data as of June 2010)**

Area	Population	Population Without Access to 768 kbps/200 kbps or Faster Fixed Service	Population Without Access to 6 Mbps/1.5 Mbps or Faster Fixed Broadband Service	Percentage of Population Without Access to 768 kbps/200 kbps or Faster Fixed Service	Percentage of Population Without Access to 6 Mbps/1.5 Mbps or Faster Fixed Broadband Service
Rural Areas	67,224,943	13,377,686	34,764,815	19.9%	51.7%
Non-Rural Areas	243,181,422	2,417,470	27,543,544	1.0%	11.3%
All Areas	310,406,365	15,795,156	62,308,358	5.1%	20.1%
Percentage in Rural Areas	21.7%	84.7%	55.8%		

UPDATE TO 2009 RURAL BROADBAND REPORT

**Appendix D
Overall Fixed Broadband Subscription Rates in Rural Census Tracts
(Form 477 Broadband Data as of June 2010)**

State	Total Population in Rural Census Tracts	Proportion of Population in Rural Census Tracts That Resides in a Rural Census Block	Overall Subscription Rates in Rural Census Tracts		
			768 kbps/ 200 kbps	3 Mbps/ 768 kbps	6 Mbps/ 1.5 Mbps
Alabama	2,026,237	89.9%	39.0%	12.9%	3.5%
Alaska	232,548	90.8%	37.6%	10.6%	4.3%
American Samoa	56,399	95.6%	0.0%	0.0%	0.0
Arizona	719,031	84.5%	64.9%	30.3%	6.7%
Arkansas	1,223,909	92.7%	30.5%	8.7%	0.8%
California	1,740,210	84.3%	51.8%	23.9%	12.1%
Colorado	663,612	92.2%	62.9%	26.0%	12.1%
Connecticut	363,726	80.4%	83.8%	52.7%	31.1%
Delaware	187,737	83.9%	66.5	50.5%	**
Florida	1,891,723	83.1%	66.3%	29.9%	14.0%
Georgia	2,457,099	87.0%	49.0%	17.9%	7.4%
Hawaii	89,150	81.6%	63.7%	58.4%	0.0%
Idaho	429,566	90.8%	38.9%	6.5%	0.4%
Illinois	1,369,689	90.3%	39.1%	12.9%	6.2%
Indiana	1,776,994	88.5%	44.8%	22.6%	8.8%
Iowa	1,028,093	96.9%	40.9%	7.5%	0.2%
Kansas	681,579	94.8%	46.2%	11.1%	1.1%
Kentucky	1,862,675	90.8%	38.2%	13.2%	1.1%
Louisiana	1,199,167	87.9%	40.3%	15.7%	2.1%
Maine	774,903	91.8%	55.0%	13.9%	1.4%
Maryland	780,457	85.0%	63.4%	47.0%	35.0%
Massachusetts	403,061	76.5%	93.1%	77.0%	46.0%
Michigan	2,572,809	90.7%	41.0%	26.7%	7.1%
Minnesota	1,447,110	94.0%	45.0%	12.6%	4.3%
Mississippi	1,515,485	92.2%	29.2%	6.3%	2.1%
Missouri	1,760,448	93.5%	31.6%	7.5%	1.1%
Montana	415,588	93.1%	42.2%	12.9%	0.5%
Nebraska	480,052	98.3%	43.6%	12.9%	0.8%
Nevada	157,666	83.7%	63.1%	31.7%	**

UPDATE TO 2009 RURAL BROADBAND REPORT

**Appendix D
Overall Fixed Broadband Subscription Rates in Rural Census Tracts
(Form 477 Broadband Data as of June 2010)**

State	Total Population in Rural Census Tracts	Proportion of Population in Rural Census Tracts That Resides in a Rural Census Block	Overall Subscription Rates in Rural Census Tracts		
			768 kbps/ 200 kbps	3 Mbps/ 768 kbps	6 Mbps/ 1.5 Mbps
New Hampshire	490,413	90.9%	72.3%	37.7%	26.6%
New Jersey	384,730	81.2%	84.3%	61.8%	50.7%
New Mexico	428,048	87.9%	35.5%	11.3%	1.0%
New York	2,371,904	87.3%	65.0%	35.2%	7.7%
North Carolina	3,493,755	88.2%	52.1%	12.3%	1.4%
North Dakota	268,768	97.8%	48.5%	18.9%	6.7%
Ohio	2,481,381	89.4%	46.3%	9.7%	1.0%
Oklahoma	1,181,490	93.7%	29.1%	6.4%	0.8%
Oregon	694,319	87.3%	59.3%	31.0%	18.3%
Pennsylvania	2,961,142	84.2%	58.6%	30.0%	16.1%
Puerto Rico	1,801,776	81.6%	10.8%	**	0.0%
Rhode Island	96,388	77.7%	**	**	**
South Carolina	1,683,746	87.7%	44.8%	10.9%	3.3%
South Dakota	337,537	96.7%	38.4%	15.5%	6.5%
Tennessee	2,229,085	87.6%	38.4%	19.5%	10.2%
Texas	3,938,365	87.7%	40.2%	11.8%	2.6%
U.S. Virgin Islands	41,456	66.2%	3.7%	0.0%	0.0%
Utah	264,889	84.9%	50.1%	21.0%	7.1%
Vermont	382,462	92.3%	57.9%	46.0%	**
Virginia	2,096,297	91.5%	40.2%	24.4%	11.1%
Washington	1,104,075	87.5%	54.5%	28.8%	17.8%
West Virginia	969,681	89.6%	37.8%	19.2%	3.0%
Wisconsin	1,654,780	93.5%	45.2%	15.0%	2.8%
Wyoming	167,499	95.2%	39.8%	16.9%	0.6%
All Rural Areas	61,830,709	88.8%	45.9%	18.9%	7.1%

Notes:

1. For purposes of this Appendix, a census tract is designated as “rural” if at least 50% of the population in the census tract resides in a rural census block as designated by the 2000 Census. *See supra* para. 11. Our analysis of Form 477 data employs the same rural designations that we use above in analyzing SBDD

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Data. *See supra* note 12. Because those designations exclude Guam and the Northern Mariana Islands, *see supra* Appendix B at note 1, our analysis of Form 477 data also excludes those territories.

2. We include the following broadband services: Asymmetric xDSL, Symmetric xDSL, Other Wireline (all copper-wire based technologies other than xDSL), Cable Modem, Optical Carrier (fiber to the home), Terrestrial Fixed Wireless (provisioned/equipment over licensed spectrum or over spectrum used on an unlicensed basis), Electric Power Line, Satellite, and a catch all category, All Other. We exclude mobile wireless services because the subscription data for these services are only collected at the state level.

3. For each state, the overall subscription rate is calculated by dividing the number of residential subscribers to the broadband service in all of the state's rural census tracts by the number of households in these census tracts.

**Data withheld to maintain firm confidentiality.