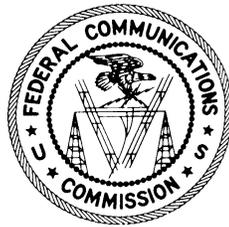


# **Internet Access Services: Status as of June 30, 2015**

Industry Analysis and Technology Division  
Wireline Competition Bureau  
August 2016



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## SECTION 1: OVERVIEW & HIGHLIGHTS

### Introduction

This report summarizes information about Internet access connections in the United States as of June 30, 2015 as collected by FCC Form 477. For purposes of this report, Internet access *connections* are those in service, over 200 kilobits per second (kbps) in at least one direction, and reported to the FCC through Form 477.<sup>1</sup>

The report includes data on total and residential Internet access connections by downstream and upstream speed, by technology, by geography, and over time. Section 2 of the report presents nationwide statistics, Section 3 provides state-level data, and Section 4 includes data on the subscribership differences among counties and census tracts.<sup>2</sup> In addition, Section 5 of the report includes an analysis of the correlations between subscribership ratios and various demographic measures.<sup>3</sup> Maps depicting the number of fixed connections per 1,000 households by census tract and the number of fixed providers by census block are available online at <https://www.fcc.gov/reports-research/reports/internet-access-services-reports/internet-access-services-reports>.

<sup>1</sup> See the Technical Notes and Glossary at the end of this report for more-detailed information about the Form 477 data collection and the meaning of terms used in this report. Note that the Form 477 data for the June 30, 2014 filing period were not subject to typical quality checks. See *High-Speed Services for Internet Access: Status as of December 31, 2014* (March 2016) at 2, available at [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-338630A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-338630A1.pdf).

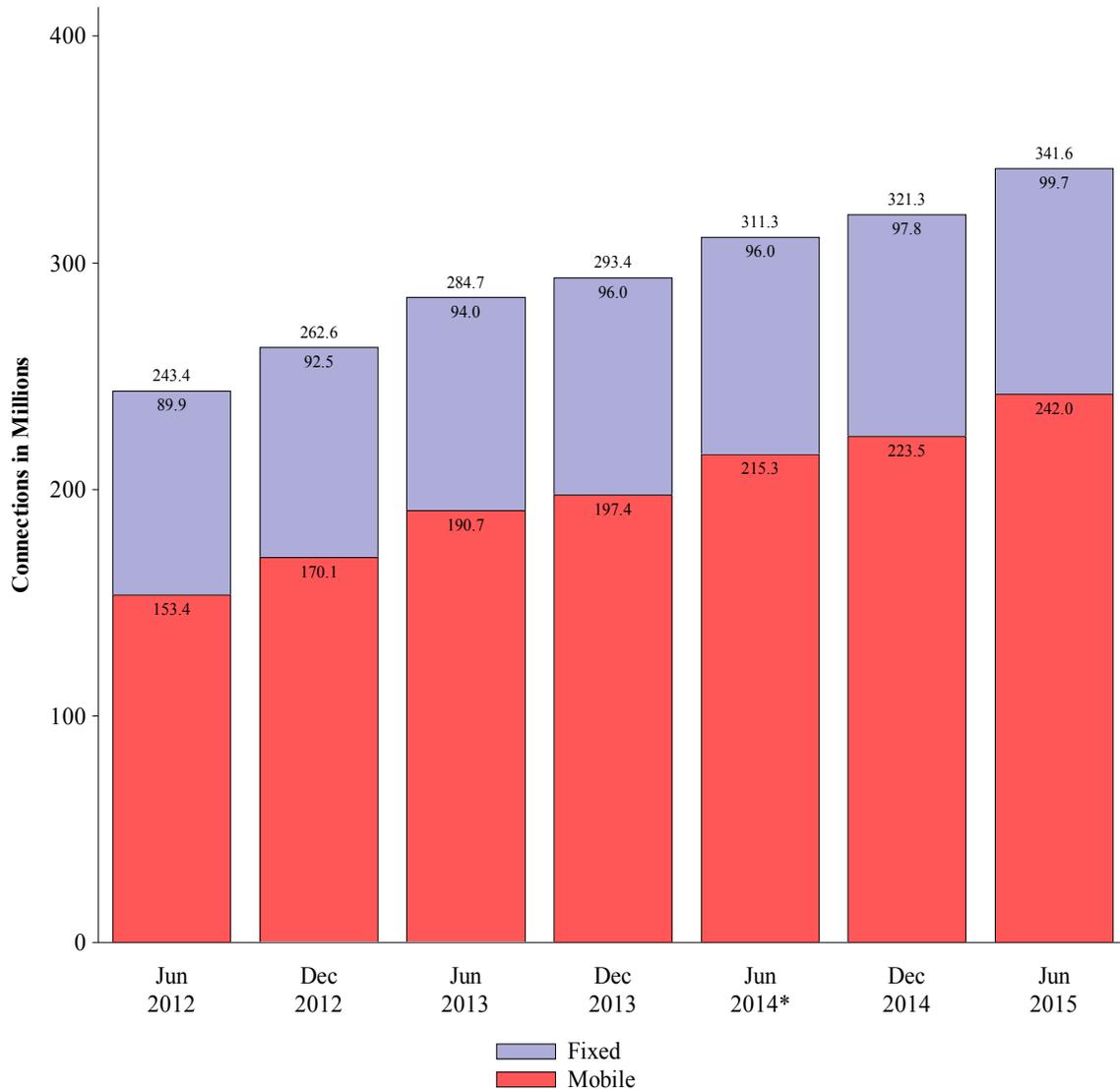
<sup>2</sup> The Commission began collecting census tract-level data for data as of December 31, 2008. See *High-Speed Services for Internet Access: Status as of December 31, 2008* (February 2010) (*December 2008 High-Speed Report*) at 1-4, available at <http://www.fcc.gov/encyclopedia/high-speed-services-internet-access-reports>.

<sup>3</sup> Publicly-available data that are too voluminous to include in this report are available online at <https://www.fcc.gov/general/fcc-form-477-additional-data>.

## Total Connections

- As shown in Figure 1, the total number of Internet connections increased by 9% between June 2014 and June 2015 to 342 million.
- Most of the growth in total Internet connections is attributable to increased mobile Internet access subscribership. The number of mobile Internet connections increased 12% year-over-year to 242 million in June 2015, while the number of fixed connections grew to 100 million – up 4% from June 2014.

**Figure 1**  
**Fixed and Mobile Connections 2012-2015**



\* The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).

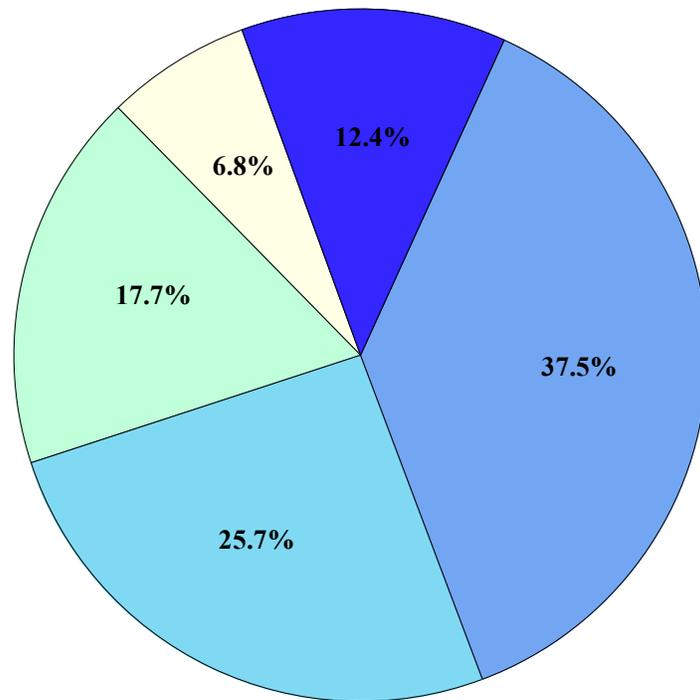
The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see Technical Notes). Some previously-published data may have been revised. Figures may not sum to totals elsewhere in this report due to rounding. Connections include both residential and business connections.

## Connections by Speed

This section of the overview presents information on fixed and mobile connections by downstream and upstream speeds. We divide fixed connections into five downstream speed groups with breakpoints at 3 Mbps, 10 Mbps, 25 Mbps, and 100 Mbps, and into three upstream speed groups with breakpoints at 1 Mbps and 3 Mbps. We divide mobile connections into four downstream speed groups with breakpoints at 3 Mbps, 6 Mbps, and 10 Mbps, and into the same three upstream speed groups with breakpoints at 1 Mbps and 3 Mbps.

*Fixed connections – downstream speeds.* Figure 2(a) illustrates how the 100 million fixed connections reported for June 2015 were distributed across the five groups of *downstream speeds* defined by breakpoints at 3 Mbps, 10 Mbps, 25 Mbps, and 100 Mbps.

**Figure 2(a)**  
**Distribution of Fixed Connections (99.7 million) by Downstream Speed**  
**as of June 30, 2015**



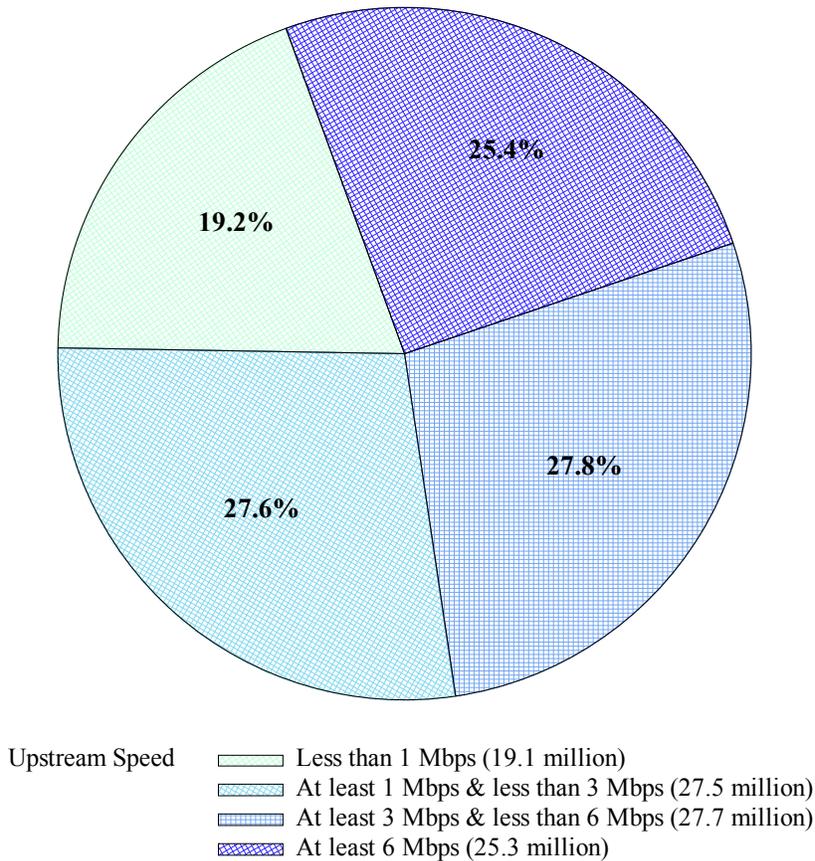
Downstream Speed	Percentage
Less than 3 Mbps (6.8 million)	6.8%
At least 3 Mbps & less than 10 Mbps (17.6 million)	17.7%
At least 10 Mbps & less than 25 Mbps (25.6 million)	25.7%
At least 25 Mbps & less than 100 Mbps (37.4 million)	37.5%
At least 100 Mbps (12.3 million)	12.4%

- In June 2015, 7% of fixed connections (or 7 million connections) were slower than 3 Mbps downstream, 18% (or 18 million connections) were at least 3 Mbps downstream but slower than 10 Mbps, 26% (or 26 million connections) were at least 10 Mbps downstream but slower than 25 Mbps, 38% (or 37 million connections) were at least 25 Mbps downstream but slower than 100 Mbps, and 12% (or 12 million connections) were at least 100 Mbps.<sup>4</sup>

<sup>4</sup> See Figure 8.

*Fixed connections – upstream speeds.* Figure 2(b) illustrates how the 100 million fixed connections reported for June 2015 were distributed across the four groups of *upstream speeds* defined by breakpoints at 1 Mbps, 3 Mbps, and 6 Mbps.

**Figure 2(b)**  
**Distribution of Fixed Connections (99.7 million) by Upstream Speed**  
**as of June 30, 2015**

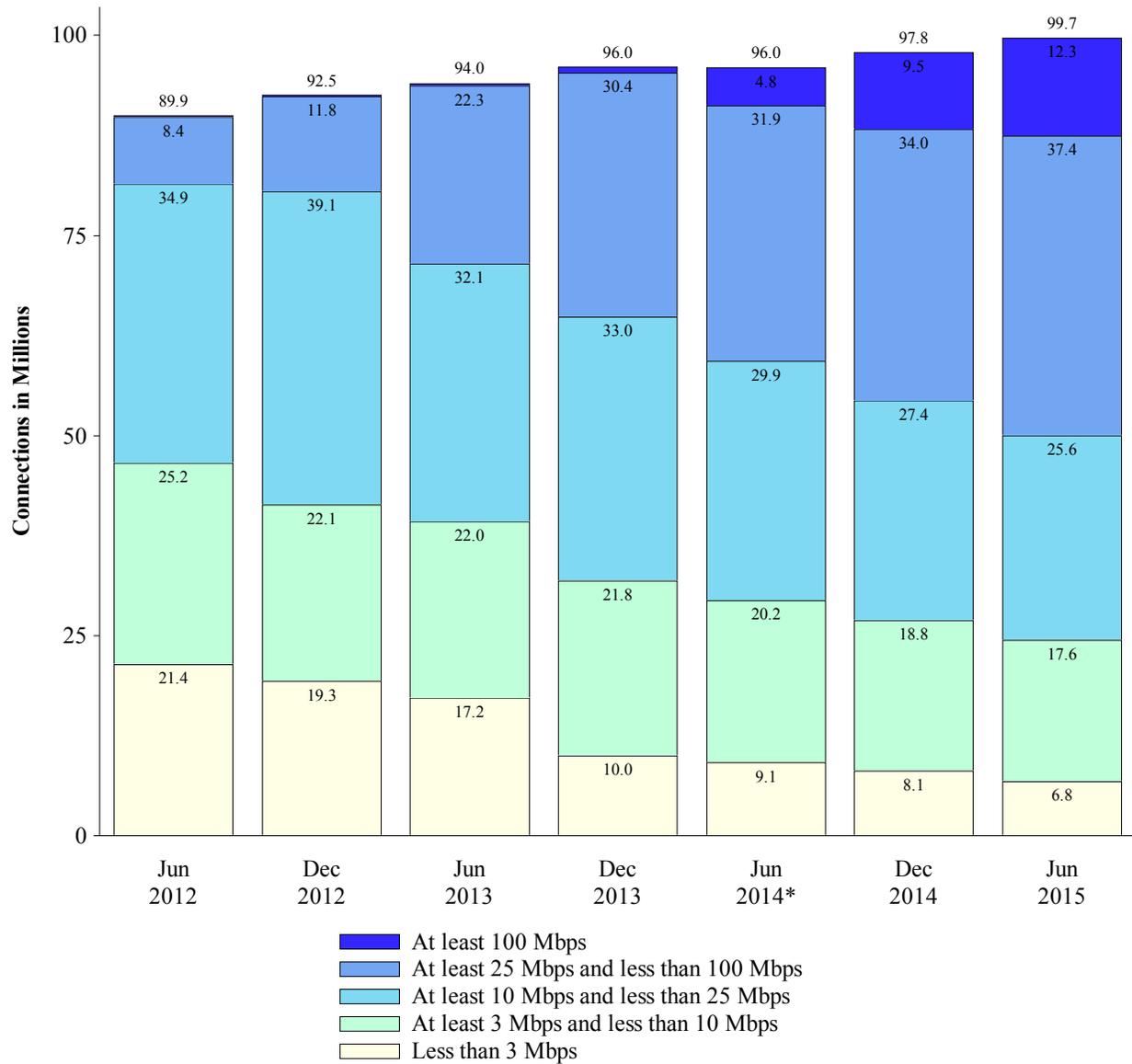


- In June 2015, 19% of fixed connections (or 19 million connections) were slower than 1 Mbps upstream, 28% (or 28 million connections) were at least 1 Mbps upstream but slower than 3 Mbps, 28% (or 28 million connections) were at least 3 Mbps upstream but slower than 6 Mbps, and 25% (or 25 million connections) were at least 6 Mbps upstream.<sup>5</sup>

*Fixed connections by downstream speed over time.* Figure 3 illustrates how the composition of total fixed Internet connections by different speed groups has changed from 2012 to 2015.

<sup>5</sup> *Ibid.*

**Figure 3**  
**Fixed Connections by Speed 2012-2015**



\* The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).

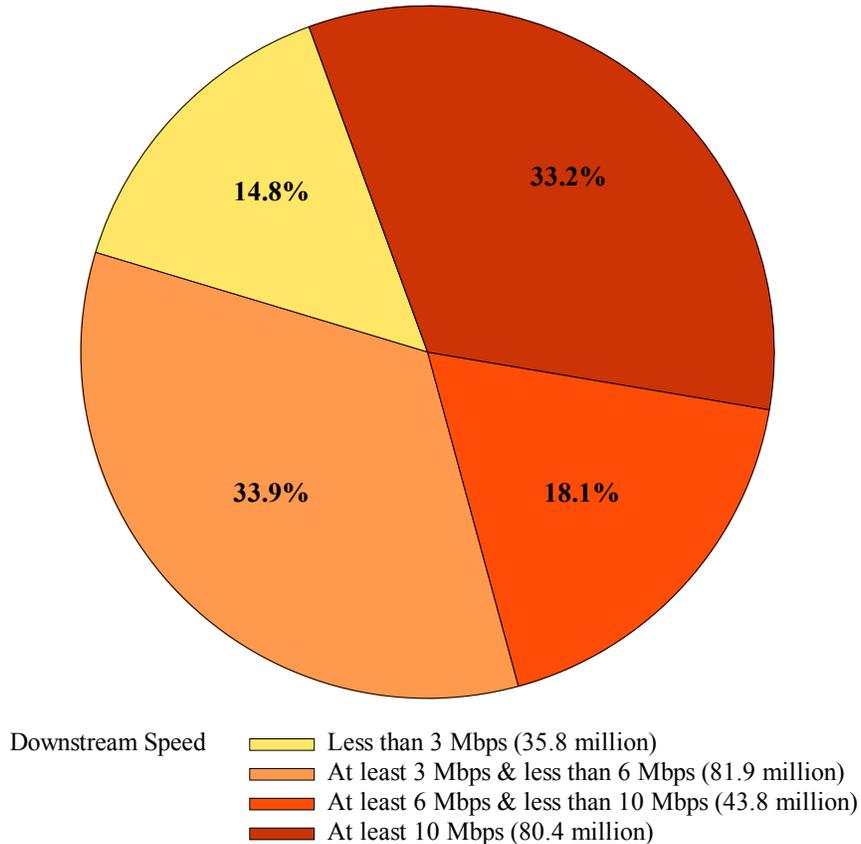
The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see Technical Notes). Some previously-published data may have been revised. Figures may not sum to totals elsewhere in this report due to rounding. Connections include both residential and business connections.

- The percentage of fixed connections with a downstream speed of at least 25 Mbps has grown from 9% (or 8 million connections) in June 2012 to 50% (or 50 million connections) in June 2015. Over the same period, the percentage of fixed connections with slower downstream speeds of less than 3 Mbps has decreased from 24% (or 21 million connections) in June 2012 to 7% (or 7 million connections) in June 2015.<sup>6</sup>

<sup>6</sup> See Figure 26.

*Mobile connections – minimum advertised downstream speeds.* Figure 4(a) illustrates how the 242 million mobile connections reported for June 2015 were distributed across the four groups of *minimum advertised downstream speeds* defined by breakpoints at 3 Mbps, 6 Mbps, and 10 Mbps.

**Figure 4(a)**  
**Distribution of Mobile Connections (242.0 million) by Minimum\* Downstream Speed**  
**as of June 30, 2015**

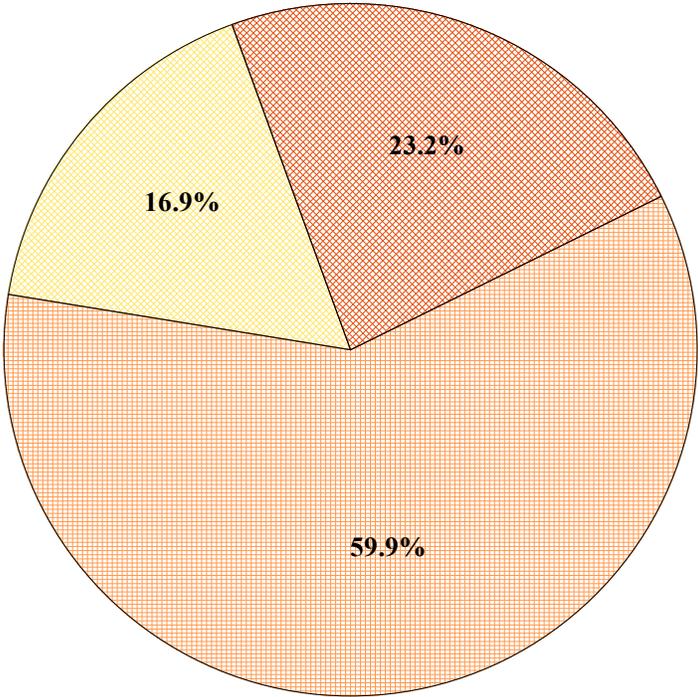


\* Form 477 collects mobile broadband subscription data by minimum advertised bandwidths.

- In June 2015, 15% of mobile connections (or 36 million connections) had a minimum advertised downstream speed slower than 3 Mbps, 34% (or 82 million connections) were at least 3 Mbps downstream but slower than 6 Mbps, 18% (or 44 million connections) were at least 6 Mbps downstream but slower than 10 Mbps, and 33% (or 80 million connections) were at least 10 Mbps downstream.

*Mobile connections – minimum advertised upstream speeds.* Figure 4(b) illustrates how the 242 million mobile connections reported for June 2015 were distributed across the three groups of *minimum advertised upstream speeds* defined by breakpoints at 1 Mbps and 3 Mbps.

**Figure 4(b)**  
**Distribution of Mobile Connections (242.0 million) by Minimum\* Upstream Speed**  
**as of June 30, 2015**



Upstream Speed     Less than 1 Mbps (40.9 million)  
                           At least 1 Mbps & less than 3 Mbps (144.9 million)  
                           At least 3 Mbps (56.3 million)

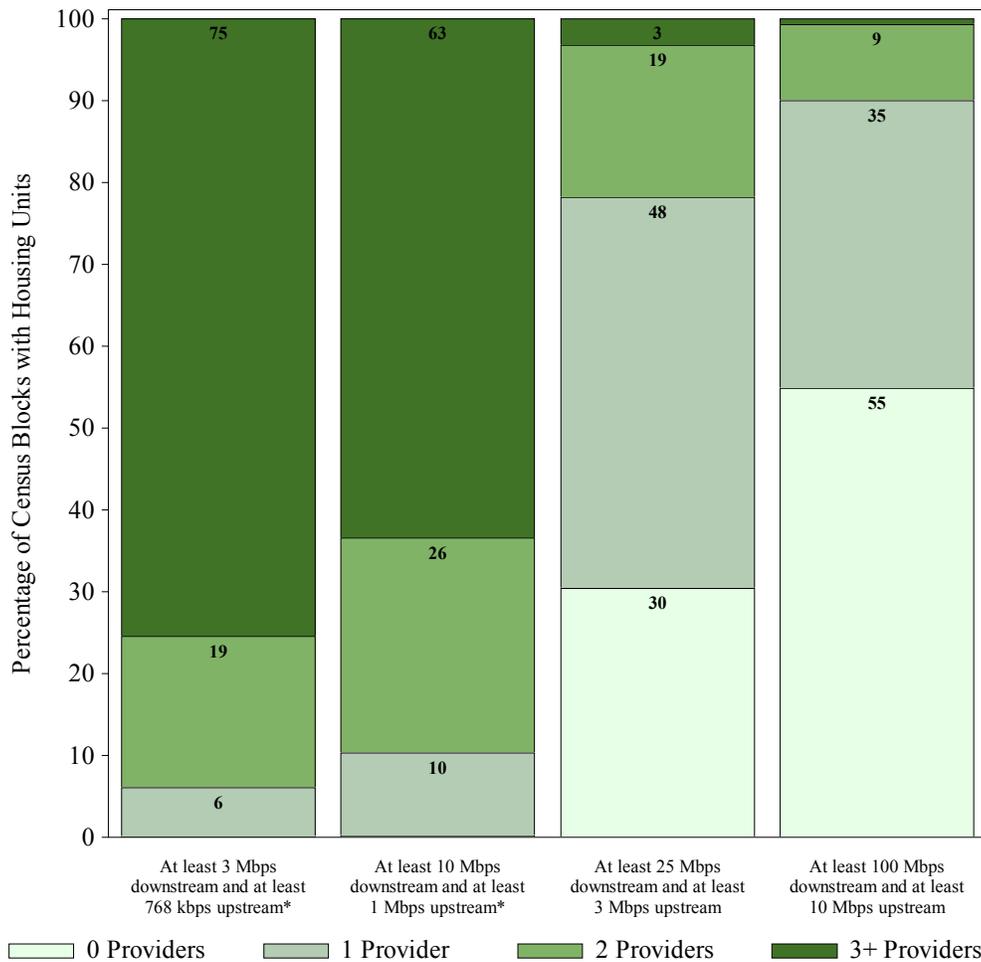
\* Form 477 collects mobile broadband subscription data by minimum advertised bandwidths.

- In June 2015, about 17% of mobile connections (or 41 million connections) had a minimum advertised upstream speed slower than 1 Mbps, 60% (or 145 million connections) were at least 1 Mbps upstream but slower than 3 Mbps, and 23% (or 56 million connections) were at least 3 Mbps upstream.

## Number of Providers by Census Block

In Figure 5, we show the percentage of “developed” census blocks – blocks that contain housing units – with zero, one, two, or three or more fixed broadband providers offering residential Internet access service at different speeds in June 2015. This information is taken from the block-level Form 477 fixed broadband deployment data that the Commission began collecting in 2014. A provider that reports offering service in a particular census block may not offer service, or service at that speed, to all locations in the census block. Accordingly, the number of providers shown in Figure 4 does not necessarily reflect the number of choices available to a particular household and does not purport to measure competition.

**Figure 5**  
**Percentages of Developed Census Blocks in which Providers Reported the Deployment of Residential Fixed Broadband as of June 30, 2015**



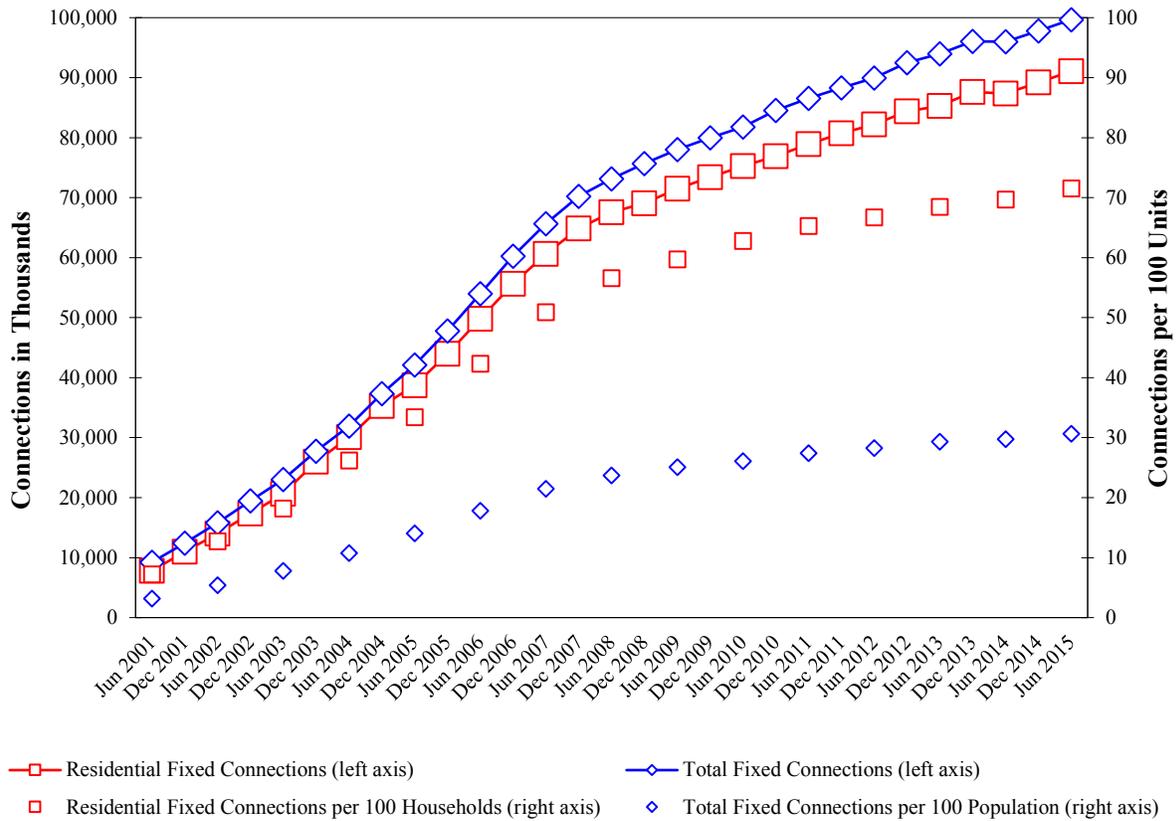
\* Satellite service providers report offering Internet access at bandwidths of at least 10 Mbps downstream and 1 Mbps upstream in 99.1% of developed census blocks

Column figures may not sum to 100% due to rounding. Developed census blocks are those with housing units based on the 2010 census.

## Internet Access Subscribership

Figure 6 illustrates the number of total and residential fixed Internet access connections (connections over 200 kbps in at least one direction except mobile wireless connections), as well as the number of total fixed connections per 100 persons and the number of residential fixed connections per 100 households, since 2000.<sup>7</sup>

**Figure 6**  
**Fixed Connections 2001-2015**  
 (Connections over 200 kbps in at least one direction)



- Between June 2005 and June 2015, total (business and residential) fixed connections grew from 42 million connections to 98 million connections – at a compound annual growth rate of 9% per year.<sup>8</sup>

<sup>7</sup> For data through December 2004, only those providers with at least 250 connections in a state were required to report. Historical fixed-location connection counts not included in this report may be found in *June 2008 High-Speed Report* at Tables 1 and 3, available in Excel format at <https://www.fcc.gov/general/reports-high-speed-services-internet-access>.

<sup>8</sup> The compound annual growth rate (CAGR) is a smoothed rate of growth calculated in three steps. First, divide the ending (June 2015) value by the beginning (June 2005) value. Second, raise the result of that division to a power equal to one divided by the number of years in the period (in this case, 10 years, so the power is 1/10). Third, subtract the number one from the result of the second step.

- Over the same ten-year period, residential fixed connections grew from 39 million connections to 91 million connections – also at a compound annual growth rate of 9% per year.
- Over the same ten-year period, the number of residential fixed connections per 100 U.S. households increased from 33 to 72.<sup>9</sup>

## Other Report Highlights

### Average speeds

- The median downstream speed of all reported fixed connections was 24 Mbps and the median upstream speed was 3 Mbps. For residential fixed connections, the median downstream speed was 25 Mbps and the median upstream speed was 4 Mbps.

### Residential connections

- Residential fixed Internet access connections increased by about 4% between June 2014 and June 2015, to 91 million. See Figure 8.
- Residential (non-business) mobile wireless Internet access connections on mobile devices with data plans for full Internet access increased by 13%, to 201 million, between June 2014 and June 2015. See Figure 8.
- Over 74% of residential fixed connections had a speed of at least 10 Mbps downstream and 1 Mbps upstream in June 2015, while just over half (51%) had a speed of at least 25 Mbps downstream and 3 Mbps upstream. Thirteen percent of all residential fixed connections had a downstream speed of at least 100 Mbps. See Figures 11 and 29.
- As a national average in June 2015, there were 58 residential fixed connections with speeds of at least 10 Mbps downstream and 1 Mbps upstream per 100 households.<sup>10</sup> See Figure 34.

<sup>9</sup> We calculate residential fixed connections per 100 *households* using, in the denominator, U.S. household estimates from the Census Bureau’s Current Population Survey (CPS) for July of each year and, for Puerto Rico and the other inhabited island areas, Census 2010 households for 2010 and later years and Census 2000 households for the earlier years. (The CPS also estimates U.S. households for March and November of each year.) Figure 6 also shows total (business and residential) fixed connections per 100 *population*, which we calculate using U.S. Census Bureau population estimates for the United States and Puerto Rico – which are as of July 1 each year – and, for the remaining inhabited island areas, Census 2010 population for 2010 and later years and Census 2000 population for the earlier years. This statistic incorporates connections to business locations into a comparison to persons. (We note that the ratio of accurately-measured residential fixed connections to population has a maximum value for any given country and point in time – the value when every household is connected – if we assume that no household would have more than one fixed connection to its premises. For the United States in June 2014, for example, the maximum value would be 39 because there were about 125 million households in the United States and inhabited insular areas and a population of about 323 million according to the sources used for Figure 6.)

<sup>10</sup> Increases over time in the ratio of residential fixed connections to households indicate that increasing shares of households are connected at home. The ratio is somewhat different from the “take rate” of offered service (which may also be called an “adoption rate”) because some households may be located in areas where no fixed-location service is offered. These methodological differences are discussed in greater detail in *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996*,

Census tract and county shares of households with reportable connections

- We estimate the share of households with fixed Internet access connections in individual census tracts and counties as of June 30, 2015.<sup>11</sup> We continue to observe substantial variation among these estimates. See Figures 39 and 41.

Household subscribership rates and demographics

- The report includes charts that illustrate correlations between household subscribership rates and demographic measures. We update charts based on income, household density, education, age, and race. The data indicate that some demographic variables are correlated with Internet access subscribership rates. See Figures 46-52.

*Amended by the Broadband Data Improvement Act, GN Docket No. 11-121, Eighth Broadband Progress Report, 27 FCC Rcd 10342, 10386, para. 94 (2012).*

<sup>11</sup> For both census tracts and counties, we continue to find estimates above 100% for the share of households with fixed Internet access connections. See p. 60 for more information.

**SECTION 2**  
**SUMMARY STATISTICS: THE NATION**

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**Figure 7**  
**Connections over 200 kbps in at Least One Direction 2011-2015**  
(In thousands)

<i>Technology</i>	<i>2011</i>		<i>2012</i>		<i>2013</i>		<i>2014</i>		<i>2015</i>
	<i>Jun</i>	<i>Dec</i>	<i>Jun</i>	<i>Dec</i>	<i>Jun</i>	<i>Dec</i>	<i>Jun*</i>	<i>Dec</i>	<i>Jun</i>
Total	206,131	230,201	243,359	262,564	284,692	293,397	<b>311,284</b>	<b>321,305</b>	<b>341,648</b>
Total Fixed	86,575	88,317	89,945	92,511	93,986	96,032	<b>95,998</b>	<b>97,810</b>	<b>99,686</b>
Mobile Wireless	119,556	141,883	153,414	170,053	190,706	197,365	<b>215,286</b>	<b>223,495</b>	<b>241,962</b>

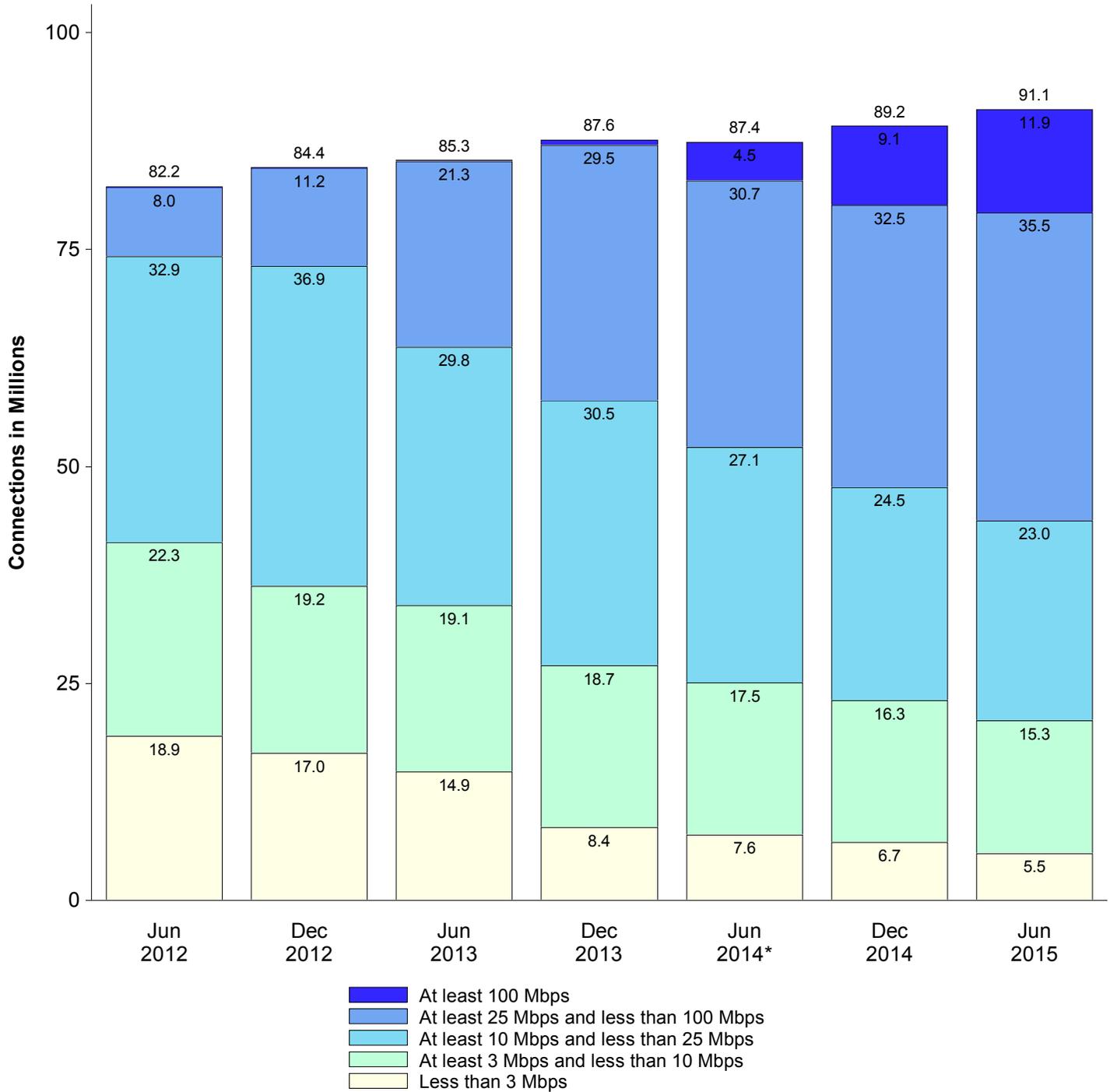
**Figure 8**  
**Residential Connections over 200 kbps in at Least One Direction 2011-2015**  
(In thousands)

<i>Technology</i>	<i>2011</i>		<i>2012</i>		<i>2013</i>		<i>2014</i>		<i>2015</i>
	<i>Jun</i>	<i>Dec</i>	<i>Jun</i>	<i>Dec</i>	<i>Jun</i>	<i>Dec</i>	<i>Jun*</i>	<i>Dec</i>	<i>Jun</i>
Total	171,773	186,516	196,665	215,817	235,273	246,797	<b>264,343</b>	<b>273,950</b>	<b>291,919</b>
Total Fixed	78,906	80,706	82,217	84,392	85,277	87,599	<b>87,360</b>	<b>89,196</b>	<b>91,059</b>
Mobile Wireless	92,867	105,810	114,448	131,425	149,996	159,197	<b>176,983</b>	<b>184,754</b>	<b>200,859</b>

\* The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).

The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see Technical Notes). Some previously-published data may have been revised. Figures may not sum to totals elsewhere in this report due to rounding.

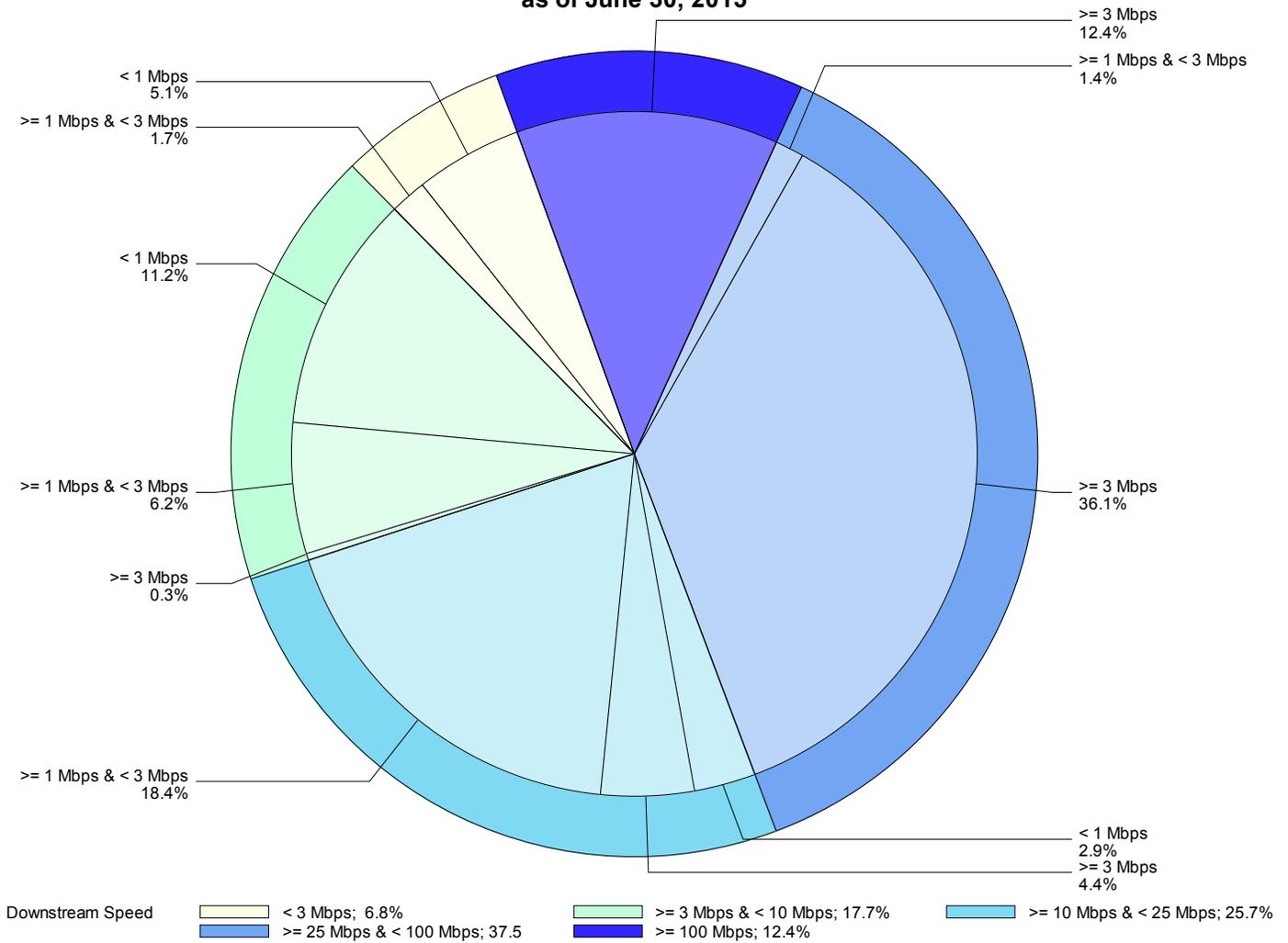
**Figure 9**  
**Residential Fixed Connections by Speed 2012-2015**



\* The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).

The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see Technical Notes). Some previously-published data may have been revised. Figures may not sum to totals elsewhere in this report due to rounding.

**Figure 10**  
**Distribution of Fixed Connections over 200 kbps in at Least One Direction**  
**as of June 30, 2015**



Note: Inner circle (light shading) represents upstream speeds.

Fixed Connections over 200 kbps in at Least One Direction (in thousands)

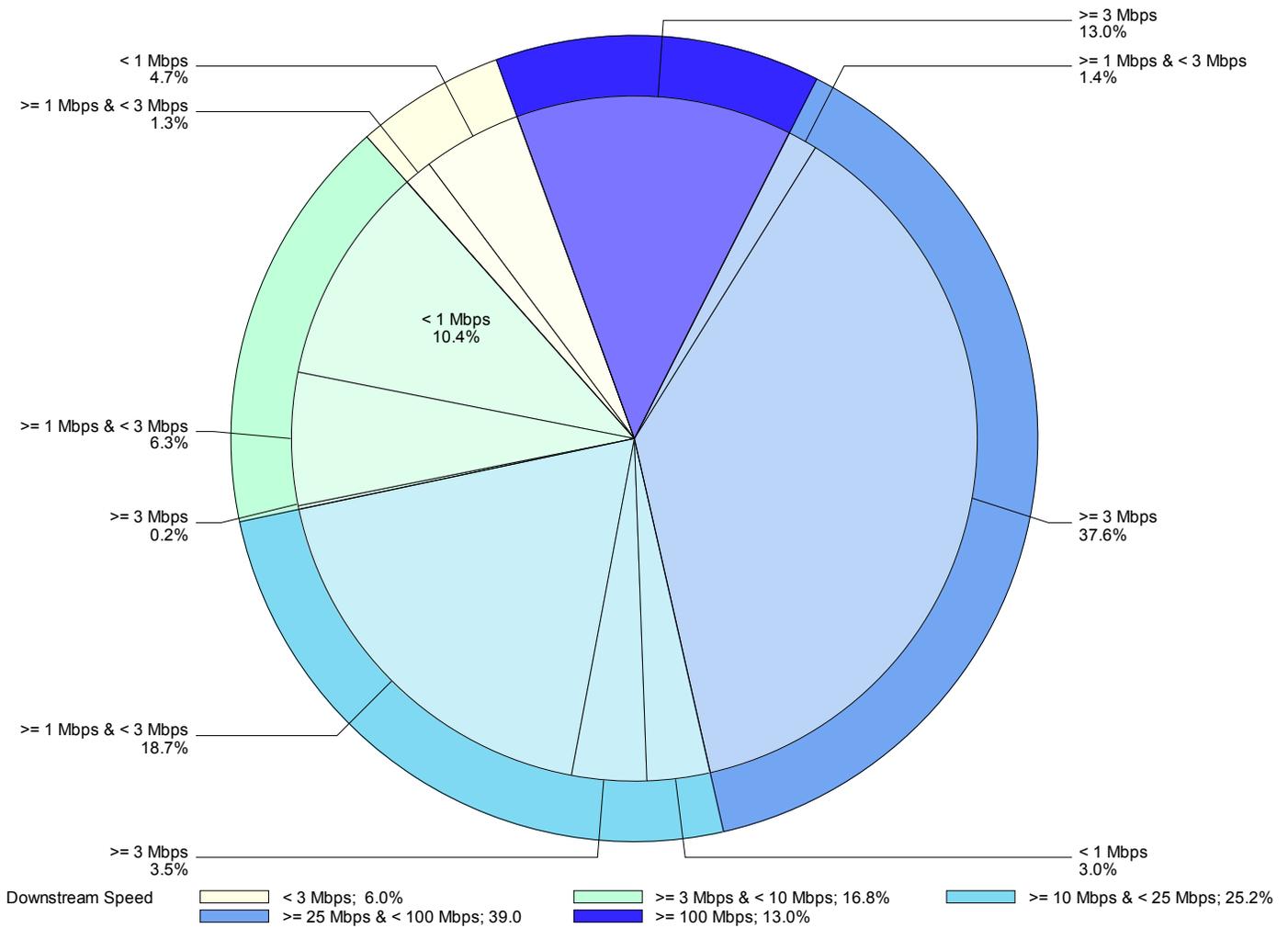
Upstream Speed	Downstream Speed					Total
	Less than 3 Mbps	At least 3 Mbps and less than 10 Mbps	At least 10 Mbps and less than 25 Mbps	At least 25 Mbps and less than 100 Mbps	At least 100 Mbps	
Less than 1 Mbps	5,044	11,170	2,900	2	#	19,116
At least 1 Mbps & Less than 3 Mbps	1,695	6,154	18,334	1,351	2	27,537
At least 3 Mbps	13	320	4,377	36,011	12,313	53,033
<b>Total</b>	<b>6,753</b>	<b>17,644</b>	<b>25,611</b>	<b>37,364</b>	<b>12,315</b>	<b>99,686</b>

Percentages

Less than 1 Mbps	5.1	11.2	2.9	0.0	0.0	19.2
At least 1 Mbps & Less than 3 Mbps	1.7	6.2	18.4	1.4	0.0	27.6
At least 3 Mbps	0.0	0.3	4.4	36.1	12.4	53.2
<b>Total</b>	<b>6.8</b>	<b>17.7</b>	<b>25.7</b>	<b>37.5</b>	<b>12.4</b>	<b>100.0</b>

Note: Figures may not sum to totals due to rounding.  
 Source: FCC Form 477.

**Figure 11**  
**Distribution of Residential Fixed Connections over 200 kbps in at Least One Direction**  
**as of June 30, 2015**



Note: Inner circle (light shading) represents upstream speeds.

Residential Fixed Connections over 200 kbps in at Least One Direction (in thousands)

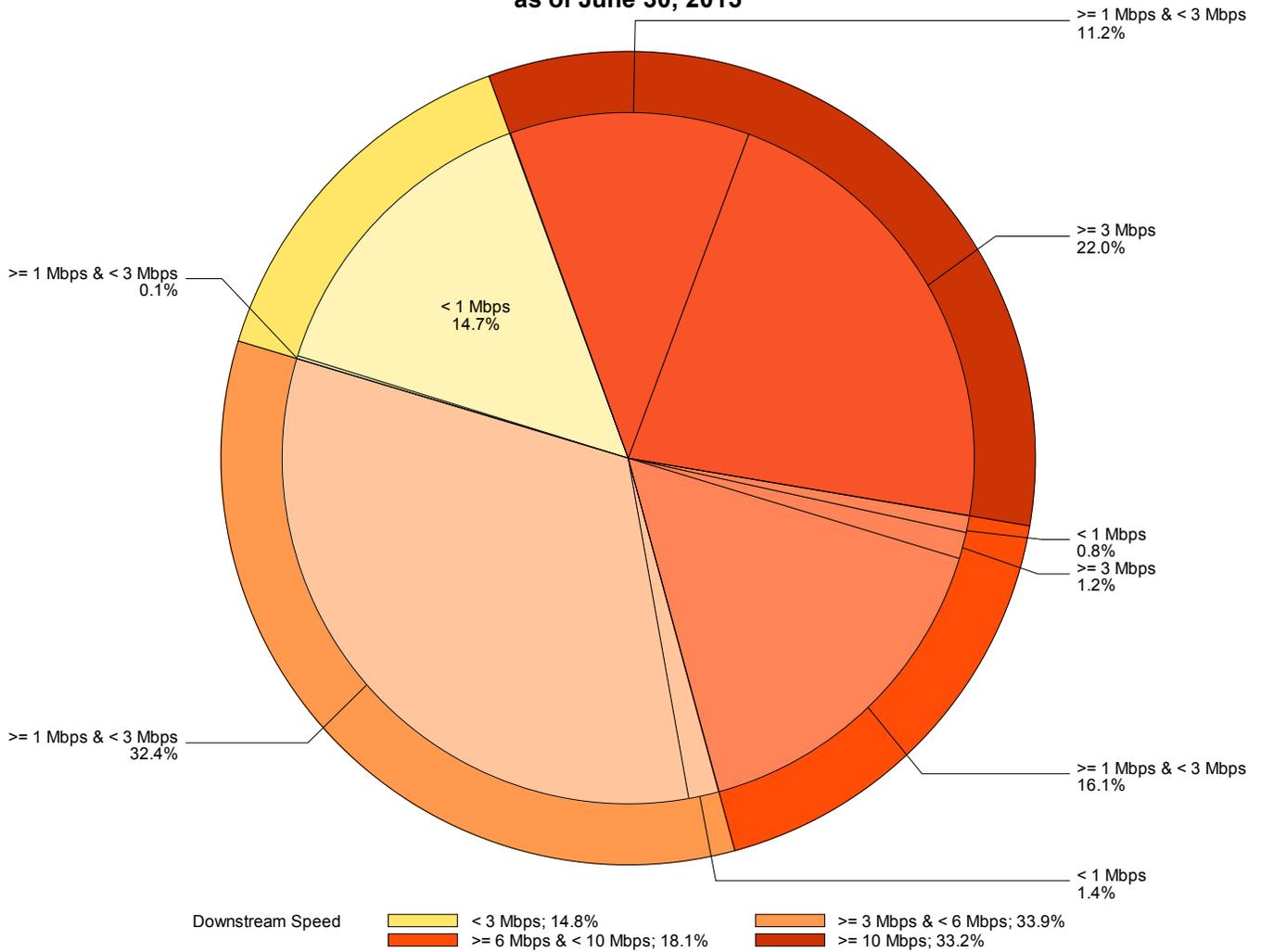
Upstream Speed	Downstream Speed					Total
	Less than 3 Mbps	At least 3 Mbps and less than 10 Mbps	At least 10 Mbps and less than 25 Mbps	At least 25 Mbps and less than 100 Mbps	At least 100 Mbps	
Less than 1 Mbps	4,249	9,425	2,706	2	#	16,382
At least 1 Mbps & Less than 3 Mbps	1,190	5,700	17,068	1,264	#	25,222
At least 3 Mbps	12	151	3,206	34,232	11,854	49,455
<b>Total</b>	<b>5,451</b>	<b>15,275</b>	<b>22,981</b>	<b>35,498</b>	<b>11,854</b>	<b>91,059</b>

Percentages

Less than 1 Mbps	4.7	10.4	3.0	0.0	0.0	18.0
At least 1 Mbps & Less than 3 Mbps	1.3	6.3	18.7	1.4	0.0	27.7
At least 3 Mbps	0.0	0.2	3.5	37.6	13.0	54.3
<b>Total</b>	<b>6.0</b>	<b>16.8</b>	<b>25.2</b>	<b>39.0</b>	<b>13.0</b>	<b>100.0</b>

Note: Figures may not sum to totals due to rounding.  
 Source: FCC Form 477.

**Figure 12**  
**Distribution of Mobile Subscribers over 200 kbps in at Least One Direction**  
**as of June 30, 2015**



Note: Inner circle (light shading) represents upstream speeds.

Mobile Subscribers over 200 kbps in at Least One Direction (in thousands)

Upstream Speed	Downstream Speed				Total
	Less than 3 Mbps	At least 3 Mbps and less than 6 Mbps	At least 6 Mbps and less than 10 Mbps	At least 10 Mbps	
Less than 1 Mbps	35,469	3,403	1,907	78	40,857
At least 1 Mbps & Less than 3 Mbps	337	78,516	38,932	27,071	144,855
At least 3 Mbps	0	31	2,993	53,226	56,250
<b>Total</b>	<b>35,805</b>	<b>81,949</b>	<b>43,832</b>	<b>80,375</b>	<b>241,962</b>

Percentages					
Upstream Speed	Less than 3 Mbps	At least 3 Mbps and less than 6 Mbps	At least 6 Mbps and less than 10 Mbps	At least 10 Mbps	Total
Less than 1 Mbps	14.7	1.4	0.8	0.0	16.9
At least 1 Mbps & Less than 3 Mbps	0.1	32.4	16.1	11.2	59.9
At least 3 Mbps	0.0	0.0	1.2	22.0	23.2
<b>Total</b>	<b>14.8</b>	<b>33.9</b>	<b>18.1</b>	<b>33.2</b>	<b>100.0</b>

Note: Figures may not sum to totals due to rounding.  
 Source: FCC Form 477.

**Figure 13**  
**Connections over 200 kbps in at Least One Direction by Technology 2011-2015**  
(In thousands)

Technology	2011		2012		2013		2014		2015
	Jun	Dec	Jun	Dec	Jun	Dec	Jun*	Dec	Jun
Total	206,131	230,201	243,359	262,564	284,692	293,397	<b>311,284</b>	<b>321,305</b>	<b>341,648</b>
Total Fixed	86,575	88,317	89,945	92,511	93,986	96,032	<b>95,998</b>	<b>97,810</b>	<b>99,686</b>
aDSL	31,611	31,330	31,173	30,974	30,657	30,690	<b>29,873</b>	<b>28,527</b>	<b>28,194</b>
sDSL	159	148	139	132	117	108	<b>96</b>	<b>85</b>	<b>76</b>
Other Wireline <sup>1</sup>	778	795	770	796	769	772	<b>792</b>	<b>723</b>	<b>701</b>
Cable Modem	46,698	48,263	49,664	51,646	52,760	54,009	<b>54,011</b>	<b>56,301</b>	<b>57,850</b>
FTTP <sup>2</sup>	5,477	5,898	6,300	6,733	7,250	7,745	<b>8,326</b>	<b>9,180</b>	<b>9,768</b>
Satellite	1,204	1,190	1,217	1,454	1,623	1,849	<b>1,964</b>	<b>2,006</b>	<b>2,058</b>
Fixed Wireless	649	693	682	777	810	858	<b>935</b>	<b>988</b>	<b>1,040</b>
Mobile Wireless	119,556	141,883	153,414	170,053	190,706	197,365	<b>215,286</b>	<b>223,495</b>	<b>241,962</b>

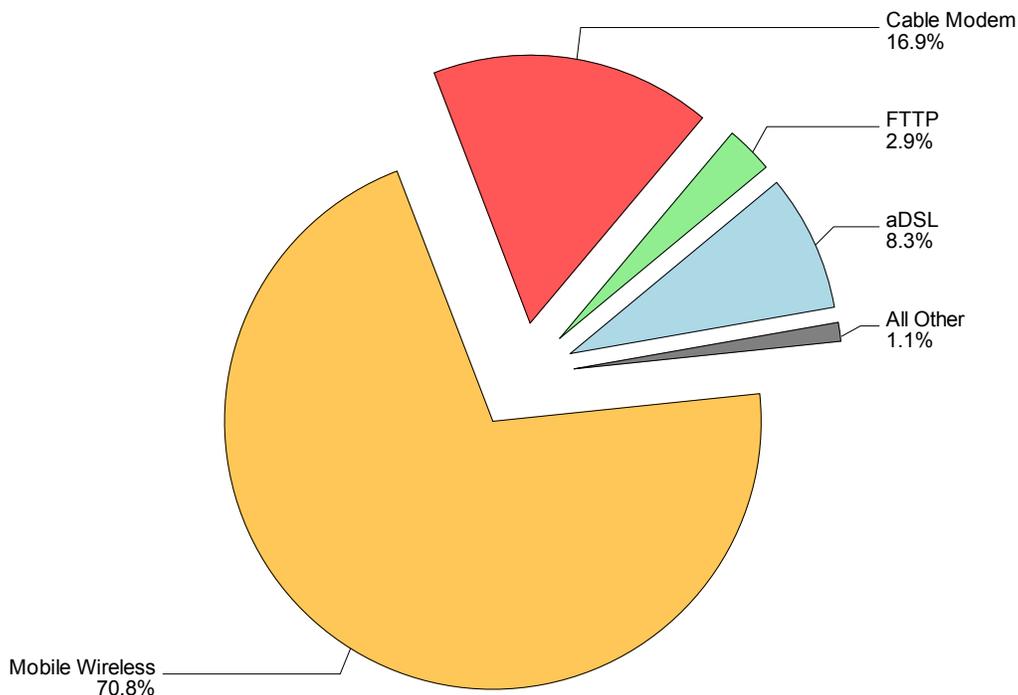
<sup>1</sup> Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

<sup>2</sup> Fiber to the premises.

\* The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).

The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see Technical Notes). Some previously-published data may have been revised. Figures may not sum to totals due to rounding.

**Figure 14**  
**Connections by Technology as of June 30, 2015**



**Figure 15**  
**Residential Connections over 200 kbps in at Least One Direction by Technology 2011-2015**  
(In thousands)

Technology	2011		2012		2013		2014		2015
	Jun	Dec	Jun	Dec	Jun	Dec	Jun*	Dec	Jun
Total	171,773	186,516	196,665	215,817	235,273	246,797	<b>264,343</b>	<b>273,950</b>	<b>291,919</b>
Total Fixed	78,906	80,706	82,217	84,392	85,277	87,599	<b>87,360</b>	<b>89,196</b>	<b>91,059</b>
aDSL	27,754	27,758	27,632	27,391	26,869	27,248	<b>26,678</b>	<b>25,603</b>	<b>25,265</b>
sDSL	52	54	49	50	43	39	<b>30</b>	<b>22</b>	<b>17</b>
Other Wireline <sup>1</sup>	45	40	14	34	22	22	<b>57</b>	<b>59</b>	<b>52</b>
Cable Modem	44,480	45,832	47,033	48,716	49,494	50,709	<b>50,389</b>	<b>52,467</b>	<b>54,023</b>
FTTP <sup>2</sup>	5,118	5,521	5,892	6,270	6,732	7,176	<b>7,617</b>	<b>8,368</b>	<b>8,897</b>
Satellite	885	886	998	1,242	1,407	1,643	<b>1,760</b>	<b>1,803</b>	<b>1,875</b>
Fixed Wireless	572	616	600	689	710	763	<b>829</b>	<b>874</b>	<b>929</b>
Mobile Wireless	92,867	105,810	114,448	131,425	149,996	159,197	<b>176,983</b>	<b>184,754</b>	<b>200,859</b>

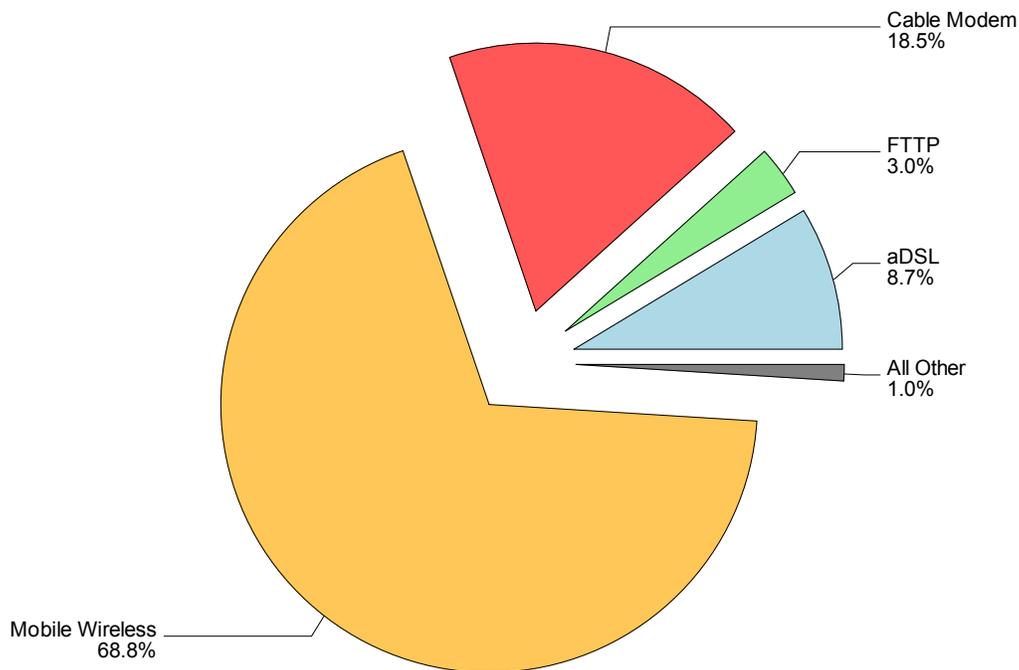
<sup>1</sup> Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

<sup>2</sup> Fiber to the premises.

\* The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).

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**Figure 16**  
**Residential Connections by Technology as of June 30, 2015**



**Figure 17**  
**Fixed Connections at Least 3 Mbps Downstream and 768 kbps Upstream by Technology 2011-2015**  
(In thousands)

Technology	2011		2012		2013		2014		2015
	Jun	Dec	Jun	Dec	Jun	Dec	Jun*	Dec	Jun
Total	48,577	51,097	57,243	64,657	68,673	78,175	<b>78,981</b>	<b>83,872</b>	<b>87,556</b>
aDSL	8,909	10,351	12,875	13,108	14,233	18,540	<b>17,246</b>	<b>18,557</b>	<b>19,319</b>
sDSL	16	26	30	33	34	36	<b>33</b>	<b>28</b>	<b>24</b>
Other Wireline <sup>1</sup>	204	228	239	276	284	308	<b>310</b>	<b>308</b>	<b>297</b>
Cable Modem	34,113	34,699	37,798	44,133	46,014	50,236	<b>51,304</b>	<b>53,853</b>	<b>55,978</b>
FTTP <sup>2</sup>	5,188	5,606	6,001	6,430	6,981	7,486	<b>8,111</b>	<b>8,974</b>	<b>9,580</b>
Satellite	#	#	87	394	791	1,181	<b>1,424</b>	<b>1,558</b>	<b>1,690</b>
Fixed Wireless	145	186	214	284	337	388	<b>553</b>	<b>594</b>	<b>669</b>

<sup>1</sup> Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. See Technical Notes at the end of the report for a description of Form technology categories and other reporting requirements.

<sup>2</sup> Fiber to the premises.

\* The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).

# = Rounds to zero.

The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see Technical Notes). Some previously-published data may have been revised. Figures may not sum to totals due to rounding.

**Figure 18**  
**Residential Fixed Connections at Least 3 Mbps Downstream and 768 kbps Upstream by Technology 2011-2015**  
(In thousands)

Technology	2011		2012		2013		2014		2015
	Jun	Dec	Jun	Dec	Jun	Dec	Jun*	Dec	Jun
Total	45,263	47,427	53,070	59,914	63,342	72,476	<b>73,042</b>	<b>77,540</b>	<b>81,013</b>
aDSL	7,909	9,274	11,563	11,669	12,666	16,715	<b>15,673</b>	<b>16,867</b>	<b>17,536</b>
sDSL	4	12	12	13	13	13	<b>7</b>	<b>2</b>	<b>1</b>
Other Wireline <sup>1</sup>	15	16	7	20	21	20	<b>45</b>	<b>50</b>	<b>45</b>
Cable Modem	32,321	32,693	35,583	41,561	43,061	47,258	<b>47,924</b>	<b>50,308</b>	<b>52,371</b>
FTTP <sup>2</sup>	4,894	5,271	5,632	6,012	6,504	6,958	<b>7,491</b>	<b>8,246</b>	<b>8,789</b>
Satellite	0	#	86	393	788	1,177	<b>1,419</b>	<b>1,552</b>	<b>1,682</b>
Fixed Wireless	121	161	185	245	289	335	<b>483</b>	<b>516</b>	<b>588</b>

<sup>1</sup> Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. See Technical Notes at the end of the report for a description of Form technology categories and other reporting requirements.

<sup>2</sup> Fiber to the premises.

\* The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).

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The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see Technical Notes). Some previously-published data may have been revised. Figures may not sum to totals due to rounding.

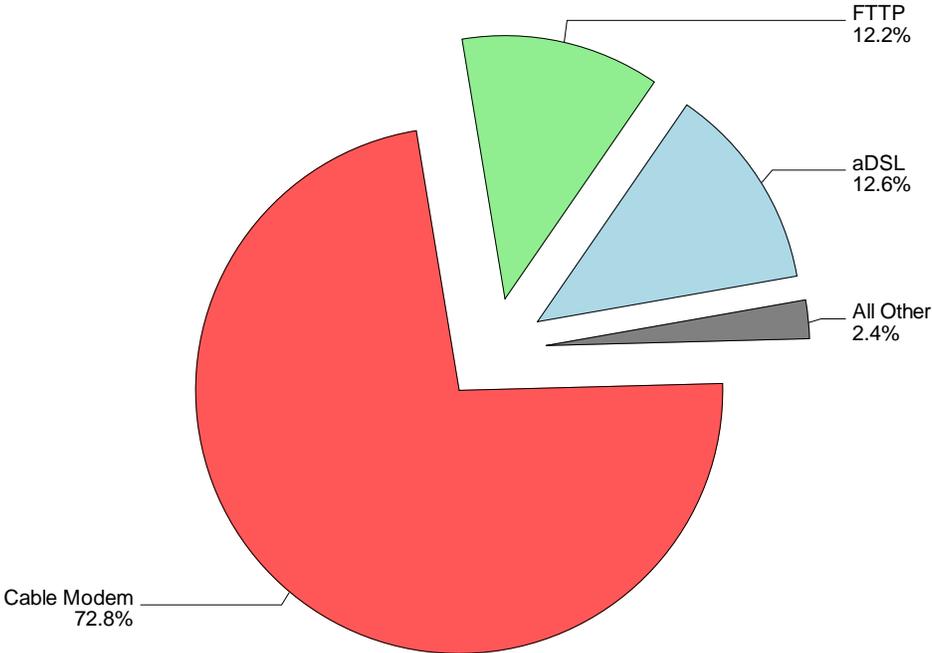
**Figure 19**  
**Fixed Connections at Least 10 Mbps Downstream and 1 Mbps Upstream by Technology 2014-2015**  
(In thousands)

Technology	2014		2015
	Jun*	Dec	Jun
Total	63,849	68,009	72,387
aDSL	7,573	8,310	9,141
sDSL	9	6	8
Other Wireline <sup>1</sup>	169	183	182
Cable Modem	47,296	49,839	52,708
FTTP <sup>2</sup>	7,615	8,341	8,830
Satellite	1,016	1,137	1,298
Fixed Wireless	170	192	219

<sup>1</sup> Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.  
<sup>2</sup> Fiber to the premises.  
\* The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).  
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**Figure 20**  
**Fixed Connections at Least 10 Mbps Downstream and 1 Mbps Upstream**  
**by Technology as of June 30, 2015**



**Figure 21**

**Residential Fixed Connections at Least 10 Mbps Downstream and 1 Mbps Upstream by Technology in 2015  
(In thousands)**

<i>Technology</i>	<i>2014</i>		<i>2015</i>
	<i>Jun*</i>	<i>Dec</i>	<i>Jun</i>
Total	<b>59,751</b>	<b>63,522</b>	<b>67,625</b>
aDSL	<b>7,035</b>	<b>7,741</b>	<b>8,462</b>
sDSL	<b>3</b>	<b>#</b>	<b>#</b>
Other Wireline <sup>1</sup>	<b>33</b>	<b>36</b>	<b>38</b>
Cable Modem	<b>44,480</b>	<b>46,767</b>	<b>49,526</b>
FTTP <sup>2</sup>	<b>7,044</b>	<b>7,679</b>	<b>8,114</b>
Satellite	<b>1,014</b>	<b>1,133</b>	<b>1,293</b>
Fixed Wireless	<b>142</b>	<b>166</b>	<b>190</b>

<sup>1</sup> Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

<sup>2</sup> Fiber to the premises.

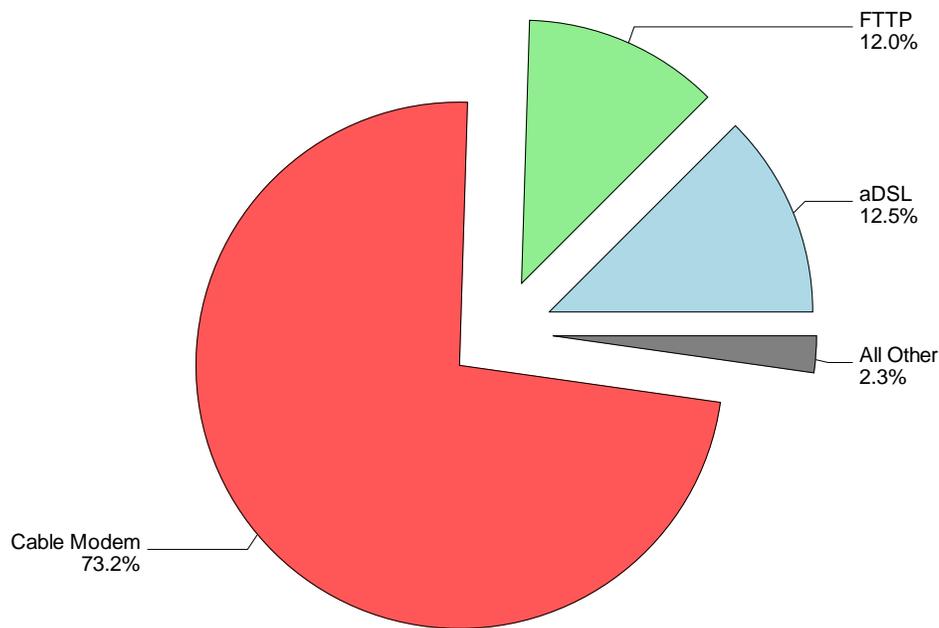
\* The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).

# = Rounds to zero.

The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see Technical Notes). Figures may not sum to totals due to rounding. Revised October 13, 2016.

**Figure 22**

**Residential Fixed Connections at Least 10 Mbps Downstream and 1 Mbps Upstream  
by Technology as of June 30, 2015**



**Figure 23**  
**Fixed Connections at Least 25 Mbps Downstream and 3 Mbps Upstream by Technology 2014-2015**  
(In thousands)

<i>Technology</i>	<i>2014</i>		<i>2015</i>
	<i>Jun*</i>	<i>Dec</i>	<i>Jun</i>
Total	<b>35,927</b>	<b>42,390</b>	<b>48,323</b>
aDSL	<b>420</b>	<b>598</b>	<b>756</b>
sDSL	<b>2</b>	<b>2</b>	<b>1</b>
Other Wireline <sup>1</sup>	<b>114</b>	<b>125</b>	<b>125</b>
Cable Modem	<b>30,769</b>	<b>36,095</b>	<b>40,652</b>
FTTP <sup>2</sup>	<b>4,603</b>	<b>5,542</b>	<b>6,742</b>
Satellite	<b>#</b>	<b>#</b>	<b>#</b>
Fixed Wireless	<b>19</b>	<b>28</b>	<b>47</b>

<sup>1</sup> Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

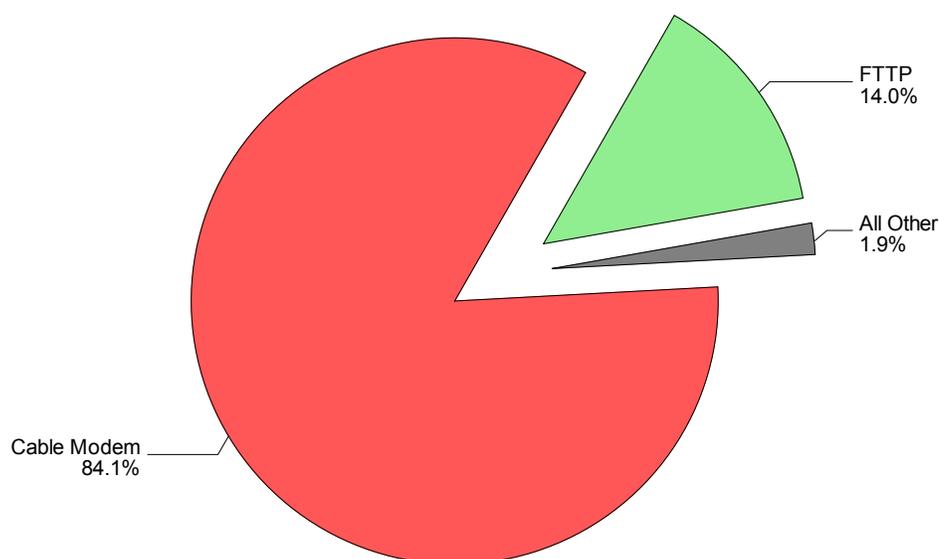
<sup>2</sup> Fiber to the premises.

\* The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).

# = Rounds to zero.

The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see Technical Notes).  
Figures may not sum to totals due to rounding.

**Figure 24**  
**Fixed Connections at Least 25 Mbps Downstream and 3 Mbps Upstream**  
**by Technology as of June 30, 2015**



**Figure 25**

**Residential Fixed Connections at Least 25 Mbps Downstream and 3 Mbps Upstream by Technology in 2015  
(In thousands)**

<i>Technology</i>	<i>2014</i>		<i>2015</i>
	<i>Jun*</i>	<i>Dec</i>	<i>Jun</i>
Total	<b>34,439</b>	<b>40,595</b>	<b>46,086</b>
aDSL	<b>397</b>	<b>566</b>	<b>723</b>
sDSL	<b>#</b>	<b>#</b>	<b>#</b>
Other Wireline <sup>1</sup>	<b>22</b>	<b>26</b>	<b>26</b>
Cable Modem	<b>29,806</b>	<b>34,914</b>	<b>39,089</b>
FTTP <sup>2</sup>	<b>4,201</b>	<b>5,068</b>	<b>6,209</b>
Satellite	<b>0</b>	<b>0</b>	<b>0</b>
Fixed Wireless	<b>14</b>	<b>22</b>	<b>40</b>

<sup>1</sup> Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

<sup>2</sup> Fiber to the premises.

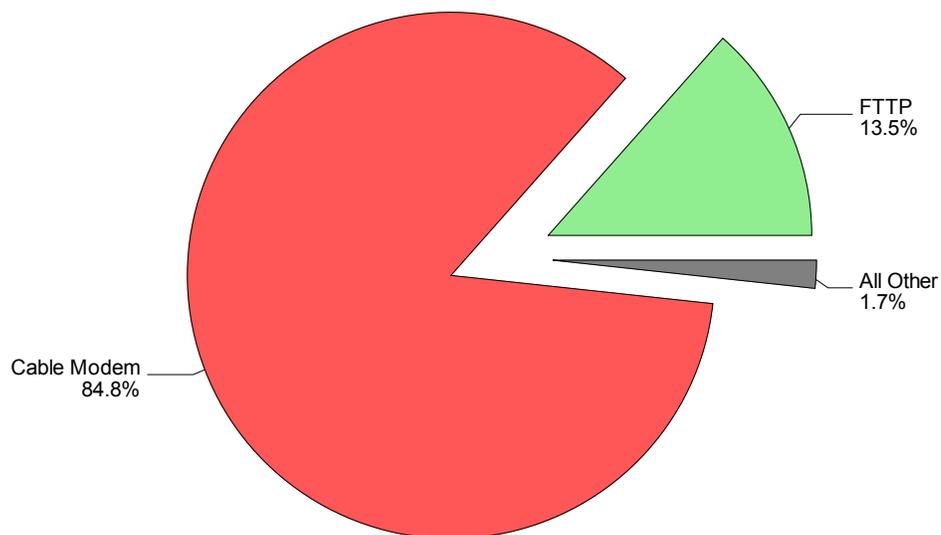
\* The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).

# = Rounds to zero.

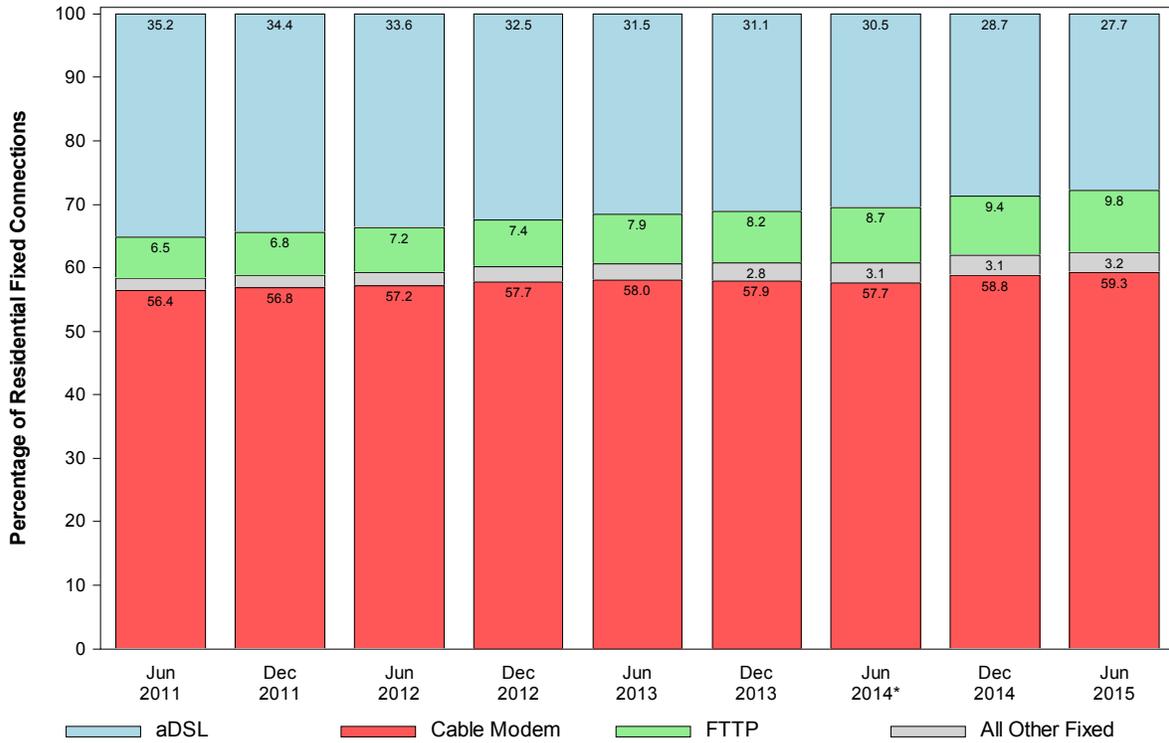
The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see Technical Notes).  
Figures may not sum to totals due to rounding.

**Figure 26**

**Residential Fixed Connections at Least 25 Mbps Downstream and 3 Mbps Upstream  
by Technology as of June 30, 2015**



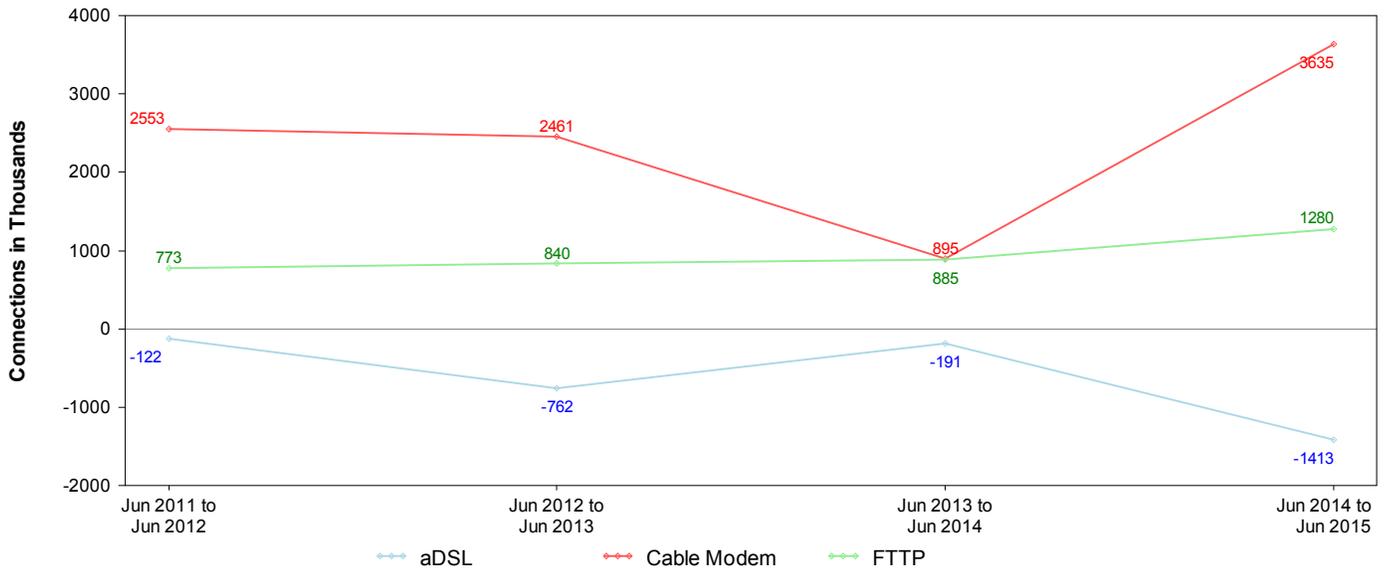
**Figure 27**  
**Residential Fixed Connections over 200 kbps in at Least One Direction 2011-2015**  
 (Shares of selected technologies)



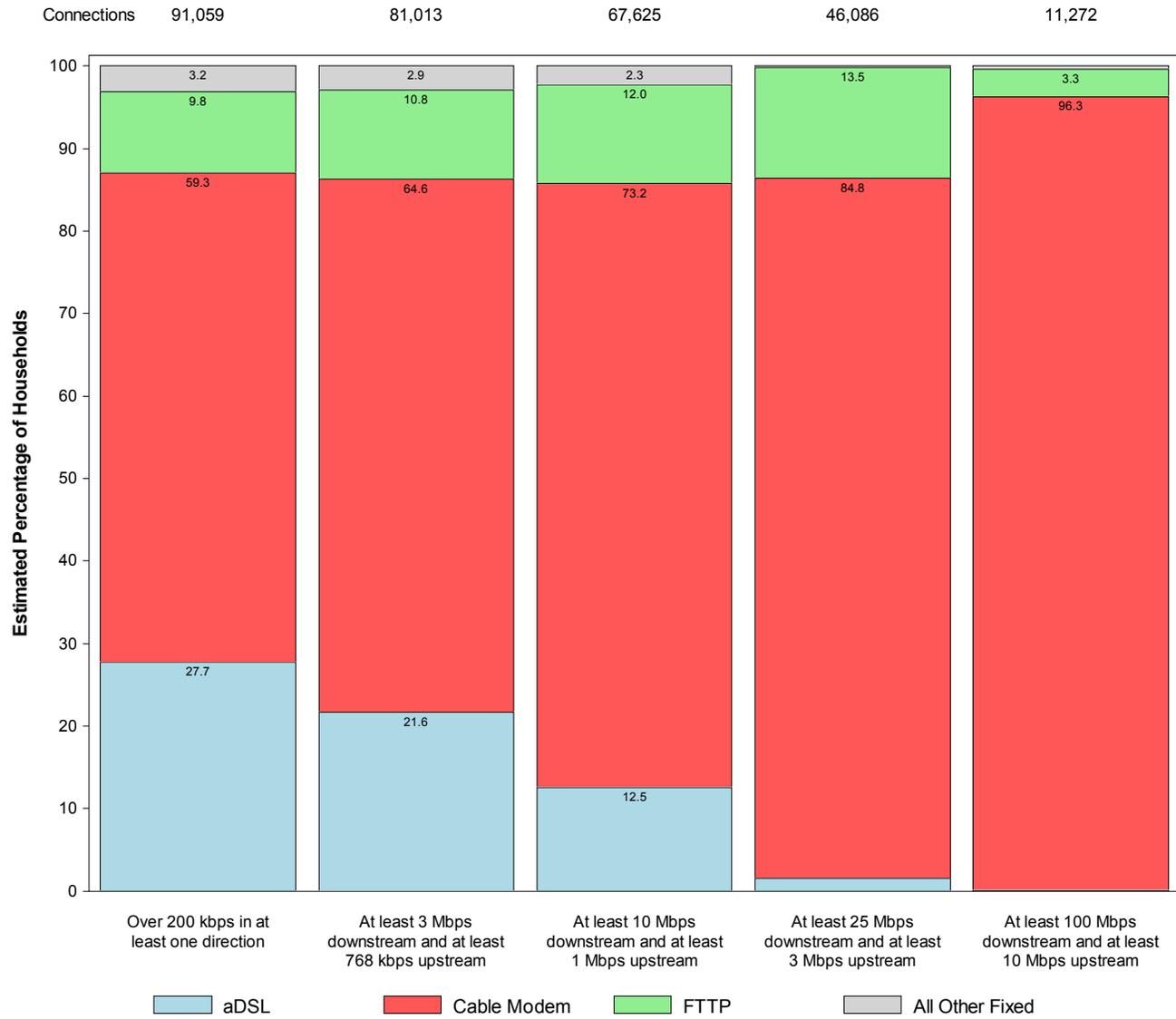
\* The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).

The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see Technical Notes). Some previously-published data may have been revised. Figures may not sum to totals due to rounding.

**Figure 28**  
**Residential Fixed Connections over 200 kbps in at Least One Direction 2011-2015**  
 (Net adds for selected technologies)



**Figure 29**  
**Residential Fixed Connections by Technology as of June 30, 2015**  
**(Shares of selected technologies for selected speeds, connections in thousands)**



**Figure 30**  
**Fixed Connections by Downstream Speed Tier and Technology as of June 30, 2015**  
(In thousands)

Technology	Downstream Speed						Total
	Less than 1.5 Mbps	At least 1.5 Mbps and less than 3 Mbps	At least 3 Mbps and less than 10 Mbps	At least 10 Mbps and less than 25 Mbps	At least 25 Mbps and less than 100 Mbps	At least 100 Mbps	
aDSL	1,698	2,852	11,932	10,834	875	3	28,194
sDSL	35	17	16	7	*	*	76
Other Wireline <sup>1</sup>	58	344	118	56	25	101	701
Cable Modem	196	768	4,033	11,009	30,189	11,654	57,850
FTTP	49	88	614	2,235	6,249	533	9,768
Satellite	283	49	427	1,298	*	*	2,058
Fixed Wireless	138	178	504	171	24	24	1,040
<b>Total</b>	<b>2,457</b>	<b>4,295</b>	<b>17,644</b>	<b>25,611</b>	<b>37,364</b>	<b>12,315</b>	<b>99,686</b>

Percentages							
aDSL	1.7	2.9	12.0	10.9	0.9	0.0	28.3
sDSL	0.0	0.0	0.0	0.0	*	*	0.1
Other Wireline <sup>1</sup>	0.1	0.3	0.1	0.1	0.0	0.1	0.7
Cable Modem	0.2	0.8	4.0	11.0	30.3	11.7	58.0
FTTP	0.0	0.1	0.6	2.2	6.3	0.5	9.8
Satellite	0.3	0.0	0.4	1.3	*	*	2.1
Fixed Wireless	0.1	0.2	0.5	0.2	0.0	0.0	1.0
<b>Total</b>	<b>2.5</b>	<b>4.3</b>	<b>17.7</b>	<b>25.7</b>	<b>37.5</b>	<b>12.4</b>	<b>100.0</b>

<sup>1</sup> Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

Note: Figures may not sum to totals due to rounding.

Source: FCC Form 477.

**Figure 31**  
**Residential Fixed Connections by Downstream Speed Tier and Technology as of June 30, 2015**  
(In thousands)

Technology	Downstream Speed						Total
	Less than 1.5 Mbps	At least 1.5 Mbps and less than 3 Mbps	At least 3 Mbps and less than 10 Mbps	At least 10 Mbps and less than 25 Mbps	At least 25 Mbps and less than 100 Mbps	At least 100 Mbps	
aDSL	1,585	2,434	10,373	10,051	820	2	25,265
sDSL	15	2	1	#	*	*	17
Other Wireline <sup>1</sup>	1	3	10	12	7	19	52
Cable Modem	186	712	3,486	9,419	28,784	11,436	54,023
FTTP	24	40	535	2,056	5,866	377	8,897
Satellite	136	24	421	1,293	*	*	1,875
Fixed Wireless	124	165	449	149	21	21	929
<b>Total</b>	<b>2,071</b>	<b>3,380</b>	<b>15,275</b>	<b>22,981</b>	<b>35,498</b>	<b>11,854</b>	<b>91,059</b>

Percentages							
aDSL	1.7	2.7	11.4	11.0	0.9	0.0	27.7
sDSL	0.0	0.0	0.0	0.0	*	*	0.0
Other Wireline <sup>1</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Cable Modem	0.2	0.8	3.8	10.3	31.6	12.6	59.3
FTTP	0.0	0.0	0.6	2.3	6.4	0.4	9.8
Satellite	0.1	0.0	0.5	1.4	*	*	2.1
Fixed Wireless	0.1	0.2	0.5	0.2	0.0	0.0	1.0
<b>Total</b>	<b>2.3</b>	<b>3.7</b>	<b>16.8</b>	<b>25.2</b>	<b>39.0</b>	<b>13.0</b>	<b>100.0</b>

<sup>1</sup> Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

Note: Figures may not sum to totals due to rounding.

Source: FCC Form 477.

**Figure 32**  
**Nationwide Number of Providers of Connections over 200 kbps in at Least One Direction**  
**by Technology 2011-2015**

Technology	2011		2012		2013		2014		2015
	Jun	Dec	Jun	Dec	Jun	Dec	Jun+	Dec	Jun
aDSL	867	867	860	865	852	851	794	792	791
sDSL	252	255	251	255	246	239	195	191	179
Other Wireline <sup>1</sup>	265	274	258	262	246	245	270	245	241
Cable Modem	400	405	401	404	403	407	394	402	392
FTTP	579	621	642	666	692	744	878	906	928
Satellite	5	6	5	6	5	5	18	16	11
Fixed Wireless	672	713	713	765	771	825	870	916	940
Mobile Wireless	64	69	67	70	79	77	91	98	100
Power Line and Other	4	5	*	*	0	*	-	-	-
<b>Total</b>	<b>1,624</b>	<b>1,687</b>	<b>1,673</b>	<b>1,722</b>	<b>1,714</b>	<b>1,773</b>	<b>1,813</b>	<b>1,865</b>	<b>1,870</b>

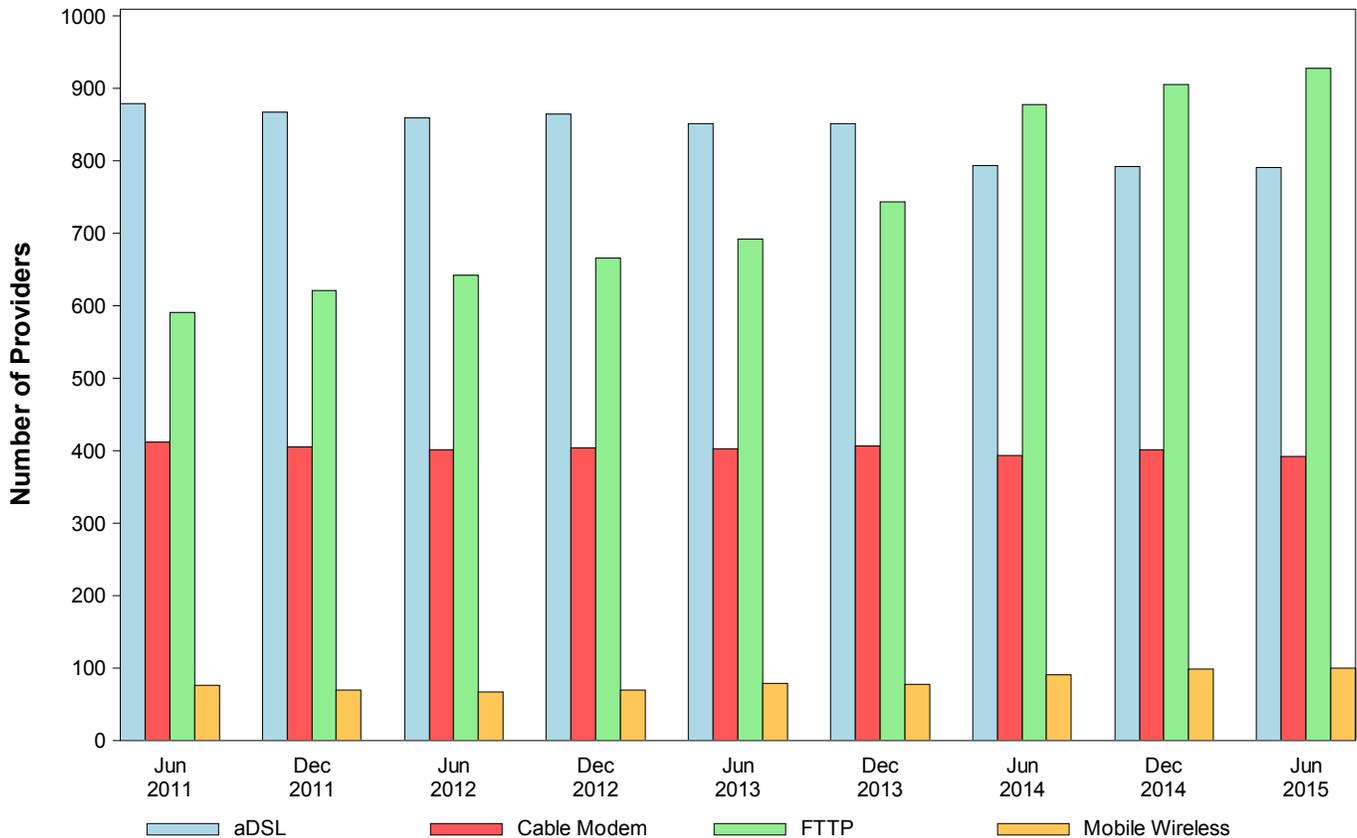
<sup>1</sup> For this Figure, the categories Power Line and All Other were combined with Other Wireline from June 2014 forward.

+ The June 2014 data have not been subjected to the typical quality checks (see Technical Notes).

Multiple Form 477 filers within a holding company structure count as one provider. \* = 1-3 providers.

The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see Technical Notes). Some previously-published data may have been revised.

**Figure 33**  
**Nationwide Number of Providers of Connections over 200 kbps in at Least One Direction**  
**Selected Technologies 2011-2015**



**SECTION 3**  
**SUMMARY STATISTICS: THE STATES**

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**Figure 34**  
**Residential Fixed Connections and Households by State as of June 30, 2015**  
(Connections and households, in thousands)

State	Households	At least 200 kbps in at least One Direction		At least 10 Mbps Down and 1 Mbps Up		At least 25 Mbps Down and 3 Mbps Up		At least 100 Mbps Down and 10 Mbps Up	
		Connections	Subscribership Ratio	Connections	Subscribership Ratio	Connections	Subscribership Ratio	Connections	Subscribership Ratio
Alabama	1,842	1,224	0.66	819	0.44	431	0.23	25	0.01
Alaska	252	200	0.80	133	0.53	*	*	*	*
American Samoa	10	*	*	0	0.00	0	0.00	0	0.00
Arizona	2,387	1,909	0.80	1,281	0.54	1,033	0.43	291	0.12
Arkansas	1,132	709	0.63	433	0.38	227	0.20	83	0.07
California	12,617	10,569	0.84	8,222	0.65	5,726	0.45	1,955	0.15
Colorado	1,998	1,731	0.87	1,091	0.55	1,028	0.51	*	*
Connecticut	1,356	1,104	0.81	929	0.69	743	0.55	204	0.15
Delaware	339	308	0.91	275	0.81	*	*	*	*
District of Columbia	267	223	0.84	187	0.70	*	*	*	*
Florida	7,218	6,253	0.87	4,942	0.68	2,813	0.39	430	0.06
Georgia	3,541	2,693	0.76	1,889	0.53	1,281	0.36	193	0.05
Guam	42	*	*	*	*	*	*	0	0.00
Hawaii	450	381	0.85	371	0.82	*	*	*	*
Idaho	585	437	0.75	204	0.35	148	0.25	6	0.01
Illinois	4,779	3,598	0.75	2,680	0.56	1,869	0.39	*	*
Indiana	2,492	1,751	0.70	1,180	0.47	678	0.27	116	0.05
Iowa	1,232	885	0.72	457	0.37	82	0.07	6	0.00
Kansas	1,112	833	0.75	567	0.51	299	0.27	85	0.08
Kentucky	1,702	1,168	0.69	705	0.41	206	0.12	16	0.01
Louisiana	1,719	1,176	0.68	855	0.50	553	0.32	158	0.09
Maine	553	454	0.82	303	0.55	90	0.16	*	*
Maryland	2,156	1,797	0.83	1,588	0.74	1,377	0.64	*	*
Massachusetts	2,538	2,222	0.88	1,967	0.77	1,826	0.72	*	*
Michigan	3,828	2,803	0.73	2,139	0.56	1,455	0.38	*	*
Minnesota	2,115	1,590	0.75	1,009	0.48	841	0.40	10	0.00
Mississippi	1,093	604	0.55	371	0.34	209	0.19	31	0.03
Missouri	2,361	1,672	0.71	1,106	0.47	616	0.26	150	0.06
Montana	408	307	0.75	161	0.39	*	*	*	*
Nebraska	731	541	0.74	340	0.47	226	0.31	29	0.04

**Figure 34 - Continued**  
**Residential Fixed Connections and Households by State as of June 30, 2015**  
(Connections and households, in thousands)

State	Households	At least 200 kbps in at least One Direction		At least 10 Mbps Down and 1 Mbps Up		At least 25 Mbps Down and 3 Mbps Up		At least 100 Mbps Down and 10 Mbps Up	
		Connections	Subscribership Ratio	Connections	Subscribership Ratio	Connections	Subscribership Ratio	Connections	Subscribership Ratio
Nevada	1,006	818	0.81	597	0.59	456	0.45	*	*
New Hampshire	520	459	0.88	365	0.70	287	0.55	*	*
New Jersey	3,188	2,840	0.89	2,583	0.81	2,440	0.77	549	0.17
New Mexico	765	527	0.69	237	0.31	216	0.28	64	0.08
New York	7,256	5,980	0.82	5,338	0.74	4,051	0.56	615	0.08
North Carolina	3,743	2,802	0.75	1,957	0.52	798	0.21	100	0.03
North Dakota	293	232	0.79	178	0.61	120	0.41	12	0.04
Northern Mariana Isl	16	*	*	0	0.00	0	0.00	0	0.00
Ohio	4,570	3,395	0.74	2,307	0.50	754	0.17	37	0.01
Oklahoma	1,450	973	0.67	643	0.44	376	0.26	98	0.07
Oregon	1,523	1,146	0.75	786	0.52	698	0.46	*	*
Pennsylvania	4,958	3,821	0.77	2,807	0.57	2,470	0.50	*	*
Puerto Rico	1,241	614	0.49	*	*	1	0.00	*	*
Rhode Island	410	339	0.83	323	0.79	*	*	*	*
South Carolina	1,796	1,311	0.73	964	0.54	423	0.24	16	0.01
South Dakota	327	244	0.75	187	0.57	136	0.42	*	*
Tennessee	2,487	1,690	0.68	1,269	0.51	957	0.38	158	0.06
Texas	9,014	6,743	0.75	4,986	0.55	2,649	0.29	1,149	0.13
Utah	896	760	0.85	456	0.51	394	0.44	167	0.19
Vermont	257	217	0.84	142	0.55	115	0.45	43	0.17
Virgin Islands	43	24	0.54	*	*	*	*	*	*
Virginia	3,042	2,413	0.79	1,980	0.65	1,639	0.54	358	0.12
Washington	2,645	2,166	0.82	1,562	0.59	1,461	0.55	628	0.24
West Virginia	742	493	0.66	310	0.42	267	0.36	*	*
Wisconsin	2,293	1,698	0.74	1,179	0.51	579	0.25	4	0.00
Wyoming	226	170	0.75	105	0.46	*	*	#	0.00
Total	117,564	91,059	0.77	67,625	0.58	46,086	0.39	11,272	0.10

# = Rounds to Zero; \* = Data withheld to maintain firm confidentiality.

Note: Figures may not sum to totals due to rounding.

Sources: FCC Form 477 (Connections); 2010-2014 ACS 5-year estimates; Census 2010.

**Figure 35**  
**Connections by Type of End User by State as of June 30, 2015**  
 (Connections over 200 kbps in at least one direction, in thousands)

State	Connections		Percentages		Total
	Residential	Business	Residential	Business	
Alabama	4,182	531	88.7	11.3	4,713
Alaska	727	115	86.4	13.6	841
American Samoa	*	*	*	*	*
Arizona	5,739	907	86.3	13.7	6,647
Arkansas	2,529	345	88.0	12.0	2,874
California	36,846	6,642	84.7	15.3	43,487
Colorado	5,170	869	85.6	14.4	6,038
Connecticut	3,498	614	85.1	14.9	4,112
Delaware	909	152	85.7	14.3	1,061
District of Columbia	794	446	64.0	36.0	1,240
Florida	17,357	3,139	84.7	15.3	20,497
Georgia	8,753	1,450	85.8	14.2	10,202
Guam	100	21	82.6	17.4	121
Hawaii	1,417	185	88.5	11.5	1,601
Idaho	1,405	223	86.3	13.7	1,628
Illinois	11,878	2,118	84.9	15.1	13,996
Indiana	5,673	807	87.5	12.5	6,480
Iowa	2,716	444	85.9	14.1	3,160
Kansas	2,480	450	84.6	15.4	2,930
Kentucky	4,843	533	90.1	9.9	5,376
Louisiana	4,338	591	88.0	12.0	4,930
Maine	1,159	184	86.3	13.7	1,343
Maryland	5,636	972	85.3	14.7	6,607
Massachusetts	6,541	1,193	84.6	15.4	7,734
Michigan	8,244	1,645	83.4	16.6	9,889
Minnesota	4,972	913	84.5	15.5	5,885
Mississippi	2,514	266	90.4	9.6	2,780
Missouri	5,333	945	84.9	15.1	6,279
Montana	893	121	88.1	11.9	1,013
Nebraska	1,571	322	83.0	17.0	1,894
Nevada	2,576	376	87.2	12.8	2,952
New Hampshire	1,250	198	86.4	13.6	1,448
New Jersey	9,056	1,665	84.5	15.5	10,721
New Mexico	1,696	243	87.5	12.5	1,939
New York	18,429	3,339	84.7	15.3	21,767
North Carolina	8,478	1,431	85.6	14.4	9,909
North Dakota	701	125	84.9	15.1	826
Northern Mariana Isl	*	*	*	*	*
Ohio	10,363	1,684	86.0	14.0	12,048
Oklahoma	3,427	526	86.7	13.3	3,954
Oregon	3,628	610	85.6	14.4	4,238
Pennsylvania	11,465	1,825	86.3	13.7	13,290
Puerto Rico	2,926	226	92.8	7.2	3,152
Rhode Island	968	160	85.8	14.2	1,128
South Carolina	4,087	564	87.9	12.1	4,651
South Dakota	732	94	88.6	11.4	827
Tennessee	5,610	890	86.3	13.7	6,500
Texas	23,772	4,348	84.5	15.5	28,120
Utah	2,526	442	85.1	14.9	2,968
Vermont	571	97	85.4	14.6	668
Virgin Islands	97	16	85.8	14.2	113
Virginia	7,484	1,426	84.0	16.0	8,910
Washington	6,809	1,158	85.5	14.5	7,967
West Virginia	1,504	180	89.3	10.7	1,685
Wisconsin	4,939	881	84.9	15.1	5,820
Wyoming	559	77	88.0	12.0	636
Total	291,919	49,729	85.4	14.6	341,648

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

Figures may not sum to totals due to rounding.

Source: FCC Form 477.

**Figure 36**  
**Connections by Technology by State as of June 30, 2015**  
(Connections over 200 kbps in at least one direction, in thousands)

<i>State</i>	<i>ADSL</i>	<i>SDSL</i>	<i>Other Wireline<sup>1</sup></i>	<i>Cable Modem</i>	<i>Fiber</i>	<i>Satellite</i>	<i>Fixed Wireless</i>	<i>Mobile Wireless</i>	<i>Total</i>
Alabama	529	3	*	702	26	*	4	3,373	4,713
Alaska	78	1	2	*	3	*	7	602	841
American Samoa	0	0	0	*	*	0	*	*	*
Arizona	635	#	*	1,293	56	*	30	4,589	6,647
Arkansas	347	#	*	349	14	*	5	2,101	2,874
California	3,931	13	*	6,450	915	*	58	31,876	43,487
Colorado	632	#	*	1,038	108	*	56	4,148	6,038
Connecticut	28	*	5	915	*	*	*	2,911	4,112
Delaware	*	#	3	*	*	*	0	727	1,061
District of Columbia	*	*	7	*	41	*	*	980	1,240
Florida	1,867	1	*	4,245	581	*	11	13,664	20,497
Georgia	1,150	1	*	1,632	76	*	1	7,244	10,202
Guam	*	0	*	*	*	0	0	82	121
Hawaii	*	2	1	*	18	4	4	1,188	1,601
Idaho	194	#	*	202	29	*	37	1,150	1,628
Illinois	1,281	3	*	2,452	43	*	63	10,077	13,996
Indiana	666	1	*	1,040	87	*	42	4,580	6,480
Iowa	345	1	*	444	112	*	32	2,193	3,160
Kansas	282	#	*	475	92	*	35	2,019	2,930
Kentucky	482	1	*	655	59	*	17	4,101	5,376
Louisiana	438	#	*	720	57	*	6	3,642	4,930
Maine	135	2	*	342	7	*	4	839	1,343
Maryland	*	1	16	974	*	*	2	4,653	6,607
Massachusetts	*	1	22	1,694	*	*	1	5,293	7,734
Michigan	874	4	*	1,992	14	*	43	6,844	9,889
Minnesota	561	4	*	990	106	*	27	4,153	5,885
Mississippi	317	*	2	290	6	*	2	2,107	2,780
Missouri	815	#	*	787	97	*	33	4,459	6,279
Montana	117	1	*	173	16	*	21	670	1,013
Nebraska	164	#	*	360	38	*	21	1,299	1,894

**Figure 36 - Continued**  
**Connections by Technology by State as of June 30, 2015**  
(Connections over 200 kbps in at least one direction, in thousands)

<i>State</i>	<i>ADSL</i>	<i>SDSL</i>	<i>Other Wireline<sup>1</sup></i>	<i>Cable Modem</i>	<i>Fiber</i>	<i>Satellite</i>	<i>Fixed Wireless</i>	<i>Mobile Wireless</i>	<i>Total</i>
Nevada	250	#	*	608	8	*	13	2,059	2,952
New Hampshire	88	#	*	394	19	*	#	933	1,448
New Jersey	266	1	29	1,949	*	*	#	7,584	10,721
New Mexico	289	#	*	238	15	*	19	1,359	1,939
New York	584	6	39	4,506	*	*	4	15,136	21,767
North Carolina	1,014	#	*	1,899	76	*	4	6,837	9,909
North Dakota	63	1	2	131	58	4	6	563	826
Northern Mariana Isl	*	0	0	*	0	0	0	*	*
Ohio	1,144	1	*	2,316	109	*	39	8,367	12,048
Oklahoma	392	#	*	547	27	*	35	2,885	3,954
Oregon	317	1	*	831	52	*	18	2,983	4,238
Pennsylvania	798	2	24	2,488	*	*	4	9,109	13,290
Puerto Rico	*	0	*	*	6	*	2	2,481	3,152
Rhode Island	*	#	2	*	*	*	*	757	1,128
South Carolina	473	#	*	837	66	*	2	3,223	4,651
South Dakota	58	*	#	153	42	*	11	557	827
Tennessee	568	4	*	1,055	138	*	9	4,644	6,500
Texas	2,930	3	*	3,313	653	*	148	20,785	28,120
Utah	262	1	*	403	92	*	60	2,142	2,968
Vermont	94	#	*	128	15	*	1	421	668
Virgin Islands	*	0	*	*	*	*	*	81	113
Virginia	389	1	*	1,339	793	*	14	6,262	8,910
Washington	530	1	*	1,645	89	*	20	5,618	7,967
West Virginia	*	*	1	362	8	*	2	1,150	1,685
Wisconsin	647	7	*	1,051	54	*	33	3,975	5,820
Wyoming	54	*	5	101	6	*	16	443	636
<b>Total</b>	<b>28,194</b>	<b>76</b>	<b>701</b>	<b>57,850</b>	<b>9,768</b>	<b>2,058</b>	<b>1,040</b>	<b>241,962</b>	<b>341,648</b>

<sup>1</sup> Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

Figures may not sum to totals due to rounding.

Source: FCC Form 477.

**Figure 37**  
**Percentage of Fixed Connections by Downstream Speed by State as of June 30, 2015**

State	Over 200 kbps Upstream and				
	% over 200 kbps Downstream	% at least 3 Mbps Downstream	% at least 10 Mbps Downstream	% at least 25 Mbps Downstream	% at least 100 Mbps Downstream
Alabama	98.5	90.0	68.9	37.6	2.3
Alaska	95.8	84.9	63.0	19.9	8.1
American Samoa	*	*	*	*	*
Arizona	99.3	94.0	79.4	52.0	14.5
Arkansas	98.8	89.0	63.8	32.4	13.8
California	99.5	94.9	75.4	51.5	17.4
Colorado	99.7	92.3	78.0	56.8	24.0
Connecticut	99.9	97.5	83.2	65.6	17.5
Delaware	99.7	97.1	88.1	75.5	21.7
District of Columbia	99.6	94.8	79.9	72.9	25.6
Florida	99.3	94.7	81.5	52.7	6.8
Georgia	98.6	92.3	70.4	46.5	7.0
Guam	*	*	*	*	*
Hawaii	99.9	98.0	94.9	34.6	8.0
Idaho	99.1	89.6	62.5	33.1	1.3
Illinois	99.5	94.9	73.8	50.8	11.7
Indiana	99.1	92.4	68.4	39.5	6.4
Iowa	99.0	88.0	59.9	20.3	0.8
Kansas	99.5	90.9	68.1	34.6	11.3
Kentucky	97.9	87.7	60.3	17.2	1.5
Louisiana	98.6	91.6	71.8	45.1	12.8
Maine	98.2	89.4	64.8	18.9	1.7
Maryland	99.6	96.3	86.3	74.0	19.1
Massachusetts	99.7	96.7	86.9	78.6	25.0
Michigan	99.0	94.6	75.5	50.3	6.0
Minnesota	99.5	91.3	73.3	52.3	1.0
Mississippi	98.0	87.8	61.6	33.1	4.9
Missouri	98.9	90.3	69.8	37.3	27.0
Montana	99.0	82.9	57.9	47.1	0.7
Nebraska	99.2	92.1	66.8	39.8	5.3

**Figure 37 - Continued**  
**Percentage of Fixed Connections by Downstream Speed by State as of June 30, 2015**

State	Over 200 kbps Upstream and				
	% over 200 kbps Downstream	% at least 3 Mbps Downstream	% at least 10 Mbps Downstream	% at least 25 Mbps Downstream	% at least 100 Mbps Downstream
Nevada	99.7	95.9	81.3	54.3	9.0
New Hampshire	98.6	94.1	77.8	58.6	23.6
New Jersey	99.6	97.0	89.9	83.5	18.4
New Mexico	99.2	87.2	61.9	38.8	11.4
New York	99.3	95.8	86.9	65.5	10.1
North Carolina	99.1	90.8	73.5	27.6	3.4
North Dakota	99.8	94.5	77.6	52.7	5.6
Northern Mariana Isl	*	*	*	*	*
Ohio	99.5	90.3	68.1	21.5	1.2
Oklahoma	99.3	93.3	65.3	36.8	9.5
Oregon	99.4	91.5	76.3	59.3	21.6
Pennsylvania	99.5	93.3	74.8	62.8	18.2
Puerto Rico	99.9	68.3	30.3	3.6	0.2
Rhode Island	99.5	97.9	92.3	76.1	7.6
South Carolina	99.0	91.6	73.5	31.9	1.3
South Dakota	99.4	93.9	78.1	55.9	5.9
Tennessee	98.7	93.1	75.2	54.4	9.2
Texas	99.5	93.7	73.0	37.8	16.4
Utah	99.7	93.8	73.3	49.9	20.8
Vermont	97.6	90.8	63.9	49.0	18.1
Virgin Islands	99.9	82.8	13.5	*	*
Virginia	99.3	94.7	81.0	64.6	14.3
Washington	99.4	93.3	78.8	65.2	27.7
West Virginia	96.6	89.6	60.7	51.0	36.0
Wisconsin	99.0	89.5	71.8	33.4	0.6
Wyoming	99.2	86.5	67.2	49.3	0.4
Total	99.3	93.2	75.5	49.8	12.4

**Figure 38**  
**Providers of Connections by Technology by State as of June 30, 2015**  
(Connections over 200 kbps in at least one direction, in thousands)

<i>State</i>	<i>ADSL</i>	<i>SDSL</i>	<i>Other Wireline<sup>1</sup></i>	<i>Cable Modem</i>	<i>Fiber</i>	<i>Satellite</i>	<i>Fixed Wireless</i>	<i>Mobile Wireless</i>	<i>Total</i>
Alabama	28	10	*	21	35	*	21	6	84
Alaska	14	5	9	*	6	*	10	7	31
American Samoa	0	0	0	*	*	0	*	*	*
Arizona	25	6	*	16	27	*	36	7	94
Arkansas	22	4	*	18	26	*	16	4	66
California	39	12	*	30	48	*	76	6	162
Colorado	37	9	*	16	45	*	49	10	128
Connecticut	11	*	18	11	*	*	*	4	43
Delaware	*	4	13	*	*	*	0	4	27
District of Columbia	*	*	19	*	20	*	*	4	39
Florida	30	11	*	26	46	*	32	5	112
Georgia	30	10	*	33	59	*	22	4	123
Guam	*	0	*	*	*	0	0	4	4
Hawaii	*	6	7	*	9	4	4	5	22
Idaho	23	4	*	16	27	*	29	10	70
Illinois	59	13	*	19	63	*	71	9	172
Indiana	39	11	*	13	49	*	53	5	111
Iowa	110	19	*	44	115	*	85	31	220
Kansas	33	13	*	28	50	*	45	9	107
Kentucky	24	8	*	28	40	*	27	7	97
Louisiana	18	5	*	15	26	*	16	5	65
Maine	17	10	*	7	18	*	6	5	38
Maryland	*	9	31	15	*	*	17	6	76
Massachusetts	*	8	29	11	*	*	13	4	65
Michigan	37	13	*	23	41	*	37	6	111
Minnesota	52	16	*	22	66	*	47	6	126
Mississippi	16	*	15	15	18	*	18	5	61
Missouri	39	12	*	21	46	*	64	8	142
Montana	21	6	*	9	25	*	24	5	56
Nebraska	33	5	*	21	41	*	34	8	87

**Figure 38 - Continued**  
**Providers of Connections by Technology by State as of June 30, 2015**  
(Connections over 200 kbps in at least one direction, in thousands)

<i>State</i>	<i>ADSL</i>	<i>SDSL</i>	<i>Other Wireline<sup>1</sup></i>	<i>Cable Modem</i>	<i>Fiber</i>	<i>Satellite</i>	<i>Fixed Wireless</i>	<i>Mobile Wireless</i>	<i>Total</i>
Nevada	19	8	*	9	23	*	14	7	66
New Hampshire	14	8	*	7	20	*	4	5	42
New Jersey	19	7	33	10	*	*	9	4	61
New Mexico	23	7	*	10	20	*	24	9	63
New York	40	10	38	22	*	*	23	4	103
North Carolina	27	8	*	28	41	*	19	7	90
North Dakota	27	10	14	6	25	4	17	7	53
Northern Mariana Isl	*	0	0	*	0	0	0	*	*
Ohio	42	10	*	32	48	*	43	5	135
Oklahoma	36	6	*	11	35	*	34	11	95
Oregon	41	11	*	14	44	*	35	6	98
Pennsylvania	37	10	38	30	*	*	23	8	113
Puerto Rico	*	0	*	*	5	*	5	5	16
Rhode Island	*	5	12	*	*	*	*	4	25
South Carolina	17	4	*	16	25	*	8	6	49
South Dakota	24	*	10	6	29	*	23	8	65
Tennessee	26	9	*	23	37	*	23	7	90
Texas	63	20	*	38	76	*	112	11	226
Utah	20	9	*	11	23	*	28	8	75
Vermont	11	5	*	7	17	*	4	5	36
Virgin Islands	*	0	*	*	*	*	*	4	9
Virginia	27	11	*	20	39	*	33	7	103
Washington	30	11	*	24	41	*	49	6	110
West Virginia	*	*	14	16	13	*	8	7	50
Wisconsin	46	12	*	23	57	*	44	10	122
Wyoming	16	*	13	5	15	*	24	8	48
<b>Total</b>	<b>791</b>	<b>179</b>	<b>241</b>	<b>392</b>	<b>928</b>	<b>11</b>	<b>940</b>	<b>100</b>	<b>1,870</b>

<sup>1</sup> Power Line and Other are summarized with Other Wireline. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

Figures may not sum to totals due to rounding.

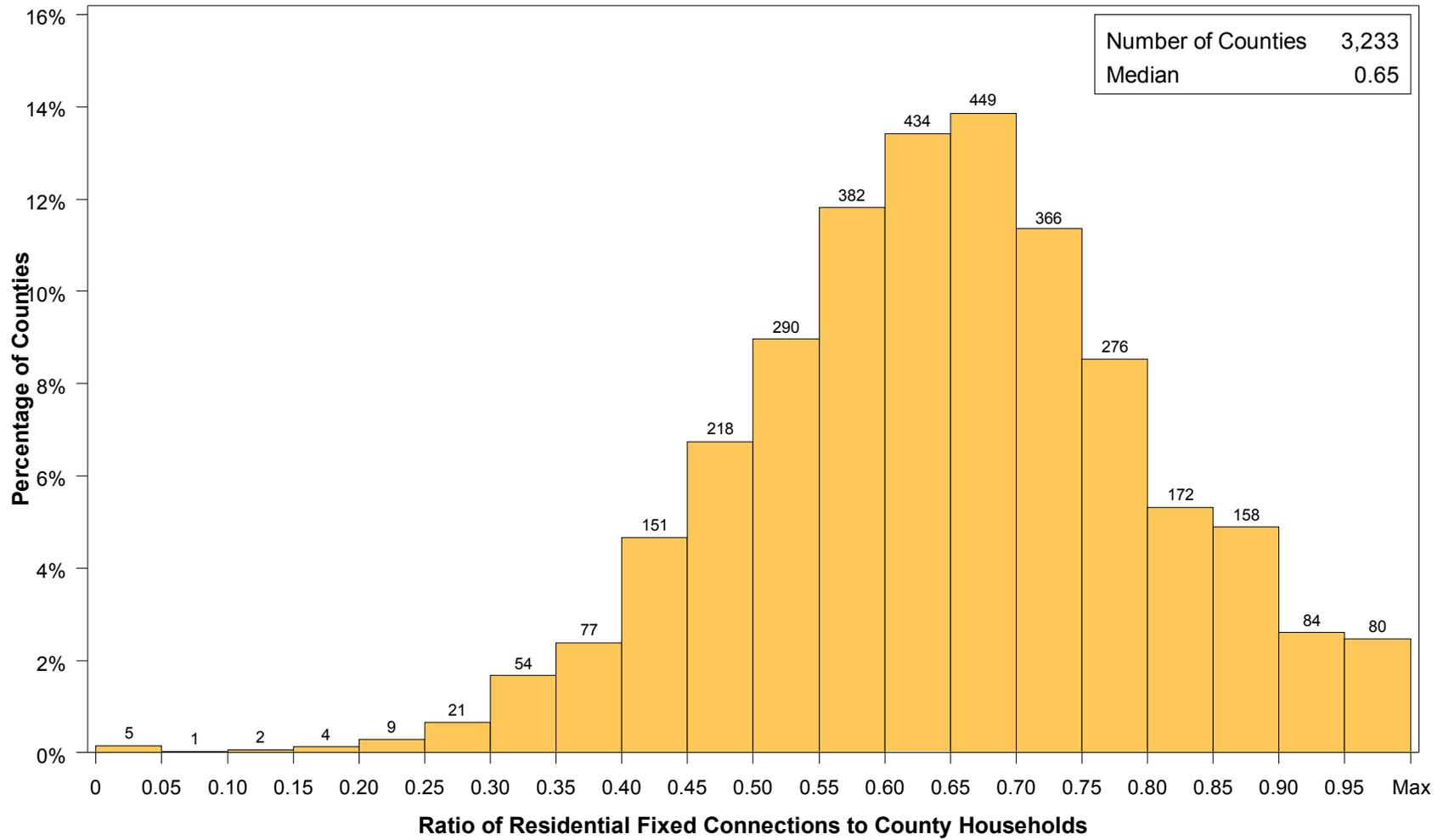
Source: FCC Form 477.

**SECTION 4**  
**SUMMARY STATISTICS: COUNTIES AND CENSUS TRACTS**

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**Figure 39**  
**Distribution of Counties by Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to County Households as of June 30, 2015**



Note: Ratios over 1 were set to 1. See Technical Notes at the end of the report.  
 Sources: FCC Form 477; 2010-2014 ACS 5-year estimates; and Census 2010.

**Figure 40**  
**Distribution of Counties by Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to County Households by Technology as of June 30, 2015**

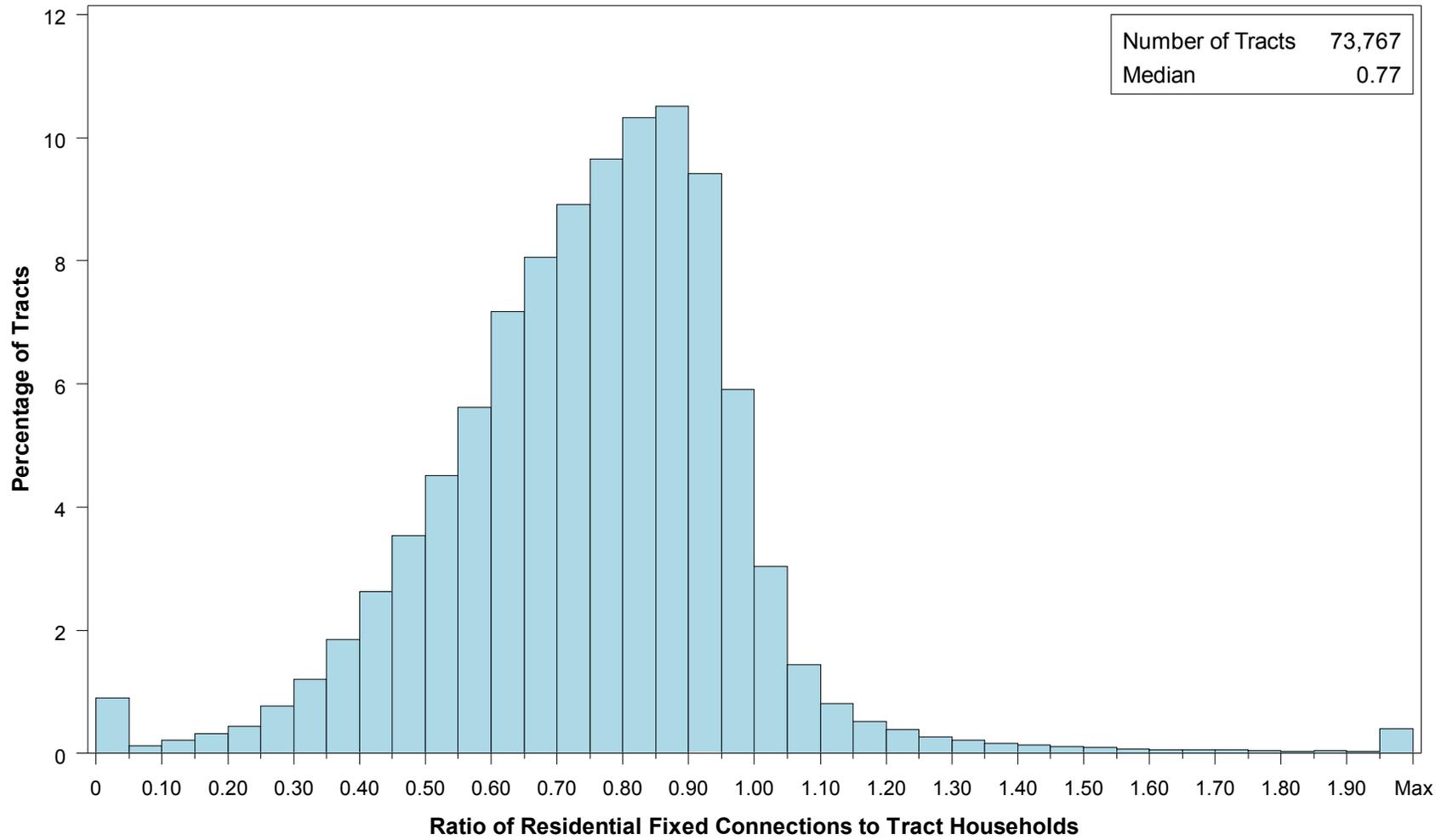
<i>Technology</i>	<i>Ratio of Residential Fixed Connections to County Households</i>										<i>100% or more</i>
	<i>Zero</i>	<i>Greater than 0 and no more than 5%</i>	<i>Greater than 5 and no more than 10%</i>	<i>Greater than 10 and no more than 20%</i>	<i>Greater than 20 and no more than 30%</i>	<i>Greater than 30 and no more than 40%</i>	<i>Greater than 40 and no more than 50%</i>	<i>Greater than 50 and no more than 60%</i>	<i>Greater than 60 and no more than 80%</i>	<i>Greater than 80 and no more than 100%</i>	
aDSL	0.9	4.5	6.7	27.4	29.2	18.3	8.3	2.9	1.5	0.2	0.1
sDSL	85.9	13.8	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Other Wireline	90.6	9.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cable Modem	11.5	7.8	6.8	16.1	15.6	14.8	12.4	9.3	4.9	0.5	0.2
FTTP	39.2	38.4	6.6	6.8	3.2	2.2	1.6	0.9	1.0	0.1	0.0
Satellite	0.9	62.7	24.4	10.5	1.4	0.1	0.0	0.0	0.0	0.0	0.0
Fixed Wireless	30.4	51.7	10.4	5.6	1.2	0.4	0.2	0.0	0.0	0.0	0.0
<b>Total</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.2</b>	<b>0.9</b>	<b>4.1</b>	<b>11.4</b>	<b>20.8</b>	<b>47.2</b>	<b>13.6</b>	<b>1.6</b>

<sup>1</sup> Power Line and Other are summarized with Other Wireline. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

Note: Figures may not sum to totals due to rounding.

Sources: FCC Form 477; 2010-2014 ACS 5-year estimates; and Census 2010.

**Figure 41**  
**Distribution of Census Tracts by Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to Tract Households as of June 30, 2015**



Note: Ratios over 2 were set to 2. See Technical Notes at the end of the report.  
 Sources: FCC Form 477; 2010-2014 ACS 5-year estimates; and Census 2010.

**Figure 42**  
**Distribution of Census Tracts by Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to Tract Households by Technology as of June 30, 2015**

<i>Technology</i>	<i>Ratio of Residential Fixed Connections to Tract Households</i>										<i>100% or more</i>
	<i>Zero</i>	<i>Greater than 0 and no more than 5%</i>	<i>Greater than 5 and no more than 10%</i>	<i>Greater than 10 and no more than 20%</i>	<i>Greater than 20 and no more than 30%</i>	<i>Greater than 30 and no more than 40%</i>	<i>Greater than 40 and no more than 50%</i>	<i>Greater than 50 and no more than 60%</i>	<i>Greater than 60 and no more than 80%</i>	<i>Greater than 80 and no more than 100%</i>	
aDSL	1.6	15.1	11.7	24.7	20.9	14.4	7.2	2.7	1.4	0.2	0.2
sDSL	97.7	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Wireline	98.8	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cable Modem	4.9	3.1	2.0	5.2	10.2	16.0	18.8	16.8	17.9	3.9	1.2
FTTP	62.0	15.5	3.1	4.4	3.3	3.6	3.6	2.4	1.7	0.2	0.1
Satellite	25.0	64.6	5.6	3.5	0.9	0.2	0.1	0.0	0.0	0.0	0.0
Fixed Wireless	76.9	18.1	2.3	1.8	0.6	0.2	0.1	0.0	0.0	0.0	0.0
<b>Total</b>	<b>0.8</b>	<b>0.1</b>	<b>0.1</b>	<b>0.5</b>	<b>1.2</b>	<b>3.1</b>	<b>6.2</b>	<b>10.1</b>	<b>33.8</b>	<b>36.2</b>	<b>7.9</b>

<sup>1</sup> Power Line and Other are summarized with Other Wireline. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

Note: Figures may not sum to totals due to rounding.

Sources: FCC Form 477; 2010-2014 ACS 5-year estimates; and Census 2010.

**Figure 43**  
**Percentage of Developed Census Blocks with Residential Fixed Service by Technology as of June 30, 2015**  
*(Internet Access Service over 200 kbps in at least one direction)*

<i>Technology</i>	<i>Number of Providers</i>							
	<i>Zero</i>	<i>One</i>	<i>Two</i>	<i>Three</i>	<i>Four</i>	<i>Five</i>	<i>Six</i>	<i>Seven or More</i>
aDSL	28.5	68.3	2.8	0.3	0.0	0.0	0.0	0.0
sDSL	98.9	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Other Wireline <sup>1</sup>	97.1	2.9	0.0	0.0	0.0	0.0	0.0	0.0
Cable Modem	33.8	62.2	3.7	0.2	0.0	0.0	0.0	0.0
FTTP	85.2	14.5	0.3	0.0	0.0	0.0	0.0	0.0
Satellite	0.1	0.9	58.6	40.4	0.0	0.0	0.0	0.0
Fixed Wireless	62.2	24.4	9.3	3.5	0.6	0.0	0.0	0.0
aDSL and/or Cable Modem and/or FTTP	15.4	24.6	52.2	6.9	0.7	0.1	0.0	0.0
Any Technology	0.0	0.2	4.4	14.9	34.5	28.6	11.8	5.6

<sup>1</sup> Power Line and Other are summarized with Other Wireline. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

Note: Figures may not sum to totals due to rounding. The number of providers in a census block does not necessarily reflect the number of choices available to a particular household, and does not purport to measure competition. Providers may list a census block on Form 477 if service can be provided to at least one location in the block. Developed census blocks are those with housing units based on the 2010 census.

Sources: FCC Form 477 and Census 2010.

**Figure 44**  
**Distribution of Counties by Ratio of Residential Fixed Connections to County Households by State as of June 30, 2015**  
**(Connections over 200 kbps in at least one direction)**

State	Counties	Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to County Households										
		Zero	Greater than 0 and no more than 5%	Greater than 5 and no more than 10%	Greater than 10 and no more than 20%	Greater than 20 and no more than 30%	Greater than 30 and no more than 40%	Greater than 40 and no more than 50%	Greater than 50 and no more than 60%	Greater than 60 and no more than 80%	Greater than 80 and no more than 100%	100% or more
Alabama	67	0	0	0	0	2	2	20	22	17	4	0
Alaska	29	0	0	0	0	2	2	4	3	11	6	1
American Samoa	5	3	0	1	1	0	0	0	0	0	0	0
Arizona	15	0	0	0	0	0	1	1	1	10	2	0
Arkansas	75	0	0	0	0	0	7	31	21	15	1	0
California	58	0	0	0	0	0	1	0	2	31	23	1
Colorado	64	0	0	0	0	0	1	4	6	25	17	11
Connecticut	8	0	0	0	0	0	0	0	0	3	5	0
Delaware	3	0	0	0	0	0	0	0	0	0	2	1
District of Columbia	1	0	0	0	0	0	0	0	0	0	1	0
Florida	67	0	0	0	0	0	0	2	14	13	32	6
Georgia	159	0	0	0	1	3	12	31	38	45	26	3
Guam	1	0	0	0	0	0	0	0	0	0	1	0
Hawaii	5	0	1	0	0	0	0	0	0	1	3	0
Idaho	44	0	0	0	0	0	0	4	11	23	4	2
Illinois	102	0	0	0	1	2	3	11	26	50	9	0
Indiana	92	0	0	0	0	0	0	6	22	57	7	0
Iowa	99	0	0	0	0	0	0	0	18	77	3	1
Kansas	105	0	0	0	0	0	0	6	20	70	9	0
Kentucky	120	0	0	0	0	1	4	15	39	58	3	0
Louisiana	64	0	0	0	0	1	7	12	13	28	3	0
Maine	16	0	0	0	0	0	0	0	1	7	8	0
Maryland	24	0	0	0	0	0	0	1	2	11	9	1
Massachusetts	14	0	0	0	0	0	0	0	0	3	8	3
Michigan	83	0	0	0	0	0	1	5	20	46	10	1
Minnesota	87	0	0	0	0	0	5	6	8	57	11	0
Mississippi	82	0	0	0	2	7	26	28	8	10	1	0
Missouri	115	0	0	0	0	1	5	18	33	51	7	0
Montana	56	0	0	0	0	0	1	0	9	37	9	0
Nebraska	93	0	0	0	0	0	2	14	27	48	2	0

**Figure 44 - Continued**  
**Distribution of Counties by Ratio of Residential Fixed Connections to County Households by State as of June 30, 2015**  
**(Connections over 200 kbps in at least one direction)**

State	Counties	Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to County Households										
		Zero	Greater than 0 and no more than 5%	Greater than 5 and no more than 10%	Greater than 10 and no more than 20%	Greater than 20 and no more than 30%	Greater than 30 and no more than 40%	Greater than 40 and no more than 50%	Greater than 50 and no more than 60%	Greater than 60 and no more than 80%	Greater than 80 and no more than 100%	100% or more
Nevada	17	0	0	0	0	0	2	0	5	7	3	0
New Hampshire	10	0	0	0	0	0	0	0	0	1	9	0
New Jersey	21	0	0	0	0	0	0	0	0	3	17	1
New Mexico	33	0	0	0	0	0	0	5	7	19	2	0
New York	62	0	0	0	0	0	0	0	5	39	16	2
North Carolina	100	0	0	0	0	0	0	8	21	53	15	3
North Dakota	53	0	0	0	0	0	0	1	5	35	12	0
Northern Mariana Isl	4	1	0	0	0	0	1	2	0	0	0	0
Ohio	88	0	0	0	0	0	1	2	15	62	8	0
Oklahoma	77	0	0	0	0	1	7	18	21	24	5	1
Oregon	36	0	0	0	0	0	0	1	5	22	7	1
Pennsylvania	67	0	0	0	0	0	0	0	7	46	13	1
Puerto Rico	78	0	0	0	0	7	13	29	25	4	0	0
Rhode Island	5	0	0	0	0	0	0	0	0	1	4	0
South Carolina	46	0	0	0	0	0	4	9	9	19	4	1
South Dakota	66	0	0	0	0	0	1	1	15	39	8	2
Tennessee	95	0	0	0	0	1	4	17	39	30	4	0
Texas	254	0	0	0	0	0	6	35	76	115	21	1
Utah	29	0	0	0	0	0	0	0	4	10	12	3
Vermont	14	0	0	0	0	0	0	0	0	5	9	0
Virgin Islands	3	0	0	0	0	0	0	1	1	0	0	1
Virginia	133	0	0	0	1	1	10	16	24	55	23	3
Washington	39	0	0	0	0	0	1	1	1	23	12	1
West Virginia	55	0	0	0	0	1	1	5	13	32	3	0
Wisconsin	72	0	0	0	0	0	0	0	5	60	7	0
Wyoming	23	0	0	0	0	0	0	0	4	17	1	1
Total	3,233	4	1	1	6	30	131	370	671	1525	441	53

Note: Figures may not sum to totals due to rounding. See Technical Notes at the end of the report.

Sources: FCC Form 477; 2010-2014 ACS 5-year estimates (Households for U.S. and District of Columbia); Census 2010 (Households for Puerto Rico, American Samoa, Guam, Northern Mariana Islands and U.S. Virgin Islands).

**Figure 45**  
**Distribution of Census Tracts by Ratio of Residential Fixed Connections to Tract Households by State as of June 30, 2015**  
**(Connections over 200 kbps in at least one direction)**

State	Tracts	Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to Tract Households										
		Zero	Greater than 0 and no more than 5%	Greater than 5 and no more than 10%	Greater than 10 and no more than 20%	Greater than 20 and no more than 30%	Greater than 30 and no more than 40%	Greater than 40 and no more than 50%	Greater than 50 and no more than 60%	Greater than 60 and no more than 80%	Greater than 80 and no more than 100%	100% or more
Alabama	1,179	4	1	0	5	38	100	203	209	384	187	48
Alaska	167	1	0	0	2	8	6	4	7	57	70	12
American Samoa	18	4	6	2	3	1	0	0	0	2	0	0
Arizona	1,526	21	11	6	12	14	39	77	125	434	584	203
Arkansas	686	2	0	1	7	27	71	144	121	202	94	17
California	8,036	54	2	8	14	34	71	177	469	2,310	4,211	686
Colorado	1,249	14	0	0	1	2	7	21	59	366	585	194
Connecticut	829	2	0	0	0	0	7	19	56	251	438	56
Delaware	215	1	0	0	0	1	0	2	13	53	104	41
District of Columbia	179	3	0	0	0	0	1	4	19	62	61	29
Florida	4,199	39	0	0	6	3	37	118	253	1,170	1,833	740
Georgia	1,964	10	2	0	9	32	97	163	263	591	634	163
Guam	56	5	1	1	5	3	1	5	7	5	7	16
Hawaii	326	12	1	0	4	3	5	7	14	90	141	49
Idaho	298	1	0	0	0	3	9	18	31	139	84	13
Illinois	3,121	7	2	4	11	32	89	250	373	1,170	1,075	108
Indiana	1,508	5	2	1	2	21	69	143	277	626	315	47
Iowa	825	3	0	1	0	1	6	34	123	513	130	14
Kansas	770	11	0	0	2	1	17	46	128	331	196	38
Kentucky	1,115	9	0	2	10	18	42	98	221	450	241	24
Louisiana	1,136	11	0	2	3	23	85	143	178	423	233	35
Maine	351	0	0	0	2	3	2	3	19	160	116	46
Maryland	1,394	8	0	0	1	3	27	76	79	331	744	125
Massachusetts	1,471	13	0	1	1	2	1	11	52	364	862	164
Michigan	2,767	31	0	1	16	61	163	228	290	924	959	94
Minnesota	1,335	4	0	2	11	13	36	58	120	558	491	42
Mississippi	661	4	1	2	14	50	134	134	87	161	64	10
Missouri	1,393	5	0	0	6	18	71	163	200	492	383	55
Montana	271	2	1	1	1	0	4	10	32	118	87	15
Nebraska	532	3	0	0	0	0	6	35	80	258	107	43

**Figure 45 - Continued**  
**Distribution of Census Tracts by Ratio of Residential Fixed Connections to Tract Households by State as of June 30, 2015**  
**(Connections over 200 kbps in at least one direction)**

State	Tracts	Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to Tract Households										
		Zero	Greater than 0 and no more than 5%	Greater than 5 and no more than 10%	Greater than 10 and no more than 20%	Greater than 20 and no more than 30%	Greater than 30 and no more than 40%	Greater than 40 and no more than 50%	Greater than 50 and no more than 60%	Greater than 60 and no more than 80%	Greater than 80 and no more than 100%	100% or more
Nevada	683	5	0	2	1	5	19	27	64	199	281	80
New Hampshire	294	2	0	0	0	1	0	0	4	65	183	39
New Jersey	2,004	10	0	0	0	2	3	7	36	465	1,216	265
New Mexico	499	1	4	2	10	10	14	55	82	180	123	18
New York	4,900	88	2	1	18	14	37	113	240	1,754	2,145	488
North Carolina	2,183	19	2	2	1	9	49	175	291	859	604	172
North Dakota	205	0	0	0	0	0	2	7	15	110	56	15
Northern Mariana Isl	22	2	0	0	3	5	3	1	4	2	1	1
Ohio	2,946	7	0	0	4	21	118	215	358	1,249	872	102
Oklahoma	1,046	1	3	0	13	41	67	155	169	330	194	73
Oregon	827	2	0	0	1	3	6	41	96	386	254	38
Pennsylvania	3,217	25	1	3	3	8	24	106	314	1,408	1,152	173
Puerto Rico	903	25	34	34	133	136	130	112	93	95	43	68
Rhode Island	241	1	0	0	0	0	0	1	5	94	124	16
South Carolina	1,097	10	0	1	2	25	62	126	180	346	251	94
South Dakota	222	0	0	1	0	1	5	8	25	120	50	12
Tennessee	1,497	22	1	2	9	29	104	172	291	502	308	57
Texas	5,253	39	0	4	31	107	268	577	766	1,536	1,445	480
Utah	588	4	2	2	1	0	4	4	19	171	306	75
Vermont	184	1	0	0	0	0	1	0	4	77	75	26
Virgin Islands	29	0	0	0	2	4	2	3	12	2	1	3
Virginia	1,895	24	1	0	5	25	70	113	189	448	796	224
Washington	1,446	4	0	0	5	4	14	30	68	524	683	114
West Virginia	484	0	1	2	6	14	20	44	87	215	77	18
Wisconsin	1,393	3	1	0	3	2	22	74	132	744	386	26
Wyoming	132	1	0	0	0	1	4	4	13	68	38	3
Total	73,767	585	82	91	399	882	2,251	4,564	7,462	24,944	26,700	5,807

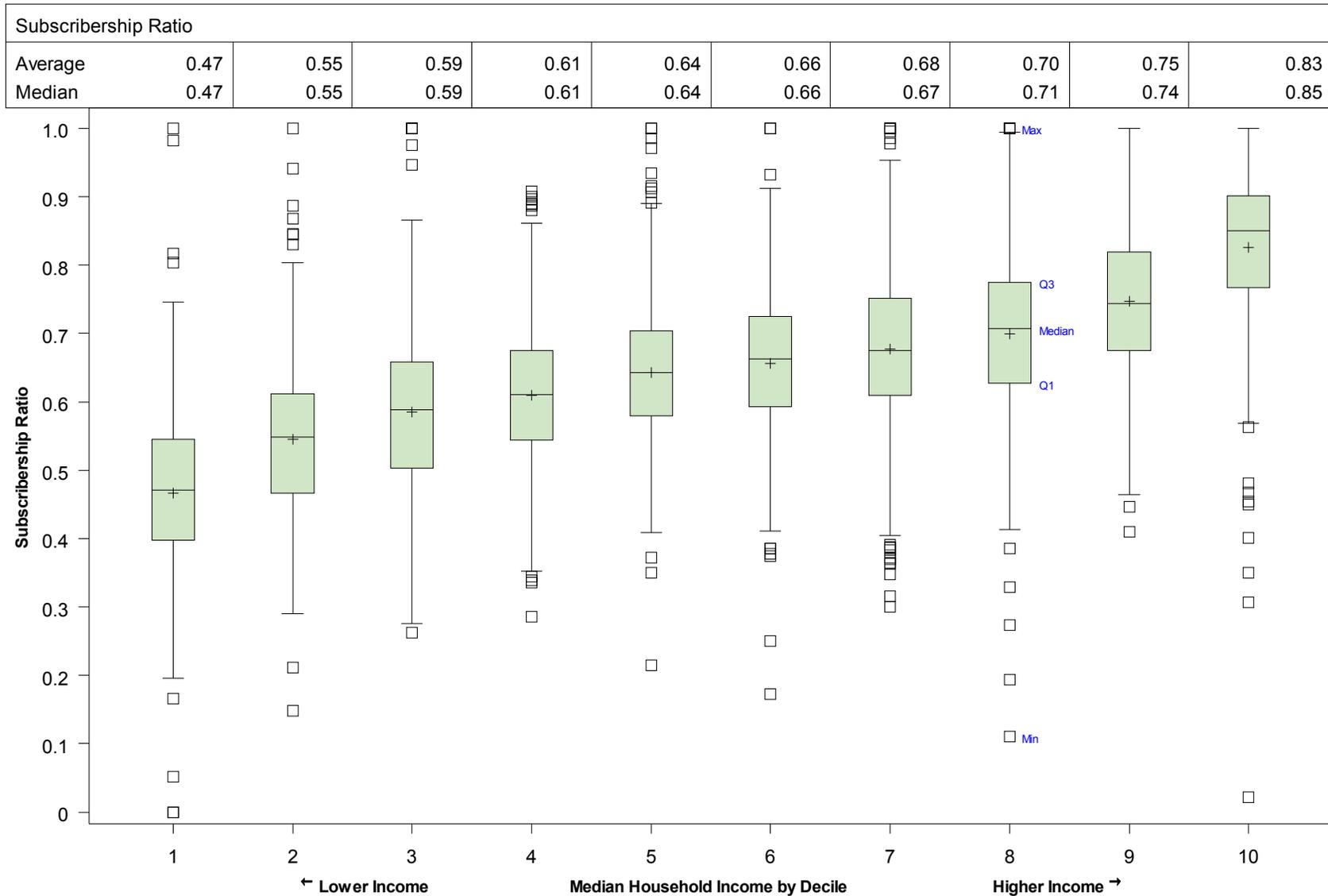
Note: Figures may not sum to totals due to rounding. See Technical Notes at the end of the report.  
Sources: FCC Form 477; 2010-2014 ACS 5-year estimates (Households for U.S. and District of Columbia); Census 2010 (Households for Puerto Rico, American Samoa, Guam, Northern Mariana Islands and U.S. Virgin Islands).

**SECTION 5**  
**CORRELATED RESULTS: DEMOGRAPHIC MEASURES**

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**Figure 46**  
**Subscribership Ratio Distributions by Income Deciles as of June 30, 2015**



Note: Each box plot shows the distribution of residential subscribership to connections over 200 kbps in at least one direction for counties in the income decile. Some of the features are labeled, but note also that + denotes the position of the average residential subscribership ratio taken across all counties in the decile; ⊥ is the minimum observation above  $Q1-1.5(Q3-Q1)$ ; T is the maximum observation below  $Q3+1.5(Q3-Q1)$ ; and □ is any data point beyond  $Q1-1.5(Q3-Q1)$  or  $Q3+1.5(Q3-Q1)$ . Ratios greater than 1 were set to 1.

Sources: FCC Form 477; 2010-2014 ACS 5-year Estimates; Census 2010.

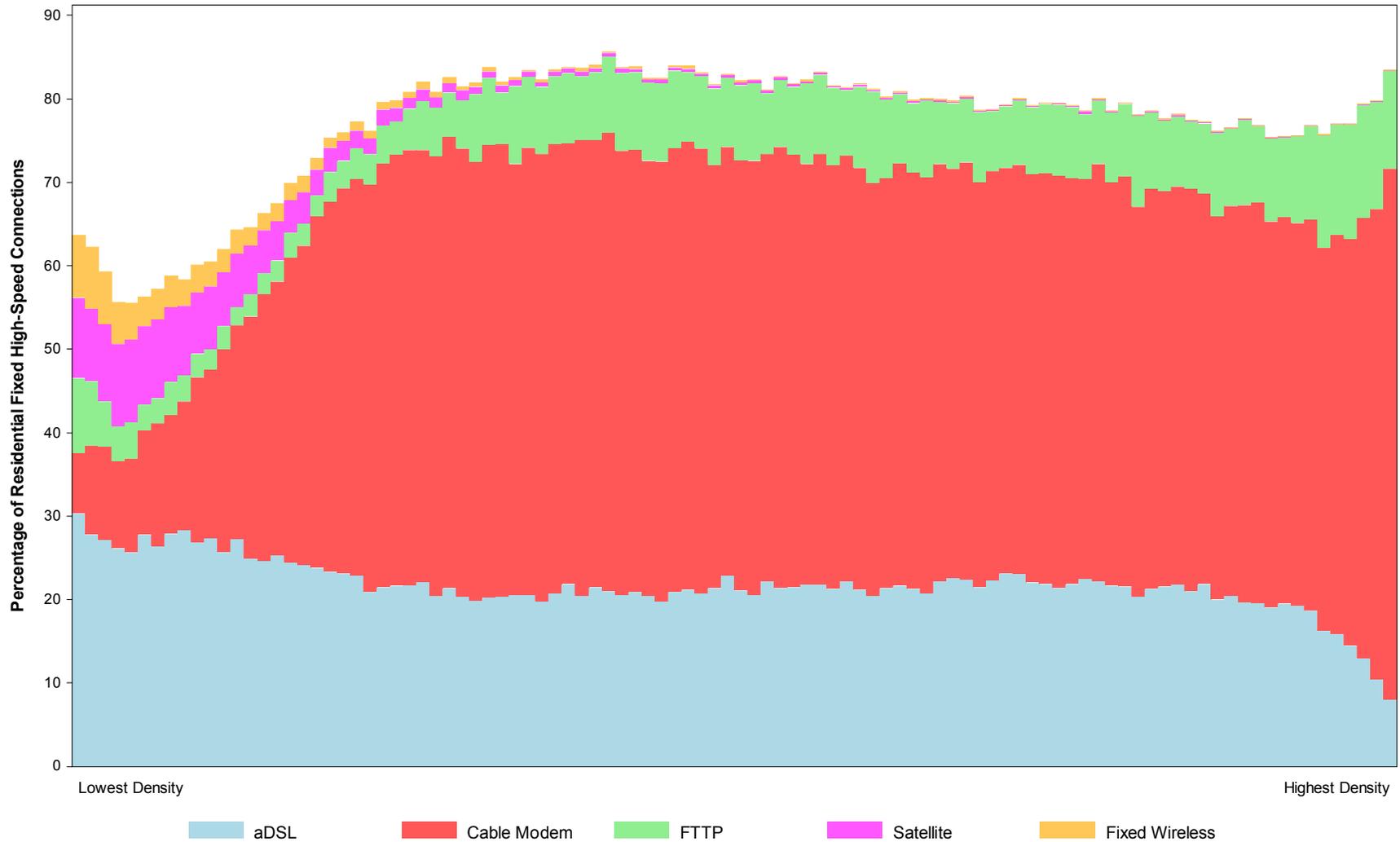








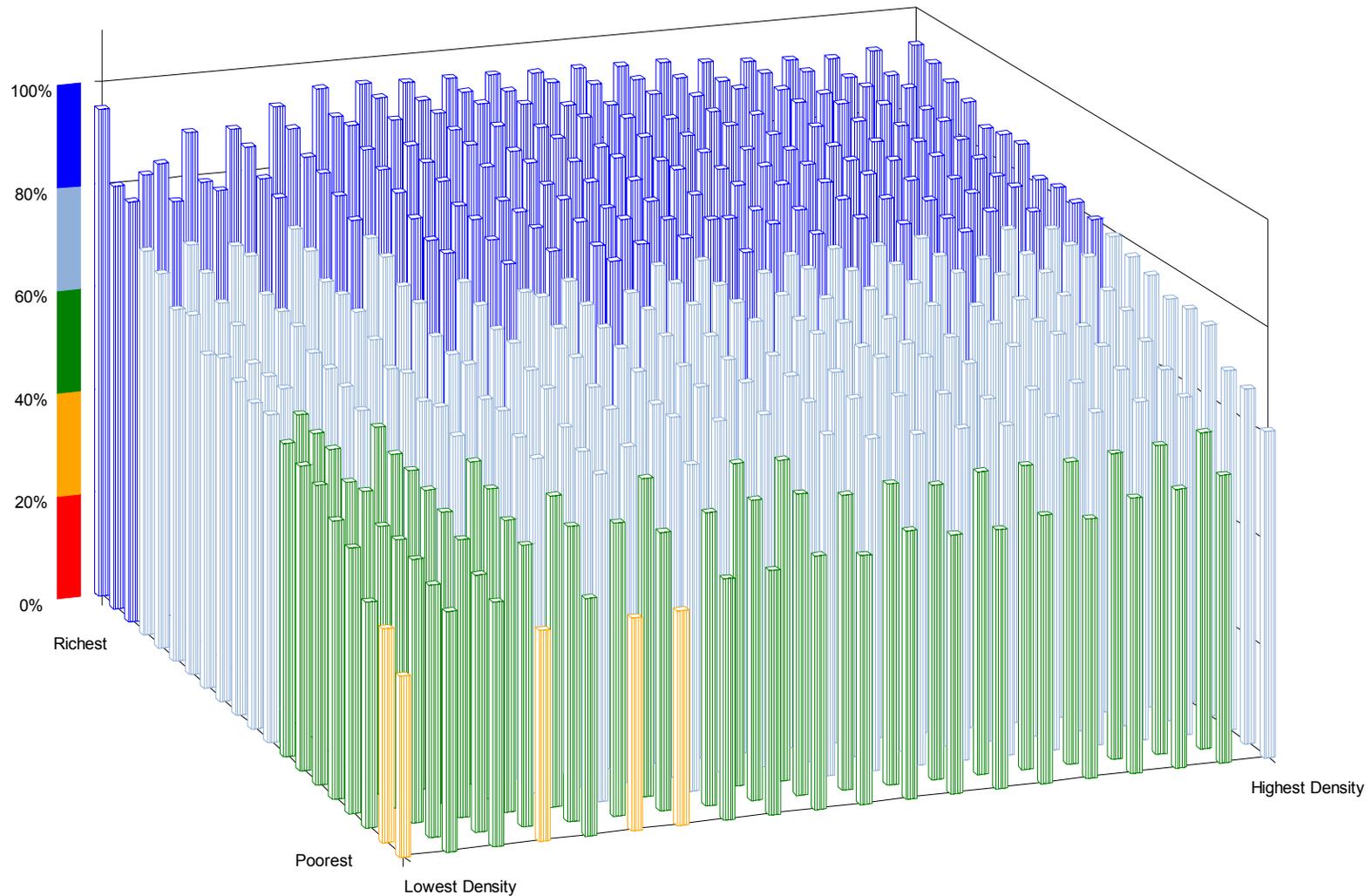
**Figure 51**  
**Subscribership Ratios by Technology and Tract Household Density as of June 30, 2015**  
**(Residential fixed connections over 200 kbps in at least one direction)**



This chart shows subscribership ratios by technology and household density. Tracts were grouped into 100 density percentiles based on households per square mile, calculated as the ratio of estimated tract households to tract land area from the Census Bureau. For each percentile, the height of the bar represents the household-weighted average ratio of residential fixed connections to households across tracts in the percentile.

Sources: FCC Form 477; 2010-2014 ACS 5-year estimates; and Census 2010.

**Figure 52**  
**Average Subscribership Ratios by Income and Household Density as of June 30, 2015**  
**(Residential fixed connections over 200 kbps in at least one direction by Tract)**



This chart shows subscribership ratios by household density and income quantiles. Tracts were grouped into 400 density/income quantiles based on households per square mile, calculated as the ratio of estimated tract households to tract land area, and median household income. For each quantile, the height of the grid represents the household-weighted average ratio of residential fixed connections to households across tracts in the decile.

Sources: FCC Form 477; 2010-2014 ACS 5-year estimates; and Census 2010.

## Technical Notes

### General

The information presented in this report is based on data from FCC Form 477. Through Form 477, facilities-based broadband providers submit information to the FCC about where they offer and have subscribers to Internet access services over 200 kilobits per second (kbps) in at least one direction. In June 2013, the Commission adopted several changes to Form 477.<sup>1</sup> Detailed information about those changes and about the Form 477 reporting requirements in general is available at [www.fcc.gov/form477](http://www.fcc.gov/form477). Due to technical difficulties in 2014 with the redesigned Form 477 filing interface, the filing deadline for Form 477 data as of June 30, 2014 was moved to December 11, 2014. Because of that delay, the Commission staff were not able to perform their typical process of identifying anomalies or errors in the data, following up with filers, and requesting updates to the data where appropriate – a process which usually generates a significant number of corrections and hence a more accurate Form 477 data set.

Form 477 collects information about Internet access connections in service to end-user locations that are advertised to deliver information to and/or from the end user – that is, in at least one direction – at transfer rates (speeds) above 200 kilobits per second (kbps). Information is collected about the number of connections by the advertised speeds associated with each product subscribed to in the relevant geographic area, census tracts for fixed and states for mobile. Fixed providers report connections by the maximum advertised upload and download speeds, while mobile providers report connections by minimum advertised upload and download speeds. Fixed connections are further categorized by the technology employed by the part of the connection that terminates at the end-user location. Wherever a number of providers is cited in this report, multiple Form 477 filers within a holding company structure count as one provider.

“End users” are residential, business, institutional, or government entities who use services for their own purposes and who do not resell such services to other entities. Facilities-based providers report information about connections they provide directly to their own end-user customers and also connections that they provide to Internet Service Providers for resale to end users. For Form 477 purposes, the facilities-based provider of a connection is the entity that owns the portion of the physical facility that terminates at the end-user location, obtains an unbundled network element (UNE), special access line, or other leased facility that terminates at the end-user location and provisions/equips it as a connection that transfers information at rates over 200 kbps in at least one direction, or provisions/equips a wireless channel that transfers information at rates over 200 kbps in at least one direction to the end-user location over licensed spectrum or over spectrum that the provider uses on an unlicensed basis.

The mutually exclusive Form 477 technology categories are: asymmetric Digital Subscriber Line (aDSL in this report), symmetric Digital Subscriber Line (sDSL), other copper wireline, cable modem, optical carrier / fiber to the end user, satellite, terrestrial fixed wireless (using licensed or unlicensed spectrum), mobile wireless, and all other (which is included to capture deployment of additional technologies over time). In the Form 477 data collection, aDSL-based services delivered over fiber-to-the-node architecture are reported in the aDSL category. The other wireline category comprises T1/DS1, T3/DS3, and other

<sup>1</sup> *Modernizing the FCC Form 477 Data Program*, WC Docket No. 11-10, Report and Order, 28 FCC Rcd 9887 (2013). See also *High-Speed Services for Internet Access: Status as of December 31, 2014* (March 2016) at 1-2, available at <https://www.fcc.gov/reports-research/reports/internet-access-services-reports/internet-access-services-reports>.

copper-based connections, not elsewhere categorized, that deliver *Internet access* service at the end-user location. Ethernet connections delivering Internet access service are reported in the other wireline category if the connection terminates over copper and in the FTTP category if the connection terminates over fiber. Connections deployed over hybrid fiber-coax (HFC) architecture are reported in the cable modem category. Wireless ISPs (WISPs) report in the fixed wireless category if providing service to dispersed, fixed end-user locations and report in the mobile wireless category if providing a commercial service that can be received at any location within a service footprint. Wireless local area networks (such as Wi-Fi hotspots) that only enable local distribution and sharing of a premises connection are not included, although the shared premises connection is included.

Numbers of connections presented in this report are not adjusted for the number of persons at a single end-user location who have access to, or who use, the Internet access services delivered over the connection to that location.

Numbers of residential connections are estimated based on the total connections and percentage-residential connections information reported on Form 477.

### **Census tracts**

Since the collection of data as of December 31, 2008, facilities-based providers of reportable fixed-location Internet access connections have been reporting connection counts at the census tract level of detail. Facilities-based mobile wireless providers report connection counts by state rather than census tract.

The census tract-level data summarized in this report were collected for tracts in the 2010 decennial census. For the purposes of this report, there are 73,767 census tracts because we exclude census tracts delineated specifically to cover large bodies of water.

About 110 of the census tracts have population but no households because the population resides in group living quarters. For the purpose of estimating residential subscribership rates by census tract, we assume these census tracts have no reportable *residential* Internet access service because persons residing in group quarters would have Internet access over a business connection provided to the operator of the group quarters. Therefore, these census tracts are included in the “zero” column.

### **Ratios of residential fixed-location connections to households that exceed 100%**

We estimate the share of households with fixed-location connections in individual census tracts by taking the ratio of the reported number of fixed-location residential service connections to the estimated number of households. We continue to find “outlier” estimates at or above 100% and to find that the number of outliers is substantially reduced when estimates are made for individual counties rather than for individual census tracts.

Possible explanations of ratios at or above 100% include (1) geocoding misallocations of service locations to census tracts; (2) proper allocation of connections to the county level by some filers, but improper allocation of all connections to a single tract in the county; (3) possible overestimation of residential connections in service plans for which the customer base is primarily residential; and (4) connections at seasonally or occasionally occupied housing units, such as vacation homes, while the household is counted elsewhere. The numbers of households in census tracts that were used to generate the estimated ratios are themselves estimates (from Census 2010-2014 ACS 5-year estimates), which could have an

independent effect.

**Maps showing residential subscribership rates by census tract**

The two maps based on estimated Internet access connections over 200 kbps in at least one direction per 1,000 households (that is, estimated household subscribership rates) exclude all connections identified as business connections and necessarily exclude residential mobile wireless connections (which are reported for the state but not for individual census tracts).

## Glossary

<b>Term</b>	<b>Definition</b>
aDSL	Asymmetric Digital Subscriber Line: A digital local loop typically using copper facilities and providing greater bandwidth in one direction than the other.
Cable modem service	A service which offers customers access to the Internet over a cable system.
Downstream speed	Speed of transmission from the Internet to the end user.
End users	Residential, business, institutional, or government entities who use services for their own purposes and who do not resell such services to other entities.
Facilities-based provider	Entity that owns the portion of the physical facility that terminates at the end-user location, obtains an unbundled network element (UNE), special access line, or other leased facility that terminates at the end-user location and provisions/equips it as a connection that transfers information at rates over 200 kbps in at least one direction, or provisions/equips a wireless channel that transfers information at rates over 200 kbps in at least one direction to the end-user location over licensed spectrum or over spectrum that the provider uses on an unlicensed basis.
Fixed wireless	A radio communication service between specified fixed points.
Fixed technologies	All technologies other than terrestrial mobile wireless.
FTTH or FTTP	Fiber to the Home (Premises): A network access architecture in which optical fiber is deployed all the way to the customer's home (premises).
Internet access service	Service that provides end users access to the Internet.
ISPs	Internet Service Providers: Companies or organizations that provide Internet access service (see above).
Mobile wireless service	A radio communication service between mobile and fixed stations, or between mobile stations.
Mobile wireless provider	Provider of mobile wireless service (see above).
Other wireline	All copper-wire based technologies other than DSL technologies; Ethernet over copper and T-1 are examples.
Power line	Internet access service delivered over electric power transmission lines.
Satellite communications	A telecommunications service provided via one or more satellite relays and their associated uplinks and downlinks.
sDSL	Symmetric Digital Subscriber Line: DSL technology that provides equal bandwidth for both uploads and downloads.
Speed tiers	Sub-groupings defined by ranges of upstream speeds and downstream speeds.
Upstream speed	Speed of transmission from the end user to the Internet.
Wi-Fi hotspot	Wireless Fidelity: Generic term referring to any type of IEEE 802.11 wireless network. A hotspot is a small geographic area in which users

	can gain access to a Wi-Fi network which in turn connects to the Internet.
Wireless service	Telephone, Internet, data, and other services provided to customers through the transmission of signals over networks of radio towers.
Wireless service provider	Provider of wireless service (see above).
WISP	Wireless ISP: A company that provides end users with wireless access to the Internet, most commonly by using radio spectrum designated for unlicensed use.

# Customer Response

Publication: *Internet Access Services: Status as of June 30, 2015*

You can help us provide the best possible information to the public by completing this form and returning it to the Industry Analysis and Technology Division of the FCC's Wireline Competition Bureau.

1. Please check the category that best describes you:

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- consultant, law firm, lobbyist
- other business customer
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- residential customer
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2. Please rate the report:      Excellent      Good      Satisfactory      Poor      No opinion

- |                      |                              |                              |                              |                              |                              |
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()      ()      ()      ()      ()

4. How can this report be improved?

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