

*USTelecom Research Brief*  
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## **U.S. BROADBAND AVAILABILITY YEAR-END 2017**

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THE BROADBAND ASSOCIATION

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## Summary

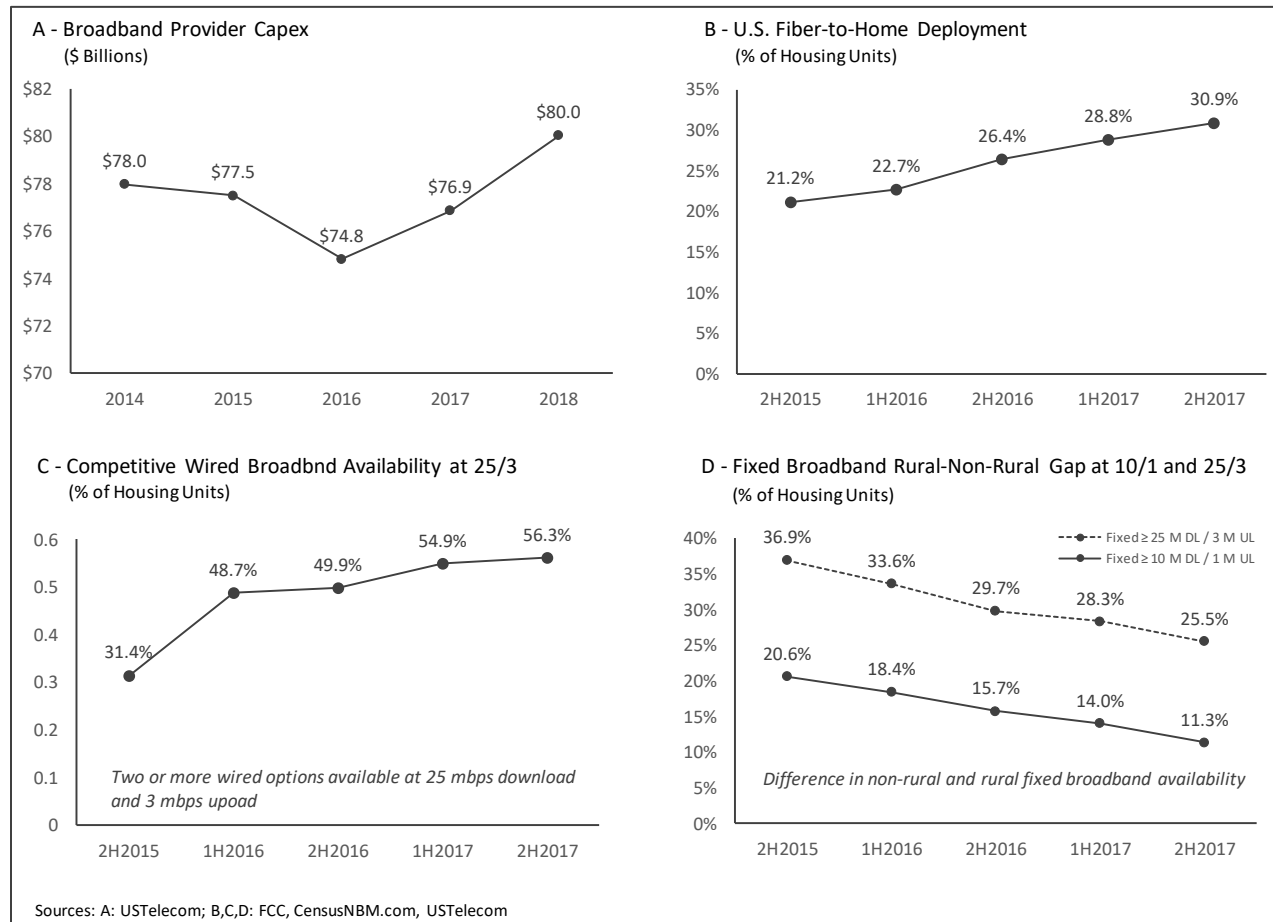
In an increasingly competitive marketplace, U.S. broadband providers continue to deploy and upgrade networks to bring consumers across the nation new broadband options and ever-faster service. Increased broadband deployment reflects the continued infusion of capital investment by providers of all types and sizes, resulting in more and faster broadband for American consumers and businesses in urban and rural areas. A USTelecom [report on capital investment](#) released alongside this brief, finds that wireline, wireless, and cable broadband providers invested approximately \$80 billion in 2018, up more than \$3 billion from 2017. In total, these providers have invested more than \$1.7 trillion since 1996.

New USTelecom and Telcodata analysis of Federal Communications Commission (FCC) broadband availability data for year-end 2017 indicate that positive deployment trends are continuing in the right direction, generating real benefits for U.S. consumers. See Chart 1.

- From the end of 2015 to the end of 2017, fiber deployment grew by 10 percentage points, increasing from 21 percent to 31 percent of homes, and competitive availability of wired broadband at 25 megabits per second (mbps) download (DL) and 3 mbps upload (UL) increased by 25 percent, from 31 to 56 percent.
- During the same period, the difference between non-rural and rural deployment of fixed broadband at 10 mbps DL and 1 mbps UL narrowed from 21 percent to 11 percent; and at 25 mbps DL and 3 mbps UL, the gap narrowed from 37 percent to 26 percent.
- As of year-end 2017:
  - Nearly 99 percent of Americans had access to at least one fixed broadband network at any speed and 91 percent had access to at least two; 99.8 percent of Americans had at least one mobile broadband network available and nearly all had a choice among LTE providers.
  - Availability of fixed broadband at 10/1 mbps was 97 percent and availability of fixed broadband at 25/3 mbps was 93 percent.
  - 56 percent of Americans had service available from multiple wired broadband providers at 25/3 mbps, a 6 percentage point increase from year-end 2016 and a 25 percentage point increase from year-end 2015. 72 percent of Americans had broadband service available from multiple wired providers at 10/1 mbps, up from 67 percent at year-end 2016.
  - Fixed broadband at 100/10 mbps was available to 88 percent of Americans, an 18 percentage point increase compared to year-end 2016. Fixed broadband at 1 gigabit per second DL was available to 22 percent, an 8 percentage point increase compared to year-end 2016.
  - In rural areas, availability of fixed broadband at 10/1 mbps, and 25/3 mbps, each increased by 4 percentage points from year-end 2016, to 88 percent and 73 percent, respectively. Availability of fixed broadband at 100/10 mbps in rural areas was 58 percent, an 18 percentage point increase.

While progress is strong and ongoing in every category, the need to upgrade networks is constant and significant challenges remain in closing rural broadband gaps. Therefore, it is imperative for policymakers to maintain an investment-friendly environment for broadband deployment.

Chart 1



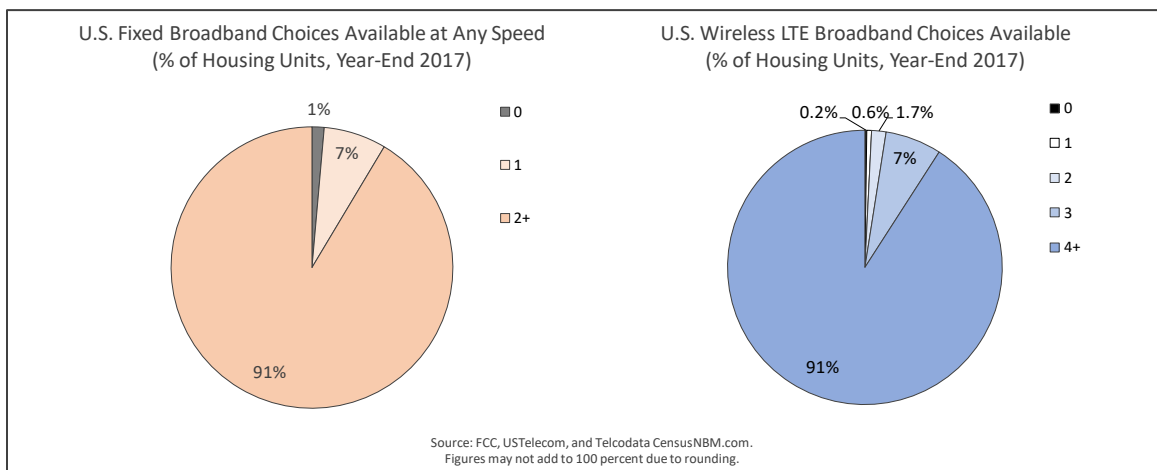
## Framework for Analyzing Broadband Deployment and Competition

Any assessment of broadband availability and competition must start with an examination of broadband at any speed using any technology and must account for the dynamics of deployment and technological progress over time. Simplistic snapshot analyses at a single point in time based on selective speed thresholds and technologies miss the technological upgrade dynamic, and they understate both the availability and competitiveness of broadband. Moreover, such simplistic analyses can lead to misdiagnoses of market failure or can provide a false pretext for policy action.

### Competitive Availability of Foundational Broadband Infrastructure

As of year-end 2017, nearly 99 percent of Americans had at least one fixed broadband network platform available at any speed and 91 percent had at least two fixed platforms at any speed. As of year-end 2017, 99.8 percent of Americans had at least one mobile broadband network available; and nearly all had a choice among LTE providers. See Chart 2. In addition, while capacity constrained and subject to higher latency, satellite providers offer national coverage and have recently launched next generation satellites that offer service capable of meeting FCC broadband speed standards.

Chart 2

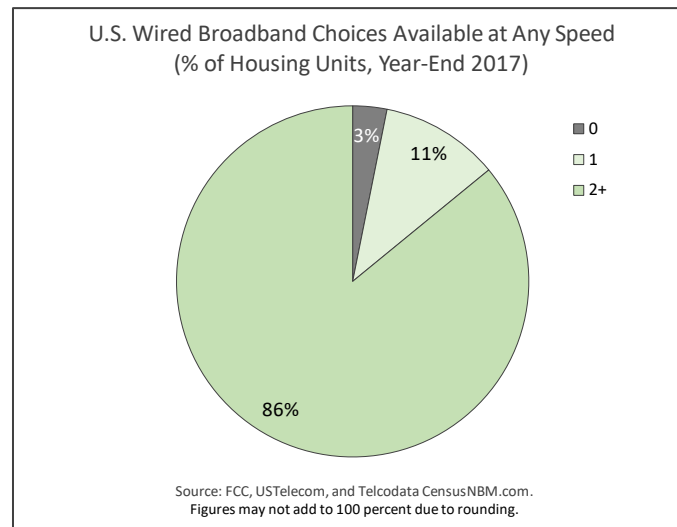


The FCC categorizes broadband as either fixed or mobile. Fixed broadband consists of wired broadband and fixed wireless broadband. Wireless Internet Services Providers (WISPs) use terrestrial fixed wireless technology to deliver broadband services. USTelecom and the FCC use the term fixed broadband to refer to *terrestrial* fixed broadband, which excludes satellite broadband. Wired broadband is a subset of fixed broadband, and it predominantly consists of broadband over fiber, digital subscriber line (DSL), and cable modem technologies. Mobile wireless broadband is separate from fixed wireless and fixed broadband.

The figures in Chart 2 reflect the foundational deployment of competitive broadband facilities. U.S. wireline, wireless, and cable providers have been deploying broadband infrastructure using a range of technologies for more than two decades. As a result, basic underlying network infrastructure from multiple providers is available in the vast majority of the country. Moreover, broadband technologies are constantly evolving, with successive generations becoming increasingly powerful. Thus, upon this foundational infrastructure, broadband providers invest tens of billions of dollars annually to extend and upgrade networks. As any provider or group of providers deploys advanced technologies, competing providers respond by deploying differentiated technologies of their own, driving a competitive cycle of ever-expanding network capabilities.

Against the backdrop of this competitive dynamic, it is important to remember that broadband is one of the most capital-intensive industries in the economy and the geographic reach of the U.S. is vast. In such an environment, providers simply cannot deploy the latest technology upgrades instantaneously across their entire network footprints. Wide-scale deployment and upgrades are expensive and time consuming. They typically occur first in dense, low-cost areas and progress to more rural, high-cost areas over time until the economics no longer support unsubsidized deployment. Nonetheless, most of the U.S. population has benefited from competitive deployment of broadband infrastructure. As of year-end 2017, 97 percent of Americans had at least one wired broadband network platform available to them and 86 percent had at least two wired options. See Chart 3.

Chart 3



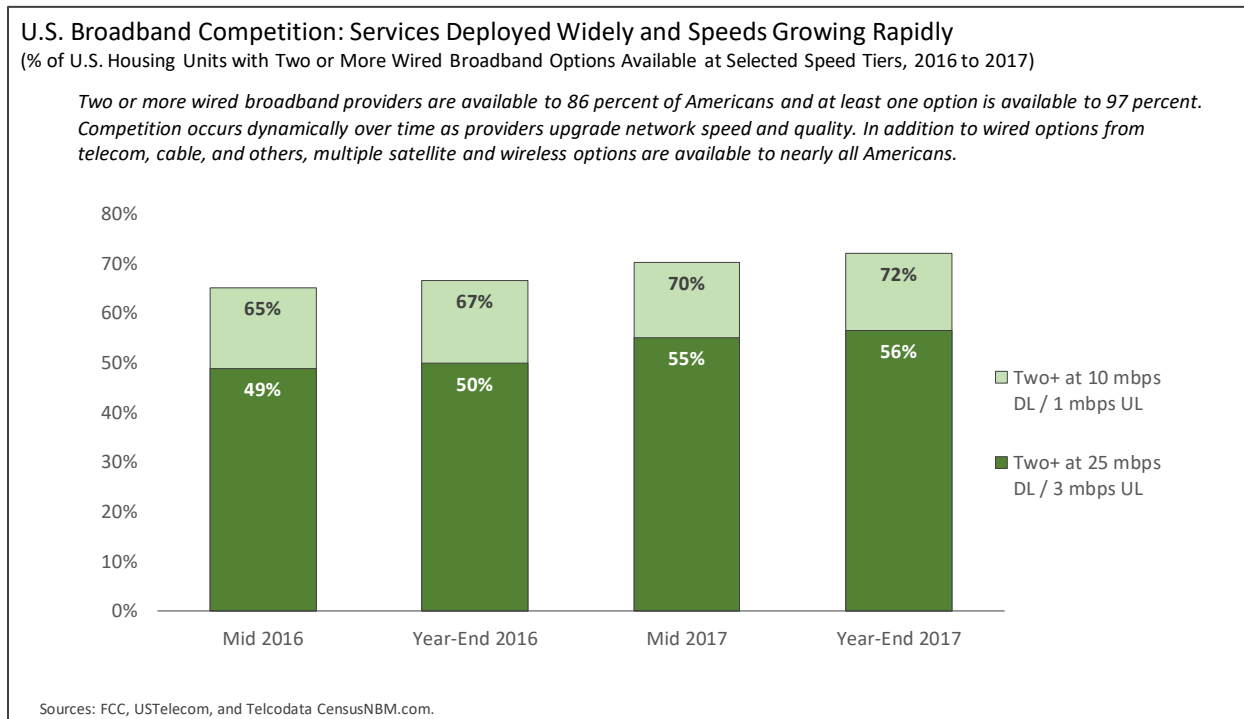
### Competitive Availability at Higher Speeds Tiers

As providers continue to invest in next generation broadband infrastructure, competitive availability at higher speeds is rapidly growing.

For example, available data allow us to look at wired broadband deployment, typically from wireline local exchange carriers and cable operators, at different speeds over time. Competitive availability – narrowly defined as at least two wired providers – at 25/3 mbps was 56 percent at year-end 2017, a six percentage point increase from year-end 2016 and a 25 percentage point increase from year-end 2015. Wired broadband at 10/1 mbps was available to 72 percent of households from at least two providers at year-end 2017, up from 67 percent at year-end 2016 and about the same level at year-end 2015. See Chart 4. For a longer-term perspective, previous USTelecom [research](#) estimated that as of year-end 2012 competitive availability at 25/3 mbps was 25 percent and competitive availability of broadband at 10/1 mbps was 59 percent.

FCC data also indicates that some portion of U.S. households can choose from three or more wired broadband providers. It is unclear the extent to which all of this is fully facilities-based competition. Of the 86 percent of Americans that had a choice of two or more wired broadband providers, 17 percent had a choice of three or more providers. USTelecom can identify approximately 36 percent of this group as having access to full facilities-based providers: former cable over-builders, such as Wide Open West and RCN, covered at least 5.6 million housing units; identifiable municipal network operators covered at least 1.5 million housing units; and Google Fiber covered 1.1 million housing units. Together, these account for availability to 8.3 million housing units, or approximately six percent, of Americans, assuming no overlap. The remaining portion of this group may include providers using their own facilities, providers who partially resell others' facilities, or some combination of these.

Chart 4



As of year-end 2017, fixed wireless service at any speed was available to 40 percent of Americans. The reported portion of Americans with three or more fixed broadband providers, which includes both wired and fixed wireless, available to them is significantly greater than for wired broadband alone. Three or more *fixed* broadband options at any speed were available to 46 percent of Americans as of year-end 2017, compared to 17 percent for wired broadband only, according to the FCC data.

Mobile broadband from multiple providers is also widely available throughout the U.S. As shown above in Chart 2, as of year-end 2017, mobile broadband using 4G LTE wireless technology was available to 99.8 percent of Americans. More than 99 percent had a choice of two or more providers and 98 percent could choose among three or more. Four or more LTE mobile broadband options were available to 91 percent of Americans.

## Broadband Availability and Deployment at Different Speeds Over Time

### Fixed and Wired Broadband

The FCC data for year-end 2017 show that the broadband availability rates are higher at lower speeds, as expected given the upgrade dynamics discussed above. This is the case whether looking at wired broadband or the broader category of fixed broadband. See Chart 5 and Chart 6, respectively. However, consistent with the competitive deployment dynamic, the *overall* availability of higher speed services has been growing steadily over time (see Chart 7); and the *competitive* availability of higher-speed services has also been growing over time (see Chart 4).

Chart 5

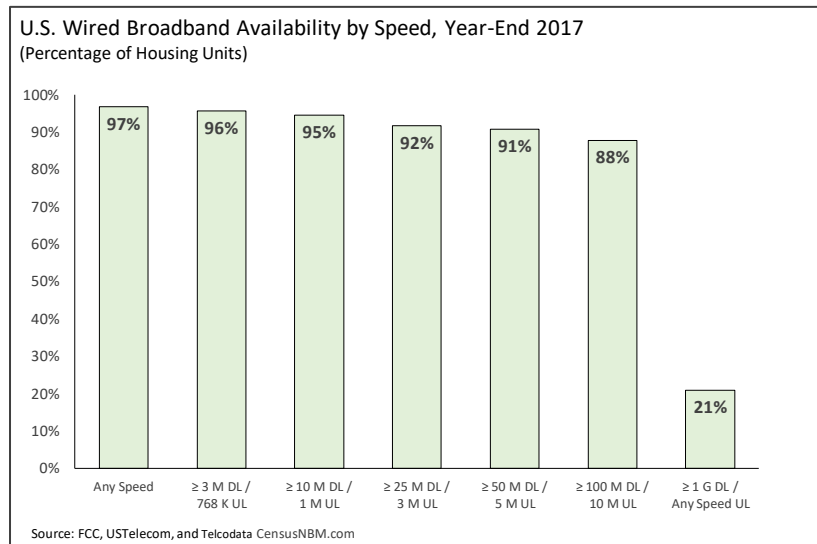
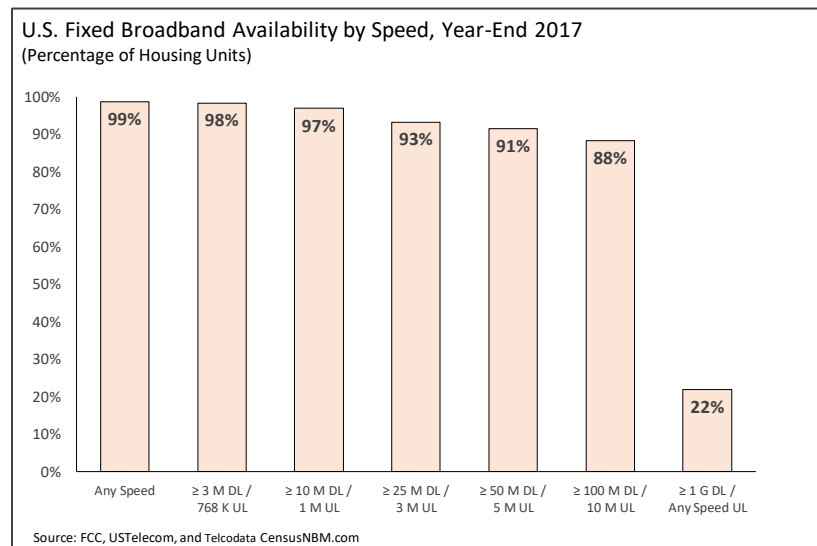


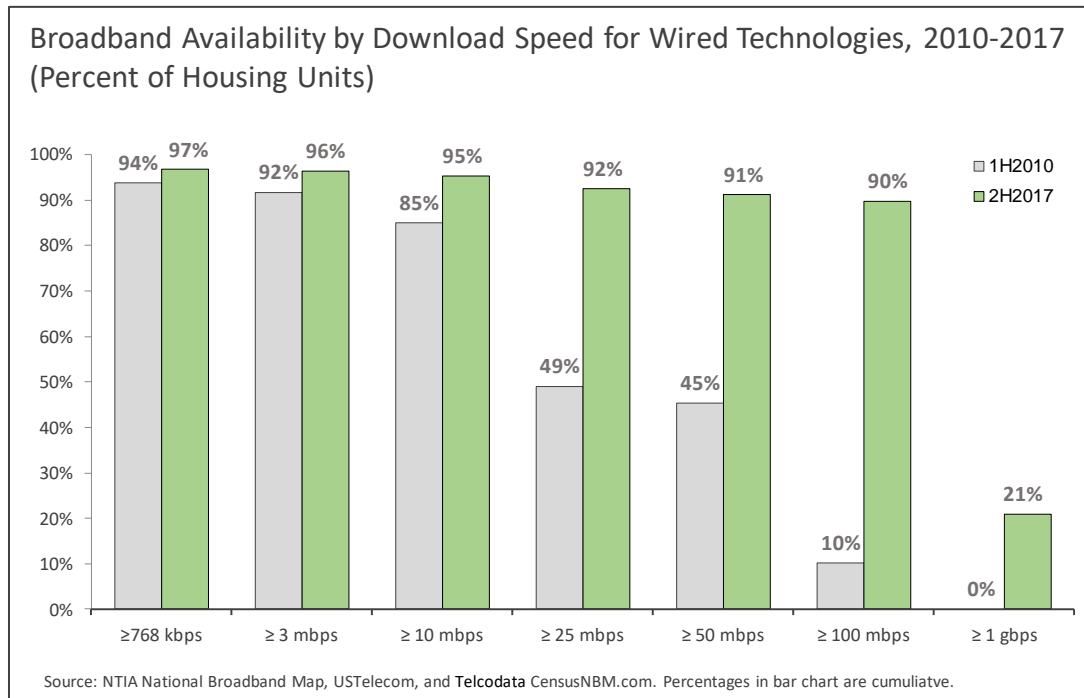
Chart 6



These data show that as of year-end 2017, fixed broadband at any speed was available to 99 percent of Americans and wired broadband was available to 97 percent of Americans. The FCC currently defines advanced services over fixed broadband based on a speed threshold of 25/3 mbps. Approximately 93 percent of Americans had fixed broadband available and 92 percent had wired broadband available at the FCC's current speed threshold.

Broadband availability has been growing across all speed categories over time. Chart 7 compares availability of wired broadband from mid-2010 to year-end 2017. Availability of broadband at 10 mbps DL grew from 85 percent to 95 percent during this period. Broadband availability at 25 mbps DL grew from 49 percent in 2010 to 92 percent at year-end 2017 while broadband at 50 mbps DL doubled, growing from 45 percent to 91 percent. Availability of broadband at 100 mbps DL grew from 10 percent in 2010 to 90 percent at year-end 2017. Gigabit consumer broadband, which did not exist in 2010, was available to 21 percent of households at year-end 2017.

Chart 7



In Chart 7, corresponding data for fixed broadband, including fixed wireless, are not readily available for 2010; and historical 2010 data were only available for download speeds. Therefore, the analysis in Chart 7 is limited to wired broadband. Nonetheless, it is likely that the broader fixed broadband category would show similar historical trends. Additionally, in order to make accurate comparisons to 2010, the analysis in Chart 7 contains only download speeds for 2017. As a result, some of the availability figures in Chart 7 are higher than for the corresponding download-upload combinations in Chart 5. Finally, since the 25 mbps DL / 3 mbps UL and 50 mbps DL / 5 mbps UL are so similar, 50 mbps DL and 5 mbps UL figures are not reported throughout the remainder of this research brief.

FCC year-end 2017 data underestimate deployment and competition in fixed and wired broadband today since they do not account for developments in the year plus since year-end 2017. For example, AT&T is in the process of expanding its fiber footprint to 14 million new locations by mid-2019. AT&T [stated](#) as of fourth quarter 2017 it had extended its fiber-to-the-premises footprint to 7.4 million new locations. As of fourth quarter 2018, AT&T had [passed](#) more than 11 million locations or at least 3.6 million more than year-end 2017. In all, by mid-2019, AT&T will have added approximately 6.5 million more residential fiber locations than are reflected in the year-end 2017 data. In addition, by the end of 2018, [cable operators had deployed gigabit](#) broadband services using DOCSIS 3.1 technology to approximately 93 percent of the cable footprint, or four-fifths of the U.S. population.

### Mobile Broadband

An analysis of mobile broadband availability tells a similar story of competitive investment and growth. Data challenges make direct comparisons from 2010 to the present difficult. With 4G LTE technology, mobile carriers first began to report service at 10 mbps or greater DL. According to National Broadband Map (NBM), as of mid-2010, mobile broadband at 10 mbps DL or greater was available to less than one percent of Americans; by mid-2014 it was available to 98 percent. The FCC, which was responsible for the broadband deployment data collection as of year-end 2014, measures mobile wireless broadband speeds differently than the NBM; so, direct speed-based comparisons across the



NBM and FCC data are not feasible. However, the FCC does report mobile broadband availability by technology. By year-end 2015, mobile broadband over LTE – a good proxy for 10 mbps or greater service – was available to 99.5 percent of Americans. By year-end 2017, LTE was available to 99.8 percent of Americans. In other words, mobile broadband at 10 mbps DL or greater grew from near zero to 98 percent availability in four years and approached 100 percent availability within six years. As of 2017, nearly all Americans had multiple choices for 4G mobile broadband, as shown above in Chart 2 above. Initial commercial deployments of fifth generation (5G) wireless services started in 2018, including fixed and mobile wireless services as potential fixed broadband alternatives. Additional rollouts of both fixed and mobile 5G services will continue in 2019 and beyond.

## Broadband Availability in Rural and Non-Rural Areas

Broadband deployment across the diverse and expansive geography of the United States presents many challenges. In rural areas, costs are high and population densities low, so the cost per user can be extremely high. The economics of providing broadband at affordable and nationally comparable rates in many rural areas is difficult and in some cases prohibitive for wired providers who must deploy facilities all the way to end user locations. Due to the cost differences and the timing of upgrade cycles, broadband is unsurprisingly more widely available in non-rural areas than in rural areas. The discussion below includes a comparison of year-end-2017 to [year-end 2016](#) data. “Rural areas” are defined by the U.S. Census. See Methodology. For a detailed review of rural broadband economics, see “[Rural Broadband Economics: A Review of Rural Subsidies](#),” by Steve G. Parsons and James Stegeman of CostQuest Associates, Inc.

### Rural Broadband Availability Overall

Broadband availability varies between rural and non-rural areas, but also within rural areas. USTelecom reports availability as a percentage of housing units. Approximately 79 percent of housing units are non-rural and 21 percent are rural according to the 2010 Census. Broadband availability, especially at higher speeds, has grown across the nation from year-end 2016 to year-end 2017, but especially in rural areas.

As of year-end 2017, wired broadband at any speed was available to 99 percent of Americans in non-rural areas and 88 percent of Americans in rural areas. See Chart 8. Wired broadband at 10/1 mbps was available to 99 percent of Americans in non-rural areas and 79 percent in rural areas at year-end 2017, versus 99 percent and 75 percent, respectively, at year-end 2016. Wired broadband at 25/3 mbps was available to 98 percent of Americans in non-rural areas and 67 percent of Americans in rural areas at year-end 2017, versus 98 percent and 62 percent, respectively, at year-end 2016. Wired broadband at 100/10 mbps was available to 96 percent of Americans in non-rural areas and 57 percent of Americans in rural areas at year-end 2017, up from 83 percent and 39 percent, respectively, at year-end 2016. Wired gigabit service was available to 22 percent of non-rural Americans and 16 percent of rural Americans at year-end 2017, up from 11 percent and eight percent, respectively, at year-end 2016.

When including fixed wireless in the analysis, there is slightly greater availability in rural areas compared to wired broadband alone. Fixed broadband at any speed was available to nearly 100 percent of Americans in non-rural areas and 95 percent of Americans in rural areas. See Chart 9. Fixed broadband at 10/1 mbps was available to 99 percent of Americans in non-rural areas and 88 percent in rural areas at year-end 2017, versus 99 percent and 83 percent, respectively, at year-end 2016. Fixed broadband at 25/3 mbps was available to 99 percent of Americans in non-rural areas and 73 percent of Americans in rural areas at year-end 2017, up from 98 percent and 68 percent, respectively, at year-end 2016. Fixed broadband at 100/10 mbps was available to 96 percent of Americans in non-rural areas and 58 percent of Americans in rural areas at year-end 2017, up from 83 percent and 40 percent compared to year-end 2016. Fixed gigabit service was available to 23 percent of non-rural Americans and 16 percent of rural Americans at year-end 2017, up from 12 percent and eight percent, respectively, at year-end 2016.

Chart 8

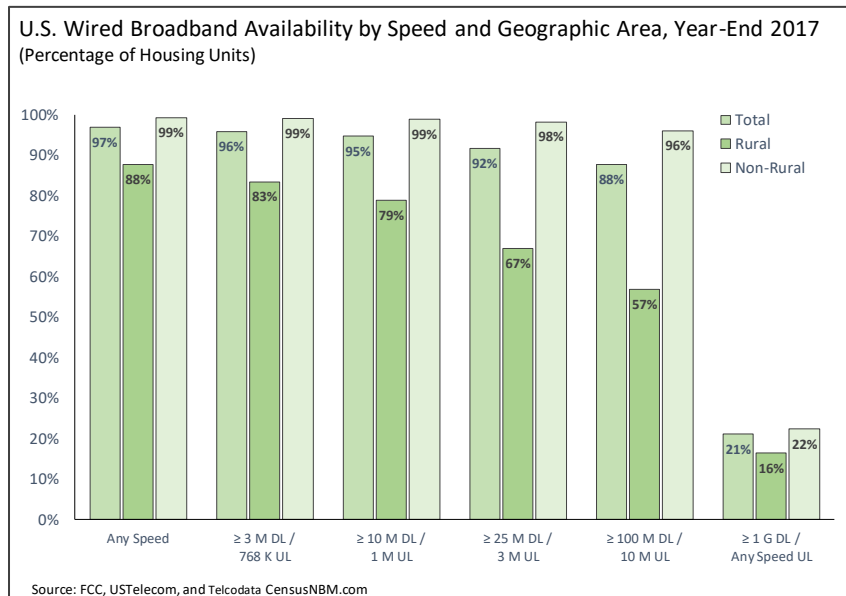
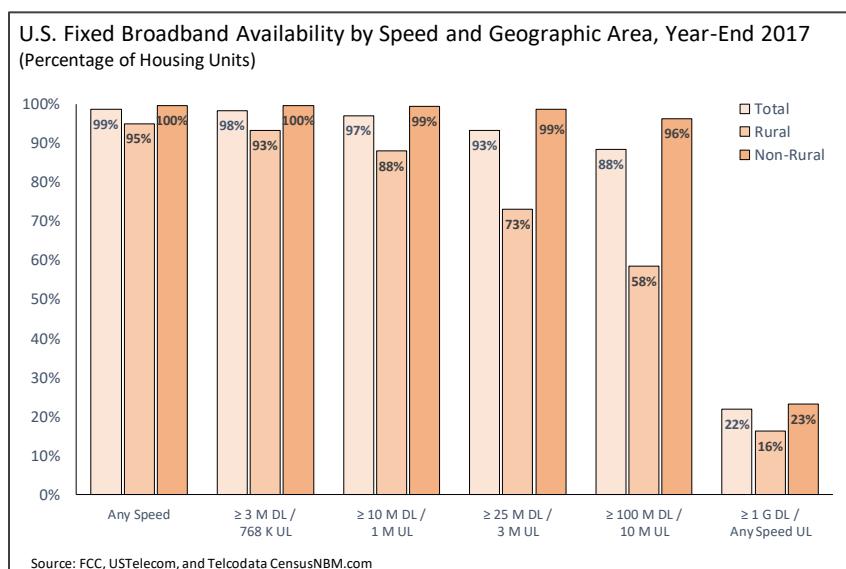


Chart 9



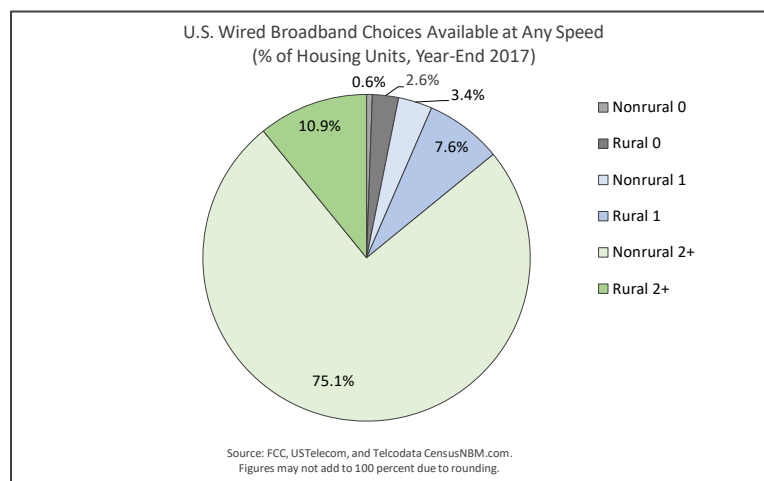
As shown in Chart 2 above, as of year-end 2017, 4G LTE mobile wireless broadband was available to 99.8 percent of Americans, and the vast majority of Americans, including those in rural areas, had 4G mobile broadband available to them from multiple competitive providers, according to FCC data.

## Competitive Availability: Rural and Non-Rural Components

### Wired Broadband

At year-end 2017, wired broadband at any speed was available to 86 percent of Americans from two or more providers, with 11 percent having one option and three percent having no wired broadband option. See Chart 3. The 86 percent with two or more wired broadband options consists of 75 percent in non-rural areas and 11 percent in rural areas. The 11 percent with one option consisted of approximately three percent in non-rural areas and eight percent in rural areas. The three percent that did not have a wired broadband provider consisted of less than one percent in non-rural areas and greater than two percent in rural areas. See Chart 10.

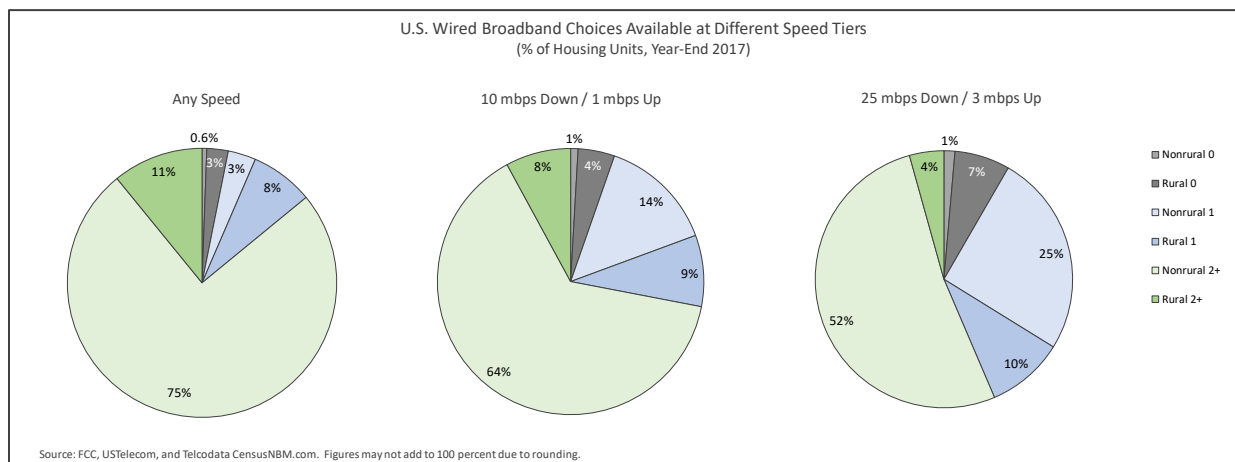
Chart 10



While wired infrastructure is competitively available to 86 percent of Americans, networks are at different stages of upgrading to higher-speeds. As of year-end 2017, 72 percent of Americans could get 10/1 mbps from at least two providers, while 56 percent could get 25/3 mbps from at least two providers. Chart 11 breaks out availability at these speeds tiers for rural and non-rural areas as a share of the entire U.S. At any point in time, competitive availability appears lower at higher speeds than at lower speeds since the higher-speed services reflect more recent upgrade cycles. Competitive availability at higher speeds is also likely higher today than it was at year-end 2017 data. This result is expected, and it reflects a dynamic, competitive marketplace. As Chart 4 demonstrates, deployment at higher speeds by multiple providers is growing rapidly as competition drives upgrades.

Chart 10 shows the percentages with one decimal place because otherwise rounding would yield different figures than discussed above. By contrast, Chart 11 uses the rounded figures because the individual charts are too small to accommodate decimals.

Chart 11



### Fixed Broadband

As of year-end 2017, fixed broadband – including wired and fixed wireless – at any speed was available to 91 percent of Americans from two or more providers, with seven percent having one option and one percent having no fixed broadband option. See Chart 2. The 91 percent with two or more fixed broadband options consisted of approximately 76 percent in non-rural areas and 15 percent in rural areas. The seven percent with one fixed broadband option consisted of two percent in non-rural areas and five percent in rural areas. The one percent that did not have a fixed broadband provider consisted of less than one percent in non-rural areas and just over one percent in rural areas. See Chart 12.

As with wired broadband, competitive availability estimates for fixed broadband are lower at higher speeds due to competitive dynamics and upgrade cycles. See Chart 13. Including fixed wireless yields slightly higher estimates than wired broadband alone.

Chart 12

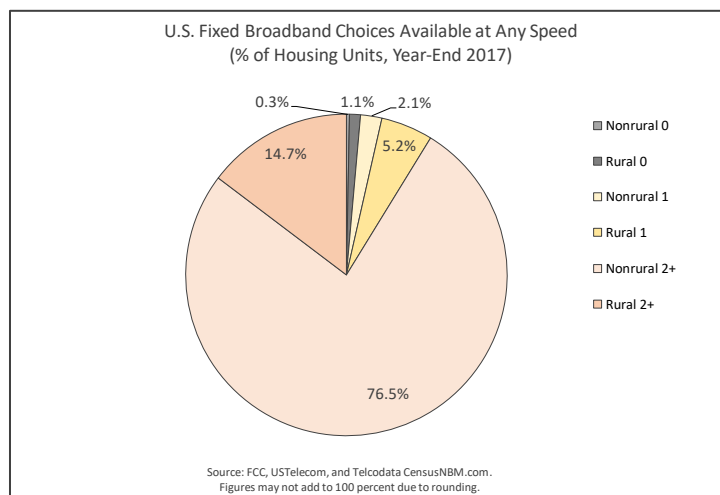
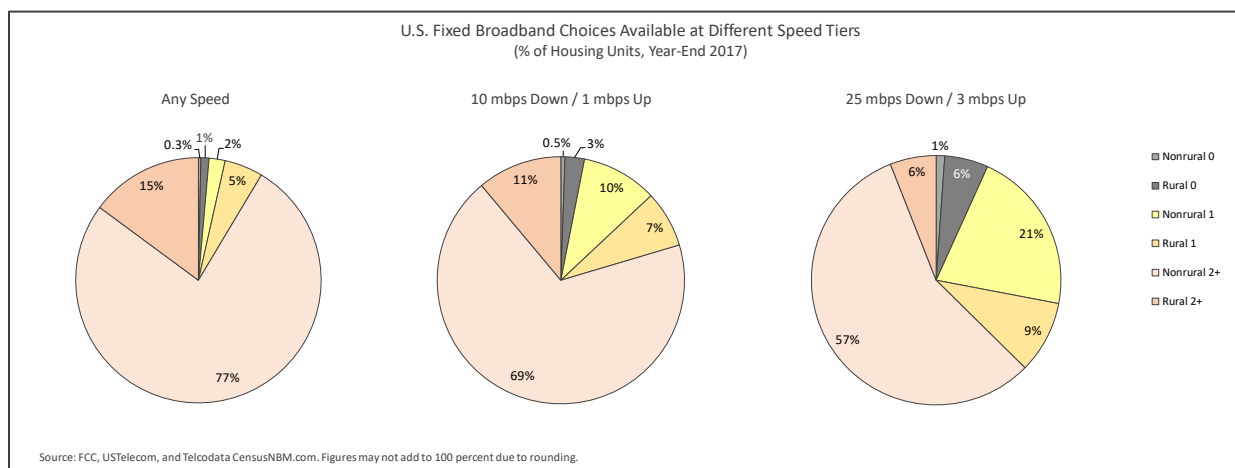


Chart 13



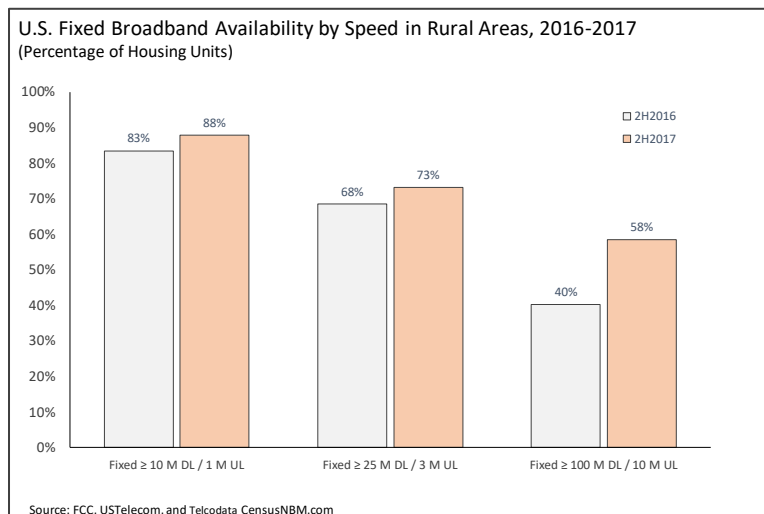
## Rural Broadband Gaps

There is variation across rural areas in terms of deployment, speeds, and competition. While there are gaps in rural broadband, there is no single “rural broadband gap.” Rather, gaps exist in specific rural areas either where broadband is not available due to challenging economics or where there is only one provider and either demand, technology, or subsidies are not driving sufficient upgrades. For a thorough analysis of variation in deployment among different rural communities, see [“A Look at Rural Broadband Economics”](#) by Will Rinehart of the American Action Forum.

According to the year-end 2017 FCC data, 52 percent of rural areas, where 11 percent of Americans reside, had two or more wired networks deployed. More than 36 percent of rural areas, where eight percent of Americans reside, had just one wired provider. Combined with those areas that had two or more providers, almost 88 percent of rural Americans had at least one wired provider available to them. Of all rural Americans, 79 percent could get wired broadband service at 10/1 mbps; 67 percent could get service at 25/3 mbps; and 57 percent could get service at 100/10 mbps. See Chart 8. If fixed wireless is included, with a relaxed upload requirement, these figures rise to 89 percent for 10 mbps DL, 76 percent for 25 mbps DL, and 62 percent for 100 mbps DL. See Appendix B. Historical USTelecom broadband availability research indicates that rural broadband availability is growing (see Chart 14) and rural gaps are declining. For example, the difference between non-rural and rural fixed broadband availability at 10/1 mbps has declined from 21 percentage points at year-end 2015 to 11 percentage points at year-end 2017. The gap at 25/3 mbps has declined from 37 percentage points at year-end 2015 to 26 percentage points at year-end 2017. See Chart 1D.

The remainder may be unserved, depending on technology assumptions. Almost 12 percent of rural areas where three percent of Americans reside did not have a wired broadband option as of year-end 2017. This falls to five percent of rural areas, or one percent of all Americans, if fixed wireless is included in the analysis. The unserved portion drops to about one percent of rural areas and 0.2 percent of all Americans if 4G mobile wireless is included in the analysis, assuming nearly all uncovered areas for 4G mobile wireless are in rural America. Satellite eliminates the gap for all but the most extremely remote areas of the country if it is included. In addition to capacity constraints, the FCC has [noted](#) that latency – delays in data transmission arising from the distances between users and satellites – may affect perceived quality of real time interactive applications. Nonetheless, satellite providers have [recently deployed](#) next generation satellites offering services that can meet the FCC’s current speed thresholds, and they may be able to accommodate real-time two-way communications. At minimum, in the very highest cost areas, satellite is an economical option for fixed broadband.

Chart 14

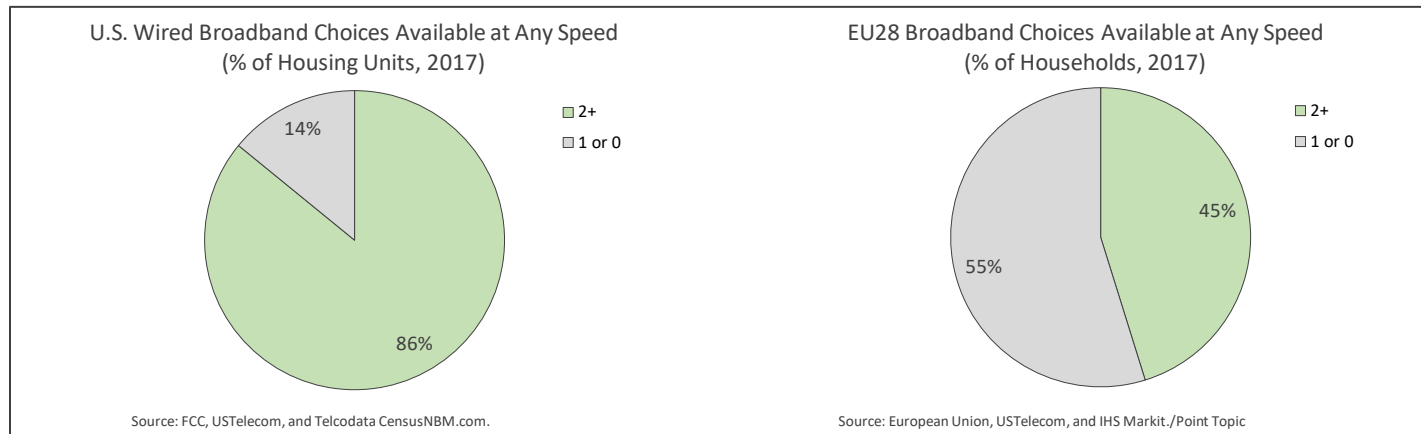


Every American should have the opportunity to connect to the internet through sufficiently robust broadband service. For some areas, this requires government support. The FCC's Connect America Fund provides a good starting point. Further progress will require additional funding. Policies must be targeted, flexible, and efficient and should target support to well-identified areas where the economics do not support deployment or upgrades. An important component of any such programs is the availability of sufficiently granular data about the broadband serviceable locations in America that have broadband today, and more importantly, those locations that are not served today. In addition, governments must not fund wasteful, duplicative overbuilding of existing facilities. Policies must also be sufficiently flexible to allow for the most cost effective solutions rather than adhering to rigid technology or speed requirements. Finally, it is essential that funding be dedicated and direct, using a mechanism like the Connect America Fund, for the most economically and administratively efficient distribution of funds.

## U.S. and European Broadband Availability

According to European Union data, U.S. consumers enjoy significantly greater competitive choice among facilities-based wired broadband providers than do their counterparts in Europe. While U.S. data are available for year-end 2017, mid-year 2017 data are the most current available for comparison with Europe. As of mid-year 2017, wired broadband from two or more providers was available to 85 percent of Americans. By contrast, as of mid-year 2017, wired broadband from two or more providers was available to an estimated 45 percent of households in the EU's 28 member states (EU28), assuming that telecom providers cover most of EU and the cable footprint largely overlaps them. See Chart 15.

Chart 15



## FCC Reports and Form 477 Data

The FCC released its first consolidated Communications Marketplace Report on December 26, 2018 and adopted its Section 706 Broadband Deployment report on May 29, 2019. Among other things, the FCC reports addresses broadband availability, and include tables with selected data calculations based on year-end 2017 broadband deployment data. A portion of the FCC's analysis overlaps with a portion of this analysis. In particular, the FCC provides data on fixed broadband. The FCC's analysis is consistent with USTelecom's: greater penetration and increasing competitive availability of fixed broadband at various speed tiers.

Despite the limited overlap, the USTelecom analysis is different from the FCC's analysis in several ways. The FCC reports on fixed broadband in aggregate, which includes wired and fixed wireless broadband. USTelecom breaks out wired broadband from fixed broadband, and breaks out a range of technologies that the FCC report does not, such as fiber, DSL, and cable. USTelecom also provides an approximate breakout by type of provider, especially cable and wireline telecommunications broadband providers. One minor difference between the two reports is that the FCC measures availability by population whereas USTelecom measures it by housing units. The FCC also adjusts its population to project growth from the 2010 Census to the present. USTelecom uses unadjusted 2010 Census housing unit data. Population tends to show very slightly higher availability than housing units does; but the difference is negligible and USTelecom has discontinued reporting by population. See the Methodology and Appendixes below for details. Finally, the USTelecom analysis includes a discussion of appropriate analytical frameworks and additional historical perspectives that the FCC does not.

The FCC Form 477 data used in this report have come under [criticism](#) for overstating broadband availability under certain circumstances. USTelecom agrees that the 477 data are imperfect, particularly for large individual Census Blocks in low-density rural areas. In fact, USTelecom, along with ITTA and WISPA, has spearheaded a [Broadband Mapping Initiative](#) to demonstrate how the FCC can establish a national dataset of all known broadband serviceable locations, what it refers to as the Broadband Serviceable Location Fabric (BSLF), on top of which providers could report availability. At its August Open Meeting, the FCC will consider the adoption of a [Draft Report & Order and Further Notice of Proposed Rulemaking](#) exploring this issue. In the draft item, the FCC sums up the challenge as follows: "The census-block level fixed broadband service availability reporting the Commission currently requires has been an effective tool for helping the Commission target universal service support to the least-served areas of the country, but has made it

difficult for the Commission to direct funding to the ‘gaps’ in broadband coverage—those areas where some, but not all, homes and businesses have access to modern communications services.” Improving the granularity of broadband availability information is important, particularly for policy making decisions designed to target support to unserved Americans. Nonetheless, at large levels of aggregation, the degree of overstatement is proportionately very small and is inconsequential to the broader conclusions and trends described in USTelecom’s national analysis.

## Conclusion

Steady progress is being made in the U.S., with providers deploying advanced technologies at ever-greater speeds and gaps between urban and rural broadband availability shrinking quickly. As of year-end 2017, 97 percent of Americans had at least one wired broadband provider available to them – 99 percent, if fixed wireless is included. Moreover, there are competing wired broadband infrastructures in 86 percent of the country – 91 percent, if fixed wireless is included. Nearly all Americans could get broadband service via mobile wireless and satellite. These technologies are improving.

While the FCC 477 data are not perfect, they are the best available today and the risk of overstatement is minimal at broad geographic levels of aggregation. These broadband availability data highlight that U.S. broadband providers continue to deploy and upgrade networks rapidly, bringing the vast majority of consumers across the nation ever-faster service and choice in a reasonable and timely fashion. When properly analyzed, the data reveal no lack of competition and no systemic market failure when it comes to deploying broadband in the U.S.

The presence of facilities-based competition is spurring ongoing investment in network upgrades across the nation, and as a result, both fixed and mobile broadband speeds are growing in rural and non-rural areas. Statistical market snapshots that arbitrarily understate the extent of broadband availability and competition are analytically deficient and can generate bad policy decisions. With respect to rural areas, there is not a monolithic broadband gap, but a range of areas that do not have sufficient broadband available to them, for which policies and government funding programs must account. Policies must be targeted, addressing specific problem areas, and must be flexible to allow for economically efficient solutions.



## Methodology

### Data and Analysis

USTelecom worked with its consultant, Telcodata, to produce this research. Telcodata's broadband research service, CensusNBM (CensusNBM.com), compiled the data for this analysis by combining the FCC's broadband availability and U.S. Census housing unit data that is filed at the granular census block detail level and then consistently aggregated by Telcodata analysts to produce statistics for all 50 states plus Washington, D.C. CensusNBM uses the 2010 Census, the last period that the Bureau produced a full tabulation of housing units, households, and population. For mapping and compatibility purposes, CensusNBM computed the broadband availability and Census information at the census block level in order to produce consistent broadband availability ratios. Census housing units and households track very closely, but housing units is a broader measure: it includes occupied homes, vacant homes and vacation homes; the household measure would include only occupied housing units.

The FCC has reported broadband availability data semi-annually using data collected using its Form 477 since year-end 2014. The FCC data in this analysis are for year-end 2017, version 2, released May 2, 2019. The FCC reports broadband availability at the census block level by provider and by technology type, with maximum download/upload speeds.

The FCC reports the following fixed technology categories based on its Form 477 data collection:

- Asymmetric xDSL
- ADSL2
- VDSL
- Symmetric xDSL
- Copper
- Fiber
- Cable DOCSIS 3.1
- Cable DOCSIS 3.0
- Cable DOCSIS 1 - 1.1 - 2.0
- Cable Other
- Terrestrial Fixed Wireless
- Satellite

To enable certain analyses at higher levels than possible with the FCC-reported technology categories, CensusNBM created several broader groupings. For example, CensusNBM created categories for all Cable technologies and all DSL technologies. It also created categories for Any Wired Technology except Cable – a category intended to include all wireline telecommunications providers; Any Wired Technology, which includes wireline telecommunications and cable providers; and Any Fixed Technology except Satellite, which combined Any Wired Technology and Terrestrial Fixed Wireless categories.

The following list represents the hierarchy of fixed broadband groupings and sub-groupings (see Appendices):

- Any Fixed Technology except Satellite
  - Any Wired Technology
    - Any Wired Technology except Cable
      - DSL
        - > Asymmetric xDSL
        - > ADSL2
        - > VDSL
        - > Symmetric xDSL
      - Copper
      - Fiber
    - Cable
      - DOCSIS 3.1
      - DOCSIS 3.0
      - DOCSIS 1 - 1.1 - 2.0
      - Cable Other
  - Terrestrial Fixed Wireless
- Satellite

The process for creating the broader categories eliminates duplication when appropriate, such as instances where a single provider reported multiple technologies in the same area, or where multiple types of providers in a broader category reported facilities in the same area. For example, since the FCC's Form 477 requires ISPs to record each broadband technology in a census block and its associated download/upload speeds, there can be duplicate records for a single provider. Therefore, when calculating the number of housing units with “Any Wired Technology except Cable” as a category, CensusNBM counts the number of housing units in census blocks where a single ISP reports both DSL and Fiber just one time – not once for fiber and once for DSL. Similarly, when calculating the number of housing units with “Any Wired Technology” as a category, CensusNBM counts the number of housing units in census blocks where both wireline telecommunications and cable operators report facilities just one time. Note that, due to methodological technicalities, the processes for estimating availability by technology and competitive overlap may produce small, insignificant differences for overall aggregated availability.

## History

The National Telecommunications and Information Administration (NTIA) collected broadband availability data semi-annually for the “National Broadband Map” from mid-2010 to mid-2014. Those data are similar to, but not the same as, the broadband availability data the FCC collects using its Form 477. As a result, it is not possible to produce precise consistent time series between the NTIA data and the FCC data; but it is possible to create some rough comparisons over time using high-level data.

As part of the National Broadband Map, NTIA produced several reports detailing results by discrete technology and speed categories. Thus far, the FCC has released a great deal of raw data and a mapping capability, and has used selected data in its Section 706 broadband deployment reports, but has not provided reports similar to those NTIA previously provided. USTelecom worked with CensusNBM to develop several reports similar to, though not identical, to the NTIA technology and speed reports. See Appendixes. In prior research briefs, USTelecom published broadband availability in the Appendixes as a percentage of housing units and as a percentage of population. Typically, the share of population is slightly greater than share of households; but the differences between share of housing units and share of population are extremely small. Therefore, publishing both housing unit and population shares adds little value.

Consumers usually purchase fixed broadband service at the household level. Since the major focus of this research is on fixed broadband, USTelecom is not publishing broadband availability as a share of population.

With the FCC data, CensusNBM has flexibility to create speed tiers, technology aggregates, and other reports. It does not have as much flexibility with the NTIA data. Below is a discussion of some of the relevant differences between the NTIA and the FCC data.

- The NTIA only provided speed data in ranges, such as “1.5 mbps to 3.0 mbps.” Certain speed thresholds that have become standards, like upload speeds “greater than 1.0 mbps” are not possible to ascertain with the NTIA data. In contrast, the FCC 477 data specifies unique maximum advertised speeds, such as “1.0 Mbps.” With such data points, as opposed to pre-defined ranges, it is possible for CensusNBM to create its own ranges or thresholds.
- The FCC 477 report identifies residential and business census blocks and further differentiates residential maximum advertised speeds from business/government maximum contracted speeds. Since the NTIA filings did not distinguish residential from business advertised speeds any comparison over time between the NTIA and FCC are not precisely compatible. Since the NTIA data also include business broadband deployment, earlier data will show relatively higher broadband availability results than the FCC 477 at comparable maximum advertised speeds.
- The NTIA data has only seven categories of fixed technologies, while the FCC data has 11.
- Unlike NTIA, the FCC data treats mobile wireless broadband differently than fixed broadband, so it is now not possible to report mobile data in the same manner as fixed broadband.

## Geography

These data are national (50 states plus DC) with breakouts for rural and non-rural areas based on Census classification of census blocks. In terms of housing units, approximately 79 percent are in non-rural areas and 21 percent are in rural areas.

## Appendix A – Year-End 2017 Broadband Availability by Housing Units for All Areas, Download and Upload

### US Broadband Availability by Technology and Speed, Year-End 2017, Selected Download and Upload Speeds (Percentage of Housing Units)

#### All Areas

Technology	Total HU Any Speed	Total HU ≥ 768 K DL / 200 K UL	Total HU ≥ 3 M DL / 768 K UL	Total HU ≥ 10 M DL / 1 M UL	Total HU ≥ 25 M DL / 3 M UL	Total HU ≥ 50 M DL / 5 M UL	Total HU ≥ 100 M DL / 10 M UL	Total HU ≥ 1 gbps DL
<b>Any Fixed Technology Except Satellite</b>	98.6%	98.5%	98.0%	96.9%	93.2%	91.4%	88.2%	21.7%
<b>Any Wired Technology</b>	96.9%	96.6%	95.8%	94.7%	91.7%	90.9%	87.8%	20.9%
<b>Any Wired Technology Except Cable</b>	93.2%	92.2%	85.3%	76.7%	58.1%	55.8%	45.1%	14.3%
<b>DSL</b>	89.2%	87.9%	78.9%	64.9%	39.1%	33.1%	20.1%	0.0%
Asymmetric xDSL	63.9%	52.7%	28.8%	13.3%	3.2%	0.1%	0.0%	0.0%
ADSL2	61.7%	60.6%	54.2%	24.6%	3.0%	0.1%	0.0%	0.0%
VDSL	42.7%	42.7%	42.3%	41.8%	36.1%	32.9%	20.0%	0.0%
Symmetric xDSL	0.8%	0.8%	0.4%	0.3%	0.2%	0.1%	0.1%	0.0%
<b>Copper</b>	2.7%	2.7%	2.7%	2.6%	1.0%	0.9%	0.8%	0.1%
<b>Fiber</b>	30.9%	30.9%	30.9%	30.9%	30.3%	30.1%	29.7%	14.3%
<b>Cable</b>	88.7%	88.7%	88.7%	88.6%	88.1%	87.6%	85.0%	7.9%
DOCSIS 3.1	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	13.4%
DOCSIS 3.0	54.7%	54.7%	54.7%	54.6%	54.3%	53.9%	51.1%	4.7%
DOCSIS 1 - 1.1 - 2.0	1.3%	1.3%	1.3%	1.2%	1.0%	0.3%	0.3%	1.9%
Cable Other	1.4%	1.4%	1.4%	1.3%	1.3%	1.1%	0.8%	0.3%
<b>Terrestrial Fixed Wireless</b>	40.3%	40.2%	39.2%	32.2%	18.1%	7.9%	6.2%	1.0%
<b>Satellite</b>	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	0.0%

Source: FCC, USTelecom, and Telcodata CensusNBM.com

## Appendix A – Year-End 2017 Broadband Availability by Housing Units for Rural Areas, Download and Upload

### US Broadband Availability by Technology and Speed, Year-End 2017, Download and Upload Speeds (Percentage of Housing Units)

#### Rural Areas

Technology	Rural HU Any Speed	Rural HU ≥ 768 K DL / 200 K UL	Rural HU ≥ 3 M DL / 768 K UL	Rural HU ≥ 10 M DL / 1 M UL	Rural HU ≥ 25 M DL / 3 M UL	Rural HU ≥ 50 M DL / 5 M UL	Rural HU ≥ 100 M DL / 10 M UL	Rural HU ≥1 gbps DL
<b>Any Fixed Technology Except Satellite</b>	94.8%	94.3%	92.5%	88.0%	73.1%	66.4%	58.2%	16.2%
<b>Any Wired Technology</b>	87.7%	86.6%	83.3%	78.9%	66.9%	64.4%	56.7%	16.1%
<b>Any Wired Technology Except Cable</b>	80.8%	78.5%	70.8%	59.3%	32.1%	28.6%	18.7%	9.5%
<b>DSL</b>	75.9%	73.4%	64.7%	51.0%	19.9%	16.0%	5.7%	0.0%
Asymmetric xDSL	43.7%	36.4%	25.3%	7.2%	0.8%	0.2%	0.1%	0.0%
ADSL2	53.0%	50.8%	45.4%	30.2%	1.2%	0.3%	0.0%	0.0%
VDSL	29.2%	29.2%	28.3%	27.0%	18.4%	15.4%	5.4%	0.0%
Symmetric xDSL	0.9%	0.9%	0.7%	0.6%	0.3%	0.2%	0.1%	0.0%
<b>Copper</b>	0.7%	0.7%	0.6%	0.4%	0.0%	0.0%	0.0%	0.0%
<b>Fiber</b>	16.3%	16.3%	16.3%	16.2%	15.6%	15.1%	14.1%	9.4%
<b>Cable</b>	55.3%	55.3%	55.1%	54.8%	53.7%	52.6%	48.5%	7.5%
DOCSIS 3.1	15.5%	15.5%	15.5%	15.5%	15.5%	15.5%	15.5%	5.2%
DOCSIS 3.0	40.5%	40.5%	40.4%	40.3%	39.3%	38.6%	34.4%	2.1%
DOCSIS 1 - 1.1 - 2.0	1.4%	1.4%	1.3%	1.2%	0.7%	0.6%	0.4%	0.0%
Cable Other	1.4%	1.4%	1.3%	1.3%	1.2%	0.9%	0.7%	0.2%
<b>Terrestrial Fixed Wireless</b>	42.9%	42.7%	40.7%	32.4%	16.1%	5.3%	3.6%	0.1%
<b>Satellite</b>	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	0.0%

Source: FCC, USTelecom, and Telcodata CensusNBM.com

## Appendix A – Year-End 2017 Broadband Availability by Housing Units for Non-Rural Areas, Download and Upload

### US Broadband Availability by Technology and Speed, Year-End 2017, Download and Upload Speeds (Percentage of Housing Units)

#### Non-Rural Areas

Technology	Nonrural HU Any Speed	Nonrural HU ≥ 768 K DL / 200 K UL	Nonrural HU ≥ 3 M DL / 768 K UL	Nonrural HU ≥ 10 M DL / 1 M UL	Nonrural HU ≥ 25 M DL / 3 M UL	Nonrural HU ≥ 50 M DL / 5 M UL	Nonrural HU ≥ 100 M DL / 10 M UL	Nonrural HU ≥ 1 gbps DL
<b>Any Fixed Technology Except Satellite</b>	99.6%	99.6%	99.5%	99.3%	98.6%	98.0%	96.2%	23.2%
<b>Any Wired Technology</b>	99.3%	99.3%	99.1%	98.9%	98.2%	97.9%	96.1%	22.2%
<b>Any Wired Technology Except Cable</b>	96.5%	95.8%	89.2%	81.3%	65.0%	63.0%	52.1%	15.6%
<b>DSL</b>	92.7%	91.8%	82.7%	68.6%	44.3%	37.7%	24.0%	0.0%
Asymmetric xDSL	69.2%	57.0%	29.7%	14.9%	3.9%	0.1%	0.0%	0.0%
ADSL2	64.0%	63.2%	56.6%	23.1%	3.5%	0.1%	0.0%	0.0%
VDSL	46.2%	46.2%	46.1%	45.7%	40.8%	37.5%	23.9%	0.0%
Symmetric xDSL	0.8%	0.7%	0.3%	0.3%	0.2%	0.1%	0.0%	0.0%
<b>Copper</b>	3.3%	3.3%	3.3%	3.2%	1.3%	1.1%	1.1%	0.1%
<b>Fiber</b>	34.8%	34.8%	34.8%	34.8%	34.2%	34.1%	33.9%	15.5%
<b>Cable</b>	97.6%	97.6%	97.6%	97.6%	97.3%	96.9%	94.7%	8.0%
DOCSIS 3.1	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%	15.5%
DOCSIS 3.0	58.5%	58.5%	58.5%	58.5%	58.2%	58.0%	55.5%	5.4%
DOCSIS 1 - 1.1 - 2.0	1.3%	1.3%	1.3%	1.2%	1.0%	0.3%	0.3%	2.3%
Cable Other	1.4%	1.4%	1.4%	1.4%	1.3%	1.1%	0.8%	0.4%
<b>Terrestrial Fixed Wireless</b>	39.7%	39.6%	38.8%	32.1%	18.6%	8.6%	6.9%	1.3%
<b>Satellite</b>	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	0.0%

Source: FCC, USTelecom, and Telcodata CensusNBM.com

## Appendix B Year-End 2017 Broadband Availability by Housing Units for All Areas, Download Only

### US Broadband Availability by Technology and Speed, Year-End 2017, Download Speeds Only (Percentage of Housing Units)

#### All Areas

Technology	Total HU Any Speed	Total HU ≥768 kbps DL	Total HU ≥1.5 mbps DL	Total HU ≥3 mbps DL	Total HU ≥6 mbps DL	Total HU ≥10 mbps DL	Total HU ≥25 mbps DL	Total HU ≥50 mbps DL	Total HU ≥100 mbps DL	Total HU ≥1 gbps DL
<b>Any Fixed Technology Except Satellite</b>	98.6%	98.6%	98.4%	98.3%	97.7%	97.3%	93.9%	91.7%	90.1%	21.7%
<b>Any Wired Technology</b>	96.9%	96.8%	96.6%	96.3%	95.8%	95.2%	92.4%	91.1%	89.7%	20.9%
<b>Any Wired Technology Except Cable</b>	93.2%	93.1%	92.1%	90.9%	87.1%	82.5%	62.2%	55.9%	45.9%	14.3%
<b>DSL</b>	89.2%	89.2%	88.0%	85.8%	78.7%	71.8%	44.1%	33.2%	20.9%	0.0%
Asymmetric xDSL	63.9%	63.5%	53.1%	50.8%	43.2%	13.4%	3.4%	0.1%	0.0%	0.0%
ADSL2	61.7%	61.6%	60.6%	59.4%	56.7%	53.6%	12.0%	0.2%	0.1%	0.0%
VDSL	42.7%	42.7%	42.6%	42.4%	41.9%	41.8%	37.9%	33.0%	20.8%	0.0%
Symmetric xDSL	0.8%	0.8%	0.7%	0.4%	0.3%	0.3%	0.2%	0.1%	0.1%	0.0%
<b>Copper</b>	2.7%	2.7%	2.7%	2.7%	2.7%	2.6%	1.0%	0.9%	0.8%	0.1%
<b>Fiber</b>	30.9%	30.9%	30.9%	30.9%	30.9%	30.9%	30.3%	30.2%	29.8%	14.3%
<b>Cable</b>	88.7%	88.7%	88.7%	88.7%	88.6%	88.6%	88.2%	87.9%	87.3%	7.9%
DOCSIS 3.1	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	13.4%
DOCSIS 3.0	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%	54.4%	54.1%	53.5%	4.7%
DOCSIS 1 - 1.1 - 2.0	1.3%	1.3%	1.3%	1.3%	1.2%	1.2%	1.0%	0.4%	0.3%	1.9%
Cable Other	1.4%	1.4%	1.4%	1.4%	1.4%	1.3%	1.3%	1.2%	0.8%	0.3%
<b>Terrestrial Fixed Wireless</b>	40.3%	40.2%	39.7%	39.4%	34.6%	32.2%	18.2%	8.1%	6.2%	1.0%
<b>Satellite</b>	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	0.0%

Source: FCC, USTelecom, and Telcodata CensusNBM.com

## Appendix B Year-End 2017 Broadband Availability by Housing Units for Rural Areas, Download Only

### US Broadband Availability by Technology and Speed, Year-End 2017, Download Speeds Only (Percentage of Housing Units)

#### Rural Areas

Technology	Rural HU Any Speed	Rural HU ≥768 kbps DL	Rural HU ≥1.5 mbps DL	Rural HU ≥3 mbps DL	Rural HU ≥6 mbps DL	Rural HU ≥10 mbps DL	Rural HU ≥25 mbps DL	Rural HU ≥50 mbps DL	Rural HU ≥100 mbps DL	Rural HU ≥1 gbps DL
<b>Any Fixed Technology Except Satellite</b>	94.8%	94.7%	94.1%	93.5%	91.1%	89.2%	75.8%	67.2%	61.9%	16.2%
<b>Any Wired Technology</b>	87.7%	87.7%	86.5%	85.4%	83.2%	80.9%	69.9%	65.1%	60.5%	16.1%
<b>Any Wired Technology Except Cable</b>	80.8%	80.7%	78.4%	76.3%	70.8%	65.1%	39.0%	29.0%	21.0%	9.5%
<b>DSL</b>	75.9%	75.9%	73.3%	70.9%	64.1%	57.5%	27.5%	16.4%	7.9%	0.0%
Asymmetric xDSL	43.7%	43.4%	36.5%	33.7%	26.9%	7.8%	1.0%	0.3%	0.1%	0.0%
ADSL2	53.0%	52.8%	50.7%	49.8%	47.0%	42.6%	11.7%	0.4%	0.1%	0.0%
VDSL	29.2%	29.2%	29.1%	28.4%	27.2%	27.1%	20.9%	15.7%	7.6%	0.0%
Symmetric xDSL	0.9%	0.9%	0.8%	0.7%	0.6%	0.6%	0.3%	0.2%	0.1%	0.0%
<b>Copper</b>	0.7%	0.7%	0.7%	0.7%	0.6%	0.4%	0.0%	0.0%	0.0%	0.0%
<b>Fiber</b>	16.3%	16.3%	16.3%	16.3%	16.2%	16.2%	15.6%	15.2%	14.4%	9.4%
<b>Cable</b>	55.3%	55.3%	55.2%	55.2%	54.9%	54.8%	54.0%	53.1%	51.7%	7.5%
DOCSIS 3.1	15.5%	15.5%	15.5%	15.5%	15.5%	15.5%	15.5%	15.5%	15.5%	5.2%
DOCSIS 3.0	40.5%	40.5%	40.5%	40.5%	40.3%	40.3%	39.7%	39.0%	37.7%	2.1%
DOCSIS 1 - 1.1 - 2.0	1.4%	1.4%	1.4%	1.4%	1.3%	1.2%	0.7%	0.6%	0.5%	0.0%
Cable Other	1.4%	1.4%	1.4%	1.4%	1.3%	1.3%	1.2%	1.0%	0.7%	0.2%
<b>Terrestrial Fixed Wireless</b>	42.9%	42.7%	41.6%	41.1%	35.2%	32.5%	16.3%	5.6%	3.7%	0.1%
<b>Satellite</b>	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	0.0%

Source: FCC, USTelecom, and Telcodata CensusNBM.com



## Appendix B Year-End 2017 Broadband Availability by Housing Units for Non-Rural Areas, Download Only

### US Broadband Availability by Technology and Speed, Year-End 2017, Download Speeds Only (Percentage of Housing Units)

#### Nonrural Areas

Technology	Nonrural HU Any Speed	Nonrural HU ≥768 kbps DL	Nonrural HU ≥1.5 mbps DL	Nonrural HU ≥3 mbps DL	Nonrural HU ≥6 mbps DL	Nonrural HU ≥10 mbps DL	Nonrural HU ≥25 mbps DL	Nonrural HU ≥50 mbps DL	Nonrural HU ≥100 mbps DL	Nonrural HU ≥1 gbps DL
<b>Any Fixed Technology Except Satellite</b>	99.6%	99.6%	99.6%	99.6%	99.5%	99.4%	98.7%	98.2%	97.6%	23.2%
<b>Any Wired Technology</b>	99.3%	99.3%	99.3%	99.2%	99.2%	99.0%	98.4%	98.1%	97.5%	22.2%
<b>Any Wired Technology Except Cable</b>	96.5%	96.4%	95.8%	94.7%	91.4%	87.1%	68.4%	63.0%	52.5%	15.6%
<b>DSL</b>	92.7%	92.7%	91.9%	89.7%	82.6%	75.6%	48.5%	37.7%	24.4%	0.0%
Asymmetric xDSL	69.2%	68.9%	57.5%	55.3%	47.5%	14.9%	4.1%	0.1%	0.0%	0.0%
ADSL2	64.0%	63.9%	63.2%	62.0%	59.2%	56.5%	12.1%	0.1%	0.0%	0.0%
VDSL	46.2%	46.2%	46.2%	46.1%	45.8%	45.7%	42.4%	37.6%	24.3%	0.0%
Symmetric xDSL	0.8%	0.7%	0.7%	0.3%	0.3%	0.3%	0.2%	0.1%	0.0%	0.0%
<b>Copper</b>	3.3%	3.3%	3.3%	3.3%	3.2%	3.2%	1.3%	1.1%	1.1%	0.1%
<b>Fiber</b>	34.8%	34.8%	34.8%	34.8%	34.8%	34.8%	34.2%	34.2%	34.0%	15.5%
<b>Cable</b>	97.6%	97.6%	97.6%	97.6%	97.6%	97.6%	97.3%	97.1%	96.8%	8.0%
DOCSIS 3.1	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%	15.5%
DOCSIS 3.0	58.5%	58.5%	58.5%	58.5%	58.5%	58.5%	58.3%	58.1%	57.8%	5.4%
DOCSIS 1 - 1.1 - 2.0	1.3%	1.3%	1.3%	1.3%	1.2%	1.2%	1.0%	0.3%	0.3%	2.3%
Cable Other	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.3%	1.3%	0.9%	0.4%
<b>Terrestrial Fixed Wireless</b>	39.7%	39.6%	39.2%	39.0%	34.5%	32.1%	18.7%	8.7%	6.9%	1.3%
<b>Satellite</b>	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	0.0%

Source: FCC, USTelecom, and Telcodata CensusNBM.com