

**VIA ECFS**

October 5, 2017

Marlene H. Dortch, Secretary

Office of the Secretary

Federal Communications Commission

445 12th Street, S.W.

TW-A325

Washington D.C. 20554

**Re: Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion [GN Docket No. 17-199]**

Dear Ms. Dortch:

Enclosed for filing in the above-referenced Notice of Inquiry are reply comments of the Rehabilitation Engineering Research Center for Wireless Inclusive Technologies (Wireless RERC).

Should you have any questions concerning this filing, please do not hesitate to contact me via email at [helena.mitchell@cacp.gatech.edu](mailto:helena.mitchell@cacp.gatech.edu).

Respectfully submitted,



Helena Mitchell

Principal Investigator, Wireless RERC

Center for Advanced Communications Policy

Georgia Institute of Technology

Enclosure

**Before the**

Federal Communications Commission

Washington, D.C. 20554

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| In the Matter of  Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion | **)**  **)**  **)**  **)**  **)** | GN Docket No. 17-199 |

Reply COMMENTS OF

GEORGIA iNSTITUTE OF TECHNOLOGY (gEORGIA TECH), Center for Advanced Communications Policy (CACP)

and THE REHABILITATION ENGINEERING RESEARCH CENTER FOR

WIRELESS Inclusive TECHNOLOGIES (WIRELESS RERC)

Georgia Tech’s Center for Advanced Communications Policy (CACP) in collaboration with the Rehabilitation Engineering Research Center for Wireless Inclusive Technologies[[1]](#footnote-2) (Wireless RERC) hereby submits reply comments in the above-referenced *Inquiry* released on August 8, 2017. CACP is recognized at the state and national level as a neutral authority that monitors and assesses technical developments, identifies future options, and provides insights into related legislative and regulatory issues. CACP evaluates technological trends that can impact issues as diverse as wearable technologies, emergency communications, and communications and technology access by people with disabilities.

CACP is the home of the Wireless RERC. The Wireless RERC mission is *to integrate established wireless technologies with emerging wirelessly connected devices and services for a transformative future where individuals with disabilities achieve independence, improved quality of life, and enhanced community participation.* We believe it is essential that broadband availability and adoption levels increase for people with disabilities, as access to broadband can enhance socio-economic inclusion, health and wellness, and independent living. The Wireless RERC has conducted a periodic Survey of User Needs (SUN) to identify trends in access to wireless technologies by people with disabilities, including mobile broadband. Since 2001 both CACP and the Wireless RERC have been actively involved with research and regulatory issues concerning parity of access to advanced communications. The comments respectfully submitted below are based on subject matter expertise developed over the past 16 years. Findings from our consumer surveys and focus groups, policy research, and development efforts inform the recommendations made herein.

## Section A.1: Advanced Telecommunications Capability - Evaluating Fixed and Mobile Services

**¶5: We propose to incorporate both fixed and mobile advanced telecommunications services into our Section 706 inquiry.**

Reply to comments made separately by the Colorado State Broadband Office (SBO), Communications Workers of America (CWA), Public Knowledge, et al., National Electrical Manufacturers Association (NEMA), National Rural Electric Cooperative Association (NRECA), Multicultural Media, Telecom and Internet Council (MMTC) in response to the above-referenced Section A.1, ¶5of the *Inquiry*.

The Wireless RERC concurs with comments made by the above-referenced stakeholders supporting the need for both fixed and mobile advanced telecommunications services in a community to be considered reasonably and timely delivered. NEMA provides examples of how fixed and mobile services are complementary and essential to the delivery of residential and community services: “Many connected home technologies used fixed residential connections to control home comfort, monitor smoke and carbon monoxide levels, and even higher bandwidth uses like streaming video. Other products, especially smart grid products, rely on mobile network access to relay information to utilities about the status of the electric grid …Hospitals require high-bandwidth fixed connections to process medical images with large file sizes.[[2]](#footnote-3)” SBO concurs that “both fixed and mobile services are crucial to any given community’s well-being.[[3]](#footnote-4)” To continue on the trajectory of integrating emerging technologies to improve business efficiencies, delivery of educational materials, advance smart homes and communities, and take advantage of advances in medicine and delivery of medical services, the presence of robust fixed *and* mobile services is requisite.

Since the advent of the smartphone, users increasingly utilize Internet services on their mobile devices. Smartphones essentially transformed mobile phones from being a telecommunications device to a computing device. The Wireless RERC collected data on wireless device activities by people with disabilities and results showed that the top three activities included texting, email, and accessing the Internet (Table 1). All three activities can be performed utilizing cellular data or Wi-Fi, however, according to an analysis done by *FierceWireless* and P3, consumers[[4]](#footnote-5) more often utilized Wi-Fi.[[5]](#footnote-6) Given these trends in data usage, advanced mobile telecommunications should be included in the Section 706 Inquiry, but it should not be considered equivalent to fixed, advanced telecommunications services. We concur with the comments of MMTC that “Mobile telecommunications is both a unique service while also a complement to fixed telecommunications. Therefore, it should be evaluated both separately and jointly with fixed internet services.[[6]](#footnote-7)”

**Table 1: Wireless activities for smartphone users with disabilities (SUN 2015-2016) and in the general population (Pew Research Center, 2015).**

|  |  |  |
| --- | --- | --- |
|  | **SUN 2015-2016\*** | **Pew 2015\*\*** |
| Texting | 88% | 97% |
| Internet | 81% | 89% |
| Email | 85% | 88% |
| Mobile apps | 70% | N/A |
| Social media | 66% | 75% |
| Maps/GPS | 74% | 41% |
| Voice calling | 67% | N/A |
| Video calling | 39% | N/A |

\*Wireless RERC, Survey of User Needs, 2015-2016.

\*\*Pew Research Center, U.S. Smartphone Use in 2015 (data collected in October 2014).

As stated by Commissioner Clyburn, “Consumers who are mobile-only often find themselves in such a position, not by choice but because they cannot afford a fixed connection. Today, mobile and fixed broadband are complements, not substitutes.[[7]](#footnote-8)” By example, a smartphone owner does not have to purchase Wi-Fi. This form of service delivery does not assume adoption of fixed or mobile services in the home. As such, access may be intermittent and highly dependent upon location. Further, some activities, such that promote access to employment and educational opportunities, are best completed in a home or school environment. If access is not guaranteed in these environments due to issues with availability, the use of mobile advanced telecommunications services might be less of choice and more of an only option. The NRECA agrees “That mobile broadband may be an exclusive choice for broadband communications in some geographic areas or among certain demographic groups [and] is not a basis for concluding that the presence of fixed broadband *or* mobile broadband is evidence that a community or area is obtaining advanced telecommunications capabilities in a reasonable and timely fashion.[[8]](#footnote-9)” Finally, Public Knowledge, et al. poignantly state that “Because consumers who *can* *afford* [emphasis added] both mobile and fixed connections typically purchase both, they should be seen as complementary, not substitute products, that the Commission measures separately…if two products were truly “interchangeable,” no one would buy both.[[9]](#footnote-10)” As such, while it is useful for the *Inquiry* to include mobile access to advanced telecommunications services as part of the *Inquiry*, in its current state, its presence in a community is not a “reasonable” metric to consider it as supplanting the need for fixed services.

**¶7: We seek comment on the increasing popularity of mobile content, and how that should affect our evaluation of advanced telecommunications capability. Are there other trends regarding mobile broadband that should be analyzed in this year’s Report?**

Reply to comments made separately by the Communications Workers of America (CWA) and the National Rural Electric Cooperative Association (NRECA) in response to the above-referenced Section A.1, ¶7of the *Inquiry*.

The Wireless RERC agrees with comments made by the above-referenced stakeholders regarding the limitations of mobile edge content. As expressed by the NRECA, “That more edge applications are now available for use with mobile broadband services clearly enhances a customer’s ability to perform more tasks when in transit or at temporary locations. Developing complex spreadsheets, revising graphic designs or performing services as a remote employee for a call center on a full-time basis requires more than a smartphone and a wireless connection.[[10]](#footnote-11)” While the expansion of mobile content access is undeniable, and as stated in the *Inquiry*, mobile edge content has made productivity apps available to mobile devices, availability should not assume meaningful use. As stated by CWA, “smaller screens make it difficult if not impossible to conduct many critical online activities, including telecommuting, operating a business, typing a term paper, or even filling out a job application.[[11]](#footnote-12)”

Apps are often downloaded and abandoned or if native, sometimes never used. For people with disabilities and aging adults, enabling the accessibility features of the phone and utilizing various applications can be a challenge due to design, usability, and accessibility issues. For example, a person who is blind and requires a screen reader to navigate the phone and any mobile content displayed often has to depend on someone else to make the phone ready for use. Similarly, for a wheelchair user who requires assistive technology such as switch access technology to navigate the device, interoperability and upgradability to newer smartphone models is a concern. Such help in modifying the device or enabling features may or may not be received, limiting the functionality of the phone for that consumer, specifically, based on their disability status and circumstances surrounding technical help. To put it simply -- same smartphone, different access levels based on disability status, digital literacy, and proficient technical assistance.

Because of these challenges, some people with disabilities and older adults, as well, choose to retain their basic phones and forego the so-called mobile revolution. It would, therefore, be worthwhile for the *Inquiry* to collect data on access to mobile edge content by people with disabilities, older adults and people without disabilities, context of use (e.g., education, employment, social, health), and rate of use by geographic location to inform an understanding, and provide empirical evidence as to whether consumers can perform the same tasks/activities on a mobile network and device that they would on a fixed network. When mobile and fixed networks are both available, is there a significant difference in use based on disability status or age? It might be especially informative to map the above mobile usage data on a fixed network overlay to determine any micro-divides hiding in the demographic details and to quantify the extent to which mobile usage is a preference or an only option. On the one hand, mobile access complements fixed access, and on the other hand, mobile access may be the singular option. These circumstances should be considered as part of the evaluation to avoid perpetuating digital divides based on the robustness of network facility and accessibility of the device, content, and apps.

**¶9 - ¶10Taking into account the differences between the various services and the geographic, economic, and population diversity of our nation, we seek comment on focusing this Section 706 *Inquiry* on whether *some form* of advanced telecommunications capability, be it fixed *or* mobile, is being deployed to all Americans in a reasonable and timely fashion…Alternatively, we seek comment on whether we should evaluate the deployment based on the presence of both fixed *and* mobile services**

Reply to comments made separately by the Communications Workers of America (CWA), Colorado State Broadband Office (SBO), Multicultural Media, Telecom and Internet Council (MMTC), the National Rural Electric Cooperative Association (NRECA), and Public Knowledge, et al. in response to the above-referenced Section A.1, ¶9-10of the *Inquiry*.

The Wireless RERC concurs with commenters that absent appropriate competition for market share and consumer choice, deployment of “*some form*” of service could provide an unwarranted determination of reasonable and timely provision of advanced communications services. The availability of *both* fixed and mobile services is a more reasonable estimation because, despite the rise in mobile-only households, schools and businesses across the country should have access to robust and reliable broadband services suitable to the high bandwidth applications associated with educational and business activities. Regarding the latter, “The Internet is increasing communication and business opportunities within the agricultural community. From the Global Positioning System (GPS) to fiber optics to computer-driven harvesters, some South Dakota farmers and ranchers use the highest level of technology and are among the most efficient producers in the world. Lack of broadband can hinder this effort.[[12]](#footnote-13)” We concur, the farming and a host of other industries could utilize broadband to increase business efficiencies that could have far-reaching economic impacts in their regions and the nation.

SBO asserts that “While a number of citizens do utilize mobile broadband as their primary medium for accessing the internet, …the efforts to reach universal broadband access should focus on maximizing the number of home and businesses that have ***fixed*** access.[[13]](#footnote-14)” We agree. As stated earlier, fixed and wireless are complementary services and “relying solely on mobile access [in its current form] would offer limited experiences for end users, especially in rural areas where mobile service is often degraded due to a variety of factors.[[14]](#footnote-15)” People with disabilities living in rural areas, who have lower broadband adoption rates compared to their non-disabled counterparts regardless of geography, would face a double jeopardy, impeding access based on their region of residence and disability status. According to MMTC, Section 706 qualifies as an anti-discrimination law because it prevents unequal access to broadband…The FCC should determine the discriminatory nature of an action based on its impact on consumers to prevent digital segregation.[[15]](#footnote-16)” Hence, “some form” should be qualified with *that is equivalent in speed and reliability to fixed service*. “If unserved or underserved areas and communities are without fixed broadband service comparable to that available in urban areas, progress towards eliminating digital divides in these areas and communities will stall.[[16]](#footnote-17)”

If mobile or fixed broadband is not perceived or experienced as an attractive, affordable and relevant service by consumers, then linking customer-base to investment in deployment creates a circular logic that maintains the status quo. To progress reasonable and timely advanced telecommunications capabilities in rural communities and for people with disabilities, issues associated with service quality should be addressed to better ensure sustained adoption rates. As stated by NRECA, “the utility of mobile broadband to support multiple on-premise or within-the-home devices is constrained. By contrast, usage restrictions on fixed services tend to be less of an issue as limits are much higher or not applicable.[[17]](#footnote-18)” Using “some form” as a metric would work counter to attracting new and sometimes reluctant customers if *the form* of advanced telecommunications that is available is not robust enough to engender prospective consumer confidence and commitment to maintaining the consumer-service provider relationship. To that end, the forms of services deployed, to be considered reasonable and timely, should be capable of supporting individual and industry level network activity.

**¶11: In fulfilling our statutory obligation to report on demographic information for unserved areas,[[18]](#footnote-19) we propose to report demographic information for areas with neither fixed nor mobile advanced telecommunications capability; with fixed but not mobile advanced telecommunications capability; and with mobile but not fixed advanced telecommunications capability.**

Reply to comments made separately by the Communications Workers of America (CWA) and Public Knowledge, et al. in response to the above-referenced Section A.1, ¶11of the *Inquiry*.

Both CWA and Public Knowledge, et al. agree that granular demographic data should be collected and reported including the advanced telecommunications have-nots (no service or no meaningful access to the content due to accessibility barriers) to the mobile-only (haves) to the mobile and fixed have it all’s. “Statistics should be disaggregated by rural, urban, race, income, state, and census block…to determine what percentage of the population has access to advanced telecommunications services.[[19]](#footnote-20)” The Wireless RERC agrees and adds that disability status also be included in the data collection and reporting efforts.

The Wireless RERC’s expertise in wireless technology access and the need for both mobile and fixed broadband to deliver robust services to people with disabilities leads us to recommend that data be collected on availability and usage amongst people with disabilities. A successful broadband deployment and adoption strategy must take into account availability, affordability, and usability. For many people who are deaf, hard of hearing, blind, or have print disabilities, broadband applications encompassing text, text-to-speech, and video-based communications and data access are their most important broadband wireless device functions. It is a news and information source, allows for communications without an intermediary, is of assistance during emergencies, facilitates telemedicine, and is a key route to employment via the online application process and telework. However, while a wide variety of advanced wireless technologies and broadband services have become available in the U.S., significant issues involving access to, affordability and adoption of these technologies still exist for people with disabilities. Further compounding the issue, as it relates to paragraph 11, is that there is a higher prevalence of disability in rural America compared to urban areas.[[20]](#footnote-21) Placing rural residents with disabilities in a double jeopardy with regard to access to broadband services and the benefits said access affords. That said, we recommend that collecting and reporting data on the demographic characteristics of unserved and underserved areas include disability status as a variable.

## Section B: Deployment of Advanced Telecommunications Capability to All Americans

**¶31We also seek comment on whether we should evaluate the deployment of advanced telecommunications capability based on certain demographic criteria. For example, should we evaluate whether broadband is being reasonably and timely deployed to low-income Americans? What factors should we evaluate and how should we do so?**

Reply to comments made by the Communications Workers of America (CWA) in response to the above-referenced Section B, ¶31of the *Inquiry*.

The Wireless RERC agrees with CWA’s recommendation to “promote digital inclusion initiatives to make broadband more affordable.[[21]](#footnote-22)” People with disabilities are an underserved population with regard to many things, including broadband availability and adoption. The factors that influence low adoption rates for people with disabilities are manifold, not the least of which is financial. In 2016, the employment rate for working-aged adults with disabilities was 27.7%, compared to 72.8% for their non-disabled counterparts. Of the people with disabilities that were employed, 34% were employed part-time (18% for people without disabilities).[[22]](#footnote-23) These data indicate that many people with disabilities may face economic barriers to adopting advanced telecommunications and cannot afford both fixed and mobile services. This limited access results in people with disabilities experiencing a disproportionate reduction in social, economic, and cultural opportunities that are otherwise available to many people without disabilities.

To be clear, not all people with disabilities are low-income, and not all low-income individuals have disabilities. Therefore, when evaluating deployment of advanced telecommunications based on demographic criteria, it is essential to include disability status, socioeconomic status (income/employment/educational attainment), race/ethnicity, and age to identify trends in adoption of advanced telecommunications services based on demographic characteristics. Without these data, how can the primary question posed by this *Inquiry* be answered? How can gaps be closed if they are not first identified, and their depth and breadth quantified? How can compounding access issues be reduced for certain segments of the population? If advanced telecommunications access and adoption is largely dependent on race, socioeconomic and/or disability status, is it being reasonably deployed in a timely fashion? The concerns of the Wireless RERC are also reflected in Commissioner Clyburn’s statement: “The item defines advanced telecommunications capability in terms of what the broadband service can deliver, not whether facilities are present. I am fearful that we are starting down a path to look only at percentage coverage, and not at whether service is truly affordable and accessible for all Americans.[[23]](#footnote-24)”

In closing, the Wireless RERC quotes Chairman Pai: “Broadband can be a great equalizer when it comes to jobs, healthcare, education, and civic engagement. But if we don’t bridge the digital divide, communities on the wrong side of that divide will fall further behind in each of these areas. Our goal should be ubiquitous, high-speed networks that bring together all Americans˗˗and I do mean all Americans.[[24]](#footnote-25)” That includes people with disabilities, rural Americans, older adults, and people that are economically disadvantaged. We want to emphasize the need for the *Inquiry* to gather data regarding advanced telecommunications availability, affordability, and accessibility to people with disabilities. Gathering such data will allow for the identification of barriers to technology adoption by people with disabilities and assist organizations, service providers, developers and policymakers in devising the appropriate strategies to best assist this population, accounting for nearly 20% of U.S. residents, and thus contribute to closing the digital divide.

Respectfully submitted,



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Dated this 5th day of October 2017

1. The Rehabilitation Engineering Research Center for Wireless Inclusive Technologies (Wireless RERC) is sponsored by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR grant number 90RE5025-01).  NIDILRR is within the Administration for Community Living (ACL), Department of Health and Human Services (HHS).  The contents of this filing do not necessarily represent the policy of NIDILRR, ACL, HHS, and you should not assume endorsement by the Federal Government. [↑](#footnote-ref-2)
2. National Electrical Manufacturers Association. (2017). Comments submitted in response to the FCC’s Notice of Inquiry in the Matter of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion [GN Docket No. 17-199]. Washington, D.C., September 6, 2017. [↑](#footnote-ref-3)
3. Colorado State Broadband Office. (2017). Comments submitted in response to the FCC’s Notice of Inquiry in the Matter of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion [GN Docket No. 17-199]. Washington, D.C., September 6, 2017. [↑](#footnote-ref-4)
4. Sample included AT&T, Sprint, T-Mobile, and Verizon customers. [↑](#footnote-ref-5)
5. Dano, M. (2016). How much cellular and Wi-Fi data are smartphone users consuming, and with which apps? The Verizon, AT&T, T-Mobile and Sprint breakdown. *FierceWireless*. Available at <http://www.fiercewireless.com/wireless/how-much-cellular-and-wi-fi-data-are-smartphone-users-consuming-and-which-apps-verizon-at> [↑](#footnote-ref-6)
6. Multicultural Media, Telecom and Internet Council. (2017). Comments submitted in response to the FCC’s Notice of Inquiry in the Matter of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion [GN Docket No. 17-199]. Washington, D.C., September 7, 2017. [↑](#footnote-ref-7)
7. Clyburn, M. (2017). Concurring statement of Commissioner Clyburn Re: Notice of Inquiry in the Matter of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion [GN Docket No. 17-199]. Washington, D.C., August 8, 2017. [↑](#footnote-ref-8)
8. National Rural Electric Cooperative Association. (2017). Comments submitted in response to the FCC’s Notice of Inquiry in the Matter of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion [GN Docket No. 17-199]. Washington, D.C., September 7, 2017. [↑](#footnote-ref-9)
9. Public Knowledge, et al. (2017). Comments submitted in response to the FCC’s Notice of Inquiry in the Matter of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion [GN Docket No. 17-199]. Washington, D.C., September 21, 2017. [↑](#footnote-ref-10)
10. National Electrical Manufacturers Association, p. 3. [↑](#footnote-ref-11)
11. Communications Workers of America. (2017). Comments submitted in response to the FCC’s Notice of Inquiry in the Matter of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion [GN Docket No. 17-199]. Washington, D.C., September 5, 2017. [↑](#footnote-ref-12)
12. Broadband.sd.gov. (2017). Broadband benefits for agriculture. Retrieved from <https://broadband.sd.gov/Benefits-Agriculture.aspx> [↑](#footnote-ref-13)
13. Colorado State Broadband Office, p. 2. [↑](#footnote-ref-14)
14. Ibid. [↑](#footnote-ref-15)
15. Multicultural Media, Telecom and Internet Council, p. 8. [↑](#footnote-ref-16)
16. Ibid, p. 5. [↑](#footnote-ref-17)
17. National Rural Electric Cooperative Association, p. 4. [↑](#footnote-ref-18)
18. 47 U.S.C. § 1302(c). [↑](#footnote-ref-19)
19. Communications Workers of America, p. 16. [↑](#footnote-ref-20)
20. Caruthers, A. (2017). Disability in rural America. Retrieved from <https://www.communitycommons.org/2017/02/disability-in-rural-america/> [↑](#footnote-ref-21)
21. Communications Workers of America, p. 18. [↑](#footnote-ref-22)
22. Bureau of Labor Statistics. (2017). Persons with a disability: labor force characteristics summary. Retrieved from <https://www.bls.gov/news.release/disabl.nr0.htm> [↑](#footnote-ref-23)
23. Clyburn, M. (2017). Concurring statement of Commissioner Clyburn Re: Notice of Inquiry in the Matter of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion [GN Docket No. 17-199]. Washington, D.C., August 8, 2017. [↑](#footnote-ref-24)
24. Pai, A. (2017). Remarks of FCC Chairman Ajit Pai at the first meeting of the Federal Communications Commission’s Advisory Committee on the Diversity and Digital Empowerment. Washington, D.C., September 25, 2017. [↑](#footnote-ref-25)