

Building a Gigabit Nation

An Analysis of Cable's Superfast Networks In Urban Communities

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Introduction

As federal and state policymakers develop strategies and dedicate funds that aim to connect all Americans to robust and reliable broadband service, it is critical to understand where broadband exists and where it doesn't. While much research has highlighted where broadband infrastructure gaps exist in rural and remote regions, fewer studies have examined if urban communities – often where lower income households are located – have been passed over or left behind. To help address this important question, NCTA pulled FCC and Census Bureau data that shows where cable's broadband networks have been deployed in America's urban areas.



The data shows that high speed cable broadband networks are built to reach households of all income levels and races.

Key Findings

In 2016, cable broadband providers began deploying a new network technology (called DOCSIS 3.1) that dramatically increased the speed and capacity that could be delivered to consumers. As a result, today superfast gigabit per second speeds are available throughout all of cable's footprint, more than 80 percent of all U.S. homes as of June 2020.¹

- Cable gigabit offerings are widely available in urban areas regardless of income.
 - » Cable providers offer gigabit broadband service to 91 percent of all urban households in low-income areas; interestingly this percentage increases to 94 percent of all middle-income households and decreases to 90 percent for areas with the highest income households.
- There is also virtually no difference in availability based on race or ethnicity in urban areas.
 - » For areas with the highest percentage of African Americans and Hispanics, cable providers offer gigabit service to 92 percent and 94 percent of households.
 - » For areas with the lowest percent of African Americans and Hispanics, gigabit service is available to 92 percent and 93 percent of households.

This data clearly shows that cable broadband providers have built and continue to update broadband networks throughout their entire service areas, including urban centers.

Examining The Data

While the FCC is currently working to improve its broadband maps, the best available data regarding the availability of broadband continues to be collected by the agency twice a year. This data has its limitations², but it shows which providers offer broadband service, along with the maximum advertised download and upload speeds offered, in each Census block³. This data creates a detailed picture of which geographic areas have access to various levels of broadband service.

In addition, the Census Bureau, primarily through its American Community Survey (ACS), collects and publishes data about income levels and racial composition throughout the U.S. Unfortunately, the FCC and Census Bureau data don't match exactly, so the FCC data needs to be aggregated to be compared to the Census data. For the purposes of the analysis below, we look at the FCC data and ACS data at the "tract" level⁴.

Further, this paper is solely exploring broadband availability in urban areas; for this purpose, we are defining Census tracts as "urban" where the density is at least 150 households per square mile. This includes about 91 percent of all households that the Census Bureau considers to be in urban areas. Focusing on a cutoff like this also has the advantage of removing the effect of density on broadband deployment. It is less costly to deploy new services or upgrade existing services in densely populated areas, so when looking at deployment based on factors such as income, it is important to make sure we are examining the relationship between income and deployment separate from the issue of density.



This data clearly demonstrates cable providers have fairly and equitably deployed their fastest services to communities no matter the level of income or racial composition.

Cable Gigabit Speeds Are Deployed Equitably

The data below shows the percent of households in urban areas that have access to broadband service with speeds of at least 100 megabits per second downstream and 20 Mbps upstream (100/20 Mbps) and a gigabit per second (1 Gbps) downstream from a cable provider. These percentages are calculated separately for Census tracts that fall into one of six categories based on the median household income of the tract:

- less than \$30,000 per year
- between \$30,000 and \$45,000
- \$45,000 to \$60,000
- 60,000 to \$85,000
- \$85,000 to \$100,000
- and greater than \$100,000⁵.

The chart shows how the availability varies slightly across these income categories yet there is very little difference between the lowest income Census tracts and the wealthiest Census tracts. About 93 percent of households in tracts with median incomes below \$30,000 have access to 100/20 Mbps and 91 percent have access to 1 Gbps service from a cable operator. The percentage with access to 100/20 Mbps rises by only five percentage points across income categories while the percentage with access to gig service increases modestly as income increases, though it peaks at the middle-income levels and then falls back down to about 90 percent in the wealthiest group. Also, though not shown here, between 97 percent and 98 percent of all households in urban areas have access to speeds of at least 100/10 from cable providers. This data clearly demonstrates cable providers have equally deployed their fastest services to communities no matter the level of income.⁶

Figure 1.
Percent of Households in Urban Areas with Access to 100/20 and 1 Gbps from Cable Providers by Median Income



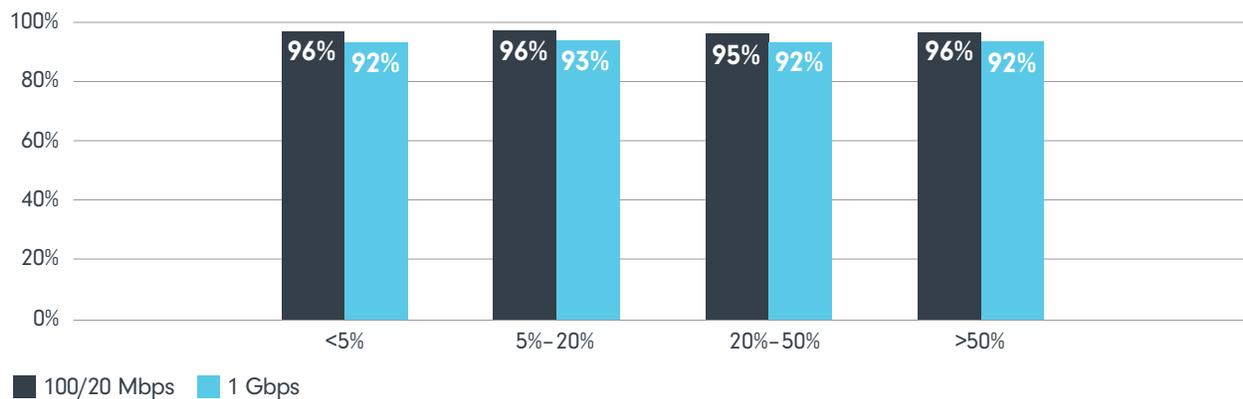
Source: FCC 477 data, Census ACS data

Over the past decade, low-cost adoption programs by cable broadband providers have connected over 14 million Americans to the internet.

In addition, the calculations done for tracts where African-American households are prominent show similar trends - speeds of 100/20 Mbps or higher are virtually universally available and the highest speed offerings are equally deployed throughout these areas. In the tracts with the lowest percentages of African Americans, about 92 percent of households have access to 1 Gbps service, while in the tracts where more than 50 percent of the households are African American, the percentage that have access to 1 Gbps service is about 90 percent. The same pattern holds when examining Hispanic households. For tracts where the Hispanic population is less than 5 percent of the total population, cable 1 Gbps service is available to 93 percent of households while for tracts where the percentage of Hispanic population is above 50 percent, cable 1 Gbps service is available to 94 percent of all households.

Figure 2.

Percent of Households in Urban Areas with Access to 100/20 and 1 Gbps from Cable Providers by Percent of African American Population



Source: FCC 477 data, Census ACS data

Broadband Availability And Adoption Are Not The Same

While cable operators offer fast broadband equally to all types of households throughout urban areas, that does not mean all households are equally likely to adopt (subscribe to) broadband. In fact, the issue of why lower income households are not subscribing to broadband is often conflated with the misconception that broadband service isn't available to those homes. For example, in metropolitan areas, only about half of households with family incomes below \$30,000 subscribe to fixed broadband at home, while about 85 percent of households with family incomes above \$100,000 subscribe to fixed broadband at home. In this area, too, cable operators are working hard to ensure that all households not only have access to broadband but, by making it affordable for low-income households, that they do subscribe to broadband.

Over the past decade, low-cost adoption programs by cable broadband providers have connected over 14 million Americans to the internet. These programs offer broadband service for as low as \$9.95 to \$17.95 a month, and often include access to free or low-cost devices and digital literacy training to help low-income families take full advantage of being connected. To date, the cable industry has spent over \$650 million on digital literacy and training efforts. Even before the onset of COVID, cable providers expanded the number of families who could qualify for these programs, including families with senior citizens and veterans. During COVID, cable operators have been participating in the Emergency Broadband Benefit program, helping to ensure even more people can get online. To further adoption, the Senate recently passed the "Infrastructure Investment and Jobs Act" which includes \$14.2 billion to continue this subsidy program, as well as nearly \$3 billion for digital literacy and inclusion efforts.

Endnotes

- 1 This number continues to grow as cable broadband providers continue to upgrade their networks.
- 2 The largest complaint about the 477 data seems to be that it allows an entire Census block to be counted as “served” by a given speed even if only one household in that block can get service at that speed. The extent to which this definition of “served” leads to an undercount of households that are unserved is open to debate. In urban areas, which is the focus of this report, this is less likely to be an issue because the geographic area of urban Census blocks is generally small. It is worth noting that a comparison of data collected by the California Public Utility Commission shows that only 6 percent of the population in California lacks access to service with a gigabit downstream and 35 Mbps upstream, while the FCC 477 data puts the number at 5.3 percent.
- 3 A Census block is the smallest geographic unit for which the Census Bureau collects information.
- 4 The Census Bureau defines a tract as a “small, relatively permanent statistical subdivisions of a county or equivalent entity” and “generally have a population size between 1,200 and 8,000 people, with an optimum size of 4,000 people.” Further, they “are delineated with the intention of being maintained over a long time so that statistical comparisons can be made from census to census.” [Glossary \(census.gov\)](#). Given these characteristics, a tract is often a useful level of aggregation to use, particularly when the goal is to look at questions of how relatively small areas compare to each other.
- 5 These categories correspond to roughly the 10th, 25th, 50th, 75th and 90th percentile of the distribution of median incomes across urban census tracts.
- 6 Currently, gigabit fiber is only available to about 43 percent of urban households, ranging from 36 percent of households at the lowest income levels to 54 percent at the highest income levels.