

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

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

COMMENTS OF THE NATIONAL DIGITAL INCLUSION ALLIANCE

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Introduction

The National Digital Inclusion Alliance (NDIA) respectfully submits these comments in response to the FCC’s Thirteenth Section 706 Report Notice of Inquiry (NOI), “Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion”. We are leaders of local community organizations, public libraries, municipalities and other institutions working hard to reduce digital disparities among our neighbors. To improve the daily lives of all community members, we call for digital inclusion public policies that reflect our expertise and diverse experiences.

Our approach is based in the knowledge that broadband adoption is most effectively promoted by community-driven efforts combining:

- o Affordable home broadband service.
- o Public broadband access.
- o Appropriate affordable devices.
- o Locally trusted technology training and support.

The National Digital Inclusion Alliance represents organizations with a wide range of experience reducing the digital divide in the United States. The experiences of our 250+ affiliates include providing guidance to low-income parents connecting to their children’s teachers, teaching seniors how to use their electronic health records, helping veterans learn digital skills in order to acquire a job, and enabling disabled adults to participate more fully in their communities. The services of our affiliates include digital literacy training, public Internet access, home broadband programs and digital inclusion advocacy.

NDIA currently counts 274 affiliated organizations, including 38 national nonprofits and 201 local public and nonprofit organizations in 35 states, the District of Columbia and the US Virgin Islands. Our local affiliates include 22 municipal government bodies, 37 local public libraries and regional library councils, 14 college/university programs, 9 state government agencies, 3 local school districts, 4 housing authorities and 112 local nonprofit organizations. The full list of NDIA affiliates with links to their websites can be found at <https://digitalinclusion.org/members>.

General comments on the NOI

NDIA asserts that, as a practical matter, the “reasonableness” of the current deployment of advanced telecommunications capability (i.e. high-speed broadband Internet access services) to all Americans can only be judged by the degree to which all Americans genuinely have access to the broadband services they need for “reasonable” participation in contemporary economic, educational, medical, social and civic life.

By that practical standard, the experiences of our affiliates in diverse locales throughout the U.S., from inner-city neighborhoods to rural towns and tribal communities, confirm that the current state of deployment of high-speed broadband is far from reasonable for millions of Americans.

Some are unable to purchase fast home Internet service from any provider at any price. Others are confronted with prices far higher than they can reasonably pay, due to the absence of provider competition (aggravated in some cases by provider redlining of certain urban neighborhoods) and the gutting of state and local regulatory structures. (Section 706’s mandate to “*each State commission with regulatory jurisdiction over telecommunications services [to] encourage the deployment... of advanced telecommunications capability...*” rings hollow in states like Ohio, Virginia and Missouri whose legislatures have excluded Internet providers and services from their state utility regulators’ jurisdiction.)

NDIA’s affiliates work to overcome the outright gaps our communities face in broadband deployment, as well as the cost barriers built into broadband services that have been deployed, in a variety of ways.

In some cases our affiliates build their own networks, whether in single apartment buildings or community-wide. In other cases they promote the limited provider discount programs that are available for some low-income households, and help neighbors find and navigate them. Tens of thousands of families across the country use low-cost 4G Internet accounts provided by NDIA affiliates Mobile Citizen and Mobile Beacon in partnership with local community nonprofits. Affiliated libraries and community technology centers make many thousands of free public workstations available every day to neighbors who can’t get, or afford, Internet access at home.

NDIA and our affiliates are proud of these diverse initiatives, and committed to continuing and expanding them.

But for purposes of this Inquiry, we must point out that the **need** for all these community and nonprofit initiatives is a symptom of widespread failure – the failure of private-market providers to “*deploy advanced telecommunications capability to all Americans in a reasonable and timely fashion*”.

Thus we must state, unequivocally, that the Commission’s mandate under Section 706 – to identify the gaps in the nation’s deployment of broadband to all Americans in a

reasonable and timely fashion, and to take appropriate actions to get those gaps closed – remains critically important.

NDIA offers the following specific comments in response to this NOI.

Comments 2, 4, 6, 7, and 8 are discussed in greater detail in pages that follow.

1. (re: NOI paragraphs 12, 14, 32) The Commission should not reduce or dilute the speed benchmarks which it uses as indicators of the availability of fixed advanced telecommunications capability to local areas, nor should it change the reporting areas for these benchmark indicators in any way that would make the resulting data less granular.

2. (re: NOI paragraphs 6, 10, 17, 18, 19) In judging and reporting whether advanced telecommunications capability has been deployed in local areas, the Commission should not conflate mobile wireless Internet access with fixed broadband services, especially if the Commission adopts a mobile speed benchmark which is lower than its fixed broadband speed benchmark.

3. (re: NOI paragraphs 6, 10, 17, 18, 19) To the extent that LTE or similar wireless broadband technologies provide documented Internet access for local reporting areas at data speeds which match or exceed the Commission's fixed broadband benchmark, it may be appropriate to report that information separately and consider it as part of the Section 706 inquiry. It may also be helpful to the Commission and public to seek, and report separately, information regarding the maximum download and upload speeds available to reporting areas from various fixed and mobile technologies, not just the fastest. (Much of this detail is already collected in the Form 477 reporting process, and until recently was available to the public via the National Broadband Map.)

4. (re: NOI paragraphs 6, 10, 17, 18, 19) But if mobile wireless services are to be included in the Commission's Section 706 reporting and in the Commission's evaluation of whether advanced telecommunications capability has been deployed in local areas "in a reasonable... fashion", the monthly data limitations and data pricing characteristics of those services must also be reported and considered.

5. (re: NOI paragraph 36) The Commission should not adopt USTelecom's proposal to focus its annual Section 706 inquiry on year-over-year increases in deployment, rather than the extent of remaining gaps in that deployment.

6. (re: NOI paragraphs 31, 34, 35) The Commission's consideration of whether advanced telecommunications capability has been deployed to all Americans "in a reasonable and timely fashion" must take into account the cost of access, whether that cost is a barrier to access for a significant number of households, and whether that cost of access is being increased by unreasonable or anti-competitive policies and practices.

In particular, we ask the Commission to consider the situation of inner city residents of some cities in AT&T's service area, whose fixed broadband service choices are limited to very expensive cable modem service or very slow (but still expensive) ADSL service, because AT&T has chosen not to deploy its faster, fiber-enhanced mainstream VDSL service in certain neighborhoods.

7. (re: NOI paragraph 31) The Commission's consideration of whether advanced telecommunications capability has been deployed to all Americans "in a reasonable... fashion" must take into account the rate of adoption of those services in different types of locality (rural, city, suburban, tribal) and classes of consumer, e.g. low-income households.

We caution against simplistic comparisons of "urban" or "metropolitan" to "rural and tribal" in this type of evaluation. Low income urban neighborhoods often have very different broadband access and adoption situations from those of nearby middle-income suburbs.

8. (re: NOI paragraphs 48, 49, 50) The Commission should investigate the apparent deliberate "digital redlining" of certain urban neighborhoods by one or more providers and its impact on the reasonable deployment of advanced telecommunications services in those neighborhoods. To the extent that investigation confirms that any provider has deliberately failed to deploy advanced services due to the income characteristics of neighborhoods, the Commission should take direct, aggressive regulatory action to remedy the situation.

9. (re: NOI paragraphs 48, 49, 50) NDIA observes that a significant share of recent competitive deployment of high-speed broadband services to underserved Americans is the result of municipal or nonprofit community initiative, rather than new private-sector market entry. In the same way that the Commission seeks to reduce ostensible state and local regulatory barriers to private investment in new high-speed broadband deployments, the Commission should also seek to eliminate barriers and provide encouragement to municipal and community broadband initiatives – for example, by using its influence to discourage state legislation intended to prevent or constrain broadband investments by local governments.

Discussion of NDIA Comment 2

(Re: NOI paragraphs 6, 10, 17, 18, 19). In judging and reporting whether advanced telecommunications capability has been deployed in local areas, the Commission should not conflate mobile wireless Internet access with fixed broadband services, especially if the Commission adopts a mobile speed benchmark which is lower than its fixed broadband speed benchmark.

Discussion of NDIA Comment 4

(Re: NOI paragraphs 6, 10, 17, 18, 19). If mobile wireless services are to be included in the Commission's Section 706 reporting and in the Commission's evaluation of whether advanced telecommunications capability has been deployed in local areas "in a reasonable... fashion", the monthly data limitations and data pricing characteristics of those services must also be reported and considered.

NDIA and our affiliates generally support the collection and public release of any information which can improve our understanding of broadband access and costs, as factors which significantly affect digital inclusion in our communities. So we would welcome the addition of more detailed information regarding local mobile wireless broadband services to the Commission's public-record data.

But addition is not the same as substitution. Consistent year-over-year documentation of access to reliable, fixed broadband technologies is the best way for the Commission to measure progress toward the goal enunciated in Section 706. It addresses the ability of residents and small businesses to carry out essential activities requiring a wide range of computing hardware, software and networking arrangements, and effectively unlimited Internet data, usually inside buildings. The availability of 4G mobile data service for individual devices -- which are not in themselves adequate, in terms of format or hardware capacity, to carry out all of those essential activities -- is a poor substitute for access to the power and flexibility of well-deployed fiber, cable or advanced DSL services.

NDIA's affiliated digital inclusion practitioners see computers and mobile devices as separate elements of an "access ecology" that our low-income clients find themselves navigating. Both American Community Survey and Pew Research data confirm that most U.S. users of smartphones also own laptop computers. Those who don't own both tend to be poor, i.e. to be choosing mobile as their best use of scarce resources. In general it's cheaper to combine your personal phone and a limited amount of Internet access into one device. When that device is called upon to meet a child's homework needs, prepare resumes for employers, manage spreadsheets or support participation in a college course, its limitations quickly become apparent.

Of course there's middle ground between fixed wireline and mobile wireless services -- the ground occupied by various types of wireless broadband support for fixed-location user access.

To the extent that small-cell LTE and other technologies such as millimeter-wave may become more common in the role of last-mile alternatives for homes and businesses, as various providers are promising, the Commission will need to consider documenting them as such. But to the extent they become alternatives to wireline services, "5G" wireless networks will matter because they are deployed to be fixed rather than mobile. Moreover, they will likely need to sit on top of a great deal more locally deployed fiber... in effect, serving as the wireless last mile for fiber-to-the-neighborhood or even fiber-to-the-block. Thus, they don't really belong in this "fixed vs. mobile" deployment

discussion.

What about current applications of mobile wireless as a home or business alternative to wireline?

NDIA affiliates including Mobile Citizen¹, Mobile Beacon², PCs for People³ and other local nonprofits around the country have helped connect tens of thousands of low-income households using fixed WiMax modem service from Clearwire and (following their acquisition of Clearwire and shutdown of its WiMax network) Sprint LTE mobile wifi hotspots. Mobile Beacon and Mobile Citizen have also provided this service to schools and nonprofits throughout the U.S. for more than a decade, at a very large discount from commercial accounts.

Early this year Mobile Beacon commissioned two large-scale surveys of users of its discounted Sprint LTE service: a survey of its "anchor institution" clients, and a survey of low-income residential users served by Mobile Beacon's partner, PCs for People.

"*Creating Opportunity Through Connectivity*"⁴ reports on a survey of 443 randomly selected nonprofit clients out of a total 2,508 in Mobile Beacon's user bases. Here are a few of its findings:

84% of respondents rated the importance of having uncapped data as "very important" to "essential" to their existing programs. 86% of respondents whose previous internet service was subject to a data cap needed more data than what they could afford.

42% of schools surveyed said the main benefit of Mobile Beacon's service is to supplement their existing internet connection. "*While saving money (28%) and mobility (41%) were the primary factors attracting schools to Mobile Beacon, unlimited data (22%) and the ability to supplement or extend an existing network (42%) became the areas that provided the most value.*"

67% of nonprofit respondents said they use Mobile Beacon's service primarily for mobile purposes (telework, community outreach, travel, offsite meetings/training). Only 33% rely on this service as their main internet connection, a supplement to an existing connection, or an on-demand backup if their primary internet connection fails.

100% of respondents said they'd recommend Mobile Beacon service to others.

It's important to bear in mind what Mobile Beacon is providing to these satisfied clients: \$10 per month LTE Internet accounts (not phone) with mobile wifi hotspot devices.

¹ <https://mobilecitizen.org/>

² <https://www.mobilebeacon.org/>

³ <https://www.pcsforpeople.com/>

⁴ www.mobilebeacon.org/wp-content/uploads/2017/06/MB_CreatingOpportunitiesResearchPaper_Web.pdf

Mobile Beacon as a reseller is differentiated from Sprint commercial service, not just by its price for nonprofit and education clients (secured through its contract as a provider of EBS spectrum) but by unlimited data. Following the Sprint acquisition of Clearwire and its EBS contracts, Mobile Beacon was able to fend off Sprint's attempt to subject its accounts to "normal" data limits and charges only through months of litigation.

To summarize: Provided with a very low-cost Internet-only hotspot service with unlimited data, most of Mobile Beacon's education and nonprofit clients (many of which are very small nonprofit agencies) use it not as a full alternative to their fixed Internet providers but as a mobile-only, supplementary or backup service. The main reasons they cite for taking on this extra expense, in addition to their mobile telephone and main Internet services, are *very low cost* and *unlimited data*.

These findings clearly do not support an argument for counting the deployment of mobile data networks like Sprint's LTE service -- especially with significant data constraints and charges -- as an alternative to robust fixed broadband deployment.

The findings strongly support the need for including data limits and pricing as key characteristics of any mobile wireless deployment information the Commission may decide to use in this or future Section 706 inquiries.

"Bridging the Gap"⁵, Mobile Beacon's second study, makes this point even more clearly with respect to underserved residential users. In this study Mobile Beacon's consultant surveyed 415 residential users out of a sample of 2,930 Bridging the Gap subscribers in the Twin Cities. Bridging the Gap is Mobile Beacon's partnership with PCs for People; it serves lower-income households who have little or no previous home access to broadband.

One of the issues the survey addresses was household data consumption. The following section begins on page 28 of the full report:

V. Data Consumption Trends with Mobile Beacon's Internet Service

The discussion surrounding the use of data caps has long been a tug-of-war between telecommunications companies that argue their necessity to manage network traffic and consumers and advocacy groups who argue the associated cost-structure produces inequities by pricing certain consumer groups out of the market or limiting what a low-income household can do online.

Because Mobile Beacon's internet is an uncapped and unthrottled service, this provides an opportunity to gain insight into unencumbered online behaviors of low-income families. To investigate the differences in the amounts of data used by respondents reporting to engage in various online activities, we first pulled data usage records over a three-month period (from October to December

⁵ https://www.mobilebeacon.org/wp-content/uploads/2017/05/MB_ResearchPaper_FINAL_WEB.pdf

2016).¹⁰ From this, it was found that Bridging the Gap households use approximately 41 GB per month on average.

Next, we analyzed the correlation between reported online activities and actual monthly data consumption. For example, in Section II we learned that 88% of all respondents with school-aged children reported their children use Mobile Beacon's internet service to do schoolwork. We analyzed the data consumption trends of this population and found that these households used 51 GB of data per month – 10 GB more than the overall average. This suggests that the increase in data use by households containing school-aged children is at least partially the result of the additional education-related online activities...

We also analyzed the correlation between reported online educational activities (taking online classes, doing homework online, prepping for the GED, communicating with teachers, and using online research portals) and looked at actual monthly data consumption between this group and those reporting to not engage in such activities. This comparison showed that those using the internet to further their educational pursuits use an average of 25 GB more per month than non-educational users (Figure 24).

Similarly, we found a correlation between above-average data use and work-related online activity (Figure 25). The data used by those reporting online activities such as searching for jobs, engaging in online job-skills training, and doing work-related activities off-hours is 14 GB greater than those reporting to not engage in such activities.

Some unexpected correlations were found as well. Those who reported watching online how-to videos (monthly use of 45 GB) only use 5 GB more per month than the average user (41 GB), those who use online health portals use no more data than average, and those reported using their Mobile Beacon service outside the home use no more data than the average or non-mobile user.

Remember, these are low-income household users, mostly new broadband adopters -- not exactly Internet power users. About half have schoolchildren in the home; many of these K-12 households are single-parent, and there are a number of one-person households as well. Yet their *average* monthly data consumption is 41 GB... far more than the basic data allowance associated with any commercial provider's hotspot service. (To take just one example, AT&T's current "Mobile Share Advantage" data plans starts at 1 GB per month for \$30 and tops out at 25 GB for \$110... above which data is throttled to 128 kbps.)⁶

Our bottom line: In the real world, mobile wireless access with its data constraints and device limitations is an important part of the "access ecology" for household users, especially lower income households; but it is not interchangeable with, or equivalent to, high-speed wireline broadband access, and the two should not be conflated in the

⁶ <https://www.att.com/shop/wireless/data-plans.html>

FCC's inquiries into the reasonableness and timeliness of high-speed broadband deployment to all Americans.

Discussion of NDIA Comment 6

(Re: NOI paragraphs 31, 34, 35). The Commission's consideration of whether advanced telecommunications capability has been deployed to all Americans "in a reasonable and timely fashion" must take into account the cost of access, whether that cost is a barrier to access for a significant number of households, and whether that cost of access is being increased by unreasonable or anti-competitive policies and practices.

In particular, we ask the Commission to consider the situation of inner city residents of some cities in AT&T's service area, whose fixed broadband service choices are limited to very expensive cable modem service or very slow (but still expensive) ADSL service, because AT&T has chosen not to deploy its faster, fiber-enhanced mainstream VDSL service in certain neighborhoods.

On March 10, 2017, NDIA and a Cleveland affiliate, Connect Your Community, publicly released a mapping analysis of Form 477 Census block broadband deployment data reported by AT&T for June 2016 for Cuyahoga County, Ohio.

NDIA and CYC summarized our Cuyahoga County analysis as follows:

Our analysis, based on newly released FCC Form 477 Census block data for June 2016, provides clear evidence that AT&T has withheld fiber-enhanced broadband improvements from most Cleveland neighborhoods with high poverty rates – including Hough, Glenville, Central, Fairfax, South Collinwood, St. Clair-Superior, Detroit-Shoreway, Stockyards and others.

This analysis is part of a six-month effort that began when CYC and NDIA learned that residents of many Cleveland neighborhoods were being declared ineligible for AT&T's "Access" discount rate program, solely because they couldn't get AT&T connections at the 3 mbps download speed that was then the program's minimum requirement.

After analyzing previous FCC Form 477 data releases, along with City construction permits and other information, we've come to believe that the ultra-slow AT&T Internet speeds available to those Access applicants reflect a larger problem: AT&T's failure to invest to upgrade most of its Cleveland network to the company's mainstream technology.

Specifically, AT&T has chosen not to extend its "Fiber to the Node" VDSL infrastructure – which is now the standard for most Cuyahoga County suburbs and other urban AT&T markets throughout the U.S. – to the majority of Cleveland Census blocks, including the overwhelming majority of blocks with individual poverty rates above 35%.

These neighborhoods have been relegated to an older, slower transmission technology called ADSL2, resulting in significantly slower Internet access speeds than AT&T provides to middle-income city neighborhoods as well as most suburbs.

As a result, their residents are left with

- o uneven, often severely limited Internet access – in many cases 3 mbps downstream or less; and*
- o no access to the competitive fiber-enabled video service that AT&T promised communities in exchange for “cable franchise reform”, i.e. the elimination of municipal cable franchising, in Ohio in 2007.*

As a consequence of this discriminatory deployment by one of the city's two wireline ISPs, consumers seeking home Internet service at download speeds above 18 mbps (or even above 6, 3, or .768 mbps) in many Cleveland neighborhoods can turn to only one wireline provider: Charter Communications, whose Spectrum cable modem service is available citywide.⁷

Unfortunately, the non-promotional cost of Charter's least-cost Spectrum Internet offering (60 mbps down, 3 mbps up) is \$64.99 per month, presenting a significant price barrier for residents of Cleveland neighborhoods where median household incomes are in the mid-\$20,000s or less.

In areas of Cleveland and its suburbs where AT&T FTTN infrastructure and VDSL technology *have* been deployed, AT&T offers “Internet 50” service (between 18 and 50 mbps downstream) at a non-promotional cost of \$50 a month. But this less costly high-speed alternative to Spectrum is not available to residents of the neighborhoods still relegated by AT&T to ADSL2 technology.

Effectively, AT&T's deployment policies since 2008 have created two Clevelands. One Cleveland has a neighborhood fiber infrastructure that supports VDSL speeds today, and the possibility of fiber-to-the-premises tomorrow; the other Cleveland is essentially stuck in 2007, with copper lines supporting only much slower ADSL service (now “bundled” with satellite TV).

NDIA has subsequently released similar mapping analyses of AT&T's Form 477 deployment data for Detroit, Toledo and Dayton – all showing the same pattern of non-deployment of FTTN/VDSL technologies in high-poverty neighborhoods.

NDIA asks the Commission to note that all these cities are shown on your “Fixed Broadband Deployment” map⁸ as fully covered with 25/3 broadband access. This depiction is accurate, thanks to Charter in Cleveland, Comcast in Detroit and Buckeye Cable in Toledo. But the costs of these cable providers' cheapest Internet offerings that meet the 25 mbps benchmark – \$57 a month for Buckeye, \$65 for Charter and \$75 for

⁷ Charter's cable infrastructure covers the entire city thanks to a requirement imposed on the system's prior owner, Adelphia Cable, by its franchise transfer agreement with Cleveland City Council in 2000. Municipal cable franchise authority was eliminated by the Ohio legislature in 2007.

⁸ <https://www.fcc.gov/maps/fixed-broadband-deployment-data/>

Comcast – make it unlikely that most residents of lower-income neighborhoods actually have “access” to them.

This cable cost barrier, combined with AT&T's failure to offer competitive high-speed broadband in many neighborhoods, helps to explain why despite the cities' “100% broadband deployment”, 55% of households in Detroit, 46% in Cleveland, 43% in Dayton and 37% in Toledo still lacked fixed broadband accounts in 2016.⁹

A record of broadband deployment in which an incumbent telco has completely bypassed large areas of several major cities in deploying its fiber-enhanced services, apparently because some of those neighborhoods' residents are poor – leaving residents no wireline alternative but high-cost cable services – can hardly be considered “reasonable”.

NDIA asks the Commission to address this issue as part of this Inquiry, and to consider regulatory action to remedy the resulting lack of equitable access for lower-income neighborhoods.

Discussion of NDIA Comment 7

(Re: NOI paragraph 31). The Commission's consideration of whether advanced telecommunications capability has been deployed to all Americans “in a reasonable... fashion” must take into account the rate of adoption of those services in different types of locality (rural, city, suburban, tribal) and classes of consumer, e.g. low-income households.

We caution against simplistic comparisons of “urban” or “metropolitan” to “rural and tribal” in this type of evaluation. Low income urban neighborhoods often have very different broadband access and adoption situations from those of nearby middle-income suburbs.

As we stated earlier, as a practical matter, the “reasonableness” of the current deployment of advanced telecommunications capability (i.e. high-speed broadband Internet access services) to all Americans can only be judged by the degree to which all Americans genuinely have access to the broadband services they need for “reasonable” participation in contemporary economic, educational, medical, social and civic life. As our normal access points for all these forms of participation continue to shift to the Internet, our criteria for “reasonable broadband deployment” must necessarily become more challenging.

If 25, 100 or 1,000 mbps broadband access is commercially available throughout a state, county, or community, but remains underused because its cost is unaffordable to most households, has it been deployed in a “reasonable fashion”? If there is only one provider of 25 mbps fixed broadband present in such a community, has the Commission

⁹ 2016 American Community Survey One Year Estimates, Table B28002

fulfilled its mandate under Section 706 to ensure reasonable and timely broadband deployment to all Americans by promoting competition?

In either case or both, NDIA takes the position that the Commission has more work to do to fulfill its mandate. To adequately inform this work, the Commission must consider a) whether there are significant gaps in broadband Internet adoption within specific localities and demographic groups, and b) whether such gaps, where identified, can reasonably be attributed to price or service barriers created by noncompetitive market conditions which the Commission could address.

The first of these issues can be addressed fairly systematically using the Commission's own Form 477 Census Tract Data on Internet Access Services (IAS), in combination with U.S. Census data on household Internet access collected by the Current Population Survey and American Community Survey (ACS). It should be noted that the relevant ACS data, currently released in complete form to "places" of 65,000 population or greater, is set to become much more complete and granular in 2019 when it finally becomes part of the ACS Five Year Estimates for 2018. The value of the FCC's Internet Access Services data could be improved -- for example, by narrowing the connections-per-households reporting cohorts from quintiles to deciles, and by including multiple speed benchmarks to better capture the range of real-world situations. (For example, future reports should include connections-per-household for fixed Internet download speeds of 3 mbps, 10 mbps and 25 mbps, thus enabling the Commission and public to compare new data to earlier releases as well as to the fixed deployment benchmark.) But even without these enhancements, the existing Form 477 IAS data and ACS One Year Estimates data provide an adequate basis for the Commission to

- identify major geographic and demographic gaps in household broadband adoption throughout the U.S.;
- compare these gaps with its data on deployment -- both availability of access and competitive providers; and thus
- gain some insight as to where low rates of adoption
 - ... overlap an outright absence of modern broadband service, and thus may be associated with it
 - ... continue despite the availability of service from a single provider, and thus may be associated with lack of competition or competitive pressures on price, service, marketing, etc.
 - ... continue despite active provider competition.

The need for this kind of analysis and understanding by the Commission is not limited to the much-discussed "rural vs. urban" disparity in fixed broadband deployment.

Much of what we call rural America (counties of lower density and small population centers, outside of urban metro areas) now has nominal 25+ mbps satellite service widely available from providers like ViaSat, as well as 25+ mbps wireline access in and around small remote population centers, via fiber-fed ADSL or VDSL from companies like Frontier and Windstream. The very legitimate, continuing cries for help from many

residents and small businesses in these communities reflect the reliability and data constraints of satellite broadband, and the coverage gaps and distance-vs.-speed limitations of extended wireline services for people who live miles from any town. But they also reflect the *cost* of these newly deployed services from companies who are usually sole providers.

Consider two scenarios from Ohio, in which the individuals are invented but their locations and broadband options are quite real:

Case 1: A consumer of limited means on Old Route 33 in northern Meigs County, southeast of Athens, whose broadband options are a 25/3 mbps ViaSat account with 12 gb of data for \$60 a month -- more if she uses too much! -- or 1 mbps ADSL2 service from Frontier for \$35 a month, because she's 3 miles down the road from Frontier's remote DSLAM in the town of Shade.

Case 2: A consumer of limited means near 89th and Superior in Cleveland's Hough neighborhood, whose options are a 60/5 Charter Spectrum cable modem account for \$65 a month, or 768 kbps ADSL2 service from AT&T for \$40 a month, because she's a little more than two miles equidistant from DSLAMs in three AT&T central offices, all of which were left out of AT&T's 2008-13 Fiber to the Node deployment.

Both these locations are shown on the Commission's "Deployment" map¹⁰ as having 100% deployment of fixed broadband (25 Mbps/3 Mbps) as of June, 2016. The Meigs County location, like a lot of rural America, just made the 25/3 list for the first time in June 2016 thanks to ViaSat's speed upgrade. The Cleveland location has been on it all along.

What's the real difference between these situations, other than that one is "rural" and the other is "urban"? If neither consumer can afford \$700 to \$800 a year for the available "true broadband" option, and neither has a fixed access alternative that's worth paying for, aren't they in the same boat? Shouldn't their situations be of equal concern to the Commission?

To place this point in a broader context: From the most recent Form 477 Census Tract Data on Internet Access Services¹¹, here's a comparison of fixed home broadband adoption levels for Cleveland Census tracts with the adoption levels for all tracts in Ohio's 32 Appalachian counties identified as rural by the Federal Office of Rural Health Policy -- as well as for all FORHP-identified rural tracts in Ohio with poverty levels comparable to Cleveland's.

¹⁰ <https://www.fcc.gov/maps/fixed-broadband-deployment-data>

¹¹ <https://www.fcc.gov/general/form-477-census-tract-data-internet-access-services>

SHARE OF HOUSEHOLDS WITH FIXED INTERNET CONNECTIONS AT 10+ MBPS DOWNSTREAM BY CENSUS TRACT – APPALACHIAN AND LOW-INCOME RURAL OHIO COMPARED TO CITY OF CLEVELAND						
Share of households in tract with fixed broadband connection speeds of 10 mbps down or more (FCC Form 477, June 2016)	City of Cleveland – all Census tracts		All rural Census tracts in 32 Appalachian Ohio counties		All Ohio rural Census tracts with 25%+ poverty	
	Number of tracts	% of all tracts	Number of tracts	% of all tracts	Number of tracts	% of all tracts
1 - 199 per 1,000 households (0-19.9%)	6	3%	28	11%	5	4%
200 - 399 per 1,000 households (20-39.9%)	105	60%	81	31%	27	23%
Tracts with connections at 10+ mbps down in fewer than 40% of households	111	63%	109	41%	32	28%
400 - 599 per 1,000 households (40-59.9%)	54	31%	119	45%	67	58%
600 to 1,000 per 1,000 households (60%+)	10	6%	37	14%	16	14%
Total	175		265		115	

SOURCES:

Shares of households with 10 mbps+ Internet connections by Census tract – FCC Form 477 Census tract data for June 2016

Rural Census tracts -- Federal Office of Rural Health Policy, List of Rural Counties And Designated Eligible Census Tracts in Metropolitan Counties, <https://www.hrsa.gov/ruralhealth/resources/forhpeligibleareas.pdf>

Census tracts with individual poverty rates above 25% – American Community Survey 2015 Five Year Estimates, Table S1701

The data shows fixed broadband connection rates below 40% of households in *nearly two-thirds* of Cleveland Census tracts. Contrary to conventional wisdom, it seems that Cleveland households are significantly less likely to have high speed fixed broadband connections than households in rural Appalachian Ohio (a region whose very real broadband gaps have been featured recently in Time¹² and elsewhere), or than households in high-poverty rural areas throughout the state.

Cleveland’s broadband adoption situation is very different from that of most of its suburbs, of course. Poverty in Cuyahoga County is heavily concentrated in the central city and one inner ring suburb, the city of East Cleveland. Those are also the places where (as we note in Comment 6) NDIA found evidence that incumbent telco AT&T deliberately withheld investments when building out new Fiber to the Node and VDSL infrastructure in the region between 2008 to 2014. It’s hardly surprising that so many Cleveland tracts have low adoption rates.

This same pattern -- low central city broadband adoption rates comparable to those in rural counties, linked to gaps in AT&T’s FTTN/VDSL investments in high-poverty neighborhoods -- has been publicly documented by NDIA for Detroit, Dayton and Toledo and confirmed by preliminary mapping of other low-adoption AT&T cities in Kentucky, Missouri and Texas.

¹² <http://time.com/4718032/the-digital-divide/>

The lesson we ask the Commission to draw from this information is not that rural broadband deployment should receive less focus, or that benchmarking rural broadband access against “normal” access in middle- and upper-class metropolitan communities is inappropriate. Rather, we ask the Commission to recognize in its current inquiry:

- a) that central city neighborhoods may well have access barriers facing residents more closely resembling those in rural areas than in the nearby suburbs;
- b) that those barriers may arise not just from poverty, but from specific provider failures to deploy mainstream broadband technologies in those neighborhoods at all, or in ways that are reasonable adapted to income and other local market characteristics;
- c) that incorporating a systematic analysis of broadband adoption and affordability data in the Commission’s Section 706 inquiries, by localities as well as demographic groups, is a necessary step toward identifying price or service barriers to access created by noncompetitive market conditions which the Commission could address.

Discussion of NDIA Comment 8

(Re: NOI paragraphs 48, 49, 50). The Commission should investigate the apparent deliberate “digital redlining” of certain urban neighborhoods by one or more providers and its impact on the reasonable deployment of advanced telecommunications services in those neighborhoods. To the extent that investigation confirms that any provider has deliberately failed to deploy advanced services due to the income characteristics of neighborhoods, the Commission should take direct, aggressive regulatory action to remedy the situation.

As we explained in Comment 6 above, NDIA has recently used June 2016 Form 477 Census block deployment data to map disparities in AT&T's deployment of Fiber to the Node and VDSL technologies in several urban counties in Ohio and Michigan. These mapping analyses provide clear evidence that AT&T systematically withheld a generation of fiber-enhanced broadband improvements from high-poverty central city neighborhoods, a practice which NDIA asserts can legitimately be called “digital redlining”.

AT&T's broadband deployment practices in these cases have deprived hundreds of thousands of citizens of Cleveland, Detroit, Dayton, and Toledo (and, we are sure, other cities served by AT&T) of access to the company's mainstream fiber-enhanced Internet services; limited their access to true broadband Internet speeds at affordable costs, compared to residents of more prosperous nearby areas; and excluded their neighborhoods from a fiber infrastructure capable of supporting not just VDSL speeds today, but fiber-to-the-premises and other advanced services in the near future.

Section 706 directs the Commission to “*determine whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion*” and to “*take immediate action to accelerate deployment of such*

capability by removing barriers to infrastructure investment and by promoting competition in the telecommunications market.”

In the case of AT&T's failure to deploy its mainstream home broadband technology to all of its customers – including those living in lower-income city neighborhoods – over the past decade, the main barrier to infrastructure investment seems to have been the company's own discriminatory investment policies.

NDIA asks the Commission to take any steps necessary within the scope of this Inquiry to determine whether AT&T or any other provider is deliberately withholding investments in advanced services from lower-income communities. Where it finds this to be the case, the Commission should promote competition in the affected communities by taking direct, aggressive regulatory action to remedy the situation.