

USTelecom Research Brief
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U.S. BROADBAND AVAILABILITY MID-YEAR 2018

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Summary

USTelecom and CensusNBM analysis of the latest semi-annual broadband availability data from the Federal Communications Commission (FCC), for mid-year 2018, show ongoing progress in broadband deployment in an increasingly competitive marketplace. USTelecom has tracked broadband deployment data since 2010 when the National Telecommunications and Information Administration (NTIA) released its first national broadband map. Responsibility for broadband deployment data shifted from NTIA to the FCC starting with mid-year 2014 data. USTelecom, with CensusNBM, has issued Research Briefs semi-annually with detailed analysis since the FCC release of mid-year 2016 data. The charts and tables below update and supplement data in USTelecom's July 31, 2019 USTelecom Research Brief, "U.S. Broadband Availability Year-End 2017" ([July 2019 Broadband Availability Research Brief](#)).

Below are highlights, followed by a series of charts. Detailed tables are in Appendices A and B. The charts and tables update year-end 2017 data from the July 2019 Deployment Research Brief. The data show that, through capital investments that amounted to \$80 billion in 2018 and totaled more than \$1.7 trillion since 1996, broadband providers continue to deploy more and faster broadband to American consumers and businesses across the nation. They also show rural broadband gaps continuing to decline. While progress is strong in all speed categories, 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.

In contrast to previous USTelecom broadband availability research, this Research Brief emphasizes charts and data rather than text analysis. The analysis addresses "wired" broadband (cable, fiber, DSL, other copper), "fixed" broadband (wired plus fixed wireless, excluding mobile and satellite broadband), and various technology subcategories described in Appendix C. USTelecom no longer reports several lower speed tiers that it included in previous Broadband Availability Research Briefs, but which have become less relevant, including 768 mbps and 6 mbps, and any corresponding upload speeds.

In addition to updating previously published data, the charts and tables include new data and analysis not released in previous USTelecom Deployment Research Briefs.

- 940 Megabit per second (mbps) download speed tier. USTelecom provides analysis of broadband availability at different speed tiers. The highest tier we previously analyzed was 1 Gigabit per second (gbps) or greater download. (As the [FCC recognized](#) in its Connect America Fund performance metrics docket, data overhead and equipment limitations may affect the ultimate download speeds customers receive.) Companies typically report cutting-edge broadband services at 940 mbps or greater download speeds. Therefore, USTelecom has added a 940 mbps or greater download speed category to its analysis. Data below are limited to the most current period, mid-year 2018.
- Competitive availability analysis at higher speeds tiers. In past research, USTelecom has provided current and historical analysis of competitive availability at different speed tiers. Previously, USTelecom's competitive availability analysis included service at 25 mbps down / 3 mbps up; 10 mbps down / 1 mbps up; and at any speed. With this release, USTelecom provides analysis of competitive availability 1 gbps download, 940 mbps download, and 100 mbps down / 10 mbps up. The competitive availability data for these latter three speed tiers below are limited to the most current data for mid-year 2018.

Highlights as of Mid-Year 2018

- 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; 97 percent of Americans had access to at least one *wired* broadband network at any speed and 86 percent had access to at least two (mid 2018 data). 99.8 percent of Americans had at least one mobile broadband network available and 98 percent had a choice of three or more LTE providers (end 2017 data).
- As expected, deployment and competition are highest at lower speeds, and in low-cost, non-rural areas.
 - Availability of fixed broadband was 97 percent at 10/1 mbps; 94 percent at 25/3 mbps; and 90 percent at 100/10 mbps. Availability of wired broadband was 95 percent at 10/1 mbps; 92 percent at 25/3; and 89 percent at 100/10 mbps.
 - Fixed broadband service from two or more providers was available to 81 percent of Americans at 10/1 mbps; 65 percent at 25/3 mbps; and 49 percent at 100/10 mbps. Wired broadband service from two or more providers was available to 72 percent of Americans at 10/1 mbps; 59 percent at 25/3 mbps; and 47 percent at 100/10 mbps.
- Deployment and competition are growing rapidly as providers upgrade networks with new technology and increased capacity. From end of 2015 to mid-2018:
 - Fiber deployment grew by 12 percentage points, increasing from 21 percent to 33 percent of homes.
 - Availability of 100/10 mbps fixed broadband increased by 24 percentage points, from 66 percent to 90 percent of homes.
 - Competitive availability of wired broadband at 25 mbps download (DL) and 3 mbps upload (UL) increased by 28 percentage points, from 31 to 59 percent of homes.
- Rural deployment is growing and the gaps between non-rural and rural deployment are declining. In rural areas, from year-end 2015 to mid-2018:
 - Availability of fixed broadband at 10/1 mbps increased by 11 percentage points from 78 percent to 89 percent; 25/3 mbps increased by 15 percentage points from 60 percent to 75 percent; 100/10 mbps increased by 30 percentage points from 31 percent to 61 percent.
 - The difference between non-rural and rural deployment of fixed broadband at 10 mbps DL and 1 mbps UL narrowed from 21 percent to 10 percent; and at 25 mbps DL and 3 mbps UL, the gap narrowed from 37 percent to 24 percent.
- Two or more wired broadband options at any speed were available to 86 percent of homes in the U.S., compared to 45 percent in Europe.
- New analysis of a 940 mbps or greater download speed tier shows that deployment of near-gigabit broadband is wider than commonly known. A comparative analysis of broadband availability based on literal gigabit speed thresholds significantly understates deployment and competition at cutting-edge speeds. As of mid-year 2018:
 - 26 percent of homes could get 1 gbps fixed broadband and 3 percent had a choice of two or more providers.
 - 67 percent could get 940 mbps fixed broadband and 20 percent had a choice of two or more providers.
 - The cable industry [says](#) it now offers “gigabit” service to more than 80 percent of homes.
- The charts and tables below provide additional details, including breakouts by technology, speed, and geography. The sources for this research include FCC Form 477 data, which some have [criticized](#) for overstating deployment, particularly in large Census Blocks in low-density rural areas. At large levels of aggregation, the degree of overstatement is proportionately inconsequential to the broader conclusions and trends described in USTelecom’s national analysis. For more detailed discussion, see USTelecom’s [July 2019 Deployment Research Brief](#).

Chart 1 – Mid-2018 Broadband Deployment Highlights

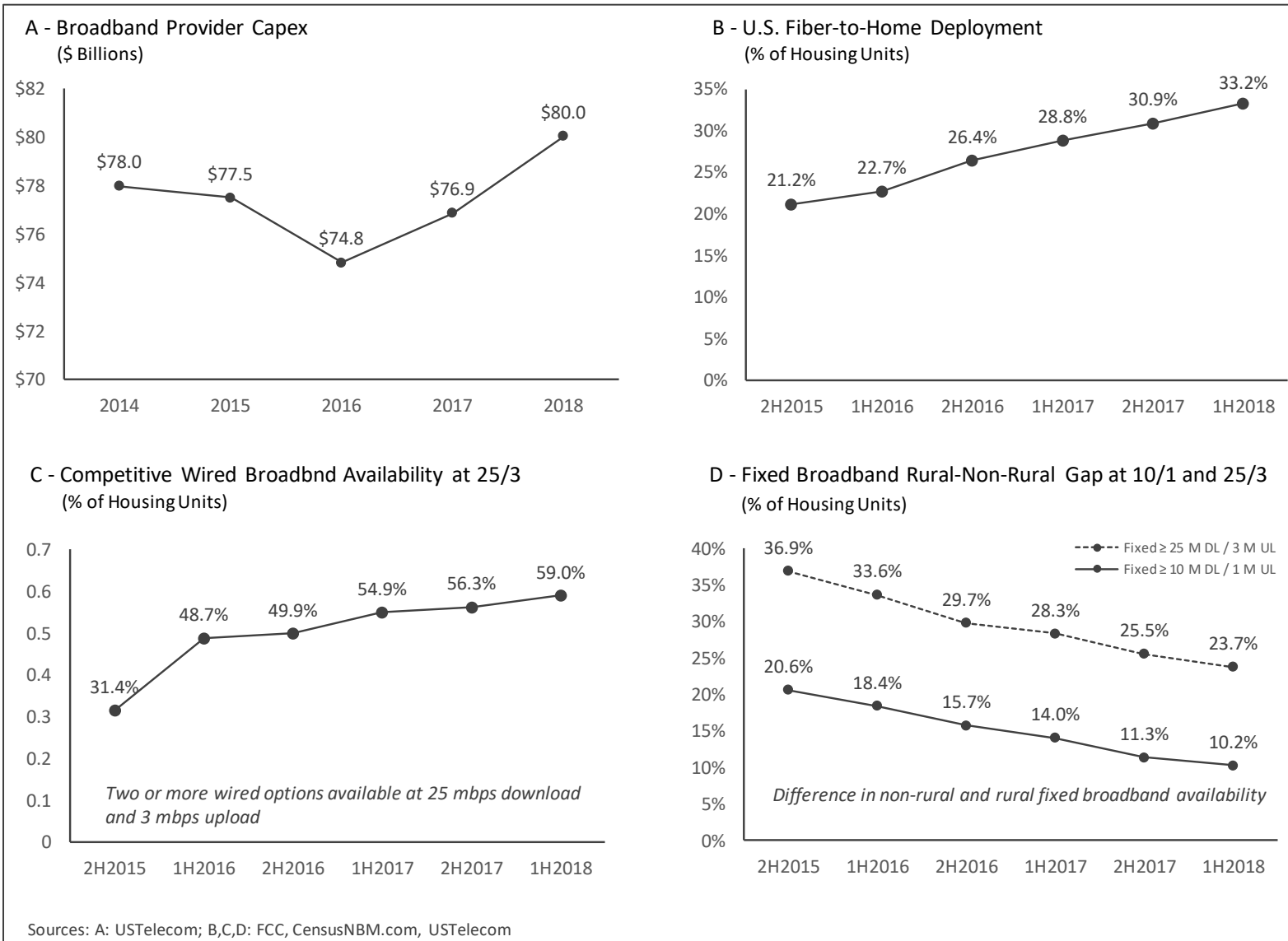
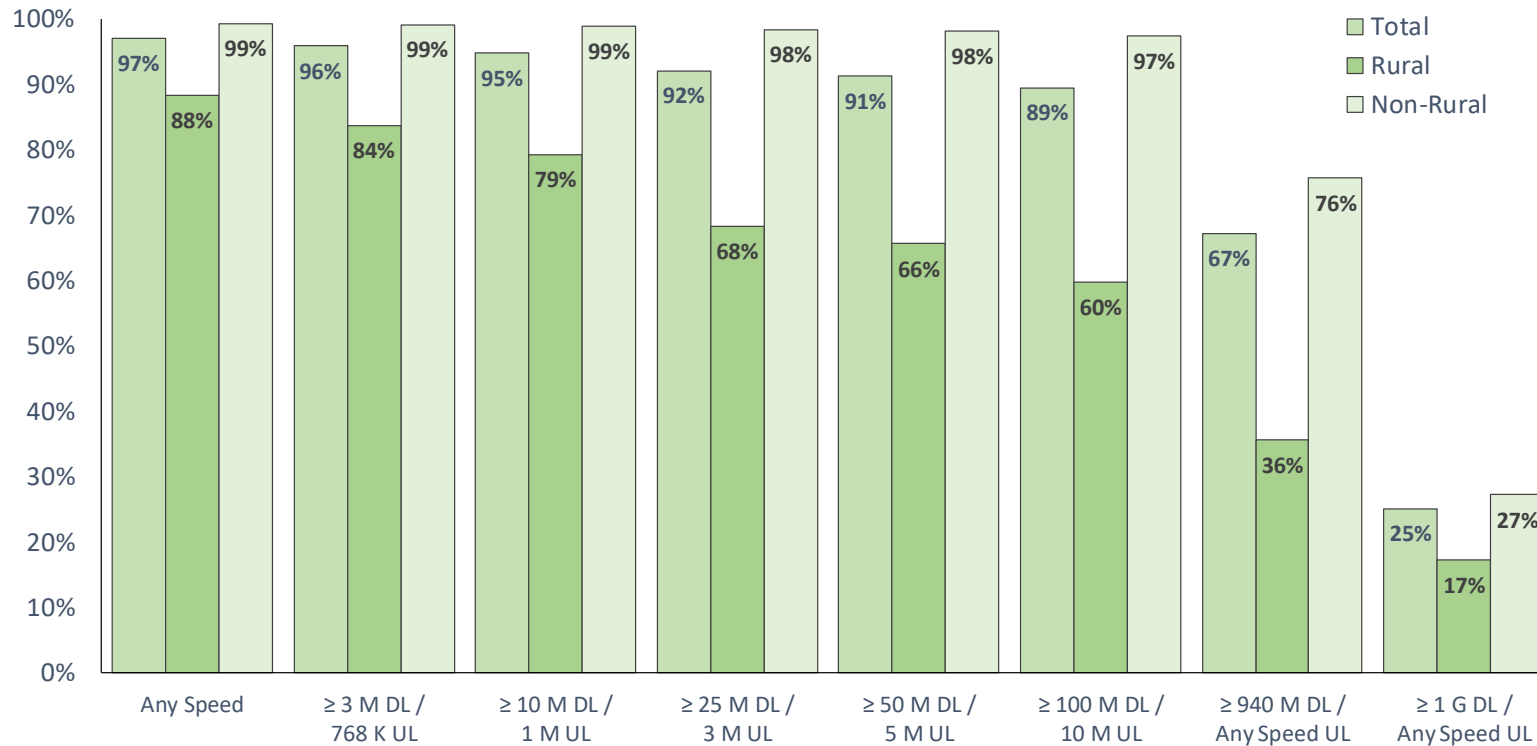


Chart 2 – U.S. Wired Broadband Availability – Total, Rural, and Non-Rural

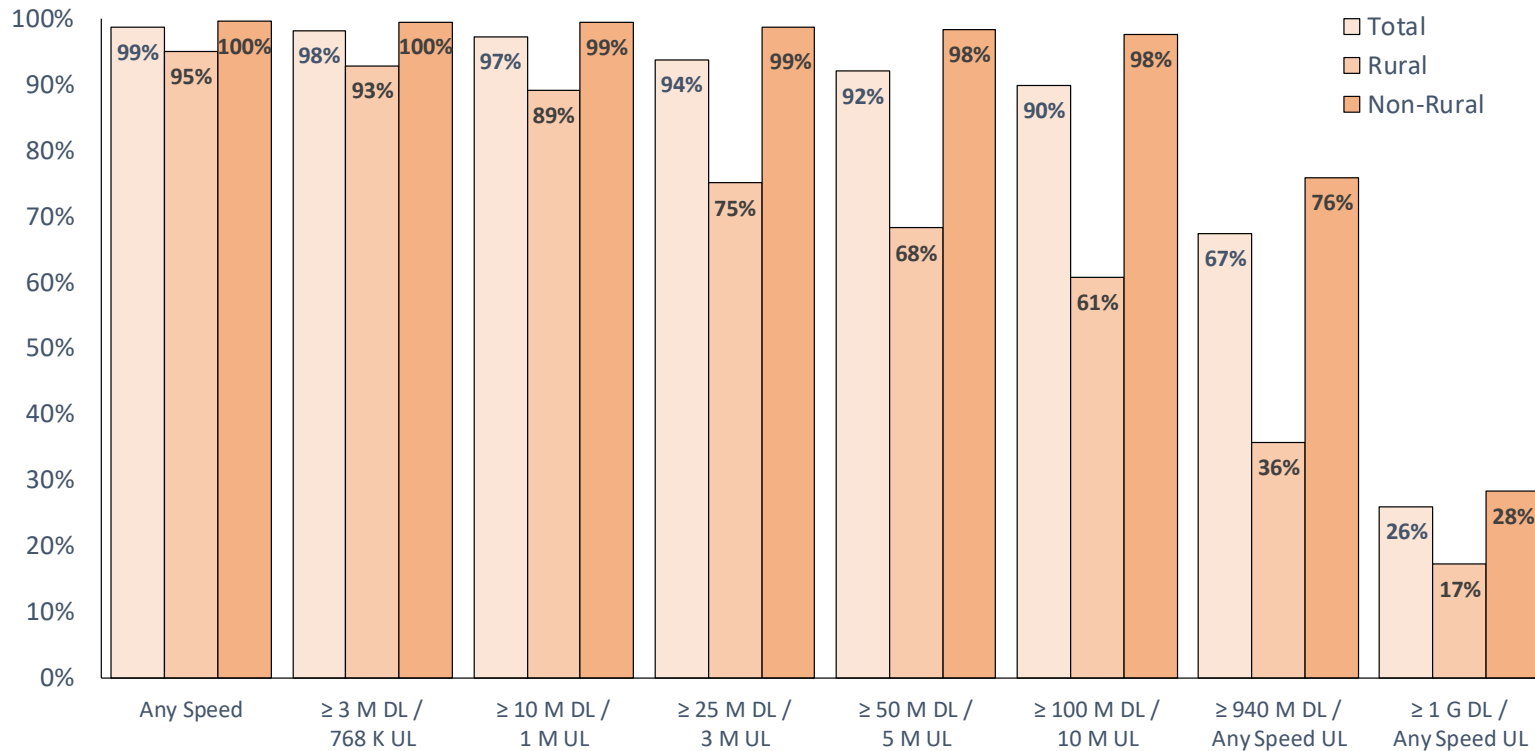
U.S. Wired Broadband Availability by Speed and Geographic Area, Mid-Year 2018 (Percentage of Housing Units)



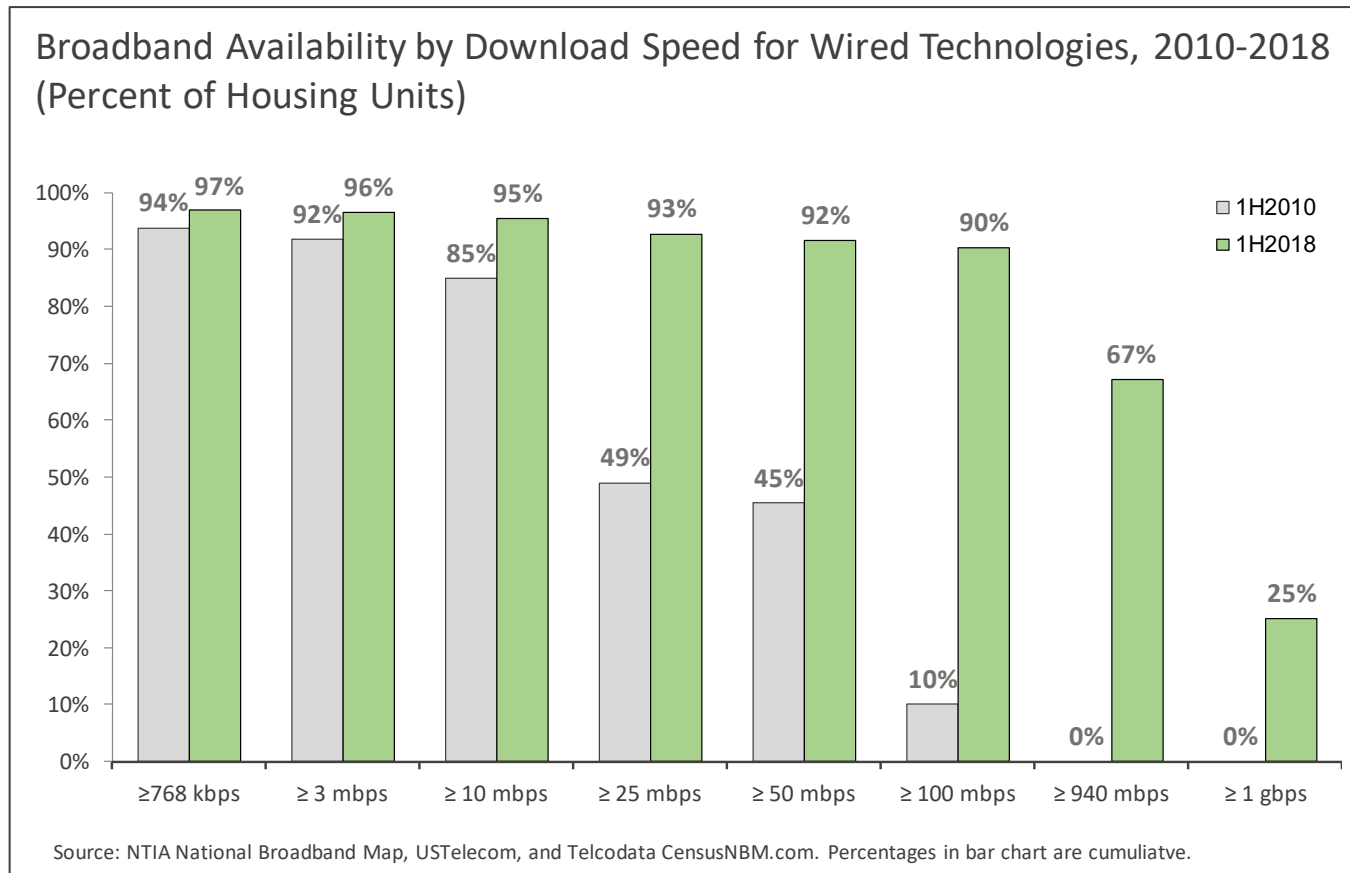
Source: FCC, USTelecom, and Telcodata CensusNBM.com

Chart 3 – U.S. Fixed Broadband Availability – Total, Rural, and Non-Rural

U.S. Fixed Broadband Availability by Speed and Geographic Area, Mid-Year 2018
(Percentage of Housing Units)



Source: FCC, USTelecom, and Telcodata CensusNBM.com

Chart 4 – Historical U.S. Wired Broadband Availability 2010-2018

Note: Historical 2010 data are available for “wired” broadband and download speeds only.

Chart 5 – Competitive Availability of Wired, Fixed, and Mobile Broadband

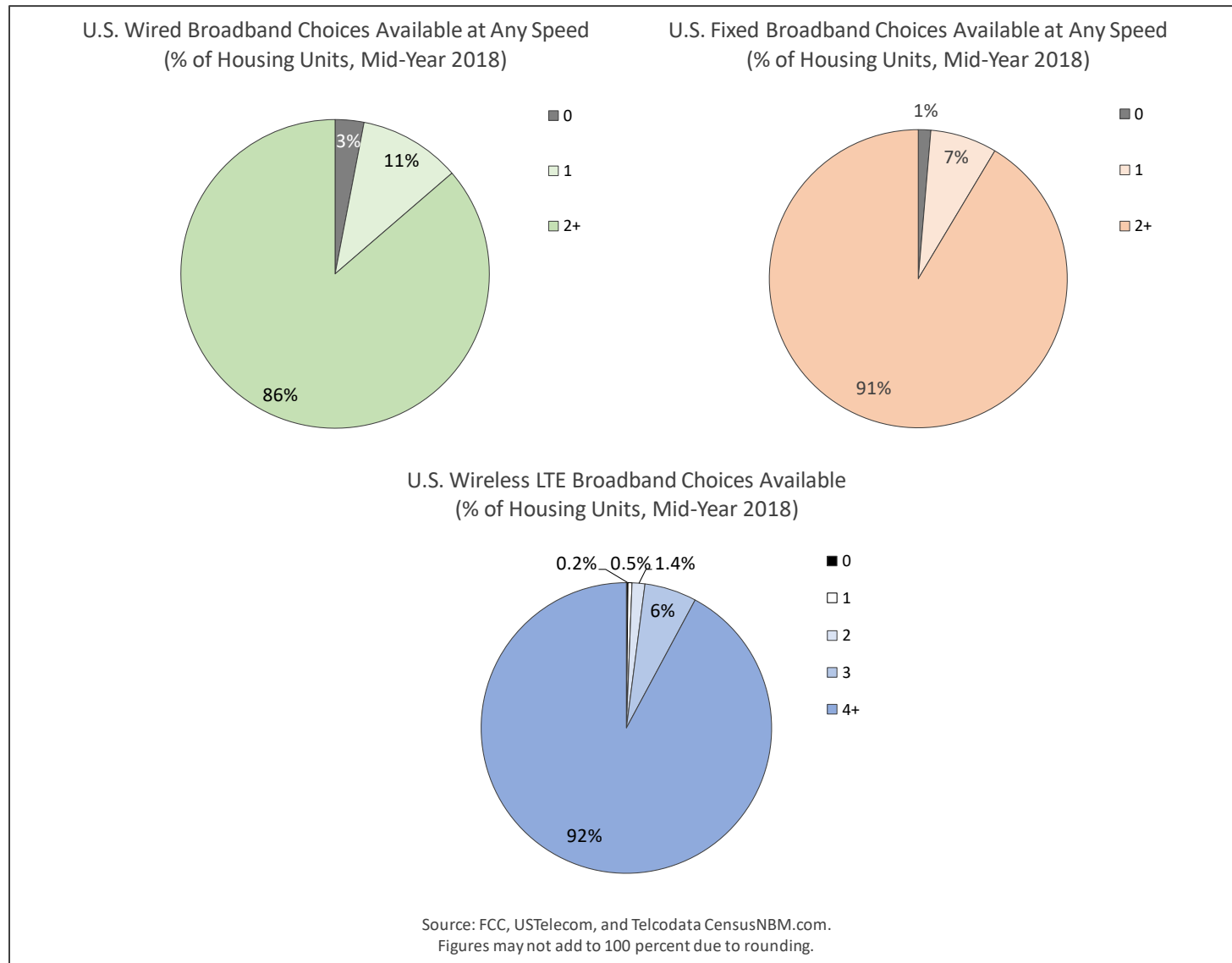
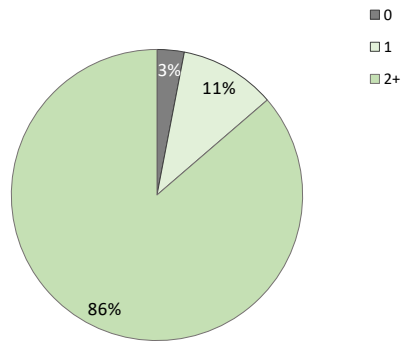


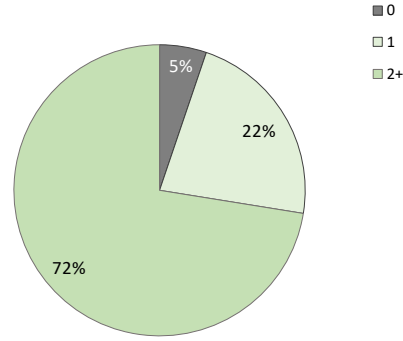
Chart 6 – Nationwide Competitive Availability of Wired Broadband at Different Speed Tiers

U.S. Wired Broadband Choices Available at Any Speed
(% of Housing Units, Mid-Year 2018)



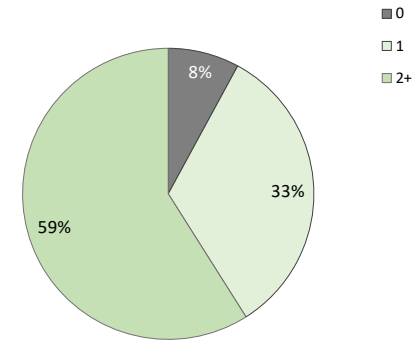
Source: FCC, USTelecom, and Telcodata CensusNBM.com.

U.S. Wired Broadband Choices Available at 10 / 1 Mbps
(% of Housing Units, Mid-Year 2018)



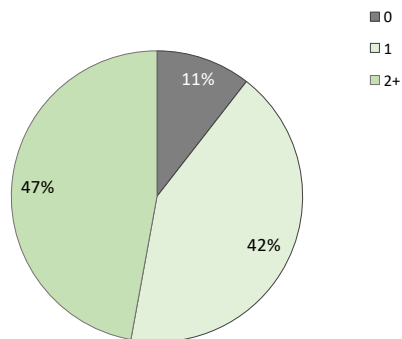
Source: FCC, USTelecom, and Telcodata CensusNBM.com.

U.S. Wired Broadband Choices Available at 25 / 3 Mbps
(% of Housing Units, Mid-Year 2018)



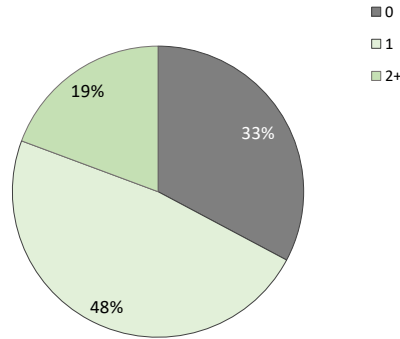
Source: FCC, USTelecom, and Telcodata CensusNBM.com.

U.S. Wired Broadband Choices Available at 100 / 10 Mbps
(% of Housing Units, Mid-Year 2018)



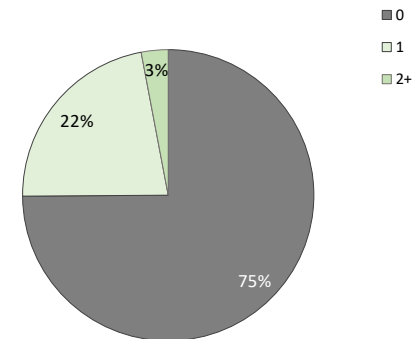
Source: FCC, USTelecom, and Telcodata CensusNBM.com.

U.S. Wired Broadband Choices Available at 940 Mbps Down
(% of Housing Units, Mid-Year 2018)



Source: FCC, USTelecom, and Telcodata CensusNBM.com.

U.S. Wired Broadband Choices Available at 1 Gbps Down
(% of Housing Units, Mid-Year 2018)



Source: FCC, USTelecom, and Telcodata CensusNBM.com.

Chart 7 – Nationwide Competitive Availability of Fixed Broadband at Different Speed Tiers

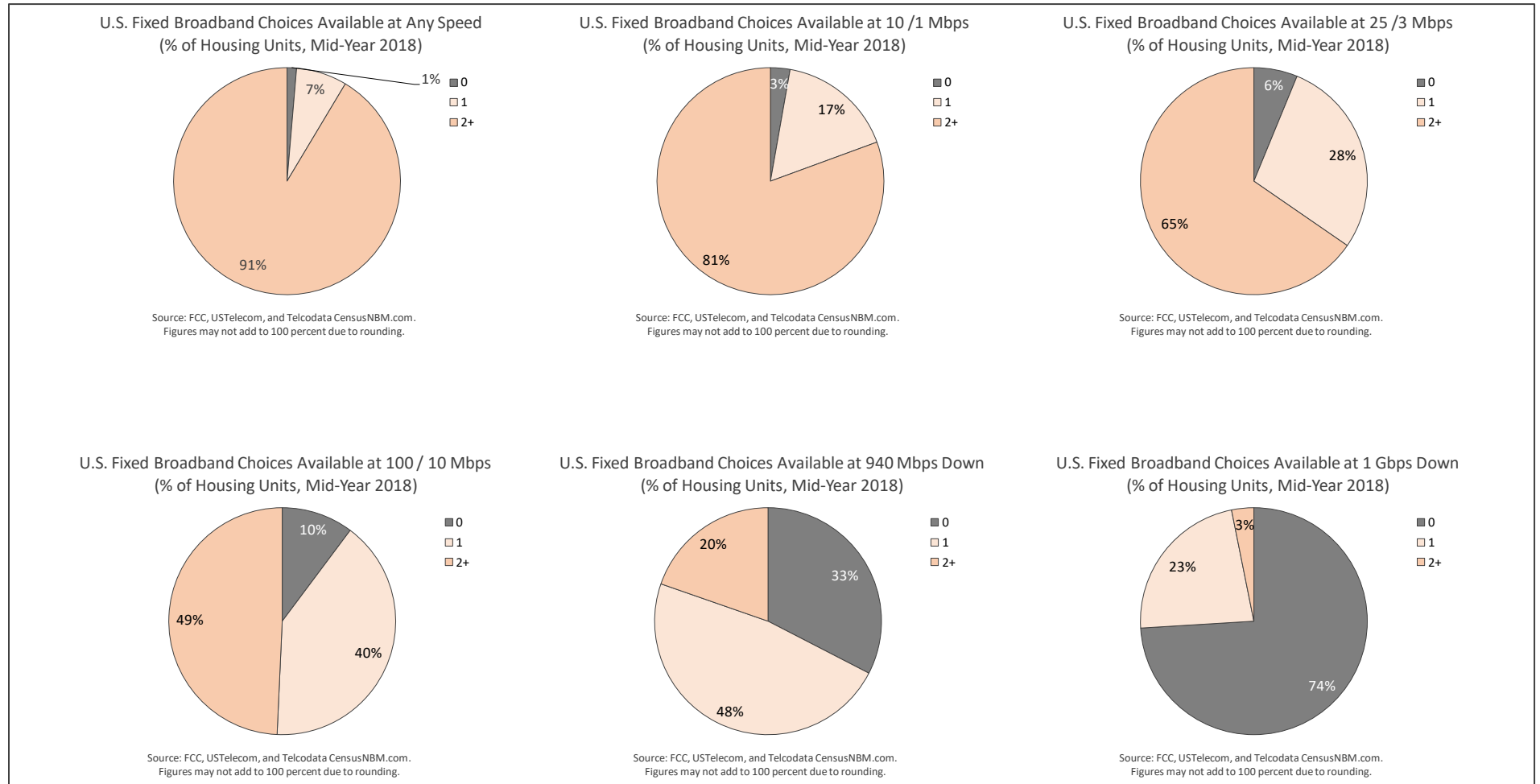
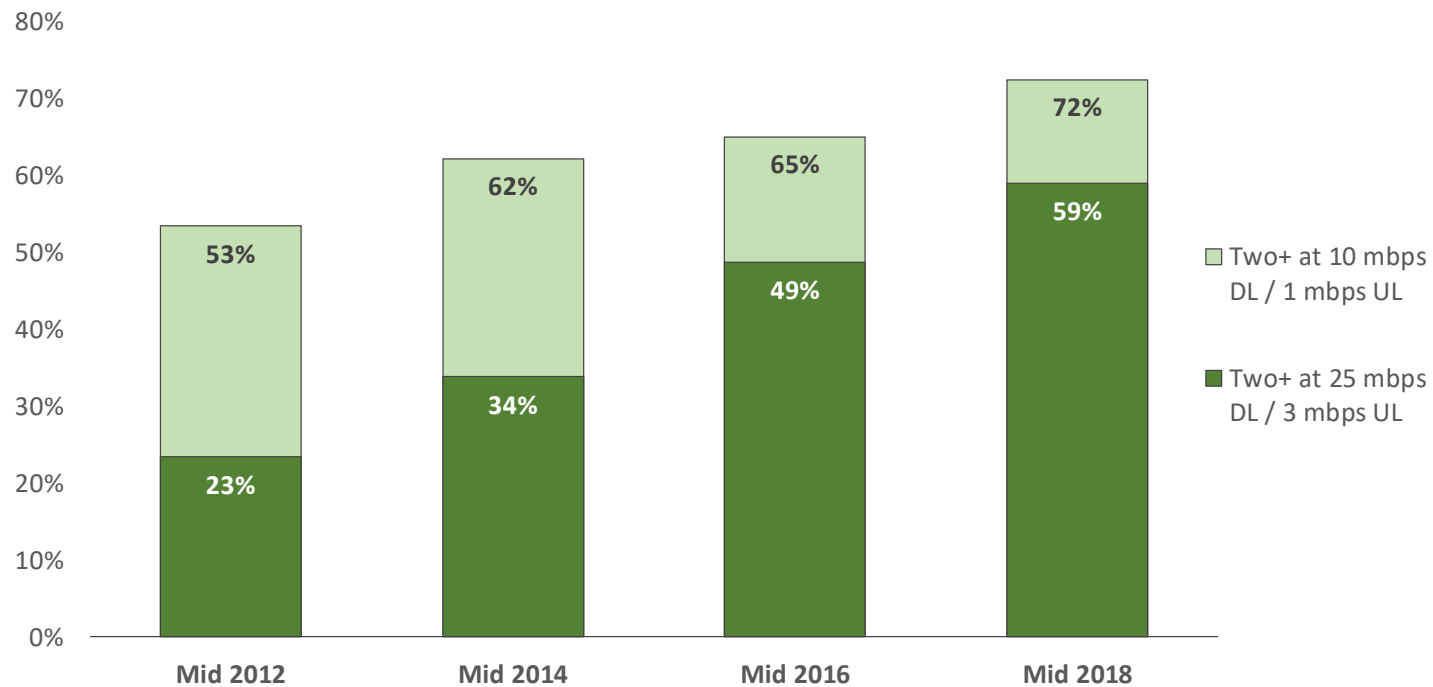


Chart 8 – Competitive Availability of Wired Broadband at Different Speed Tiers 2012 - 2018

U.S. Broadband Competition: Services Deployed Widely and Speeds Growing Rapidly

(% of U.S. Housing Units with Two or More Wired Broadband Options Available at Selected Speed Tiers, Mid-2012 to Mid-2018)

Two or more wired broadband providers are available to 86 percent of Americans and at least one option is available to 97 percent. Competition occurs dynamically over time as providers upgrade network speed and quality. In addition to wired options from telecom, cable, and others, multiple satellite and wireless options are available to nearly all Americans.



Sources: FCC, NTIA, USTelecom, and Telcodata CensusNBM.com.

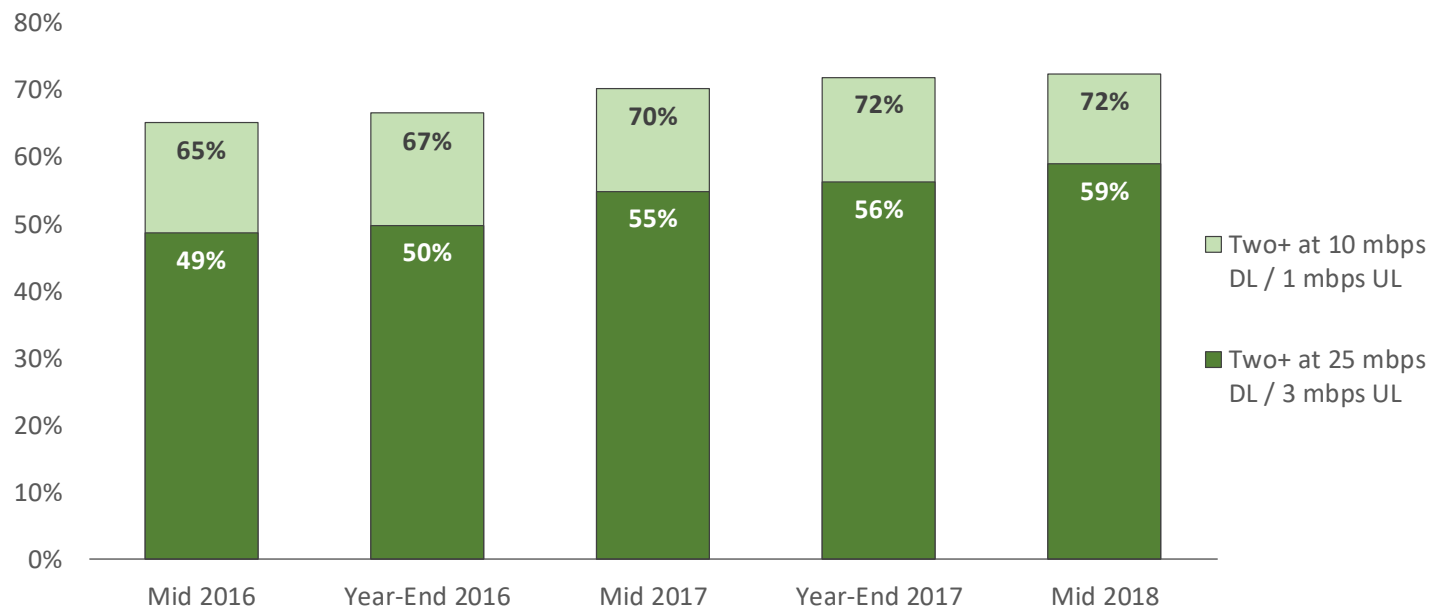
10 megabit per second download / 1 megabit per second upload estimated for 2012 and 2014 based on 10m download / 768 kilobit upload data available from NTIA. Data were adjusted proportionately according to FCC 2016 reported data for 10m DL / 1m UL and 10m DL / 768k UL.

Chart 9 – Competitive Availability of Wired Broadband at Different Speed Tiers 2016 - 2018

U.S. Broadband Competition: Services Deployed Widely and Speeds Growing Rapidly

(% of U.S. Housing Units with Two or More Wired Broadband Options Available at Selected Speed Tiers, Mid-2016 to Mid-2018)

Two or more wired broadband providers are available to 86 percent of Americans and at least one option is available to 97 percent. Competition occurs dynamically over time as providers upgrade network speed and quality. In addition to wired options from telecom, cable, and others, multiple satellite and wireless options are available to nearly all Americans.



Sources: FCC, USTelecom, and Telcodata CensusNBM.com.

Chart 10 – Competitive Availability of Wired Broadband: Total U.S. with Rural and Non-Rural Components by Speed Tier

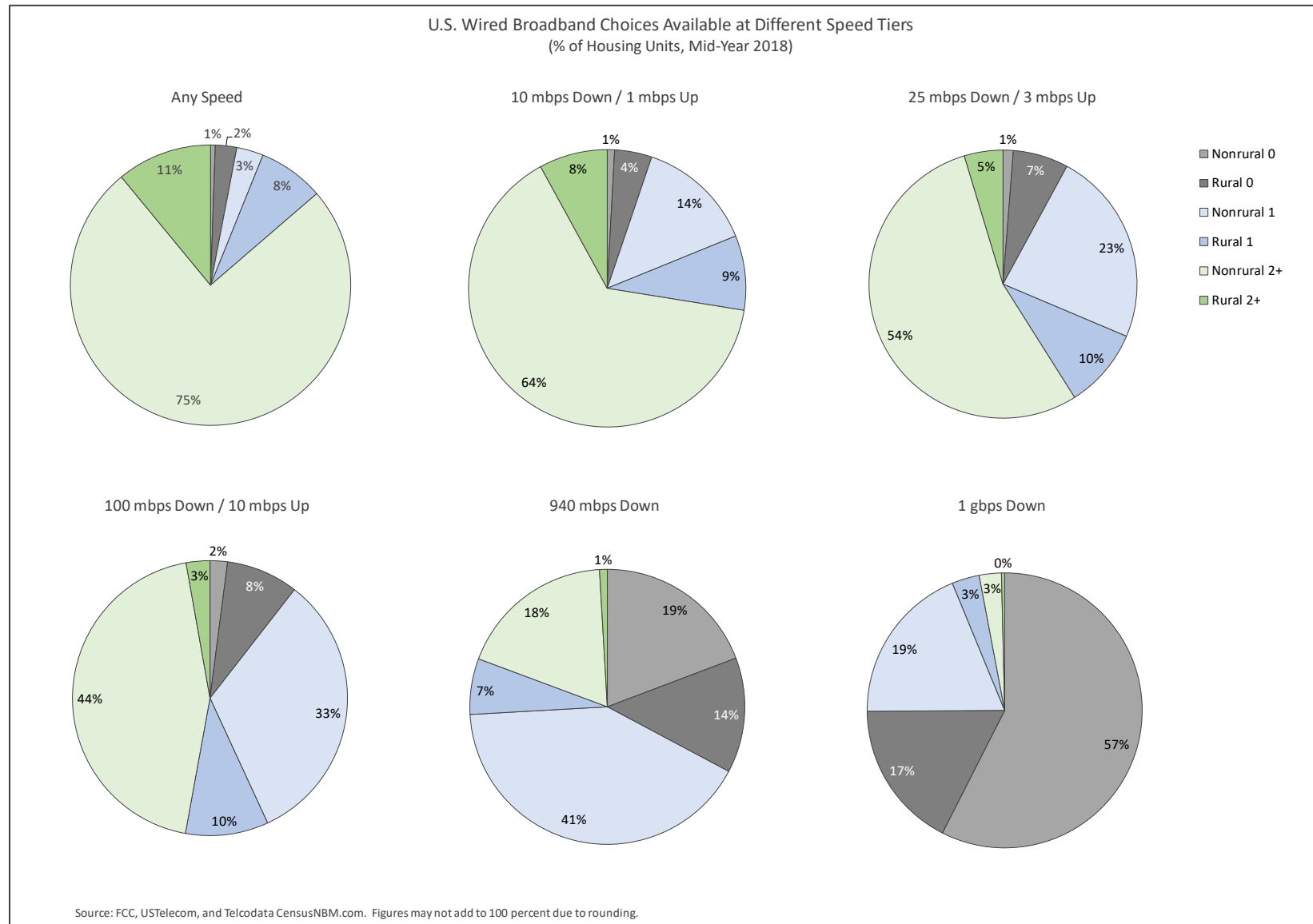


Chart 11– Competitive Availability of Fixed Broadband: Total U.S. with Rural and Non-Rural Components by Speed Tier

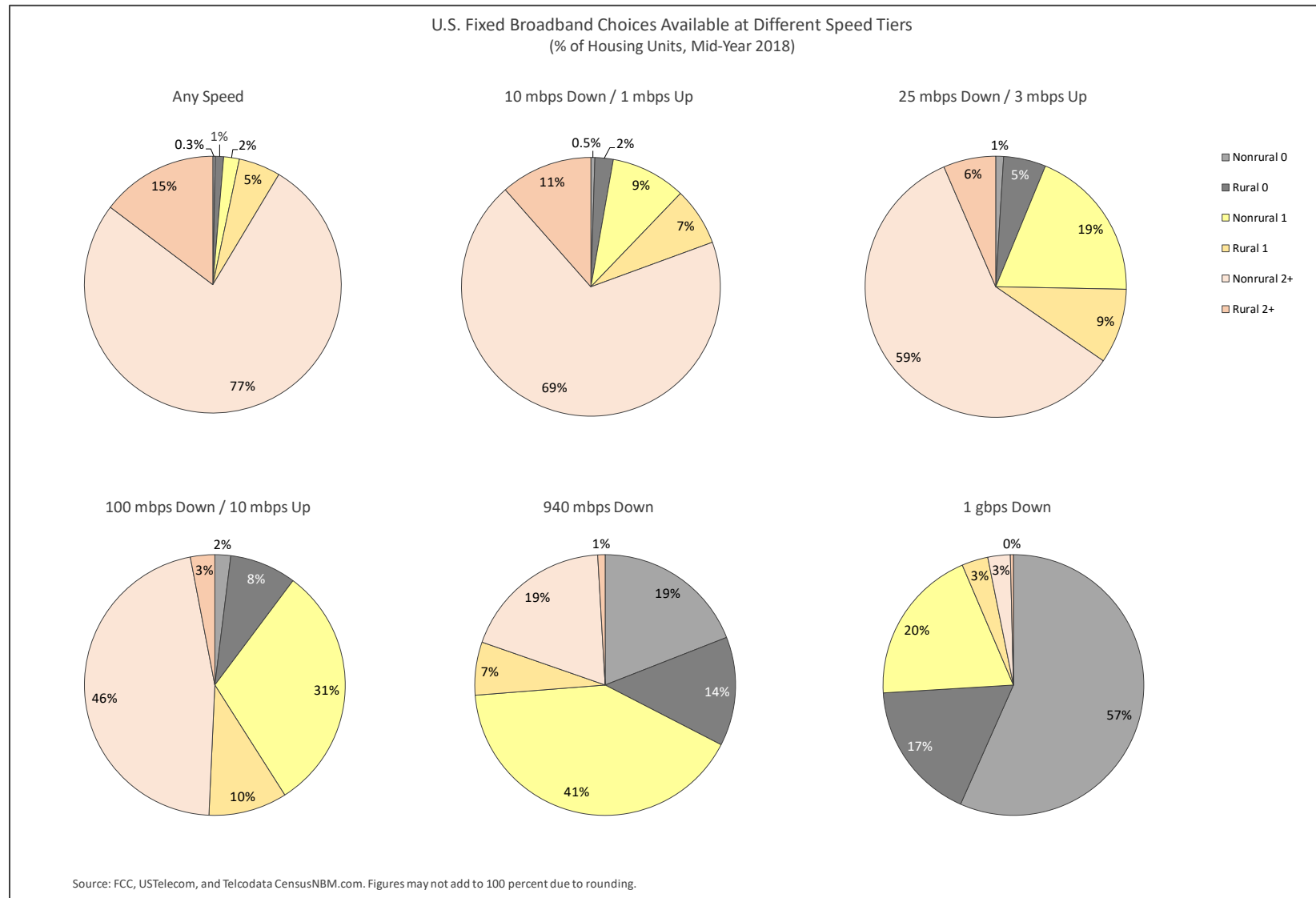


Chart 12 – Competitive Availability United States vs. Europe

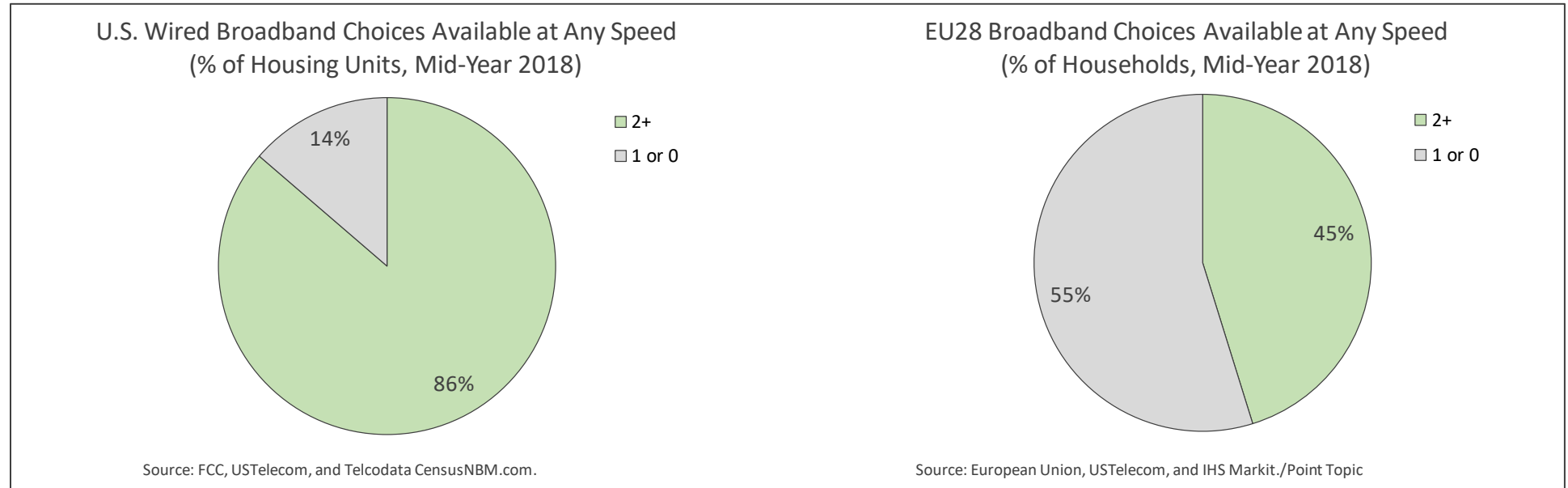


Chart 13 – Growing Rural Broadband Deployment at 10/1 mbps, 25/3 mbps, and 100/10 mbps

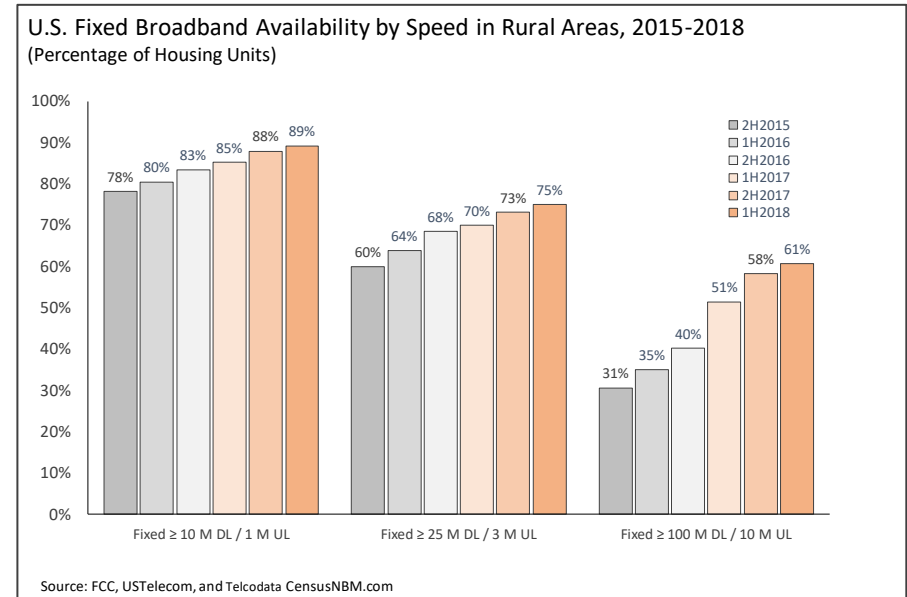
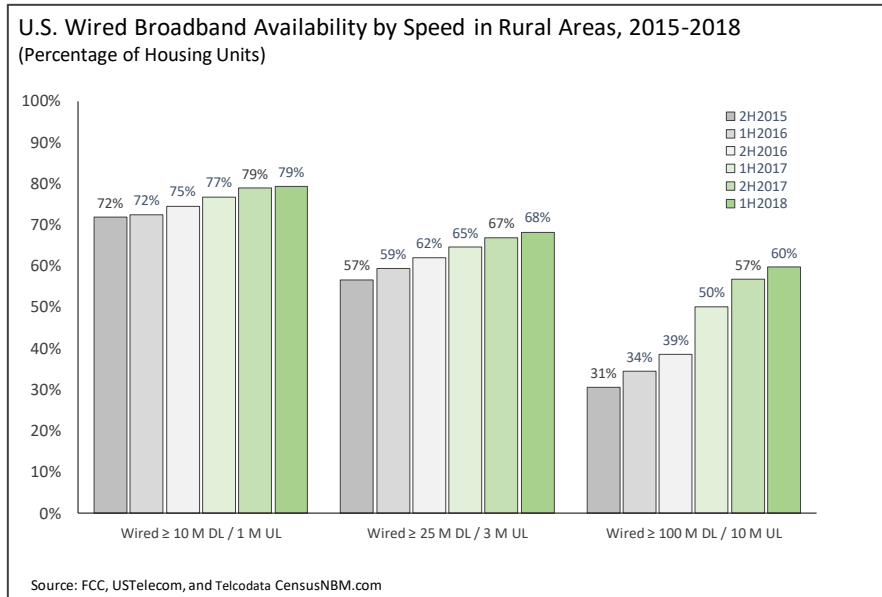
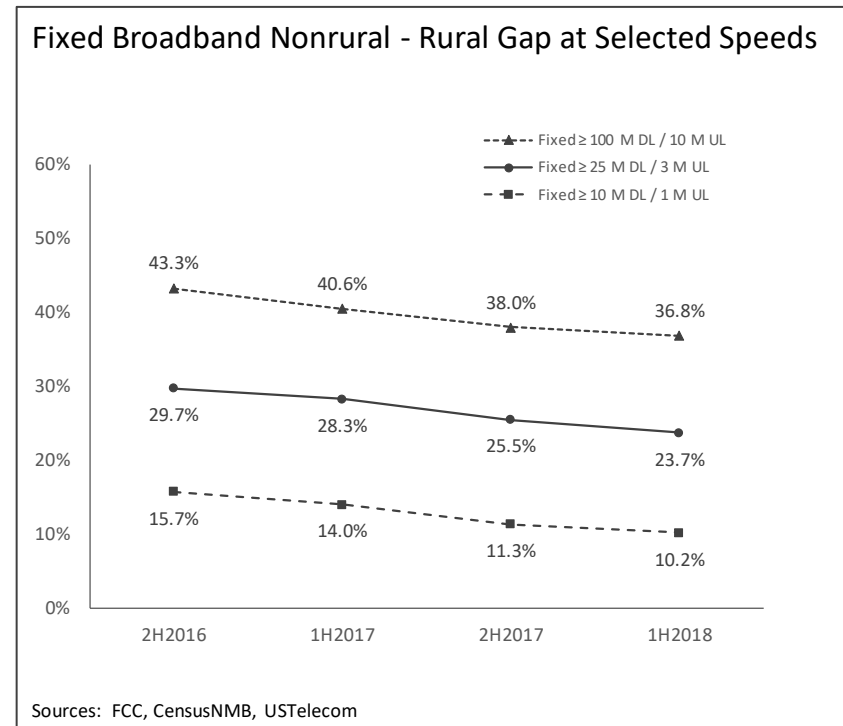
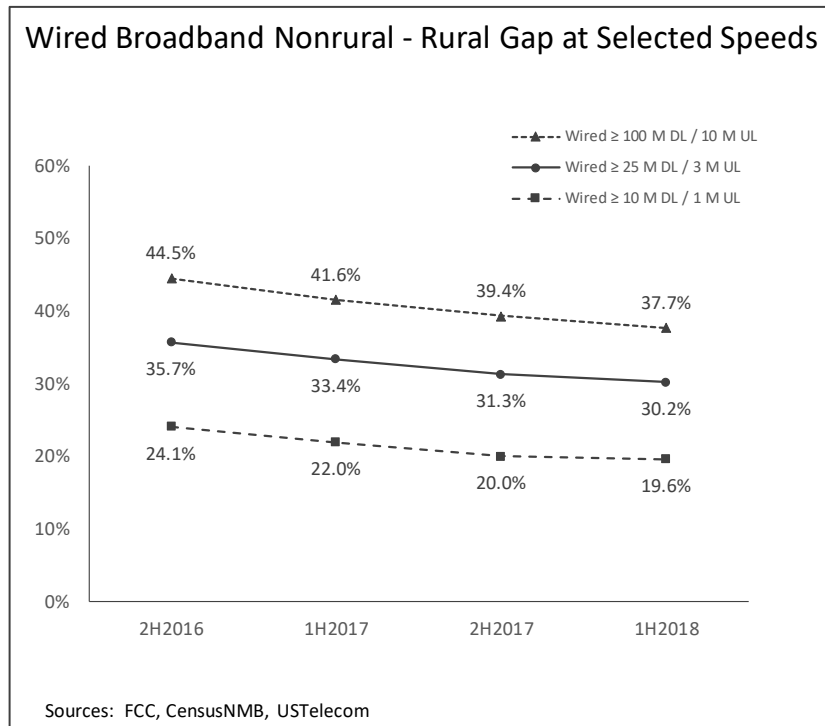


Chart 14 – Declining Rural Broadband Deployment Gaps at 10/1 mbps, 25/3 mbps, and 100/10 mbps



Note: Broadband gap data for 100 /10 Mbps are not available prior to year-end 2016.

Appendix A – Mid-Year 2018 Broadband Availability by Housing Units for All Areas, Download and Upload

US Broadband Availability by Technology and Speed, Mid-Year 2018, Selected Download and Upload Speeds (Percentage of Housing Units)

All Areas

Technology	Total HU Any Speed	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 ≥ 940 M DL	Total HU ≥ 1 G DL
Any Fixed Technology Except Satellite	98.6%	98.1%	97.2%	93.8%	92.0%	89.8%	67.4%	26.0%
Any Wired Technology	97.0%	95.9%	94.8%	92.1%	91.3%	89.5%	67.2%	25.1%
Any Wired Technology Except Cable	93.6%	85.9%	77.3%	61.2%	58.2%	47.6%	25.8%	4.4%
DSL	89.7%	79.2%	65.0%	41.6%	34.7%	21.4%	0.07%	0.07%
Asymmetric xDSL	64.2%	28.8%	13.0%	3.4%	0.1%	0.1%	0.02%	0.02%
ADSL2	61.2%	53.0%	24.2%	3.7%	0.3%	0.1%	0.02%	0.02%
VDSL	44.1%	43.9%	43.2%	37.9%	34.3%	21.2%	0.03%	0.03%
Symmetric xDSL	0.7%	0.3%	0.2%	0.1%	0.1%	0.1%	0.0003%	0.0003%
Copper	2.6%	2.6%	2.5%	0.9%	0.7%	0.7%	0.06%	0.06%
Fiber	33.2%	33.2%	33.2%	32.7%	32.6%	32.1%	25.7%	17.3%
Cable	88.8%	88.8%	88.7%	88.3%	87.9%	87.1%	58.9%	10.3%
DOCSIS 3.1	55.7%	55.7%	55.7%	55.7%	55.7%	55.7%	55.4%	5.7%
DOCSIS 3.0	38.4%	38.4%	38.4%	38.0%	37.7%	36.6%	4.9%	4.4%
DOCSIS 1 - 1.1 - 2.0	1.1%	1.1%	1.1%	0.8%	0.2%	0.2%	0.0002%	0.0002%
Cable Other	1.4%	1.3%	1.3%	1.2%	1.1%	0.9%	0.4%	0.4%
Terrestrial Fixed Wireless	36.2%	35.2%	31.9%	19.5%	10.8%	6.5%	1.0%	1.0%
Satellite	100.00%	99.94%	99.94%	99.94%	47.59%	0.00%	0.00%	0.00%

Source: FCC, USTelecom, and Telcodata CensusNBM.com

Appendix A – Mid-Year 2018 Broadband Availability by Housing Units for Rural Areas, Download and Upload

US Broadband Availability by Technology and Speed, Mid-Year 2018, Download and Upload Speeds (Percentage of Housing Units)

Rural Areas

Technology	Rural HU Any Speed	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 ≥ 940 M DL	Rural HU ≥ 1 G DL
Any Fixed Technology Except Satellite	95.0%	92.8%	89.1%	75.1%	68.2%	60.7%	35.7%	17.3%
Any Wired Technology	88.3%	83.7%	79.3%	68.2%	65.6%	59.7%	35.6%	17.1%
Any Wired Technology Except Cable	81.6%	71.4%	59.8%	34.7%	30.5%	20.3%	11.2%	10.4%
DSL	76.5%	64.9%	51.1%	22.1%	17.2%	6.6%	0.09%	0.09%
Asymmetric xDSL	45.0%	25.4%	7.1%	1.0%	0.3%	0.2%	0.06%	0.06%
ADSL2	52.0%	42.8%	29.8%	1.4%	0.3%	0.04%	0.01%	0.01%
VDSL	31.3%	30.7%	29.1%	20.4%	16.6%	6.3%	0.03%	0.03%
Symmetric xDSL	0.7%	0.4%	0.3%	0.2%	0.2%	0.1%	0.0002%	0.0002%
Copper	0.5%	0.5%	0.4%	0.0%	0.0%	0.0%	0.01%	0.01%
Fiber	16.9%	16.9%	16.9%	16.3%	16.0%	15.0%	11.2%	10.3%
Cable	55.5%	55.3%	55.1%	54.1%	53.2%	51.4%	28.1%	8.0%
DOCSIS 3.1	26.3%	26.3%	26.3%	26.3%	26.3%	26.2%	25.8%	5.7%
DOCSIS 3.0	30.7%	30.6%	30.5%	29.7%	29.0%	26.7%	2.2%	2.1%
DOCSIS 1 - 1.1 - 2.0	1.2%	1.1%	1.0%	0.5%	0.4%	0.3%	0.0001%	0.0001%
Cable Other	1.3%	1.3%	1.2%	1.1%	0.9%	0.8%	0.3%	0.3%
Terrestrial Fixed Wireless	41.0%	39.0%	34.4%	17.6%	6.7%	2.8%	0.1%	0.1%
Satellite	100.00%	99.84%	99.84%	99.84%	43.23%	0.00%	0.00%	0.00%

Source: FCC, USTelecom, and Telcodata CensusNBM.com

Appendix A – Mid-Year 2018 Broadband Availability by Housing Units for Non-Rural Areas, Download and Upload

US Broadband Availability by Technology and Speed, Mid-Year 2018, Download and Upload Speeds (Percentage of Housing Units)

Non-Rural Areas

Technology	Nonrural HU Any Speed	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 ≥940 M DL	Nonrural HU ≥1 G DL
Any Fixed Technology Except Satellite	99.6%	99.5%	99.4%	98.8%	98.3%	97.5%	75.9%	28.3%
Any Wired Technology	99.3%	99.1%	98.9%	98.4%	98.1%	97.4%	75.6%	27.2%
Any Wired Technology Except Cable	96.8%	89.7%	82.0%	68.3%	65.5%	54.9%	29.7%	2.8%
DSL	93.2%	83.0%	68.7%	46.8%	39.4%	25.3%	0.1%	0.1%
Asymmetric xDSL	69.4%	29.8%	14.6%	4.0%	0.1%	0.04%	0.01%	0.01%
ADSL2	63.7%	55.7%	22.7%	4.2%	0.3%	0.1%	0.02%	0.02%
VDSL	47.5%	47.4%	46.9%	42.6%	39.0%	25.2%	0.03%	0.03%
Symmetric xDSL	0.7%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0003%	0.0003%
Copper	3.1%	3.1%	3.1%	1.2%	0.9%	0.9%	0.07%	0.07%
Fiber	37.6%	37.6%	37.6%	37.0%	37.0%	36.7%	29.6%	19.1%
Cable	97.7%	97.7%	97.6%	97.4%	97.2%	96.6%	67.2%	10.9%
DOCSIS 3.1	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.3%	5.7%
DOCSIS 3.0	40.5%	40.5%	40.5%	40.2%	40.1%	39.2%	5.7%	5.0%
DOCSIS 1 - 1.1 - 2.0	1.1%	1.1%	1.1%	0.9%	0.2%	0.1%	0.0003%	0.0003%
Cable Other	1.4%	1.3%	1.3%	1.3%	1.1%	0.9%	0.5%	0.5%
Terrestrial Fixed Wireless	34.9%	34.2%	31.3%	20.0%	11.9%	7.5%	1.3%	1.3%
Satellite	100.00%	99.96%	99.97%	99.97%	48.74%	0.00%	0.00%	0.00%

Source: FCC, USTelecom, and Telcodata CensusNBM.com

Appendix B Mid-Year 2018 Broadband Availability by Housing Units for All Areas, Download Only

US Broadband Availability by Technology and Speed, Mid-Year 2018, Download Speeds Only (Percentage of Housing Units)

All Areas

Technology	Total HU Any Speed	Total HU ≥3 M DL	Total HU ≥10 M DL	Total HU ≥25 M DL	Total HU ≥50 M DL	Total HU ≥100 M DL	Total HU ≥940 M DL	Total HU ≥1 G DL
Any Fixed Technology Except Satellite	98.6%	98.4%	97.5%	94.4%	92.3%	90.5%	67.4%	26.0%
Any Wired Technology	97.0%	96.5%	95.4%	92.7%	91.5%	90.2%	67.2%	25.1%
Any Wired Technology Except Cable	93.6%	89.3%	70.0%	60.4%	50.3%	48.6%	25.8%	4.4%
DSL	89.7%	86.8%	72.2%	45.9%	35.0%	22.4%	0.1%	0.1%
Asymmetric xDSL	64.2%	58.8%	13.3%	3.7%	0.2%	0.1%	0.02%	0.02%
ADSL2	61.2%	59.1%	53.9%	11.5%	0.4%	0.2%	0.02%	0.02%
VDSL	44.1%	43.9%	43.3%	39.7%	34.5%	22.2%	0.03%	0.03%
Symmetric xDSL	0.7%	0.3%	0.2%	0.1%	0.1%	0.1%	0.0003%	0.0003%
Copper	2.6%	2.6%	2.5%	0.9%	0.7%	0.7%	0.06%	0.06%
Fiber	33.2%	33.2%	33.2%	32.7%	32.6%	32.3%	25.7%	17.3%
Cable	88.8%	88.8%	88.7%	88.4%	88.2%	87.7%	58.9%	10.3%
DOCSIS 3.1	55.7%	55.7%	55.7%	55.7%	55.7%	55.7%	55.4%	5.7%
DOCSIS 3.0	38.4%	38.4%	38.4%	38.1%	37.9%	37.2%	4.9%	4.4%
DOCSIS 1 - 1.1 - 2.0	1.1%	1.1%	1.1%	0.8%	0.2%	0.2%	0.0002%	0.0002%
Cable Other	1.4%	1.3%	1.3%	1.3%	1.2%	1.2%	0.4%	0.4%
Terrestrial Fixed Wireless	36.2%	35.3%	31.9%	19.6%	11.0%	6.5%	1.0%	1.0%
Satellite	100.00%	99.94%	99.94%	99.94%	47.59%	47.59%	0.00%	0.00%

Source: FCC, USTelecom, and Telcodata CensusNBM.com

Appendix B Mid-Year 2018 Broadband Availability by Housing Units for Rural Areas, Download Only

US Broadband Availability by Technology and Speed, Mid-Year 2018, Download Speeds Only (Percentage of Housing Units)

Rural Areas

Technology	Rural HU Any Speed	Rural HU ≥3 M DL	Rural HU ≥10 M DL	Rural HU ≥25 M DL	Rural HU ≥50 M DL	Rural HU ≥100 M DL	Rural HU ≥940 M DL	Rural HU ≥1 G DL
Any Fixed Technology Except Satellite	95.0%	93.9%	90.3%	77.5%	68.9%	63.0%	35.7%	17.3%
Any Wired Technology	88.3%	86.1%	81.6%	70.9%	66.2%	62.0%	35.6%	17.1%
Any Wired Technology Except Cable	81.6%	77.7%	65.9%	40.6%	31.0%	22.9%	11.2%	10.4%
DSL	76.5%	72.1%	58.0%	28.8%	17.9%	9.1%	0.1%	0.1%
Asymmetric xDSL	45.0%	38.7%	8.0%	1.3%	0.4%	0.2%	0.06%	0.06%
ADSL2	52.0%	48.8%	42.4%	10.2%	0.4%	0.2%	0.01%	0.01%
VDSL	31.3%	30.9%	29.4%	23.2%	17.2%	8.8%	0.03%	0.03%
Symmetric xDSL	0.7%	0.4%	0.3%	0.2%	0.2%	0.1%	0.0002%	0.0002%
Copper	0.5%	0.5%	0.4%	0.04%	0.04%	0.03%	0.01%	0.01%
Fiber	16.9%	16.9%	16.9%	16.3%	16.1%	15.3%	11.2%	10.3%
Cable	55.5%	55.4%	55.1%	54.3%	53.6%	52.5%	28.1%	8.0%
DOCSIS 3.1	26.3%	26.3%	26.3%	26.3%	26.3%	26.3%	25.8%	5.7%
DOCSIS 3.0	30.7%	30.7%	30.5%	30.0%	29.3%	27.8%	2.2%	2.1%
DOCSIS 1 - 1.1 - 2.0	1.2%	1.1%	1.0%	0.5%	0.4%	0.3%	0.0001%	0.0001%
Cable Other	1.3%	1.3%	1.2%	1.1%	1.0%	0.8%	0.3%	0.3%
Terrestrial Fixed Wireless	41.0%	39.4%	34.4%	17.9%	7.0%	2.9%	0.1%	0.1%
Satellite	100.00%	99.84%	99.84%	99.84%	43.23%	43.23%	0.00%	0.00%

Source: FCC, USTelecom, and Telcodata CensusNBM.com

Appendix B Mid-Year 2018 Broadband Availability by Housing Units for Non-Rural Areas, Download Only

US Broadband Availability by Technology and Speed, Mid-Year 2018, Download Speeds Only (Percentage of Housing Units)

Nonrural Areas

Technology	Nonrural HU Any Speed	Nonrural HU ≥3 M DL	Nonrural HU ≥10 M DL	Nonrural HU ≥25 M DL	Nonrural HU ≥50 M DL	Nonrural HU ≥100 M DL	Nonrural HU ≥940 M DL	Nonrural HU ≥1 G DL
Any Fixed Technology Except Satellite	99.6%	99.6%	99.5%	98.9%	98.5%	97.9%	75.9%	28.3%
Any Wired Technology	99.3%	99.3%	99.1%	98.6%	98.3%	97.8%	75.6%	27.2%
Any Wired Technology Except Cable	96.8%	92.3%	71.1%	65.6%	55.5%	55.5%	29.7%	2.8%
DSL	93.2%	90.7%	76.0%	50.5%	39.5%	25.9%	0.1%	0.1%
Asymmetric xDSL	69.4%	64.2%	14.7%	4.3%	0.1%	0.05%	0.01%	0.01%
ADSL2	63.7%	61.9%	56.9%	11.8%	0.4%	0.2%	0.02%	0.02%
VDSL	47.5%	47.4%	47.0%	44.1%	39.1%	25.7%	0.03%	0.03%
Symmetric xDSL	0.7%	0.2%	0.2%	0.1%	0.0%	0.04%	0.0003%	0.0003%
Copper	3.1%	3.1%	3.1%	1.2%	0.9%	0.9%	0.07%	0.07%
Fiber	37.6%	37.6%	37.6%	37.0%	37.0%	36.8%	29.6%	19.1%
Cable	97.7%	97.7%	97.6%	97.5%	97.4%	97.0%	67.2%	10.9%
DOCSIS 3.1	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.3%	5.7%
DOCSIS 3.0	40.5%	40.5%	40.5%	40.3%	40.1%	39.7%	5.7%	5.0%
DOCSIS 1 - 1.1 - 2.0	1.1%	1.1%	1.1%	0.9%	0.2%	0.2%	0.0003%	0.0003%
Cable Other	1.4%	1.3%	1.3%	1.3%	1.3%	1.3%	0.5%	0.5%
Terrestrial Fixed Wireless	34.9%	34.2%	31.3%	20.0%	12.1%	7.5%	1.3%	1.3%
Satellite	100.00%	99.97%	99.97%	99.97%	48.74%	48.74%	0.00%	0.00%

Source: FCC, USTelecom, and Telcodata CensusNBM.com

Appendix C – 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 mid-year 2018, version 1, released September 10, 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.