

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

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

**Comments of
Communications Workers of America**

Debbie Goldman
501 Third St. N.W.
Washington, D.C. 20001
(202) 434-1194 (phone)
(202) 434-1201 (fax)
dgoldman@cwa-union.org

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I. INTRODUCTION AND SUMMARY

There is broad consensus that high-speed broadband is the essential infrastructure of the 21st century, providing the platform for economic development, jobs, education, health care, public safety, energy efficiency, civic participation, entertainment, and communications among friends and family. Given the importance of high-speed broadband, the Commission’s annual evaluation of whether advanced telecommunications services are being deployed in a “reasonable and timely fashion” is of critical importance to the economic and social well-being of our nation.¹ While the United States has made enormous progress spurring \$1.5 trillion dollars of investment in broadband networks over the past two decades, significant gaps remain in access, adoption, and competitive choice for advanced telecommunications services. More than 34 million people do not have access to broadband at the Commission’s 25/3 Mbps speed definition, including 23 million in rural areas and 11 million in urban communities.² There are still far too many school children who must sit on the library steps or go to McDonald’s for wifi access to do their homework. Only 38 percent of households have a choice of at least two

¹ FCC, *Thirteenth Section 706 Report 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, Aug. 8, 2017 (“NOI”).

² FCC, *Broadband Progress Report*, Jan. 29, 2016 (based on 2014 FCC Form 477 data). US Telecom’s analysis of June 2016 FCC Form 477 data finds that 11 percent of “housing units” do not have access to 25/3 Mbps broadband, including 41 percent of rural housing units and three percent of non-rural housing units. Based on this analysis, CWA calculates that between 33.4 and 37.7 million Americans did not have access to 25/3 Mbps mid-year 2016. CWA calculation: According to the 2010 U.S. Census, there were 131.7 million “housing units” in 2010 of which 116.7 million were occupied (the other 15 million were vacant). We multiply 131.7 total housing units times 11 percent without broadband access to get 14.5 million housing units without 25/3 Mbps broadband. We multiply this number by the Census Bureau’s average household size of 2.6 people to find that as many as 37.7 million people lack 25/3 Mbps broadband access. To find the number of people without broadband access in *occupied* housing units, we repeat the calculation based on 116.7 million occupied housing units to find that 33.4 million people in occupied housing units do not have access to broadband at 25/3 Mbps. See Patrick Brogan, “U.S. Broadband Availability Mid-2016,” U.S. Telecom Research Brief, Aug. 25, 2017, Chart 5 (<https://www.ustelecom.org/sites/default/files/US%20Broadband%20Availability%20Mid-2016%20formatted.pdf>); For Census Bureau data, see U.S. Census Bureau, “Housing Characteristics 2010,” Oct. 2011 (<https://www.census.gov/prod/cen2010/briefs/c2010br-07.pdf>).

broadband providers offering speeds of 25/3 Mbps.³ According to Pew surveys, one-quarter (27 percent) of all Americans – with even higher percentages of African-Americans (35 percent), Hispanics (42 percent), and low-income households with annual earnings under \$30,000 (47 percent) – do not subscribe to broadband at home, many because they cannot afford it.⁴ And according to the Organization for Economic Co-Operation and Development (OECD), the U.S. ranks 16th in the world in broadband access and 13th in average broadband speed.⁵ Based on these facts, the Commission must conclude that advanced telecommunications capability is not being deployed in a reasonable and timely fashion to all Americans.

The Communications Workers of America (CWA) represents 700,000 workers in private and public sector employment who work in telecommunications and information technology, the airline industry, news media, broadcast and cable television, education, health care and public service, law enforcement, manufacturing, and other fields. Since launching our Speed Matters program a decade ago, CWA has supported Commission policies that accelerate deployment of affordable, high-speed broadband to all Americans. As Chairman Pai noted in his very first speech as Chairman: “[T]here is a digital divide in this country – between those who can use cutting-edge communications services and those who do not. I believe one of our core priorities going forward should be to close that divide... We must work to bring the benefits of the digital

³ FCC, *Broadband Progress Report*, Jan. 29, 2016 (based on 2014 Form 477 data). US Telecom’s analysis of June 2016 FCC Form 477 data finds that less than half (49 percent) of “housing units” have access to 25/3 Mbps broadband. from two or more providers. Based on this data, CWA calculates that 67.2 million total housing units (174.6 million people) and 59.5 million occupied housing units (154.7 million people) lack competitive choice from at least two broadband providers for 25/3 Mbps service. CWA calculations: Total housing units 131.7 million times 51 percent without 25/3 Mbps broadband times 2.6 people per household = 174.6 million. Occupied housing units 116.7 million times 51 percent without 25/3 Mbps broadband times 2.6 people per household = 164.7 million. US Telecom Research Brief, Chart 1 (for broadband data); U.S. Census Bureau, “Housing Characteristics 2010” (for housing unit data).

⁴ Pew Research Center, “Internet/Broadband Fact Sheet,” data as of Nov. 11, 2016 (<http://www.pewinternet.org/fact-sheet/internet-broadband/>).

⁵ OECD, “Households with Broadband Access,” 2012 and “Average and Median Download Speeds, Fixed Broadband,” 2014 (<http://www.oecd.org/internet/broadband/oecdbroadbandportal.htm>).s

age to all Americans.”⁶ CWA agrees. An accurate assessment of the deployment and adoption of advanced telecommunications capability to all Americans is therefore essential in order to craft policies to close the digital divide and promote digital equity for all Americans.

II. ADVANCED TELECOMMUNICATIONS CAPABILITY REQUIRES BOTH WIRELINE AND WIRELESS BROADBAND

In this inquiry, the Commission seeks comment on whether its evaluation should focus on whether *some form* of advanced telecommunications capability, be it fixed *or* mobile, is being deployed to all Americans in a timely and reasonable fashion.⁷ The Commission should reject this proposal and continue to conduct its 706 Inquiry according to the conclusion reached in the 2016 Broadband Progress Report that “consumers have advanced telecommunications capability only to the extent that they have access to both fixed and mobile broadband service.”⁸ As the *NOI* points out, the “salient differences” between fixed and mobile telecommunications capability compel the Commission to recognize the distinction between these two technologies.⁹ Mobile broadband allows people to connect to the web from almost any location and provides access to a vast array of web-based applications, including those based on user location. Smartphones enable many previously unconnected people to access the Internet. Yet, despite advances in mobile technology, an objective evaluation of price, functionality, reliability, and consumer usage patterns continues to support the Commission’s 2016 conclusion that “fixed and mobile services are not functional substitutes for one another” but rather have “different and

⁶ Remarks of Chairman Ajit Pai to FCC Staff, Jan. 24, 2017 (https://apps.fcc.gov/edocs_public/attachmatch/DOC-343184A1.pdf)

⁷ *NOI*, para. 9.

⁸ 2016 Broadband Progress Report, *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*, Jan. 29, 2016 (rel), para 17 (“2016 Broadband Progress Report”).

⁹ *NOI*, para. 5.

complementary capabilities.”¹⁰ As the Commission noted in 2016, mobile communications are subject to environmental factors that lead to dead spots, dropped calls, and slower and inconsistent speeds that wireline broadband does not encounter. In addition, 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 And despite the advent of “unlimited” wireless data plans, wireless broadband is expensive and, as detailed later in these comments, includes many restrictions not found in wireline service plans.

Pew surveys of Internet users confirm that “while smartphones help those without broadband get online, (they) don’t necessarily bridge the digital divide.”¹² According to Pew’s 2015 survey, as many as 19 percent of Americans rely on their smartphone for most if not all of their Internet access. Yet, the survey also finds that two-thirds of Americans believe that “not having a home high-speed internet connection would be a major disadvantage to finding a job, getting health information, or accessing other key information.” While more than two-thirds of Americans owned a smartphone when Pew took its survey in 2015, Pew concluded that the “connections to digital resources they offer are tenuous for many of these users.” Smartphones lack the capacity or consistency for most bandwidth intensive uses such as full-screen HD video streaming, online gaming, and video conferencing applications including telehealth and

¹⁰ 2016 Broadband Progress Report, para. 17.

¹¹ *Ibid*, para. 29.

¹² Pew Research Center, Monica Anderson and John Horrigan, “Smartphones help those without broadband get online, but don’t necessarily bridge the digital divide,” Oct. 3, 2016 (<http://www.pewresearch.org/fact-tank/2016/10/03/smartphones-help-those-without-broadband-get-online-but-dont-necessarily-bridge-the-digital-divide/>).

education platforms.”¹³ People need and want high-speed mobile and wireline broadband connections.

Individual comments already submitted in this docket make clear that people do not view wireless broadband as a substitute for a wireline connection, particularly at a 10/1 Mbps speed.

- “Americans need both fixed AND mobile broadband!” writes Jessica Starkey of Pennsylvania. “Mobile is very limited in comparison and works differently from fixed broadband internet, and has data caps with expensive fees for going over them (unlike fixed Internet.) You can’t run a business on purely mobile...”
- “My service provider has a 10GB limit...I max out my data after streaming in a few hours. Consider the percentage of people who do not have unlimited plans in your formula for service speeds,” writes William Bennett of Arkansas.
- “Mobile Internet is not a sufficient substitute for ‘fixed’ broadband Internet,” notes Jonathan Fair of Virginia. “The speeds are much more limited, their capacity to handle higher load is highly limited by available spectrum (which is getting rather crowded) and also the number of users hitting a single tower.”
- “I do not think that 10/1 mobile Internet is enough speed to be considered a substitute for a fixed Internet connection,” according to Kyle Templin of Illinois. “Mobile is unreliable and throughput especially for uploading is atrocious. If I was forced to rely on solely mobile for my needs, I would not be able to reasonably meet goals and deadlines in my personal life.”
- “In the world we live in the Internet is used not only for frivolities like entertainment and non-essential communications, but also education and employment,” writes Aaron Letts of Michigan. “Online classes, both at the college and K-12 levels are becoming more and more prevalent, and the number of workers who are telecommuting to jobs on the other side of the country increases every day. For these applications as well as the less ‘important’ ones, mobile broadband alone does not cut it.”¹⁴

As we detail below, wireless and wireline broadband technologies differ substantially as measured by data speed, reliability, price, and consumer usage and preferences.

¹³ Pew Research Center, “U.S. Smartphone Use in 2015,” April 1, 2015 (http://www.pewinternet.org/files/2015/03/PI_Smartphones_0401151.pdf).

¹⁴ These comments filed in this instant proceeding are cited in Jon Brodtkin, “FCC faces backlash for saying Americans might not need fast home Internet,” *ars technica*, Aug. 11, 2017 (<https://arstechnica.com/information-technology/2017/08/mobile-broadband-cant-replace-fast-home-internet-americans-tell-fcc/>).

Speed. With video streaming and data-intensive applications now dominating Internet usage, gigabit speed is fast becoming the global standard for Internet access, and this will only increase with the commercial expansion of Internet of Things (IoT) applications and devices.¹⁵ Yet, today’s wireless LTE networks lag far behind wireline broadband speeds. According to the Commission’s *Measuring Mobile Broadband America* data, the median download/upload speeds delivered by the LTE networks of the four major carriers all fail to meet the Commission’s 25/3 Mbps broadband speed standard.¹⁶

Wireless LTE Median Speeds, 2015		
	Download	Upload
AT&T	9.32 Mbps	3.93 Mbps
Sprint	6.73 Mbps	2.81 Mbps
T-Mobile	14.39 Mbps	8.5 Mbps
Verizon	12.61 Mbps	4.09 Mbps
<i>Source: FCC, Measuring Mobile Broadband America data</i>		

In contrast, the FCC’s *Measuring Broadband America: Fixed Broadband Report* finds that the median download speed for fixed broadband in 2015 was 41 Mbps, which is almost three

¹⁵ Cisco predicts that North American Internet traffic will increase from 1,887 PB/month in 2017 to 5,885 PB/month in 2021 at “Cisco Visual Networking Index: Forecast and Methodology 2016-2021” (<https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/complete-white-paper-c11-481360.html>). Altice, Cincinnati Bell, Verizon, Hawaiian Telecom, AT&T, Google Fiber, Comcast, and CenturyLink are all expanding and marketing gigabit service. *See NOI*, para. 8 and fn 16-22. *See also* Sandvine, “2016 Global Internet Phenomena: Latin America and North America,” June 21, 2016 (71 percent of downstream fixed broadband Internet traffic in 2016 is entertainment, with Netflix and YouTube accounting for more than half of that traffic <file:///O:/SHARED/High%20speed%20group/2017%20706%20Report%20Notice%20of%20Inquiry/Research/Sandvine%202016%20global-internet-phenomena-report-latin-america-and-north-america.pdf>); Colin Neagle, “CES 2016: Why the IoT needs fiber-optic broadband to succeed,” *Network World*, Jan. 5, 2016.

¹⁶ The FCC Measuring Mobile Broadband America data is comparable to mobile broadband speeds compiled by Ookla, RootMetrics, and CalSPEED. *See Nineteenth Wireless Competition Report*, WT Docket No. 16-137, Tables VI.B.3 and VI.B.4, para. 108 (FCC data), Table VI.B.2 para. 107 (Ookla data), Table VI.B.5 para 109 (RootMetrics data), para 110 (CalSPEED data), Sept. 23, 2016.

to six times faster than the median LTE wireless speed of the four major wireless carriers. (The *Measuring Broadband America: Fixed Broadband Report* does not report a median upload speed.) The report also found that the maximum advertised speed tier for fixed broadband ranges from 100 to 300 Mbps, with the most popular speed tiers (weighted by the number of panelists in the survey) delivering 105 Mbps.¹⁷

Reliability. Dead zones and loss of signal reduce wireless effectiveness. Mobile network service quality depends on distance of the user from the cell site, weather, obstructions in the line of sight, number of users simultaneously sharing the same cell, and capacity of the wireless provider's network.¹⁸ These problems are particularly acute in rural areas where cell coverage is frequently spotty or non-existent.¹⁹ The Pew smartphone survey found widespread consumer problems with wireless reliability. Almost half (47 percent) reported poor or dropped signal quality, with 11 percent noting that this happened "frequently." A full 49 percent of respondents reported problems with the display of online content, with 10 percent reporting this as a "frequent" problem. African-Americans (55 percent) and low-income consumers (52 percent) reported even higher rates of poor or dropped calls and inadequate content display.²⁰

Price. Wireless broadband is more expensive than wireline broadband and includes far more restrictions. Although the four nationwide wireless carriers have recently announced or expanded their "unlimited" data plans, these plans are expensive and come with many

¹⁷ FCC, Office of Engineering and Technology and Office of Strategic Planning & Policy Analysis, *2016 Measuring Broadband America Fixed Broadband Report*, Dec. 2016, pp 6-7, 15 (<http://data.fcc.gov/download/measuring-broadband-america/2016/2016-Fixed-Measuring-Broadband-America-Report.pdf>).

¹⁸ *Nineteenth Wireless Competition Report*, para. 104.

¹⁹ The most recent FCC data shows significant gaps in the percent of rural population with LTE coverage: Verizon (92 percent), AT&T (87 percent), T-Mobile (73 percent), Sprint (55 percent). *Nineteenth Wireless Competition Report*, para. 99.

²⁰ Pew Research Report, "U.S. Smartphone Use in 2015," p. 15.

restrictions. Below we detail the four nationwide carriers' "unlimited" plans as reported in late August 2017. All figures are monthly prices.

Four nationwide carrier's "unlimited" plans as of August 30, 2017

Verizon²¹

Go Unlimited. \$75 for one line, \$160 for four lines (with autopay). Verizon reduces speed if the network is congested, allows only standard definition (SD) video on smartphones, semi high-definition (HD) video on tablets, and limits mobile hotspot to 600 kbps.

Verizon Beyond Unlimited. \$85 for one line, \$200 for four lines (with autopay). Verizon reduces speed after 22 GB, semi-HD video on smartphones, limits hotspot to 15 GB

Verizon Business Unlimited. \$25 per line/device. Verizon reduces speed at 25 GB, standard definition video, limits mobile hot spot to 10 GB.

AT&T²²

AT&T Unlimited Choice. \$60 for one line, \$155 for four lines (with autopay). Maximum 3 Mbps data speed, no mobile hot spots, standard definition video.

AT&T Unlimited Plus. \$90 for one line, \$185 for four lines (with autopay). AT&T reduces speed after 22 GB, limits hotspot to 10GB.

T-Mobile²³

T-Mobile One. \$40 for one line, \$160 for four lines (with autopay). Reduced speed after 32 GB, standard definition video, limits hot spots to 3GB

T-Mobile One Plus. \$50 for one line, \$200 for four lines (with autopay). Limits hot spots to 10 GB.

Sprint²⁴

Sprint Unlimited Freedom. \$50 for one line, \$100 for four lines. Sprint reduces speed after 23 GB, limits hot spots to 10 GB, limits gaming to 8GB, music to 1.5 Mbps

²¹ Verizon website, visited Aug. 30, 2017. *See also* Chris Welch, "Verizon's good unlimited data plan is now three bad unlimited plans," The Verge, Aug. 22, 2017 (<https://www.theverge.com/2017/8/22/16181362/verizon-new-unlimited-data-plan-video-throttling-net-neutrality>); "Verizon's Unlimited Data Plan Has Changed. Here's How it Compares to other Carriers," *Wired*, Aug. 22, 2017 (<https://www.wired.com/2017/08/verizons-unlimited-data-plan-back-heres-compares-carriers/>); "Robert Pegoraro, Verizon's cheaper 'unlimited' plan means serious tradeoffs," *USA Today*, Aug. 23, 2017 (<https://www.usatoday.com/story/tech/columnist/2017/08/23/verizons-cheaper-unlimited-data-plan-means-serious-tradeoffs/595720001/>).

²² AT&T website, visited Aug. 30, 2017. *See also* citations in fn 21.

²³ T-Mobile website, visited Aug. 30, 2017. *See also* citations in fn 21.

²⁴ Sprint website, visited Aug. 30, 2017. *See also* citations in fn 21.

Four nationwide carrier’s “data capped” plans as of August 30, 2017

Many customers choose mobile “data capped” plans because the base price is cheaper than the “unlimited plans” or because they have not yet switched or find it too costly to switch from a data capped to an “unlimited” plan. These customers must watch their data usage or risk overage charges or seriously throttled speeds. Other restrictions also apply. Below are the prices for mobile data capped plans as reported by the carriers as of August 30, 2017.

Verizon²⁵

2GB plan: \$35

4 GB plan: \$50

8 GB plan: \$70

Verizon charges \$15 for each additional GB

AT&T²⁶

1 GB plan: \$30 for one line, \$90 for four lines

3 GB plan: \$40 for one line, \$100 for four lines

6 GB plan: \$60 for one line, \$120 for four lines

10 GB plan: \$80 for one line, \$140 for four lines

AT&T reduces speed to 128 kbps after data cap; Stream Saver allows standard definition video

Sprint²⁷

3 GB: \$35

6 GB: \$50

12 GB: \$80

30 GB: \$110

T-Mobile only offers an “unlimited” plan.

Fixed Wireless

AT&T has recently begun to market its Connect America Fund subsidized fixed wireless service in rural areas. The AT&T Fixed Wireless Internet is available for \$60 a month with download speeds of at least 10 Mbps. Data usage is capped at 160 GB per month, with an

²⁵ Verizon website, visited Aug. 30, 2017

²⁶ AT&T website, visited Aug. 30, 2017

²⁷ Sprint website, visited Aug. 30, 2017

additional charge of \$10 per month for each additional 50 GB increments.²⁸

Wireline Broadband Service Plans

Wireline broadband carriers market their Internet service based on speed capacity, often with unlimited or nearly unlimited data allowances. Although high-speed wireline broadband providers typically create double, triple, and even quadruple play bundles of Internet service with pay TV, voice, and wireless service, we have attempted to obtain Internet-only pricing plans from three major wireline broadband company websites as of August 30, 2017. Company websites frequently provide only introductory promotional pricing, which increases after the introductory offer expires. All figures are monthly prices. Speeds are download speeds unless otherwise indicated.

Comcast Internet-only offers²⁹

Up to 10 Mbps: \$49.95

Up to 75 Mbps (promo price): \$74.95

Up to 100 Mbps: \$84.95

Up to 200 Mbps: \$87.95

Up to 400 Mbps: \$99.95

Up to 1,000 Mbps: \$104.95

Comcast hot spots available at 25 Mbps and above. Two-year agreement required.

AT&T³⁰

10 Mbps: \$30 (1 TB limit)

50 Mbps: \$50 (1 TB limit, price applies when bundled with another AT&T service)

75 Mbps: \$50 (1TB limit, price applies when bundled with another AT&T service)

1,000 Mbps: \$80

One-year agreement required.

Verizon

50/50 Mbps (upload/download): \$39.99

²⁸ “AT&T fixed wireless Internet service launches in parts of rural Triangle,” Aug. 15, 2017 (<http://wraltechwire.com/at-t-fixed-wireless-internet-service-launches-in-parts-of-rural-triangle/16879872/>).

²⁹ Comcast website, visited Aug. 30, 2017. This appears to be the “non-promotional” pricing after a customer’s promotional discount expires.

³⁰ AT&T website; “AT&T’s Fiber footprint expands in San Antonio,” Aug. 21, 2017 (for 1,000 Mbps price) (<http://www.mysanantonio.com/business/local/article/AT-T-Fiber-s-footprint-expands-in-San-Antonio-11948424.php>)

100/1000 Mbps: \$64.99
150/150 Mbps: \$74.99
300/300 Mbps: \$94.99
These are promotional pricing offers

Based on this sampling of wireline broadband prices, it is clear that wireless data plans cost more than wireline broadband packages with far more restrictions on data usage. This is particularly true for a typical family of four that might purchase four “unlimited” mobile lines for \$200 per month delivering typical LTE speeds of between 6 to 15 Mbps compared to a wireline broadband package delivering “up to” 50 or 75 Mbps that would cost \$50 to \$75 per month.³¹

Consumer Usage. Consumer broadband purchasing patterns provide strong evidence that people consider both mobile and wireline broadband services complementary products that are each essential to daily life. According to Pew’s 2015 survey, a full 85 percent of consumers had both smartphones and wireline broadband at home. Those who rely only on smartphones for Internet connectivity are typically lower-income (13 percent of those with annual earnings below \$30,000 compared to just one percent with annual income above \$75,000) and people of color (12 percent of African Americans and 13 percent of Latinos are smartphone-dependent, compared with just four percent of whites).³² Almost one-quarter (23 percent) of smartphone-dependent consumers had to cancel or shut off their phones because of financial hardship. The market research firm eMarketer updates the Pew data with its 2017 forecast that “over three-quarters of internet users will continue to access the internet via both a mobile device and PC.”³³ According to the firm, mobile speeds and data costs associated with video streaming limit many

³¹ CWA acknowledges that our sampling of broadband prices does not include slower speed DSL and prices at all the major wireline broadband providers. We aim to supplement the pricing data in Reply Comments.

³² Pew Research Center, “U.S. Smartphone Use in 2015,” p. 16.

³³ eMarketer Report, “US Digital Users: The eMarketer Forecast for 2017,” Feb. 15, 2017 (<https://www.emarketer.com/Report/US-Digital-Users-eMarketer-Forecast-2017/2001987>).

consumers' use of mobile video.³⁴

In summary, in its 706 Inquiry the Commission should consider whether *both* wireless and wireline advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion. Given today's technology, wireless is simply not a substitute for wireline broadband. It is more expensive, less reliable, delivers more limited capacity and speed, and therefore cannot provide the functionality that people need for such data-intensive and multi-media activities associated with telecommuting, business operations, education, and telehealth.

III. THE COMMISSION SHOULD RETAIN THE CURRENT 25 MBPS DOWNLOAD AND 3 MBPS UPLOAD SPEED BENCHMARK AND BASED ON THIS BENCHMARK, DETERMINE THAT ADVANCED TELECOMMUNICATIONS CAPABILITY IS NOT BEING DEPLOYED IN A REASONABLE AND TIMELY FASHION

At this time, the Commission should retain the current 25 Mbps download, 3 Mbps upload (25/3 Mbps) broadband benchmark adopted in 2015 to evaluate whether advanced telecommunications capability is being deployed in a reasonable and timely fashion. As the Commission explained in 2015 when it adopted the 25/3 Mbps broadband benchmark, these speeds represent the minimum capability necessary for a family simultaneously to engage in multiple online activities including downloading files, participating in an online class, and streaming an HD video.³⁵ Consumer comments in this docket confirm the Commission's conclusion. "Any person who works at home is going to need at least 10 meg down and 3-4 meg up just for themselves, not taking into consideration that the average family has 5-10 devices connected and a few of those are probably watching HD video at the time," writes Luke of North

³⁴ Cindy Liu, "US Digital Users: The eMarketer Forecast for 2016," Feb. 2016 (https://static1.squarespace.com/static/51b949f4e4b0c43b09f8b97f/t/57030153b6aa607cbb9a4ff9/1459814747214/eMarketer_US_Digital_Users-The_eMarketer_Forecast_for_2016.pdf).

³⁵ *2015 Broadband Progress Report and Notice of Inquiry on Immediate Action to Accelerate Deployment*, GN Docket No. 14-126, Feb. 4, 2015, para. 38-55.

Carolina. Anthony de Araujo of Pennsylvania concurs: “With streaming services popping up left and right, and with telecommuters like myself, 25 Mbps is ludicrous...Picture this, my household: husband and wife, 6 ‘kids’ ranging in age from 24-32; two spouses of said kids; ALL streaming one thing or another; all while I’m trying to work.”³⁶

Certainly, in future years the Commission should raise the speed benchmark to recognize the need to deploy gigabit networks capable of delivering ever more data- and video-intensive services and applications over the Internet, including backhaul connectivity for next-generation wireless networks and the Internet of Things. While the 25/3 Mbps benchmark falls far short of the goals the Commission set in the 2010 broadband plan (networks capable of delivering 50/20 Mbps by 2015 and 100/50 Mbps by 2020),³⁷ the 25/3 Mbps broadband standard represents a reasonable standard by which to judge whether “advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion” today. The Commission should adopt the same standard for wireline and mobile broadband.

At the time the Commission adopted the 25/3 Mbps, about one-third of consumers subscribed to the 25/3 Mbps speed when they had the option available.³⁸ According to the most recent *Internet Access Report*, 59 percent of fixed residential connections (59 million connections) are delivered at a minimum of 25/3 Mbps and 19 percent are delivered at a minimum downstream speed of 100 Mbps (17.7 million).³⁹ We still have a long way to go to meet the 25/3 Mbps standard for all Americans.

³⁶ “FCC faces backlash for saying Americans might not need fast home Internet,” *ars technica*, Aug. 11, 2017.

³⁷ FCC, *The National Broadband Plan*, 2010.

³⁸ *2015 Broadband Progress Report and Notice of Inquiry on Immediate Action to Accelerate Deployment*, GN Docket No. 14-126, Feb. 4, 2015, para. 38-55.

³⁹ A full 57 percent of *all* connections delivered a minimum of 25/3 Mbps. FCC, Industry Analysis and Technology Division, Wireline Competition Bureau, *Internet Access Services: Status as of June 30, 2016*, pp 1,8 and Figure 10, p. 15.

Most troubling, a new digital divide is emerging between those who have access to competitive gigabit networks and those who do not. Verizon's fiber-to-the-home reaches only about two-thirds of the households in its wireline footprint, leaving not only rural communities but major cities such as Buffalo, Baltimore, Albany, and Syracuse behind.⁴⁰ AT&T is building an all-fiber network to between 12.5 and 14 million customers, which represents less than one-quarter of the addressable customer locations in its footprint.⁴¹ The Commission's *2016 Measuring Broadband America: Fixed Broadband Report* found that maximum advertised speed tiers for fixed broadband ranged from 100 to 300 Mbps in many communities, with the most popular speed tiers (weighted by the number of panelists in the survey) delivering 105 Mbps.⁴²

Yet, all too many Americans are stuck in the slow lane or lack Internet access altogether. There is a persistent and troubling digital divide in our nation based on geography and income, foreclosing economic opportunity and access to the vast information available on the Internet for too many people. As we noted above, more than 35 million people do not have access to broadband at the Commission's 25/3 Mbps network speed, only 38 percent of households have competitive choice for broadband from at least two broadband providers offering speeds of 25/3 Mbps, and one-quarter (27 percent) of all Americans, with even higher percentages of African-Americans (35 percent), Hispanics (42 percent), and low-income households with annual earnings under \$30,000 (47 percent) do not subscribe to broadband at home, many because they

⁴⁰ Verizon reported 14.3 million FiOS digital connections in 2Q2017. Verizon 2Q17 Quarter Earnings, Financial and Operating Information (<http://www.verizon.com/about/investors/quarterly-reports/2q-2017-quarter-earnings-conference-call-webcast>).

⁴¹ AT&T reported that it markets AT&T Fiber to 5.5 million customers in 55 markets in 2Q2017. AT&T 2Q17 Earnings Financial and Operating Results (<https://investors.att.com/financial-reports/quarterly-earnings/2017>).

⁴² FCC, Office of Engineering and Technology and Office of Strategic Planning & Policy Analysis, *2016 Measuring Broadband America Fixed Broadband Report*, Dec. 2016, pp 6-7, 15 (<http://data.fcc.gov/download/measuring-broadband-america/2016/2016-Fixed-Measuring-Broadband-America-Report.pdf>).

cannot afford it.⁴³ Based on these facts, the Commission must conclude that advanced telecommunications capability is not being deployed in a reasonable and timely fashion to all Americans.

The Commission must evaluate whether progress is “reasonable and timely” by looking at the actual statistics regarding speed, capability, latency, and reliability of network deployment by both wireline and mobile technologies. Statistics should be disaggregated by rural, urban, race, income, state, and census block. The Commission should reject US Telecom’s proposal to conduct the 706 inquiry based solely on tracking annual progress rather than on an evaluation of what percentage of the population has access to broadband meeting a particular benchmark.⁴⁴ The language of the statute specifically requires the Commission to determine whether deployment is taking place in a “reasonable and timely” manner to *all Americans*, which compels the Commission to determine what percentage of the population has access to advanced telecommunication services. The level and speed of progress is only one factor – and certainly not the determining factor – that the Commission should consider in its evaluation.

While the Form 477 data disaggregated to the census block allows correlation with demographic information, CWA believes the current Form 477 format contains a number of problems that the Commission must address. Form 477 asks fixed broadband carriers to report the maximum *advertised* speed available to at least *one household* in each census block. This distorts the results in two ways. First, it allows the carrier to report an advertised speed that may not be available to many, including the vast majority, of households in the census block. There is

⁴³ See *supra* para 1 and fn 2 and 3; FCC, *Broadband Progress Report*, Jan. 29, 2016 (based on 2014 Form 477 data); Pew Internet, “Internet/Broadband Fact Sheet,” data as of Nov. 11, 2016 (<http://www.pewinternet.org/fact-sheet/internet-broadband/>).

⁴⁴ *NOI*, p.36.

a relatively simple fix to this problem. The Commission should require fixed broadband carriers to report the maximum advertised speed available to every household (or at least 90 percent of the households) in the census block. Second, the advertised speed often differs significantly from the actual speed of the broadband service. CWA-represented technicians report instances in which they are dispatched to install a broadband order at a specified speed profile that was advertised to and purchased by a customer, only to discover that the network cannot deliver that speed (for example, copper pairs are not available for higher speed pair-bonding, the refurbished modem the carrier provides cannot support the higher speed profile, or the network has not been programmed for higher-capacity frequencies). There are several steps the Commission can take to determine if this problem is widespread. One option is to examine whether the SamKnows Measuring Broadband data can be correlated at a granular level with Form 477 data. Another option is to conduct targeted audits of locations in which the carrier reports significant changes in Form 477 data from one reporting period to the next.

In summary, the Commission should use the 25/3 Mbps broadband standard for both wireline and mobile broadband to determine whether advanced telecommunications capability is being deployed in a reasonable and timely fashion regardless of geography, income, or race. Based on this standard, the evidence clear demonstrates that advanced telecommunications services are not being deployed in a reasonable and timely manner to all Americans.

IV. ACTIONS TO ACCELERATE ADVANCED TELECOMMUNICATIONS DEPLOYMENT

There is a broad consensus in support of government action to accelerate investment in broadband infrastructure to close the digital divide. Regulatory oversight that holds carriers accountable to meet broadband benchmarks are important tools to facilitate broadband

deployment to all Americans. As we have discovered, market forces alone will not drive investment to less profitable communities, despite congressional mandate to ensure advanced telecommunications capability is deployed to all Americans. In these comments, we outline four policy initiatives to accelerate advanced telecommunications deployment and adoption.

Allocate \$40 billion in direct funding to accelerate broadband deployment to underserved communities. Commission research calculates that \$40 billion would provide the support the private sector needs to reach 98 percent of currently unserved, largely rural communities with future-proof, fixed broadband networks.⁴⁵ The program should require robust speeds, low latency, and other quality measures, including the employment of skilled, career employees providing good jobs in local communities. The broadband infrastructure program should avoid duplicative overbuilding and build upon the success of the Commission’s Connect America Fund in leveraging expertise, maximizing sustainability, and speed of deployment. Reverse auctions can serve as an effective distribution mechanism.

Tax-related initiatives to spur investment in gigabit networks. Changing tax treatment of new fiber infrastructure would lower the cost of capital and spur investment in next-generation gigabit networks. Potential areas include clarifying and accelerating depreciation schedules for broadband-related capital expenditures on fiber and fiber-related equipment, and targeting tax credits for broadband-related investments, including fiber deployment to low-income or rural communities.

Promote digital inclusion initiatives to make broadband more affordable. The Benton Foundation and the National Digital Inclusion Alliance have identified four important activities

⁴⁵ Paul de Sa, “Improving the Nation’s Digital Infrastructure,” Jan. 17, 2017 (https://apps.fcc.gov/edocs_public/attachmatch/DOC-343135A1.pdf).

to foster digital inclusion. They include: 1) provide low-cost broadband; 2) connect digital literacy training with relevant content and services; 3) make devices like computers and tablets available at low cost; and 4) operate public access computing centers, particularly in libraries.⁴⁶

The Commission's Lifeline for Broadband program is an important first step to help low-income families purchase broadband service, but the program must be protected and maintained.

State and local governments play an important role in advancing the deployment of affordable high-speed broadband and closing the digital divide. Many states and localities are taking the lead in providing resources, technical assistance, and encouraging public-private partnerships to spur broadband deployment.⁴⁷ In addition, as CWA explained in the *Wireline Broadband* proceeding, state laws that require incumbent carriers to maintain adequate facilities and equipment further Commission broadband goals by requiring incumbent carriers to improve copper networks which deliver DSL service and encourage incumbent carriers to upgrade to fiber if this is the most cost-effective method to ensure quality service. Moreover, Commission preemption of state and local statutes regarding management of and payment for the use of public rights-of-way and facilities not only violates the plan language of Section 253(b) and (c) of the Communications Act, they override the decisions of democratically elected state and local officials who have the responsibility to safeguard public property and public safety.⁴⁸ And as CWA explained in the *Wireless Siting* proceeding, the Commission should tread lightly in any preemption of local governments' authority to protect their residents' safety, health, and welfare

⁴⁶ Colin Rhinesmith, Benton Foundation, "Digital Inclusion and Meaningful Broadband Adoption Initiatives," Jan. 2016 (<https://www.benton.org/sites/default/files/broadbandinclusion.pdf>).

⁴⁷ See Joanne Hovis and Marc Schulhof, Jim Baller and Ashley Stelfox, "The Emerging World of Broadband Public-Private Partnerships," May 2017 (<https://www.benton.org/sites/default/files/partnerships.pdf>); Sherry Lichtenberg, National Regulatory Research Institute, "The Year in Review 2016: Moving Past Reduced Regulation," Dec. 2016 (<http://nrri.org/download/the-year-in-review-2016-moving-past-reduced-regulation/>).

⁴⁸ CWA Comments, *In the Matter of Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment*, WC Docket No. 17-84, June 15, 2017.

in the regulation of public assets and rights-of-way. Rather, the Commission should encourage collaboration through such initiatives as the Broadband Deployment Advisory Council.⁴⁹

V. CONCLUSION

The Commission should continue to conduct its 706 Inquiry according to the conclusion it reached in the *2016 Broadband Progress Report* that advanced telecommunications capacity means access to *both* fixed and mobile broadband service. These services are complementary, not substitutes. While fixed and mobile broadband have distinct differences, the Commission should retain its 25/3 Mbps speed definition and evaluate both services by this measure. Because there remain significant gaps in broadband deployment, the Commission must conclude that advanced telecommunications capability is not being deployed in a reasonable and timely fashion to all Americans and should take action to adopt subsidies, support tax policies and digital inclusion programs, and maintain Lifeline for broadband to accelerate investment in broadband infrastructure to close the digital divide.

Respectfully Submitted,



Debbie Goldman
Communications Workers of America

September 5, 2017

⁴⁹ CWA Reply Comments, In the Matter of Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment, WC Docket No. 17-79, July 17, 2017.