Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
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. 14-126

REPLY COMMENTS
of
UNITED STATES CELLULAR CORPORATION

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TABLE OF CONTENTS

SUMMARY

U.S. Cellular agrees with other commenters that the status of mobile broadband deployment, especially in rural areas, should be a significant focus of the Commission's annual report regarding the deployment of advanced telecommunications capability. Such treatment of mobile broadband in the Commission's report is warranted in part by the fact that consumers are increasingly placing great value on the unique and innovative services made available by mobile broadband technologies.

The record in response to the Commission's *Notice of Inquiry* documents that many rural areas do not have access to mobile broadband networks, and that there are substantial disparities between the level of mobile broadband coverage in rural and urban areas throughout the country. Moreover, commenters explain that actions taken by the Commission, relating to its administration of the universal service program and support mechanisms, have had the effect of hindering efforts to expand mobile broadband networks in rural America.

In light of this evidence in the record, U.S. Cellular joins other commenters in urging the Commission to give priority to accelerating mobile broadband deployment in rural areas. U.S. Cellular suggests several specific actions the Commission should take to ensure that rural consumers are able to take advantage of the services and functionalities provided by mobile broadband technologies.

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United States Cellular Corporation ("U.S. Cellular"), by counsel, hereby submits these Reply Comments, pursuant to the Commission's Tenth Broadband Progress Notice of Inquiry in the above-captioned proceeding.[1]

I. INTRODUCTION.

The Commission asks how it should address mobile broadband services in its broadband progress report, noting that "[p]revious reports have included an expanded discussion of mobile

[1] *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. 14-126, Tenth Broadband Progress Notice of Inquiry, 29 FCC Rcd 9747 (2014) ("*Notice*"). Reply comments are due September 19, 2014. A request for a 30-day extension of time to file comments and reply comments was denied. *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. 14-126, Order, DA 14-1258 (WCB Aug. 29, 2014).

deployment."[2] U.S. Cellular agrees with other commenters that the status of mobile broadband deployment should be a significant focus of the Commission's report, especially in light of the "enormous value that consumers have come to place on mobile broadband …."[3]

Section 706 of the Telecommunications Act of 1996 requires the Commission to determine and report annually on "whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion."[4] The record in this proceeding confirms the fact that, throughout rural America, mobile broadband is ***not*** being deployed in a reasonable and timely fashion. In the following sections of these Reply Comments, U.S. Cellular will discuss the importance of mobile broadband services for consumers, will examine the factors that are contributing to the failure to bring mobile broadband to consumers throughout rural America, and will outline steps the Commission should take to address this failure and accelerate mobile broadband in rural areas.

II. DISCUSSION.

A. Consumers Value the Features and Services Provided by Mobile Broadband.

The Commission asks for comment "on how consumers value mobility today[,]"[5] and the record provides ample evidence that large numbers of consumers are turning to mobile broadband services to meet their communications needs.

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[2] *Id*. at 9764 (para. 34) (footnote omitted).

[3] CTIA–The Wireless Association® ("CTIA") Comments at 4. *See* Telecommunications Industry Association ("TIA") Comments at 2-3, 5-6; Verizon Comments at 3.

[4] 47 U.S.C. § 1302.

[5] *Notice*, 29 FCC Rcd at 9763 (para. 32).

Verizon notes that "many consumers increasingly rely primarily on mobile services for broadband access[,]"[6] and CCA indicates that various studies and the experience of various wireless carriers "lead to one inescapable conclusion: mobile access to the Internet is important to consumers and absolutely necessary to support the Commission's goal of accelerating broadband deployment to all Americans."[7] CCA also explains that "mobile technology is a critical component of the broadband ecosystem[,]"[8] and that more than one-third of Internet users "rely on their [smart]phones as their ***principal*** means of accessing the Internet …."[9]

In addition, the Rural Wireless Carriers, in a recent filing in another Commission proceeding, have observed that there is "considerable evidence that mobile broadband in fact is uniquely capable of providing benefits relating to public safety communications, telemedicine and other health-care related communications, agricultural operations, educational programs, and similar endeavors."[10]

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[6] Verizon Comments at 25 (footnote omitted). Verizon cites a study indicating that, in May 2014, "[m]obile platforms—smartphones and tablets—combined to account for 60% of total digital media time spent, up from 50% a year ago. And perhaps more impressively, mobile apps accounted for more than half of all digital media time spent in May, coming in at 51%." *Id*. at 25-26 (internal quotation marks and footnote omitted). *See* CTIA Comments at 2-3 (noting that, as of mid-year 2013, mobile broadband connections represented nearly two-thirds of all broadband connections at any speed).

[7] Competitive Carriers Association ("CCA") Comments at 7.

[8] *Id*. at 4.

[9] *Id*. at 6 (emphasis in original). *See* TIA Comments at 4. CCA cites a recent Nielson study showing that adults in the U.S. spend an average 34 hours per month accessing the Internet on smartphones, compared to "spend[ing] 27 hours on the PC internet." CCA Comments at 5 (internal quotation marks and footnote omitted).

[10] U.S. Cellular, NE Colorado Cellular, Inc., d/b/a Viaero Wireless, Cellular South Licenses, LLC d/b/a C Spire ("C Spire"), Smith Bagley, Inc., DOCOMO PACIFIC, Inc. ("DOCOMO"), Union Wireless Company, Cellular Network Partnership, An Oklahoma Limited Partnership, Nex-Tech Wireless, LLC, Texas 10, LLC, d/b/a Cellular One, Central Louisiana Cellular, LLC, d/b/a Cellular One, Carolina West Wireless, Inc., the Cellcom Companies, and PR Wireless, Inc., d/b/a Open Mobile (collectively, "Rural Wireless Carriers" or "RWC") Reply Comments, WC Docket No. 10-90, *et al*. (filed Sept. 8, 2014) ("RWC CAF FNPRM Reply"), at 51. Northeast Communications of Wisconsin, Inc., and its wireless carrier affiliates Brown County MSA Cellular Limited Partnership, Nsighttel Wireless, LLC, Wausau Cellular Telephone

Just last week, Apple announced an application that will enable patients with chronic conditions such as diabetes or heart disease to have a sensor placed on or under the skin. The sensor will transmit medical data such as blood sugar levels or heart rhythm to a smartphone, which will have an application capable of streaming data to health care professionals.[11]

In the very near future, these kinds of applications will dramatically reduce health care costs and save lives, but they will not be available to any rural citizen who does not receive high-quality mobile broadband service so that these devices work as people move around in their rural communities. Thus, the need to fulfill the Congressional goal that services in rural areas should be reasonably comparable to those available in urban areas is imperative when it comes to health care.

The record in response to the *Notice* confirms that consumers rely heavily on the numerous benefits provided by mobile broadband services, and that this reliance is likely to continue and to become even more widespread. As U.S. Cellular explains in the next section, however, the job of deploying mobile broadband is not done: Consumers in rural areas are being left behind.

Company, LP, Wisconsin RSA No. 4, LP, and Wisconsin RSA No. 10, LP, are collectively referred to as the "Cellcom Companies". *See* TIA Comments at 2.

[11] *See* Neil Hughes, "Apple's HealthKit Powering Ambitious New Medical Trials at Stanford, Duke," APPLE INSIDER (Sept. 15, 2014), *accessed at* http://appleinsider.com/articles/14/09/15/apples-healthkit-powering-ambitious-new-medical-trials-at-stanford-duke; Nathanael Arnold, "Hospitals' HealthKit Trials Highlight Apple's Healthcare Ambitions," WALL ST. TECH CHEATSHEET (Sept. 16, 2014), *accessed at* http://wallstcheatsheet.com/technology/hospitals-healthkit-trials-highlight-apples-healthcare-ambitions.html/?a=viewall (noting that "[t]he advantage of using apps that are plugged into HealthKit is that doctors will be able to quickly and easily access patients' latest medical data and take appropriate actions to prevent problems before they occur. Medical information like glucose levels are typically reported via phone and fax, which is far less efficient and more prone to error.").

B. Mobile Broadband Service Is Not Being Deployed in a Reasonable and Timely Fashion in Rural America.

The Commission's Section 706 Broadband Progress Report should examine two central questions regarding mobile broadband deployment. ***First***, what is the current state of mobile broadband deployment in rural areas? Answering this question is important in determining whether mobile broadband is being deployed to all Americans in a reasonable and timely fashion. And, ***second***, have the Commission's actions promoted or impeded the deployment of mobile broadband networks in rural America? Answering this question will help to evaluate whether the Commission should take actions to accelerate mobile broadband deployment.

Many Rural Areas Are Not Served by Mobile Broadband.—Chairman Wheeler states in the *Notice* that the Commission is "asking if all consumers, even in the most rural regions, should have greater access to better broadband."[12] This question must be answered in the affirmative, in part because the universal service goal established in the Communications Act of 1934 ("Act") is to make communications service available "to ***all*** the people of the United States …."[13]

The problem is that many rural regions do not have access to mobile broadband networks. Just last week, a presentation made by Alcatel-Lucent identified glaring disparities in the availability of mobile broadband. In central cities, it estimates that mobile broadband is available to 78.5 percent of the population, with 72.8 percent availability in suburbs. In rural areas, however, it estimates that mobile broadband availability dips to 24.3 percent, and plummets to 4.2 percent in

[12] *Notice*, 29 FCC Rcd at 9774 (Statement of Chairman Thomas E. Wheeler).

[13] Section 1 of the Act, 47 U.S.C. § 151 (emphasis added). *See* National Rural Electric Cooperative Association ("NRECA") Comments at 5.

very rural areas.[14] These observations are remarkably at odds with information provided to the Commission, and information developed in the National Broadband Map.[15]

CCA indicates that "the Commission has significantly overestimated the status of 4G LTE deployments by the two largest wireless carriers[,]"[16] and also presents data illustrating that "advanced telecommunications capabilities are not being deployed to all Americans in a reasonable and timely manner."[17] The Rural Wireless Carriers have also explained that "there remain substantial rural areas that lack coverage, are underserved, and where high-quality service, which people can rely upon for vital needs, is unavailable."[18]

Commission Actions Have Hindered Mobile Broadband Deployment.—The Commission asks "how have our actions … helped spur or hinder the further deployment of fixed and

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[14] *See* John Dow, VP Wireless Business Development, Alcatel-Lucent, "LTE Business and Technical Strategies for Rural America," 2014 CCA Annual Convention (Sept. 2014); NTIA, *Broadband Brief No. 2 – Broadband Availability Beyond the Rural/Urban Divide* (May 2013), at 10 (Fig. 5), *accessed at* http:/www.ntia.doc.gov/files/ntia/publications/broadband_availability_rural_urban_june_2011_final.pdf. A copy of the Alcatel-Lucent presentation, which includes other statistics and information regarding rural areas that are unserved or underserved by mobile broadband, is attached as an Appendix. (Alcatel-Lucent has granted permission for the inclusion of the presentation as part of these Reply Comments.)

[15] *See Connect America Fund, et al.*, WC Docket No. 10-90, *et al.*, Report and Order, Declaratory Ruling, Order, Memorandum Opinion and Order, Seventh Order on Reconsideration, and Further Notice of Proposed Rulemaking, 29 FCC Rcd 7051, 7127 (para. 238) (2014) ("*CAF Further Notice*") (claiming that there has been "significant commercial deployment of mobile broadband services" during the past three years).

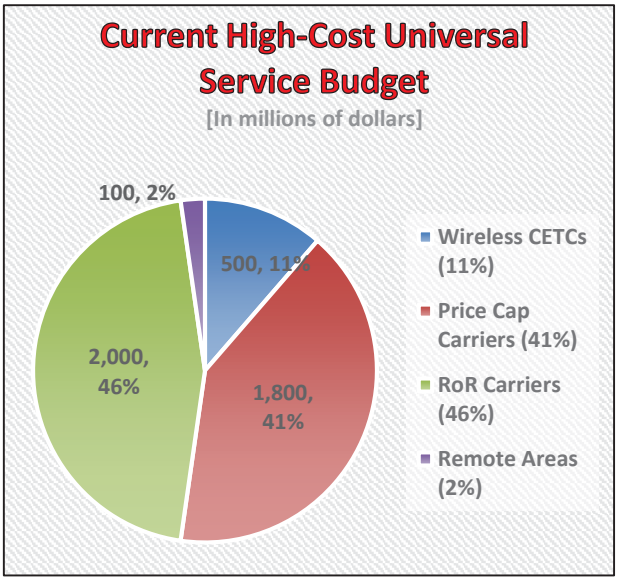
[16] CCA Comments at 9. *See* RWC CAF FNPRM Reply at 34 (indicating that "[p]reliminary analysis undertaken by U.S. Cellular suggests that the tools currently being employed by the Commission to determine mobile broadband coverage are resulting in a significant overstatement of mobile broadband availability in rural areas").

[17] CCA Comments at 7-8 (referencing a study undertaken by an industry expert showing that wireless coverage in rural counties range as low as 76.7 percent, 78.6 percent, 81.1 percent, and 86.3 percent in states sampled in the study).

[18] RWC CAF FNPRM Reply at 9. *See* California Public Utilities Commission Comments, App. A, Ken Biba, *CalSPEED: California Mobile Broadband–An Assessment* (Sept. 2014), at 24-30; Thomas E. Wheeler, Chairman, FCC, "The Facts and Figures of Broadband Competition" (Sept. 4, 2014), at 5 (noting that "Americans living in urban areas are three times more likely to have access to high-speed broadband than Americans living in rural areas. As bandwidth needs increase, we cannot tolerate the broadband digital divide getting larger.").

mobile networks in unserved areas?"[19] The fact is that the Commission, in its transformation of the universal service program and mechanisms, has made policy choices that have significantly hindered the deployment of mobile broadband networks in rural areas.

U.S. Cellular agrees with NCTA that the Commission's efforts to implement its universal service reforms "have been disappointing because, with few exceptions, they have been myopically focused on giving support to incumbent telephone companies through the CAF for price cap areas and through legacy support mechanisms for rate-of-return carriers."[20]



In addition, CTIA points to "the relatively paltry size of the Mobility Fund, particularly as compared to the funding mechanisms for wireline providers[,]"[21] and also observes that, "[i]nstead of increasing the amount of support available for mobility, however, the Commission recently has sought comment [in the *CAF Further Notice*] on whether the budget for Mobility Fund Phase II should be reduced."[22]The Rural Wireless Carriers and others have vigorously opposed the Commission's universal service budget, which, as the chart above[23] illustrates, has provided a lopsided

[19] *Notice*, 29 FCC Rcd at 9768 (para. 44).

[20] National Cable & Telecommunications Association ("NCTA") Comments at 9.

[21] CTIA Comments at 14-15 (footnote omitted).

[22] *Id*. at 15 (footnote omitted).

[23] *See* RWC Comments, WC Docket No. 10-90, *et al*. (filed Aug. 8, 2014) ("RWC CAF FNPRM Comments"), at 32. (C Spire and DOCOMO participated in the RWC CAF FNPRM Reply but did not join in the RWC CAF FNPRM Comments.)

amount of funding to wireline carriers. The Rural Wireless Carriers have demonstrated that there is no basis for the Commission's proposal to reduce the Mobility Fund Phase II budget, and that any such reductions would undermine efforts to deploy mobile broadband networks in unserved and underserved rural areas.[24] U.S. Cellular agrees with CTIA that the proposal made by the Commission in the *CAF Further Notice* to downsize the Mobility Fund Phase II budget "would be plainly contrary to the goals of Section 706."[25]

C. The Commission Should Act To Accelerate Mobile Broadband Deployment in Rural Areas.

The Commission asks in the *Notice* what actions the Commission should take to accelerate broadband deployment and availability, and whether these actions should be different in rural and non-rural areas.[26] U.S. Cellular agrees with NCTA that, "[a]t this stage in the development of the broadband marketplace, the most important federal policy to extend the availability of broadband to unserved areas is high-cost universal service support[,]"[27] and suggests that the Commission should take several actions that are specifically tailored to make its universal service program more effective in facilitating mobile broadband deployment in rural areas.

First, instead of continuing to maintain a universal service budget for mobile broadband that is capped at $500 million annually, the Commission should make "an assessment of how much investment is needed for mobile broadband deployment and operations in rural areas, how much

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[24] *Id*. at 4-18.

[25] CTIA Comments at 15.

[26] *Notice*, 29 FCC Rcd at 9770 (para. 50). NCTA correctly observes that "[t]he ultimate purpose of the 706 report is to help the Commission identify policies that will promote the availability of broadband services to all Americans." NCTA Comments at 9.

[27] NCTA Comments at 9.

time the Commission estimates will be needed to accomplish this deployment, and *then*, how much funding must be budgeted per year to achieve this deployment."[28]

As the Rural Wireless Carriers have explained, "nobody really knows how much support is needed to deliver mobile broadband in rural areas at a level that is reasonably comparable to urban areas, which is the goal established in Section 254(b)(3)" of the Act.[29] Mobility Fund Phase II will not be effective in ensuring that mobile broadband is deployed in rural areas in a reasonable and timely fashion until the Commission undertakes an evaluation of whether the current capped budget is sufficient to accomplish this task. In U.S. Cellular's view, such an evaluation will reveal that the current budget is woefully inadequate.

Second, as suggested in the previous section, the Commission should not act on its proposal to cut the Mobility Fund Phase II budget. In addition to aggravating the already inequitable apportionment of high-cost support between wireline and wireless carriers, such a step would stifle efforts by mobile wireless broadband providers to extend their networks and bring their services to rural communities. Rather than putting the cart before the horse by acting precipitately to reduce the Phase II budget, the Commission should focus on determining the level of funding necessary to bring mobile broadband to unserved and underserved rural areas, and then act to make the necessary funding available.

Third, in addition to evaluating whether the Mobility Fund Phase II budget should be increased so that it is sufficient to meet the Commission's mobile broadband deployment goals,[30]

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[28] RWC CAF FNPRM Reply at 6 (emphasis in original).

[29] *Id.* at 5 (citing 47 U.S.C. § 254(b)(3)).

[30] In furtherance of its efforts to preserve and advance service in rural areas, the Commission in the *CAF Order* adopted a performance goal "to ensure the universal availability of modern networks capable of delivering *mobile* broadband and voice service in areas where Americans live, work, or travel[,]" finding that "ensuring universal advanced mobile coverage is an important goal on its own …." *Connect America*

the Commission should authorize mobile wireless broadband carriers to compete for CAF Phase II funding, instead of reserving that support for the exclusive use of price cap carriers.[31] U.S. Cellular agrees with CCA that "the Commission must take steps to ensure that critical universal service funding is provided to mobile broadband providers on an equitable basis to promote broadband deployment, rather than restricting it."[32] Opening up the CAF Phase II reverse auction to mobile broadband providers will help to enable the "reasonable and timely" deployment of mobile broadband networks in rural areas.

And, ***fourth***, the Commission should take action to expand the universal service contribution base. Rather than continuing to "impos[e] … artificial limits on the support available to competitive carriers[,]"[33] the Commission should reform its contribution mechanisms so that additional funding is available to facilitate mobile broadband deployment in rural communities.

III. CONCLUSION.

The record in this proceeding demonstrates that consumers place a high value on mobile broadband services, increasingly relying on mobile broadband for accessing the Internet, for viewing digital media, and for a wide variety of other communications needs. The record also supports a finding that the Commission has not yet completed the job of ensuring universal availability of mobile broadband services in rural areas, and that, in fact, certain Commission actions have hindered the accomplishment of this goal.

Fund, *et al*., WC Docket No. 10-90, *et al*., Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663, 17682 (para. 53) (2011) ("*CAF Order*") (emphasis added).

[31] *See* NRECA Comments at 9; RWC CAF FNPRM Comments at 38-40.

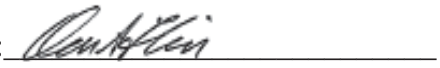
[32] CCA Comments at 8.

[33] CCA Comments, WC Docket No. 10-90, *et al*. (filed Aug. 8, 2014), at 25.

U.S. Cellular therefore respectfully urges the Commission to take the actions outlined in these Reply Comments as a means of ensuring that mobile broadband is deployed in a reasonable and timely fashion in rural America.

Respectfully submitted,

UNITED STATES CELLULAR CORPORATION

By: 

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September 19, 2014

APPENDIX

LTE BUSINESS AND TECHNICAL STRATEGIES
FOR RURAL AMERICA

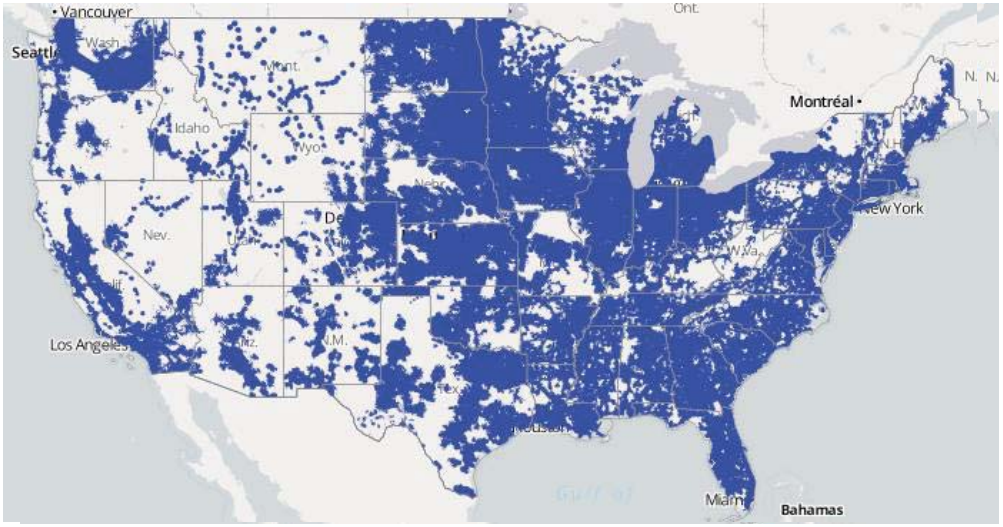
John Dow, VP Wireless Business Development, Alcatel-Lucent

September 2014

Alcatel·Lucent

MOBILE BROADBAND IN RURAL AMERICA

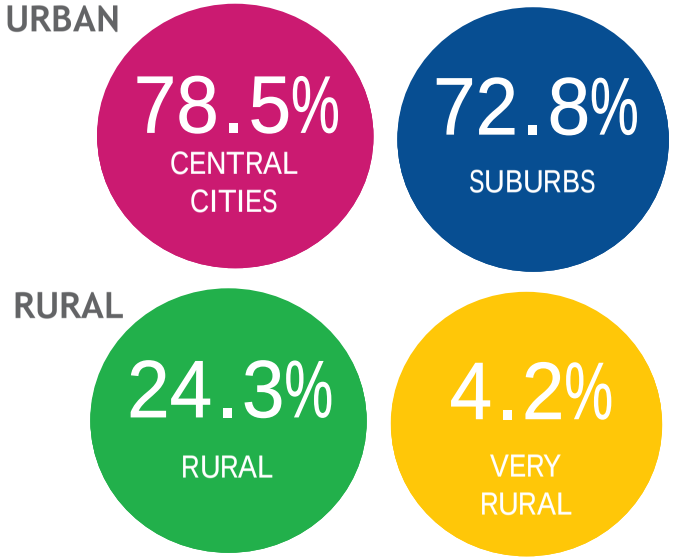
WIRELESS AVAILABILITY (>10 Mb/s DL)



"Within the next five years, we'll make it possible for businesses to deploy the next generation of high-speed wireless coverage to 98 percent of all Americans. This isn't about faster Internet or fewer dropped calls. It's about connecting every part of America to the digital age…"

— President Barack Obama, State of the Union address, January 25, 2011

WIRELESS AVAILABILITY BY SEGMENT



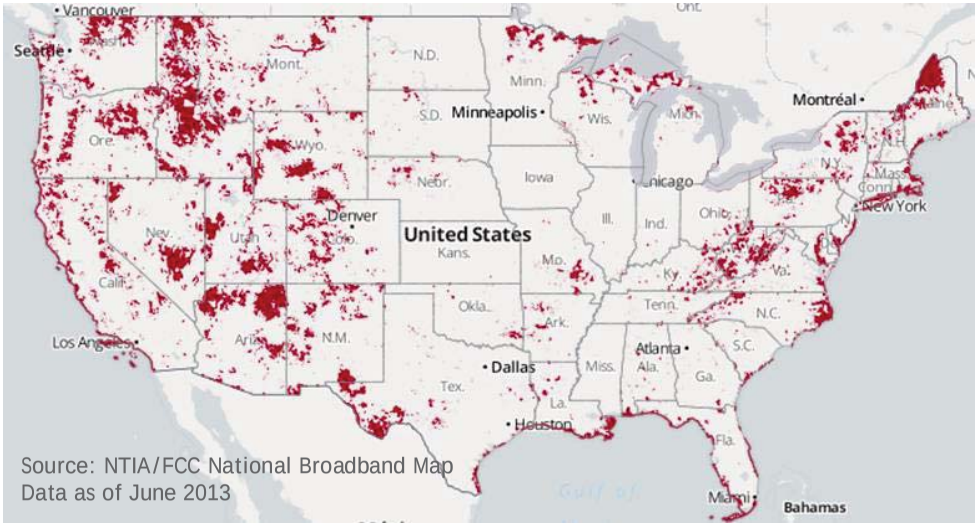
DISPARITIES INCREASE AS SPEEDS INCREASE

Source: NTIA Broadband Availability Report, May 2013

FOCUS IS ON DELIVERING AFFORDABLE, HIGH QUALITY BROADBAND WIRELESS FOR ALL

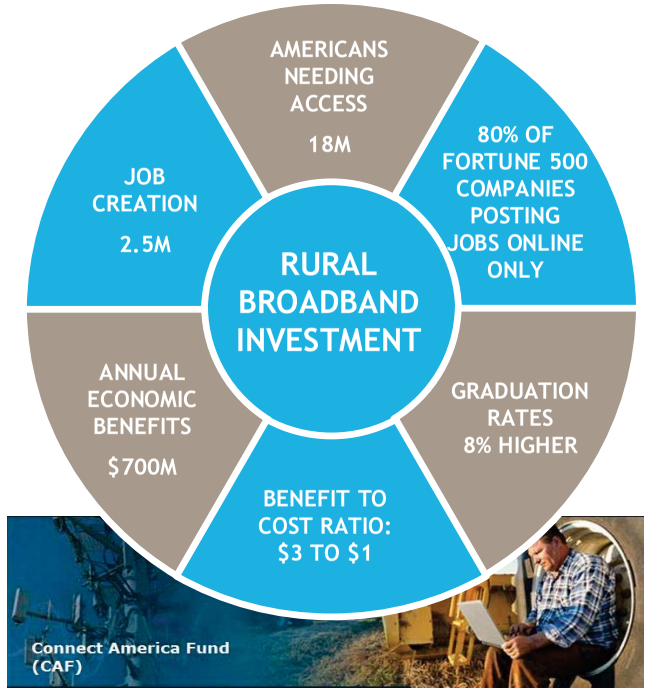
MORE WORK TO BE DONE

UNDERSERVED AREAS - WIRELESS



Unserved or underserved broadband households represent 6-7% of all U.S. households. This metric increases dramatically in rural geographies, for example reaching 14.0% in Kentucky, and 21.8% in West Virginia. (CCA)

CONSUMER BENEFITS BY THE NUMBERS



Source: FCC

FURTHER INVESTMENT NEEDED TO ADDRESS AND BOOST ECONOMIC DEVELOPMENT

RURAL OPERATOR CHALLENGES
SIZE MATTERS FOR PROPER SCALING

SPECTRUM

- Expensive
- Not always aligned with National Operator holdings
- Reliance on spectrum from a major carrier

DEVICE ECOSYSTEM

- Limited selection of attractive devices
- Higher cost point
- Limited influence on device vendors

INFRASTRUCTURE COST / EXPERTISE

- High initial cost with core/IP transformation and incremental ongoing Opex
- Need for additional expertise to build/ operate their own wireless network

AS A RESULT, SOME RURAL OPERATORS HAVE BEEN LOOKING FOR NEW PARTNERS

OWNING VERSUS PARTNERING DECISION
BUSINESS AND TECHNICAL

INITIAL FUNDING REQUIREMENTS
- Spectrum
- Hardware and software
- Network design
- Deployment/ Integration
- Testing/Training
- Towers/facilities
- Management tools

+

ONGOING OPERATIONS COSTS
- Headcount/Training
- Upgrades / Testing
- Towers/facilities
- Backhaul
- Roaming charges
- Maintenance/ Mgmt.

+

TOLERANCE FOR SHARED CONTROL
- Network management
- Moves, Adds, Changes, and Disconnects (MACD)
- Device management
- Signaling and/or bearer traffic routing consideration

+

TRUSTED PARTNER
- Solution expertise
- Financial stability
- Financial assistance
- Developed partner ecosystem
- Proven track record

DECISION NEEDS TO ACCOUNT FOR BUSINESS AND TECHNICAL CRITERIA

BUSINESS AND PARTNERING MODELS
IMPLEMENTATION EXAMPLES

Partner	Spectrum	Device ecosystem	Infrastructure
West Central Wireless	Own Spectrum	Secure Your Own Devices	Utilize Partner's Hosted Core
Farmers Telecom			
Sprint	Own Spectrum – or Lease 800, PCS or 2.5	Secure Your Own Devices or Utilize Partner devices	Build your own core – or Utilize Partner's Hosted Core
Verizon Wireless	Lease 700U, AWS	Utilize Partner Devices	Utilize Partner's Hosted Core

6+ MEMBER COMPANIES

27 PARTNERS

20+ PARTNERS

MANY ARE REALIZING THAT PARTNERSHIPS ARE NEEDED AND ARE EMBRACING

SMALL CELLS – A NEW TOOL IN BUILDING THE RAN

MEETING THE NEEDS OF RURAL TOWNS AND COMMUNITIES

- Enables operators to bring mobile broadband service to remote areas where it was previously not economically viable
- Better aligns with non-uniform traffic requirements (hot spots)

FEATURES:

- Easy to deploy
- Self configurable (plug 'n play)
- Flexible backhaul options
- Flexible power (including solar)
- Ruggedized for outdoor

SMALL CELLS CAN COST EFFECTIVELY ADDRESS RURAL DEPLOYMENTS

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