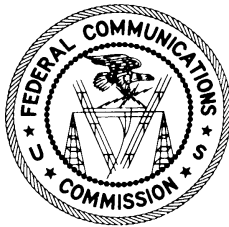


# **High-Speed Services for Internet Access: Status as of December 31, 2008**

Industry Analysis and Technology Division  
Wireline Competition Bureau  
February 2010



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## High-Speed Services for Internet Access: Status as of December 31, 2008

**Introduction.** Congress directed the Commission and the states, in section 706 of the Telecommunications Act of 1996,<sup>1</sup> to encourage deployment of advanced telecommunications capability in the United States on a reasonable and timely basis. To assist in its evaluation of such deployment, in 2000 the Commission instituted a formal data collection program (FCC Form 477),<sup>2</sup> which gathers standardized information about subscribership to high-speed Internet access services from telephone companies, cable system operators, terrestrial wireless service providers, satellite service providers, and any other facilities-based providers of advanced telecommunications capability.<sup>3</sup> This report summarizes information reported for December 31, 2008, which, for the first time, includes details about subscribership differences among census tracts and counties, as well as states.

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<sup>1</sup> 47 U.S.C. § 1302(b). Section 706 of the Telecommunications Act of 1996, Pub. L. No. 104-104, title VII, Sec. 706, 110 Stat. 56, 153 (1996) (1996 Act), as amended in relevant part by the Broadband Data Improvement Act, Pub. L. No. 110-385, 122 Stat. 4096 (2008) (BDIA), is now codified in Title 47, Chapter 12 of the United States Code. See 47 U.S.C. § 1301 *et. seq.* Prior to the BDIA, section 706 was reproduced in the notes to section 157 of the Communications Act of 1934, as amended (the Act). 47 U.S.C. § 157 nt. (2008).

<sup>2</sup> *Local Competition and Broadband Reporting*, CC Docket No. 99-301, Report and Order, 15 FCC Rcd 7717 (2000); *Local Telephone Competition and Broadband Reporting*, WC Docket No. 04-141, Report and Order, 19 FCC Rcd 22340 (2004). Qualifying entities file FCC Form 477 each year on March 1 (reporting data for the preceding December 31) and September 1 (reporting data for June 30 of the same year). The first data collected were as of December 31, 1999.

<sup>3</sup> Form 477 collects, and this report summarizes, 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 connections in several sub-groupings (“speed tiers”) defined by ranges of upstream speeds and downstream speeds. Connections are further categorized by the technology employed by the part of the connection that terminates at the end-user location. See Technical Notes, at the end of this report, for information about the technology categories. To provide continuity with published historical data, this particular report uses the term “high-speed” to describe all reported connections and, additionally, uses the term “advanced services” to describe the subset of connections with advertised speeds above 200 kbps both to and from the end user (but not necessarily the same speed in each direction). (Consistent with the Form 477 data collection orders, “broadband” and “high-speed” are synonyms in footnotes that discuss particular elements of those orders.)

In the Form 477 data collection, “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. 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 broadband, or provisions/equips a broadband wireless channel to the end-user location over licensed spectrum or over spectrum that the provider uses on an unlicensed basis. The 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 (ISPs) for resale to end users, and ISPs who are not themselves facilities-based providers do not report. These requirements avoid double-counting of end user connections. When the service retailer is such a reseller ISP, connections must be reported as residential or business connections based on the status of the end user of the ISP’s retail Internet access service.

**Major modifications to the data collection.** For June 30 and December 31 dates from December 1999 through June 2008, Form 477 filers were required to report numbers of high-speed connections in service to end-user locations in each state, broken down by speed tier and technology, and to identify all ZIP Codes in which they had at least one high-speed connection in service to an end-user location.<sup>4</sup> The Commission and others have recognized these requirements as insufficiently granular or precise to inform necessary policymaking, and, in 2008, the Commission significantly improved the data collection.<sup>5</sup> The statistics reported here reflect data as of December 31, 2008, and are the first to be based on data collected under the modified Form 477 requirements.

The Commission improved three elements of the data collection:

- Providers of fixed-location high-speed Internet access connections now report the number of connections in service at the census tract level as well as at the state level. Consequently, this report summarizes information about fixed-location connections in 3,232 counties and 66,287 census tracts.<sup>6</sup>
- All filers report connections in accordance with an increased number of upload and download transmission speed categories, which now total 72.
- Mobile wireless service providers report more specific information about mobile wireless Internet access service, as discussed below.<sup>7</sup>

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<sup>4</sup> For the data through June 2008, the Commission required mobile wireless providers to report the number of subscribers by state and to provide a list of the ZIP Codes that best represented the areas where the provider's mobile wireless broadband service was advertised and *available* to actual and potential subscribers. Also to obtain information about service availability, as opposed to subscribership, the Commission required incumbent telephone companies to report (starting with the June 30, 2005 data) the extent to which their Digital Subscriber Line service – including both asymmetric DSL (“aDSL” in this report) and symmetric DSL (“sDSL” in this report) – was available to the housing units in their local telephone service area in the state, and required cable system operators to report the extent to which their cable modem service was available to the housing units in their cable TV service area in the state.

<sup>5</sup> *Development of Nationwide Broadband Data to Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscribership Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscribership*, WC Docket No. 07-38, Report and Order, 23 FCC Rcd 9691 (2008); Order on Reconsideration, 23 FCC Rcd 9800 (2008). Effective with the filing of data as of December 31, 2008, Form 477 is a Web-based electronic filing system. Information about system mechanics and detailed reporting requirements is available at <http://www.fcc.gov/form477/>.

<sup>6</sup> According to the Census Bureau, there are 66,438 census tracts in the United States, Puerto Rico, and the Island Areas (e.g., the U.S. Virgin Islands); see “Definition: Census tract” in results for “census tract” keyword search at <http://www.census.gov/> (visited Oct. 26, 2009). For the 2000 decennial census, the Census Bureau assigned a default census tract code of 000000 to some coastal and Great Lakes water and territorial sea, and these default-code tracts are not included in the statistics in this report.

<sup>7</sup> See pp. 3-4.

In conjunction with measures underway pursuant to the Broadband Data Improvement Act and the Recovery Act,<sup>8</sup> data collected by the modified Form 477 provide the Commission and the public with a more valuable resource than prior collections for evaluating the state of broadband in the country. For example, the statistics reported here depict subscribership to high-speed Internet access services at finer levels of geographic detail than was previously possible using the Form 477 data. They also provide more detailed information about connection speeds, including, in particular, information about connections that meet the “broadband service” definition (advertised speeds of at least 768 kilobits per second (kbps) downstream and 200 kbps upstream to end users) that the Rural Utilities Service, Department of Agriculture, and the National Telecommunications and Information Administration, Department of Commerce, have adopted to implement the stimulus funding for broadband deployment provisions of the Recovery Act.<sup>9</sup>

**Implications for trends analysis.** Readers interested in historical trends in the Form 477 data should note certain changes to the reporting requirements that were effective in 2005 and in 2008.

First, the historical series presented in this report begin with data as of June 30, 2005. In earlier data from this collection, providers with fewer than 250 high-speed connections in service in a particular state were not required to report data for that state.<sup>10</sup> Readers may refer to previous releases of this report for the more extensive data, from December 31, 1999, onward.<sup>11</sup>

Second, the modifications adopted for the December 31, 2008, and later, data have caused a one-time decrease in the reported number of high-speed mobile wireless Internet access service connections, from about 60 million in June 2008 to about 25 million in December 2008.<sup>12</sup> For reporting periods through June 30, 2008, Form 477 had instructed mobile wireless providers to report the number of subscribers whose mobile device (such as a wireless modem laptop card, smartphone, or handset) was capable of sending or receiving data at speeds above 200 kbps. The Commission found these instructions insufficiently precise to enable it to determine, from the reported data, the number of subscribers making regular use of Internet access service above 200 kbps as part of their mobile service package. Starting with the December 31, 2008 data, therefore, Form 477 requires mobile wireless providers to report the number of subscribers that have a capable device (as discussed above) for which the subscription includes

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<sup>8</sup> See 47 U.S.C. § 1301 *et seq.* (Broadband Data Improvement Act); American Recovery and Reinvestment Act of 2008, Pub.L. 111-5, 123 Stat. 115 (2009) (Recovery Act).

<sup>9</sup> See Department of Agriculture, Rural Utilities Service, Broadband Initiatives Program, RIN: 00572-ZA01, Department of Commerce, National Telecommunications and Information Administration, Broadband Technology Opportunities Program, RIN: 0660-ZA28, Notice of Funds Availability, 74 Fed. Reg. 33104 (July 9, 2009) (NTIA/RUS BTOP/BIP NOFA or NOFA).

<sup>10</sup> Eliminating the reporting threshold resulted in the number of filers more than doubling. However, as of June 30, 2005, filers with fewer than 250 connections in a state (including some entities that previously made voluntary submissions) represented about 0.2% of total reported high-speed connections.

<sup>11</sup> Previous releases of this report are available at <http://www.fcc.gov/wcb/iatd/comp.html>. Individual reports may include revisions of previously published statistics.

<sup>12</sup> See Table 1. The one-time decrease in high-speed mobile wireless Internet access connections is, in turn, reflected in a one-time decrease in total high-speed Internet access connections for all technologies combined.

a data plan for transferring, on a monthly basis,<sup>13</sup> either a specified or an unlimited amount of data to and from Internet sites of the subscriber's choice, and *excluding* subscribers whose choice of content is restricted to only customized-for-mobile content (for example, text and multimedia messaging, or the capacity to download ringtones and games). In this report, we refer to these subscribers as having high-speed service subscriptions for full Internet access.<sup>14</sup>

Starting with the December 31, 2008, data, providers also must report, explicitly and separately, total subscribers with a device capable of a high-speed connection, irrespective of the service plan purchased. The number of such devices reported for December 2008 was about 86 million. That figure is not directly comparable to mobile wireless connections reported for June 2008 or earlier reporting periods, however, because individual providers – to a varying and largely unknown degree – included or excluded subscribers with service plans for less than full Internet access in the earlier data.

Finally, the Form 477 modifications adopted for the December 31, 2008, and later, data specify how mobile wireless providers should distinguish between residential subscribers and other subscribers, and some of these providers consequently reported a larger share of residential subscribers than they had reported for earlier dates.<sup>15</sup>

**Census tracts and counties.** The December 31, 2008 data are the most comprehensive to date, with some 1,556 entities submitting 4,491 state-level filings, of which 4,209 included subscription information at the census tract level of detail.<sup>16</sup> We present statistics for census tracts where practicable

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<sup>13</sup> The Form 477 instructions do not distinguish between prepaid and postpaid monthly service plans.

<sup>14</sup> As compared to the modified Form 477 (that is, starting with the December 31, 2008 data), other sources may estimate larger numbers of mobile wireless Internet access service subscribers under less-specific definitions. For example, Nielsen Mobile estimated that, as of May 2008, 15.6% of mobile telephony subscribers (or 40 million subscribers) paid for access to the mobile Internet, either as part of a subscription or on a per-transaction basis, and used a mobile Internet service in the past 30 days. (See, for example, the Commission's Thirteenth Annual CMRS Competition Report, at p. 97; available at [http://wireless.fcc.gov/index.htm?job=cmrs\\_reports](http://wireless.fcc.gov/index.htm?job=cmrs_reports).) By contrast, in their Form 477 filings, mobile wireless providers reported that 25 million subscribers had mobile devices with high-speed data plans for full Internet access at year-end 2008.

<sup>15</sup> For reporting data through June 30, 2008, the Form 477 instructions allowed mobile wireless providers to estimate the share of subscribers who were residential end users (as opposed to business, government, or institutional end users) based on marketing information (for example, those subscribers who purchased service plans the provider designed primarily to attract residential end users). The Commission observed that the aggregate residential percentage reported under those guidelines (for example, about 11% in the June 30, 2006 data) could understate residential subscribership. Therefore, starting with the December 31, 2008, data, Form 477 requires mobile wireless providers to report, as residential, those subscriptions the provider *does not* bill to a corporate, non-corporate business, government, or institutional account. In the data reported for December 31, 2008, the aggregate residential percentage reported was 63% (compare Table 3 to Table 1).

<sup>16</sup> Because mobile service subscribers may move within and among broadband service areas, the Commission decided, in the 2008 Form 477 modifications, to continue to require mobile wireless service providers to report the number of connections they provide in individual states (with the state determined by the billing address associated with the service subscription) but not the number of subscribers located in individual census tracts. However, each facilities-based mobile wireless provider must report the census tracts in the state that best represent the areas where service is available over the provider's own network, for each of the speed tiers in which the provider offers service.



in this report, but for reasons of accuracy and confidentiality, we present them at the county level in certain situations.<sup>17</sup>

We present several maps and charts that are entirely or substantially new. For example, previous reports contained a single map, which counted (at the holding company level) each provider with any fixed-location connections reported for the ZIP Code and also any mobile wireless service provider who listed the ZIP Code as part of its high-speed service area. By contrast, in this report we provide a map for providers (counted at the holding company level) of any fixed-location connections reported for the census tract and a separate map for providers making mobile wireless high-speed service available. Also, we present an entirely new map showing the number of providers that reported any *residential* fixed-location connections, thereby excluding any providers of exclusively business fixed-location connections in the census tract.

We also present entirely new maps that are based on our estimates of the share of households with fixed-location high-speed connections in individual census tracts (that is, census tract-specific estimates of household subscribership, or *adoption*, rates).

In several new charts, we begin to explore relationships between our estimated household adoption rates and demographic factors, for example, median household income, households per square mile, and educational attainment.<sup>18</sup> We primarily illustrate county-level data at this time because there are unresolved anomalies in some census tract data.<sup>19</sup>

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<sup>17</sup> For example, we have used the newly available data to estimate, for individual census tracts, the share of households with high-speed connections over fixed-location technologies, and have found that 10% of census tracts have estimates at or above 100%. The number of such “outliers” is substantially reduced, to 1%, when estimates are made for individual counties. (Census tracts can easily be aggregated into counties because tracts do not cross county boundaries.) Some misinterpretation of reporting instructions can be expected whenever a substantially modified data collection is implemented for the first time. We are investigating the reasons for these anomalous census tract results and are working with the Form 477 filers to improve the accuracy of the data currently collected and for future collections. Our preliminary assessment is that reasons may include (1) geocoding misallocations in this first collection of data for census tracts (an unfamiliar geography for many filers), with unresolved service locations attributed to a single census tract; (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 that is not counterbalanced by underestimation of residential connections in service plans purchased primarily by businesses; and (4) connections at seasonally or occasionally occupied housing units, such as vacation homes, while the household is counted elsewhere. We also note that the numbers of households in census tracts, which we use to generate the residential share estimates, are themselves estimates, for 2009. (We have used GeoLytics, Inc. census block-level estimates of households in 2009, which can be aggregated into estimates for individual census tracts. Other estimates of households by census block or census tract may differ, and any estimate is, by definition, not a complete census.)

<sup>18</sup> See Charts 19, 21, and 23, respectively. See also, Charts 20, 22, and 24, which are box plots. In these box plots, the 10% of counties (first decile) that are ranked lowest according to the variable of interest (for example, median household income) are summarized by the box on the far left of the chart, and so on, until the 10% of counties (tenth decile) that are ranked highest according to the variable of interest are summarized by the box on the far right. In most deciles, there are some counties (shown as small, unshaded boxes) that appear to be atypical of their group, and therefore may deserve additional study.

<sup>19</sup> See n.17, above. In Chart 25, however, we illustrate the relationship, in the collected data as of year-end 2008, between estimated household share of fixed-location high-speed connections and population density (measured by households per square mile), in census tracts with differing income levels.

**Report overview.** Following a presentation of report highlights, the remainder of the report consists of tables and charts in the following sequence.

- **National data.** Updates of four historical trend tables from earlier reports are presented, followed by tables and charts summarizing newly available data. New materials include:
  - Tables summarizing connections reported in 72 combinations of upstream and downstream transmission speeds, and charts comparing that information to the NTIA/RUS BTOP/BIP NOFA definition of broadband service.
  - Charts and maps summarizing differences among the 3,232 counties and 66,287 census tracts in the estimated share of households with fixed-location high-speed Internet access connections.
- **State data.** Certain historical trend tables from earlier reports are updated, and a new table summarizes the expanded information about connection speeds.
- **County and census tract data.** New tables explore, in greater detail, estimated shares of households with fixed-location high-speed Internet access service in different geographies. By contrast to the national summary information, these tables present detailed results for the counties and census tracts in individual states.
- **Preliminary analysis of demographic factors.** Charts are introduced to illustrate relationships to demographic factors, for example, income and educational attainment.

Readers should note that, consistent with our past practices for this report, publicly available detailed information that supplements the report will be made available electronically on the Wireline Competition Bureau's website.<sup>20</sup>

## **Report highlights**

### **Total subscribership by technology (Table 1)**

- High-speed Internet access connections to homes and businesses over fixed-location technologies increased by 10% during 2008, to 77 million. By contrast, the annual rate of increase was 17% during 2007.

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<sup>20</sup> See, for example, items posted under the subheading "Miscellaneous data from FCC Form 477" at <http://www.fcc.gov/wcb/iatd/comp.html>.

- At year-end 2008, 25 million mobile wireless service subscribers had mobile devices (such as laptops and smartphones) with high-speed data plans for full Internet access. By contrast, at that time there were 86 million subscribers whose mobile device was capable of transmitting information at speeds above 200 kbps, including subscribers who purchased only a voice service plan for the handset, subscribers whose data service included only customized-for-mobile content (for example, text and multimedia messaging, or the capacity to download ringtones and games), and the 25 million subscribers with data plans for full Internet access. Because reporting practices previously varied among providers to a largely unknown degree, neither of the December 2008 figures is directly comparable to mobile wireless high-speed connections reported for earlier dates.
- Reported connections for the most widely adopted fixed-location technologies, cable modem and aDSL, increased by 14% and 3%, respectively, during 2008, to 41 million cable modem connections and 30 million aDSL connections, with the cable modem increase being partly due to more comprehensive reporting by small cable systems. A 56% increase in total fiber-to-the-premises (“FTTP”) connections, to 3 million, was the largest rate of change among the fixed-location technologies.

### **Residential subscribership by technology (Table 3)**

- There were 86 million residential high-speed connections at year-end 2008, of which 70 million were fixed-technology connections and 16 million were mobile wireless subscribers with data plans for full Internet access.
- Of the 86 million residential high-speed connections at year-end 2008, cable modem represented 46%, aDSL represented 31%, mobile wireless subscribers with data plans for full Internet access represented 18%, FTTP represented 3%, and all other technologies represented 1%. At year-end 2005, by contrast, there were roughly half as many residential high-speed connections (44 million), of which cable modem represented 58%, aDSL represented 40%, and all other technologies represented 2%.
- Residential FTTP connections increased by 61% during 2008 while residential aDSL high-speed connections were essentially unchanged. Together, residential aDSL and FTTP connections increased by 4% during 2008, to 29 million.

### **Connection speeds (Tables 5 - 7)**

- Of the 102 million total (combined residential and business) high-speed connections at year-end 2008, 86 million (or 84% of the total) were faster than 200 kbps in both upstream and downstream directions, 77% met the NOFA definition of broadband service (with 768 kbps or higher advertised downstream speeds and upstream speeds above 200 kbps), 49% had downstream speeds of 3 megabits per second (mbps) or more and upload speeds above 200 kbps, 34% had downstream speeds of 6 mbps or more and upload speeds above 200 kbps, and 11% had downstream speeds of 10 mbps or more and upload speeds above 200 kbps.
- For fixed-location technologies as a group, 89% of connections met the NOFA definition of broadband service. Among mobile wireless subscribers whose subscription included a data plan for full Internet access, 41% of subscriptions met the NOFA definition.

- Of the 86 million *residential* high-speed connections reported at year-end 2008, 69 million (or 80% of the total) met the NOFA definition of broadband service. Of these, 56% were cable modem, 31% were aDSL, 4% were FTTP, 9% were mobile wireless subscribers with data plans for full Internet access, and 1% were a technology other than these.
- Of the 17 million *residential* high-speed connections reported at year-end 2008 that did not meet the NOFA definition of broadband service, 56% were mobile wireless subscribers with data plans for full Internet access, 31% were aDSL, 8% were cable modem, 3% were satellite, 1% were fixed wireless, and 1% were a technology other than these.

**Census tract and county shares of households with high-speed connections (Charts 17 and 18, and two maps following Table 12)**

- For the first time in the Form 477 data collection, data are available to estimate the share of households with fixed-location high-speed Internet access connections in individual census tracts and counties. Our estimates indicate that there are substantial areas of relatively low and relatively high household adoption around the national average.
- Particularly for census tracts, we find estimates above 100% for the share of households with fixed-location high-speed Internet access connections. These results suggest that there may have been some reporting errors in the initial collection of information by census tract.<sup>21</sup>

**Maps of high-speed providers by census tract**

- New maps depict the number of providers of high-speed connections by census tract. These maps are similar to previously published maps of providers by ZIP Code, but differ in important respects. Instead of a single map combining providers of connections over all technologies and to both residential and business end users, now three maps depict: (1) providers of total (combined residential and business) fixed-location connections, (2) providers of *residential* fixed-location connections, and (3) providers making mobile wireless high-speed service *available*.

**Household adoption rates and subscribership demographics (Charts 19 - 25)**

- For the first time, the report includes charts illustrating the relationship between household subscribership, or *adoption*, rates and demographic factors, such as median household income, household density, and educational attainment.
- The exploratory data analysis presented in the report indicates that some demographic variables matter in explaining geographic variations in the adoption of high-speed Internet access service.

\* \* \* \*

We invite users of this information to provide suggestions for improved analysis of data presented in this report by using the attached customer response form or by e-mailing comments to [IATDreports@fcc.gov](mailto:IATDreports@fcc.gov) for subject: Dec 2008 high speed data. We encourage users of this information to provide suggestions for improved data collection by participating in any formal proceedings undertaken by the Commission to solicit comments for improvement of FCC Form 477.

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<sup>21</sup> See n.17, above.

**Table 1**  
**High-Speed Connections 2005-2008**  
 (Connections over 200 kbps in at least one direction, in thousands)

Technology	2005		2006		2007		2008	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec
Total	42,518	50,930	64,992	82,525	100,986	121,222	132,814	<b>102,043</b>
Total Fixed	42,138	47,803	53,975	60,238	65,681	70,206	73,123	<b>76,926</b>
aDSL	16,316	19,515	22,584	25,413	27,793	29,449	29,964	<b>30,190</b>
sDSL	412	369	337	345	320	293	275	<b>245</b>
Other Wireline	487	373	472	545	622	605	665	<b>711</b>
Cable Modem	24,017	26,558	29,173	31,982	34,404	36,507	38,190	<b>41,468</b>
FTTP <sup>1</sup>	316	298	547	894	1,281	1,849	2,346	<b>2,881</b>
Satellite	377	427	495	572	669	791	869	<b>938</b>
Fixed Wireless	209	257	361	483	587	707	808	<b>488</b>
Power Line and Other	5	5	5	5	5	5	5	<b>5</b>
Mobile Wireless <sup>2</sup>	380	3,128	11,017	22,288	35,305	51,016	59,691	<b>25,117</b>

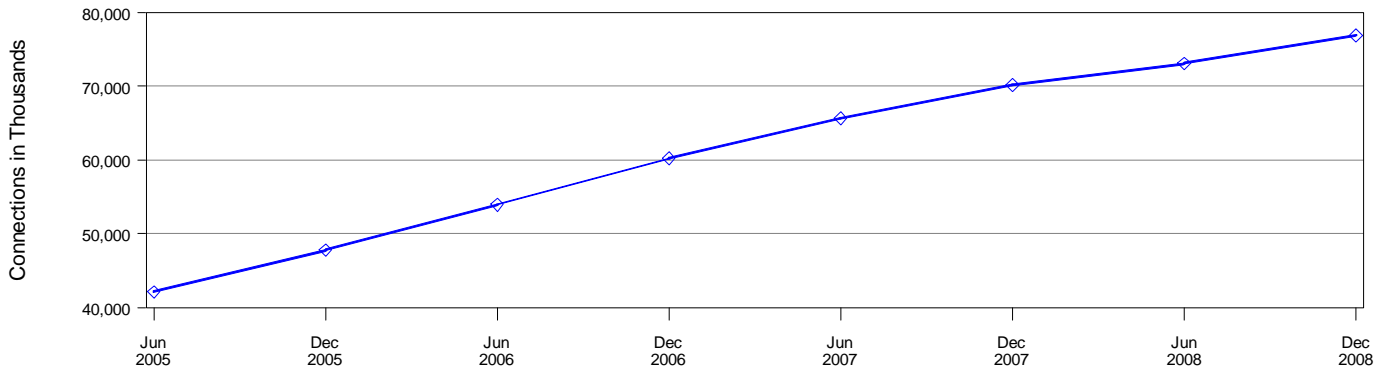
<sup>1</sup> Fiber to the premises. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

<sup>2</sup> Reporting instructions for mobile wireless changed between the June 2008 and December 2008 data. The changes, and their effect on the reported data, are explained at pp. 3-4 of the report text.

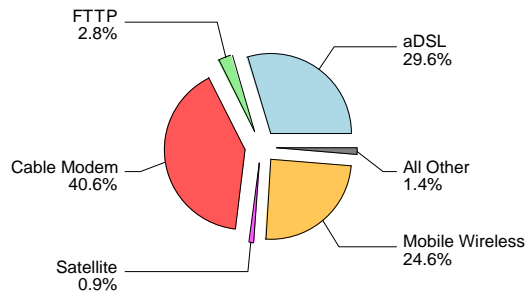
Note: Figures may not sum to totals due to rounding.

Source: FCC Form 477, Part I.

**Chart 1**  
**Fixed High-Speed Connections 2005-2008**



**Chart 2**  
**High-Speed Connections by Technology as of December 31, 2008**



**Table 2**  
**Advanced Services Connections 2005-2008**  
 (Connections over 200 kbps in both directions, in thousands)

Technology	2005		2006		2007		2008	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec
Total	37,333	43,592	50,838	59,505	69,619	80,254	88,414	<b>85,865</b>
Total Fixed	37,311	43,510	48,923	55,015	60,429	64,907	68,189	<b>71,320</b>
aDSL	13,176	15,921	18,310	21,144	23,657	25,244	26,132	<b>26,562</b>
sDSL	387	369	337	345	319	293	275	<b>245</b>
Other Wireline	482	368	471	544	622	605	665	<b>711</b>
Cable Modem	22,745	26,294	28,893	31,594	33,936	36,165	37,849	<b>40,415</b>
FTTP <sup>1</sup>	314	297	546	893	1,279	1,845	2,344	<b>2,876</b>
Satellite	11	36	27	36	57	74	155	<b>110</b>
Fixed Wireless	191	220	333	455	554	675	763	<b>397</b>
Power Line and Other	4	5	5	5	5	5	5	<b>5</b>
Mobile Wireless <sup>2</sup>	21	82	1,914	4,491	9,190	15,347	20,226	<b>14,545</b>

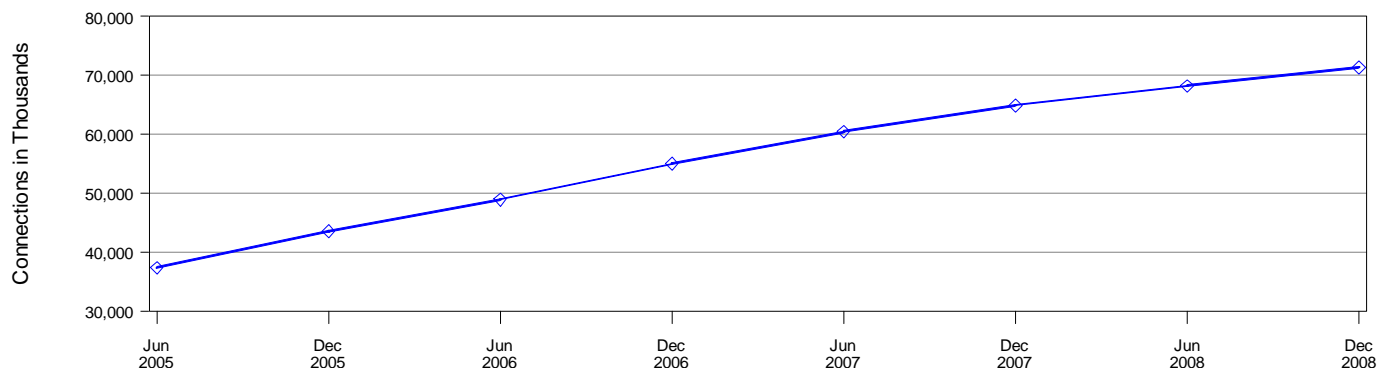
<sup>1</sup> Fiber to the premises. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

<sup>2</sup> See footnote 2, Table 1.

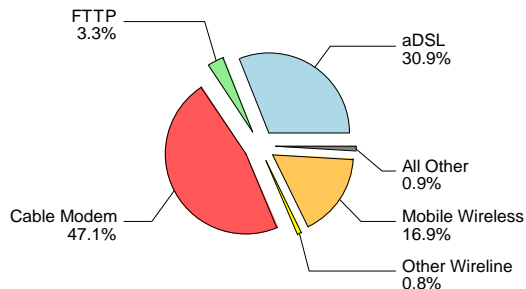
Note: Figures may not sum to totals due to rounding.

Source: FCC Form 477, Part I.

**Chart 3**  
**Fixed Advanced Services Connections 2005-2008**



**Chart 4**  
**Advanced Services Connections by Technology as of December 31, 2008**



**Table 3**  
**Residential High-Speed Connections 2005-2008**  
 (Connections over 200 kbps in at least one direction, in thousands)

Technology	2005		2006		2007		2008	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec
Total	38,696	43,965	50,941	58,344	66,173	73,984	79,090	<b>85,966</b>
Total Fixed	38,694	43,956	49,784	55,652	60,628	64,875	67,554	<b>70,148</b>
aDSL	14,443	17,371	20,152	22,768	24,962	26,475	26,950	<b>26,481</b>
sDSL	154	122	103	105	105	82	81	<b>74</b>
Other Wireline	6	7	9	13	12	17	32	<b>42</b>
Cable Modem	23,578	25,714	28,388	31,118	33,336	35,341	36,901	<b>39,788</b>
FTTP <sup>1</sup>	83	213	444	764	1,153	1,683	2,139	<b>2,715</b>
Satellite	265	320	382	456	530	626	705	<b>630</b>
Fixed Wireless	161	203	301	424	523	644	741	<b>413</b>
Power Line and Other	4	5	5	5	5	5	5	<b>5</b>
Mobile Wireless <sup>2</sup>	3	9	1,157	2,692	5,545	9,109	11,536	<b>15,818</b>

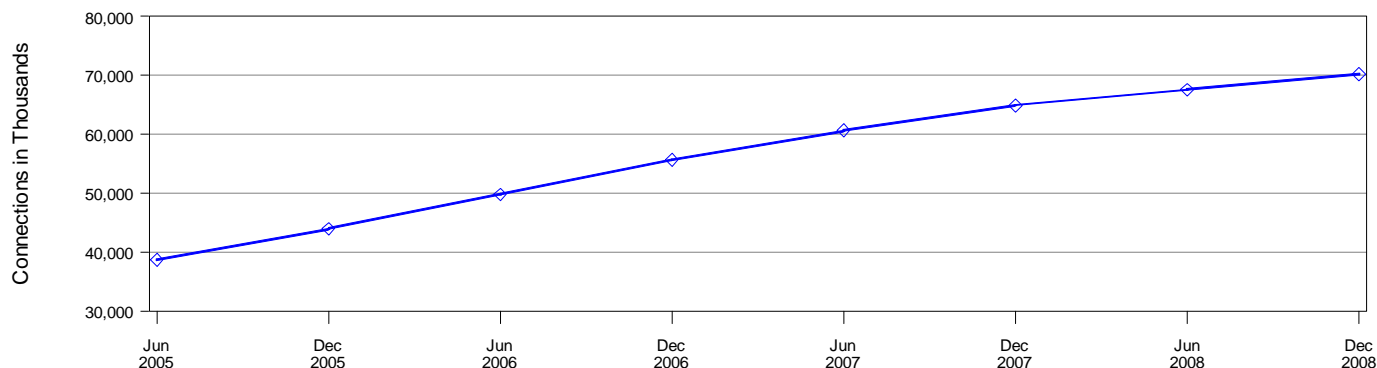
<sup>1</sup> Fiber to the premises. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

<sup>2</sup> See footnote 2, Table 1.

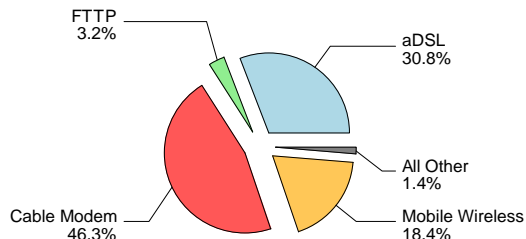
Note: Figures may not sum to totals due to rounding.

Source: FCC Form 477, Parts I and VI.

**Chart 5**  
**Residential Fixed High-Speed Connections 2005-2008**



**Chart 6**  
**Residential High-Speed Connections by Technology as of December 31, 2008**



**Table 4**  
**Residential Advanced Services Connections 2005-2008**  
 (Connections over 200 kbps in both directions, in thousands)

Technology	2005		2006		2007		2008	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec
Total	34,445	40,323	46,585	53,648	61,371	69,148	74,458	<b>74,333</b>
Total Fixed	34,443	40,314	45,428	50,956	55,825	60,040	62,934	<b>65,051</b>
aDSL	11,731	14,242	16,416	18,878	21,106	22,556	23,315	<b>23,039</b>
sDSL	150	122	103	105	105	82	81	<b>74</b>
Other Wireline	2	3	9	13	12	17	32	<b>42</b>
Cable Modem	22,324	25,533	28,159	30,771	32,916	35,035	36,600	<b>38,779</b>
FTTP <sup>1</sup>	83	213	443	763	1,151	1,680	2,137	<b>2,710</b>
Satellite	2	25	15	23	35	48	63	<b>73</b>
Fixed Wireless	146	171	278	399	494	617	700	<b>330</b>
Power Line and Other	4	4	5	5	5	5	5	<b>5</b>
Mobile Wireless <sup>2</sup>	3	9	1,157	2,692	5,545	9,108	11,525	<b>9,281</b>

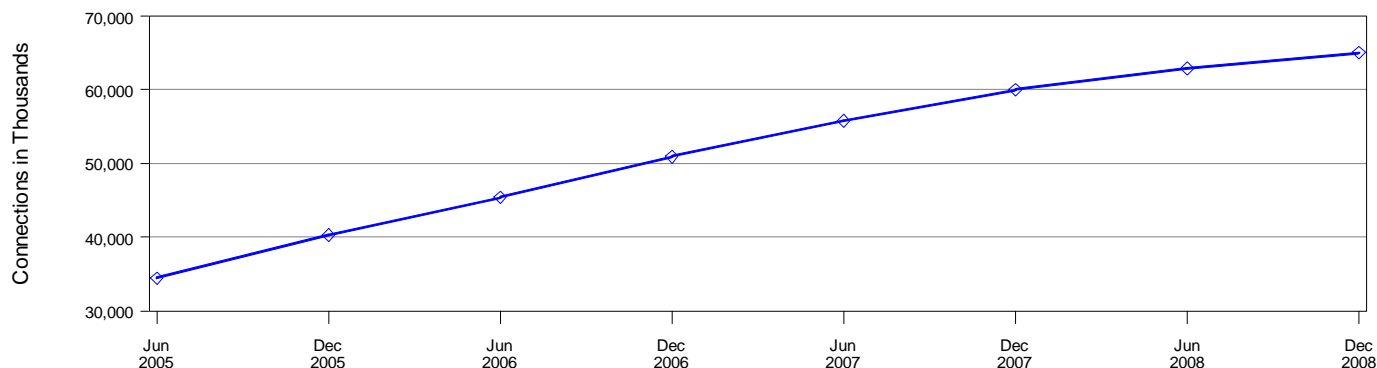
<sup>1</sup> Fiber to the premises. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

<sup>2</sup> See footnote 2, Table 1.

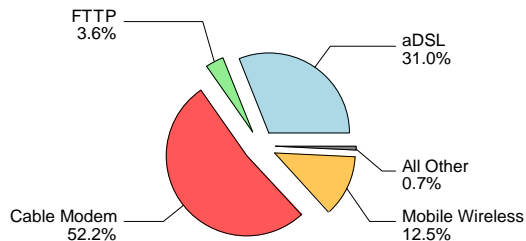
Note: Figures may not sum to totals due to rounding.

Source: FCC Form 477, Parts I and VI.

**Chart 7**  
**Residential Fixed Advanced Services Connections 2005-2008**

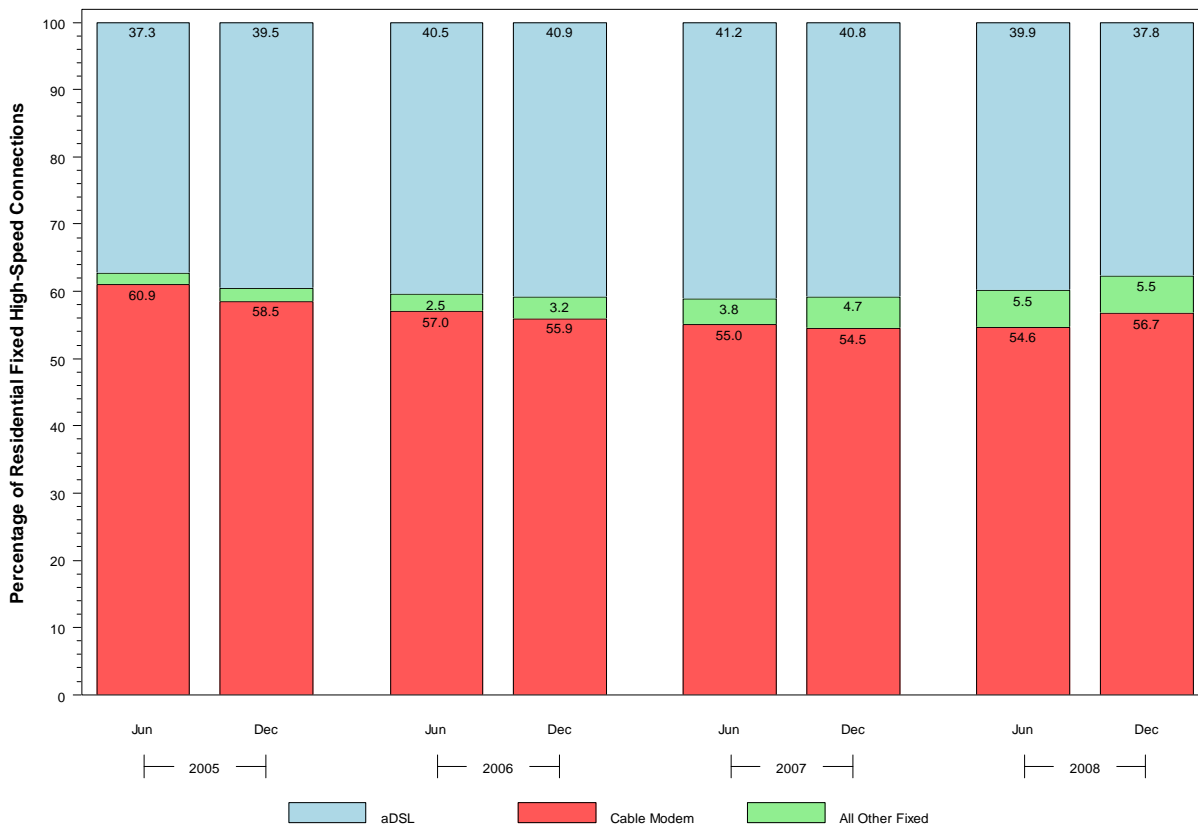


**Chart 8**  
**Residential Advanced Services Connections by Technology as of December 31, 2008**

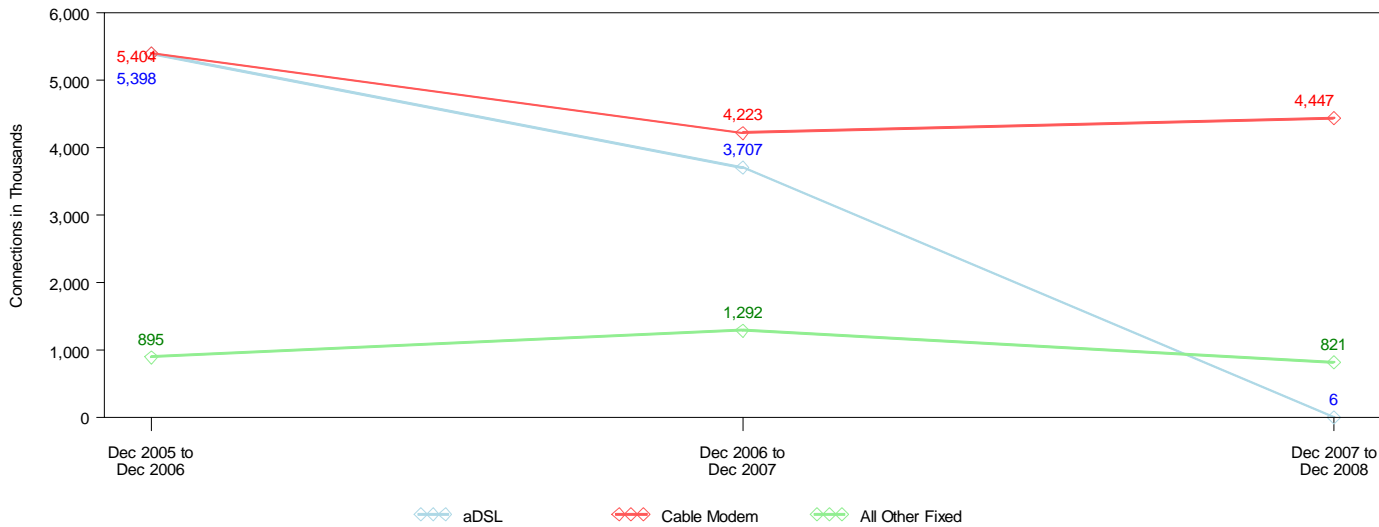




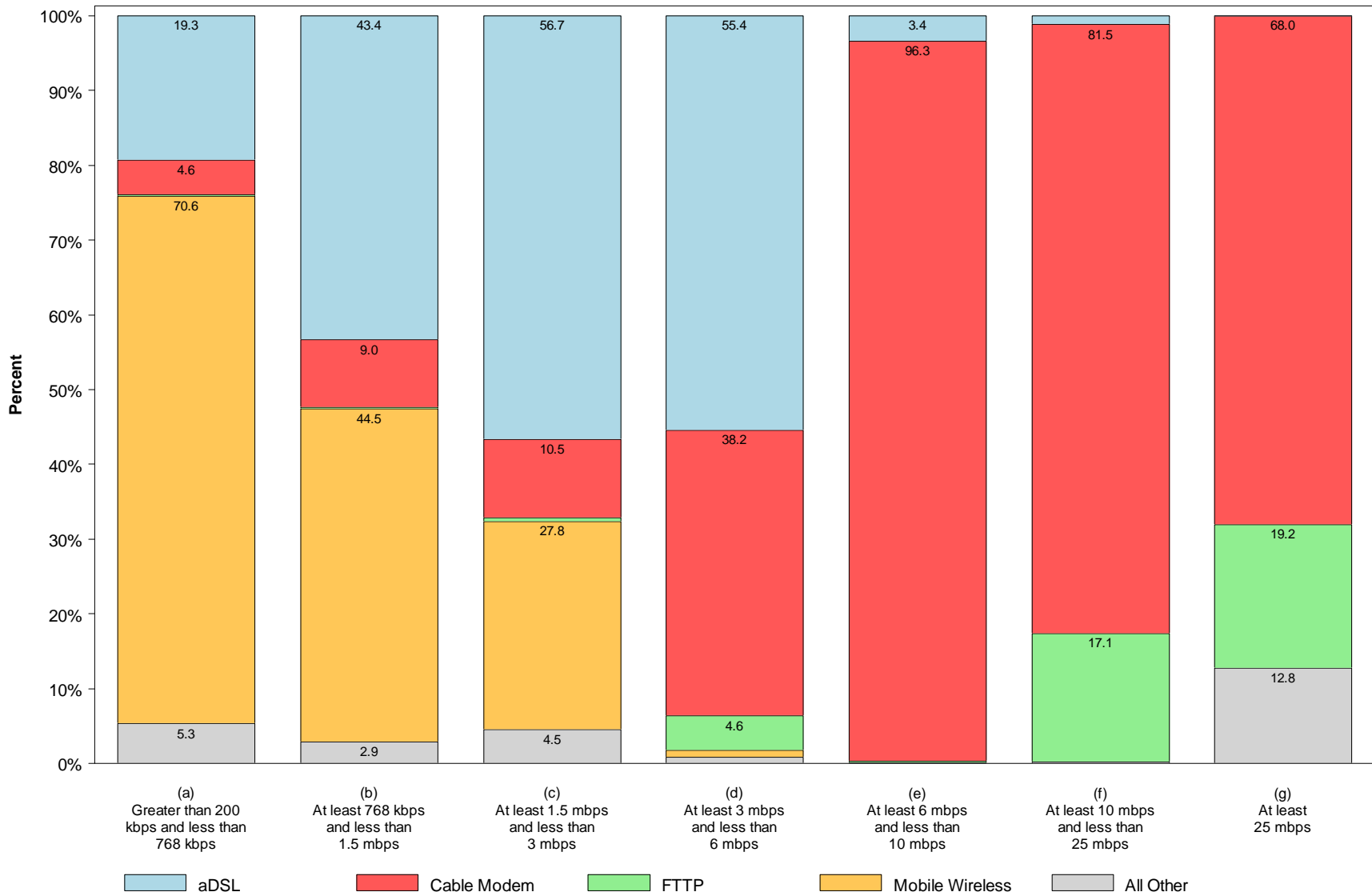
**Chart 9**  
**Residential Fixed High-Speed Connections 2005-2008**  
 (Shares of Selected Technologies)



**Chart 10**  
**Residential Fixed High-Speed Connections 2005-2008**  
 (Net Adds for Selected Technologies)



**Chart 11**  
**Distribution of High-Speed Connections by Downstream Speed**  
**Selected Technologies as of December 31, 2008**

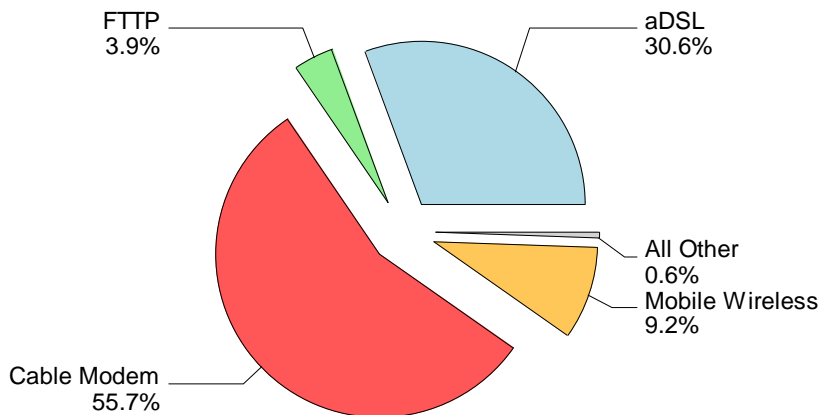


**Table 5**  
**Residential High-Speed Connections by Technology and Speed as of December 31, 2008**  
 (Connections in thousands)

<i>Technology</i>	<i>At Most 200 kbps Upstream or less than 768 kbps Downstream</i>	<i>Over 200 kbps Upstream and at least 768 kbps Downstream</i>	<i>Total</i>
aDSL	5,318	21,163	26,481
sDSL	37	37	74
Other Wireline	4	38	42
Cable Modem	1,327	38,461	39,788
FTTP	19	2,695	2,715
Satellite	560	70	630
Fixed Wireless	170	244	413
Mobile Wireless	9,465	6,353	15,818
Power Line and Other	1	3	5
<b>Total</b>	<b>16,901</b>	<b>69,066</b>	<b>85,966</b>

# = Rounds to Zero.  
 Note: Figures may not sum to totals due to rounding.  
 Source: FCC Form 477, Parts I and VI.

**Chart 12**  
**Residential Broadband Connections (BTOP/BIP Definition) by Technology**  
**as of December 31, 2008**



Note: The BTOP/BIP broadband definition is advertised speeds of at least 768 kbps downstream and 200 kbps upstream to end users. See also p. 3 of the report text.  
 Source: FCC Form 477, Parts I and VI.

**Table 6**  
**Total High-Speed Connections by Speed Tier as of December 31, 2008**  
(Connections in thousands)

Technology	200 kbps or less Upstream			Over 200 kbps Upstream							Subtotal	Total
	Download over 200 kbps and less than 768 kbps	Download at least 768 kbps	Subtotal	Download over 200 kbps and less than 768 kbps	Download at least 768 kbps and less than 1.5 mbps	Download at least 1.5 mbps and less than 3 mbps	Download at least 3 mbps and less than 6 mbps	Download at least 6 mbps and less than 10 mbps	Download at least 10 mbps and less than 25 mbps	Download at least 25 mbps		
aDSL	1,174	2,455	3,628	2,080	5,969	9,252	8,357	769	135	#	26,562	30,190
sDSL	0	0	0	110	80	*	4	#	*	#	245	245
Other Wireline	0	0	0	110	88	392	62	22	16	22	711	711
Cable Modem	446	607	1,053	331	1,171	1,696	5,756	21,967	9,373	121	40,415	41,468
FTTP	5	1	6	19	40	79	697	37	1,970	34	2,876	2,881
Satellite	499	329	828	*	*	*	*	0	0	0	110	938
Fixed Wireless	70	22	92	101	109	123	45	9	9	1	397	488
Mobile Wireless	7,576	2,996	10,572	4,296	8,364	1,747	138	0	0	0	14,545	25,117
Power Line and Other	0	0	0	*	*	*	*	0	*	0	5	5
<b>Total</b>	<b>9,769</b>	<b>6,409</b>	<b>16,178</b>	<b>7,052</b>	<b>15,839</b>	<b>13,428</b>	<b>15,060</b>	<b>22,804</b>	<b>11,503</b>	<b>178</b>	<b>85,865</b>	<b>102,043</b>

Percentages

aDSL	3.9	8.1	12.0	6.9	19.8	30.6	27.7	2.5	0.4	0.0	88.0	100.0
sDSL	0.0	0.0	0.0	44.9	32.5	*	1.6	0.0	*	0.0	100.0	100.0
Other Wireline	0.0	0.0	0.0	15.5	12.3	55.1	8.7	3.1	2.2	3.1	100.0	100.0
Cable Modem	1.1	1.5	2.5	0.8	2.8	4.1	13.9	53.0	22.6	0.3	97.5	100.0
FTTP	0.2	0.0	0.2	0.7	1.4	2.7	24.2	1.3	68.4	1.2	99.8	100.0
Satellite	53.2	35.0	88.3	*	*	*	*	0.0	0.0	0.0	11.7	100.0
Fixed Wireless	14.2	4.5	18.7	20.8	22.3	25.2	9.2	1.9	1.8	0.2	81.3	100.0
Mobile Wireless	30.2	11.9	42.1	17.1	33.3	7.0	0.5	0.0	0.0	0.0	57.9	100.0
Power Line and Other	0.0	0.0	0.0	*	*	*	*	0.0	*	0.0	100.0	100.0
<b>Total</b>	<b>9.6</b>	<b>6.3</b>	<b>15.9</b>	<b>6.9</b>	<b>15.5</b>	<b>13.2</b>	<b>14.8</b>	<b>22.3</b>	<b>11.3</b>	<b>0.2</b>	<b>84.1</b>	<b>100.0</b>

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

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

Source: FCC Form 477, Part I.

**Table 7**  
**Residential High-Speed Connections by Speed Tier as of December 31, 2008**  
(Connections in thousands)

Technology	200 kbps or less Upstream			Over 200 kbps Upstream							Subtotal	Total
	Download over 200 kbps and less than 768 kbps	Download at least 768 kbps	Subtotal	Download over 200 kbps and less than 768 kbps	Download at least 768 kbps and less than 1.5 mbps	Download at least 1.5 mbps and less than 3 mbps	Download at least 3 mbps and less than 6 mbps	Download at least 6 mbps and less than 10 mbps	Download at least 10 mbps and less than 25 mbps	Download at least 25 mbps		
aDSL	1,094	2,348	3,442	1,876	5,466	7,912	7,045	627	113	#	23,039	26,481
sDSL	0	0	0	37	22	*	1	#	*	0	74	74
Other Wireline	0	0	0	4	20	8	1	8	#	#	42	42
Cable Modem	415	595	1,010	317	1,111	1,553	5,353	21,355	9,020	70	38,779	39,788
FTTP	4	1	5	14	31	54	678	31	1,885	16	2,710	2,715
Satellite	354	203	557	*	*	*	*	0	0	0	73	630
Fixed Wireless	63	20	84	86	90	104	35	7	7	#	330	413
Mobile Wireless	4,709	1,828	6,537	2,928	5,079	1,156	119	0	0	0	9,281	15,818
Power Line and Other	0	0	0	*	*	*	*	0	*	0	5	5
<b>Total</b>	<b>6,639</b>	<b>4,995</b>	<b>11,634</b>	<b>5,267</b>	<b>11,835</b>	<b>10,857</b>	<b>13,232</b>	<b>22,027</b>	<b>11,028</b>	<b>86</b>	<b>74,333</b>	<b>85,966</b>

Percentages

aDSL	4.1	8.9	13.0	7.1	20.6	29.9	26.6	2.4	0.4	0.0	87.0	100.0
sDSL	0.0	0.0	0.0	49.6	29.6	*	1.2	0.0	*	0.0	100.0	100.0
Other Wireline	0.0	0.0	0.0	9.0	48.4	19.8	3.4	18.9	0.6	0.0	100.0	100.0
Cable Modem	1.0	1.5	2.5	0.8	2.8	3.9	13.5	53.7	22.7	0.2	97.5	100.0
FTTP	0.2	0.0	0.2	0.5	1.2	2.0	25.0	1.2	69.5	0.6	99.8	100.0
Satellite	56.1	32.2	88.3	*	*	*	*	0.0	0.0	0.0	11.7	100.0
Fixed Wireless	15.3	4.9	20.2	20.8	21.7	25.3	8.5	1.7	1.8	0.1	79.8	100.0
Mobile Wireless	29.8	11.6	41.3	18.5	32.1	7.3	0.8	0.0	0.0	0.0	58.7	100.0
Power Line and Other	0.0	0.0	0.0	*	*	*	*	0.0	*	0.0	100.0	100.0
<b>Total</b>	<b>7.7</b>	<b>5.8</b>	<b>13.5</b>	<b>6.1</b>	<b>13.8</b>	<b>12.6</b>	<b>15.4</b>	<b>25.6</b>	<b>12.8</b>	<b>0.1</b>	<b>86.5</b>	<b>100.0</b>

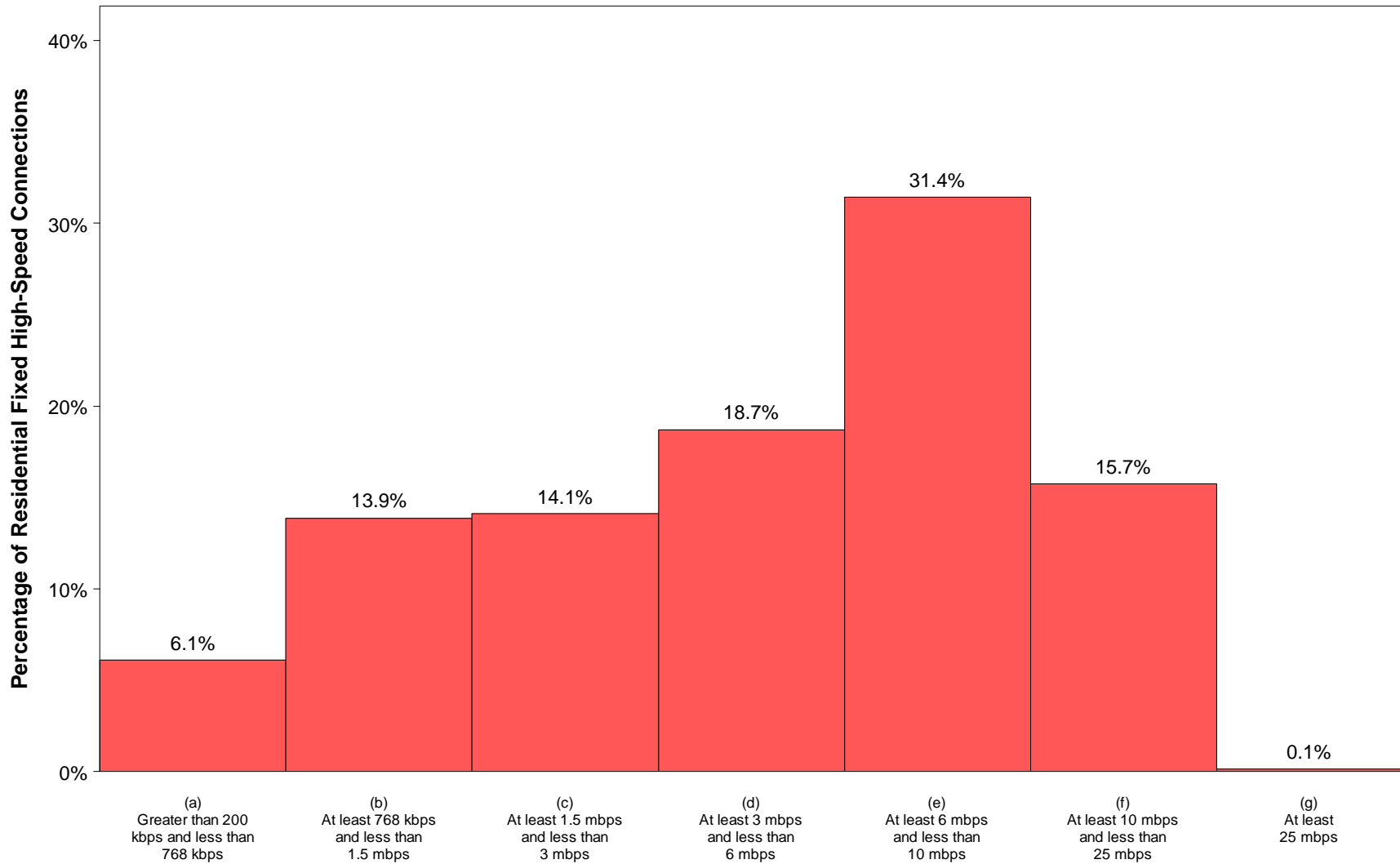
# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

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

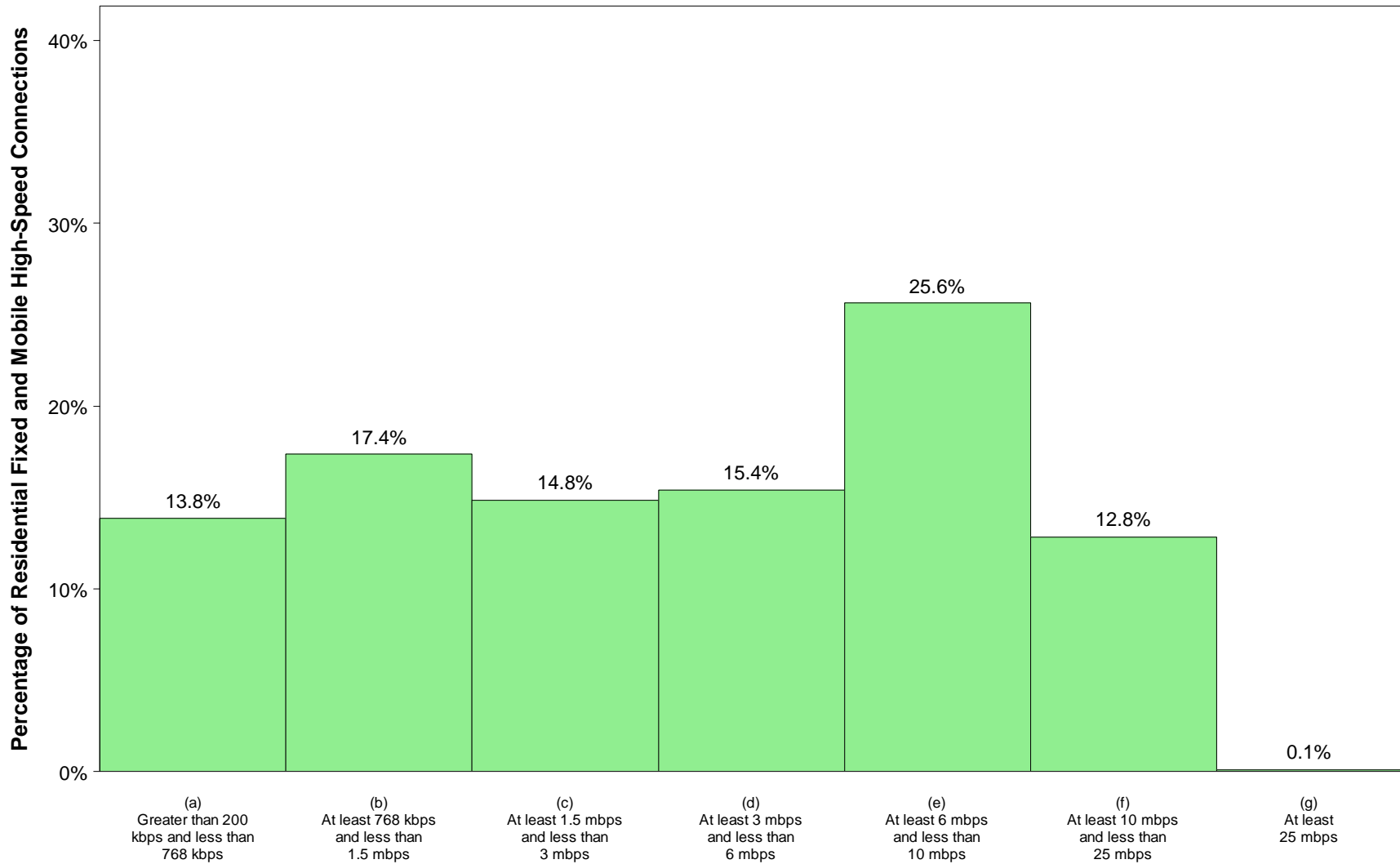
Source: FCC Form 477, Part I.

**Chart 13**  
**Distribution of Residential Fixed High-Speed Connections**  
**by Download Speed Tier as of December 31, 2008**



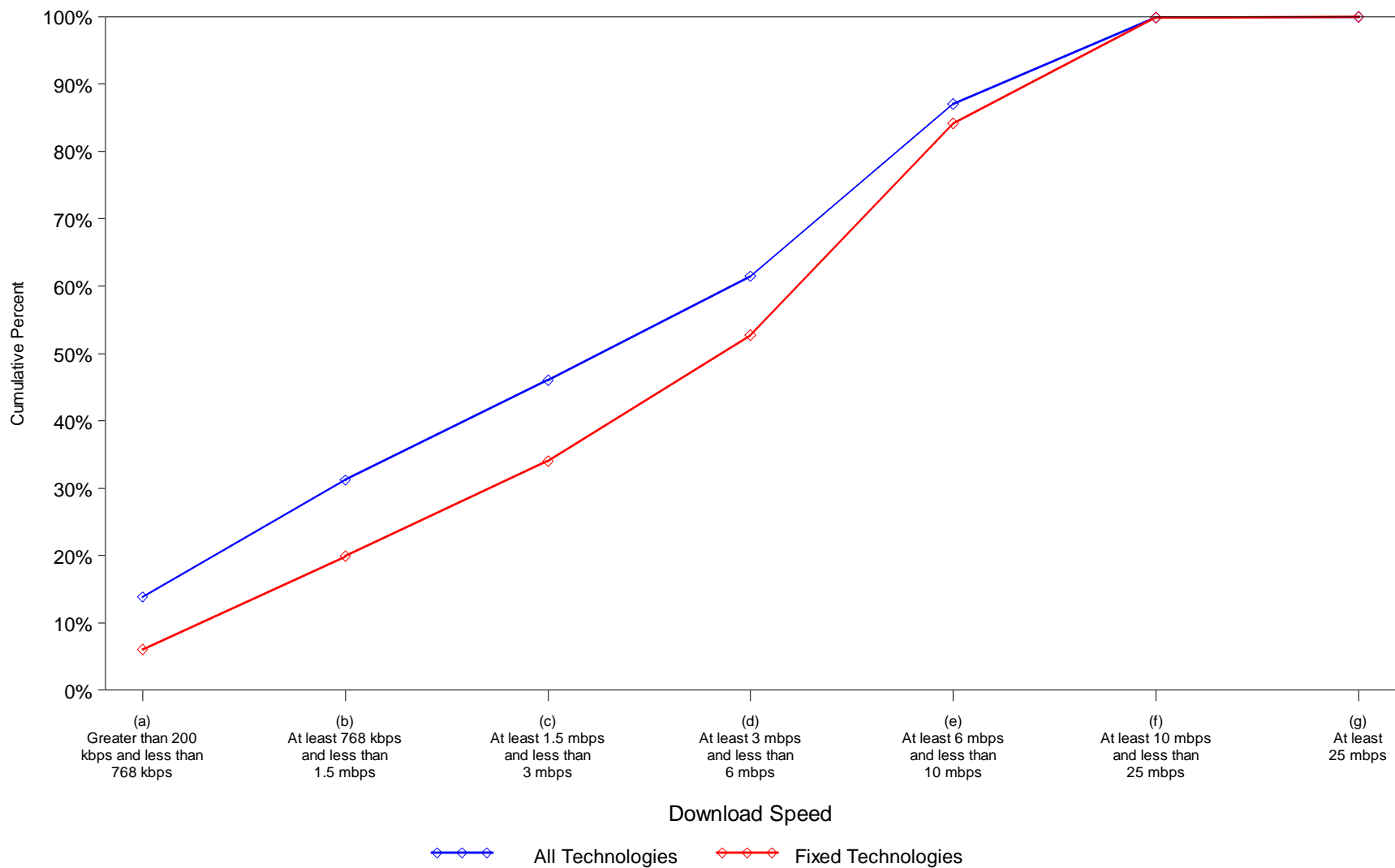
Note: Figures may not sum to totals due to rounding.  
Source: FCC Form 477, Part VI.

**Chart 14**  
**Distribution of Residential High-Speed Connections**  
**by Download Speed Tier as of December 31, 2008**



Note: Figures may not sum to totals due to rounding.  
 Source: FCC Form 477, Parts I and VI.

**Chart 15**  
**Cumulative Distribution of Residential High-Speed Connections by Download Speed Tier**  
**as of December 31, 2008**



Source: FCC Form 477, Parts I and VI.



**Table 8**  
**Total High-Speed Connections and Percentage Residential by Speed Tier as of December 31, 2008**  
**(Connections in thousands)**

Upload Speed	Customer Class	Download Speed								Total
		Greater than 200 kbps and less than 768 kbps	At least 768 kbps and less than 1.5 mbps	At least 1.5 mbps and 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 and less than 25 mbps	At least 25 mbps and less than 100 mbps	At least 100 mbps	
Less than or equal to 200 kbps	Total Connections	9,769	3,191	3,200	16	2	#	*	*	16,178
	% Residential	68	97	60	41	59	60	0	0	72
Greater than 200 kbps and less than 768 kbps	Total Connections	7,046	7,577	8,782	9,050	7,515	1,465	*	*	41,436
	% Residential	75	92	86	89	98	98	0	80	88
At least 768 and less then 1.5 mbps	Total Connections	3	8,262	4,098	4,954	14,469	*	1	*	34,978
	% Residential	79	59	80	85	96	98	1	76	84
At least 1.5 mbps and less than 3 mbps	Total Connections	2	#	548	864	785	5,603	*	*	7,803
	% Residential	71	54	10	94	96	95	52	0	89
At least 3 mbps and less than 6 mbps	Total Connections	*	*	1	184	3	1,101	115	*	1,405
	% Residential	42	15	23	58	63	96	58	0	88
At least 6 mbps and less than 10 mbps	Total Connections	*	*	*	8	32	2	*	0	41
	% Residential	0	0	100	0	46	83	0	0	39
At least 10 mbps and less than 25 mbps	Total Connections	0	0	*	*	*	151	3	*	155
	% Residential	0	0	100	100	75	72	54	0	72
At least 25 mbps and less than 100 mbps	Total Connections	0	0	0	*	*	*	22	#	22
	% Residential	0	0	0	0	0	0	4	0	4
At least 100 mbps	Total Connections	0	0	0	0	0	0	*	*	26
	% Residential	0	0	0	0	0	0	0	36	36
Total	Total Connections	16,822	19,030	16,628	15,075	22,806	11,504	143	35	102,043
	% Residential	71	78	77	88	97	96	49	44	84

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

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

Source: FCC Form 477, Parts I and VI.

**Table 9**  
**Fixed High-Speed Connections and Percentage Residential by Speed Tier as of December 31, 2008**  
**(Connections in thousands)**

Upload Speed	Customer Class	Download Speed								Total
		Greater than 200 kbps and less than 768 kbps	At least 768 kbps and less than 1.5 mbps	At least 1.5 mbps and 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 and less than 25 mbps	At least 25 mbps and less than 100 mbps	At least 100 mbps	
Less than or equal to 200 kbps	Total Connections	2,193	3,078	*	16	2	*	*	*	5,606
	% Residential	88	96	60	41	59	60	0	0	91
Greater than 200 kbps and less than 768 kbps	Total Connections	2,750	6,553	8,435	*	7,515	1,465	*	*	35,769
	% Residential	85	92	85	89	98	98	0	80	91
At least 768 and less then 1.5 mbps	Total Connections	3	922	*	4,954	14,469	3,182	1	*	26,238
	% Residential	79	82	91	85	96	98	1	76	93
At least 1.5 mbps and less than 3 mbps	Total Connections	2	#	*	726	785	5,603	*	*	7,665
	% Residential	71	54	10	95	96	95	52	0	89
At least 3 mbps and less than 6 mbps	Total Connections	*	*	1	184	3	1,101	115	*	1,405
	% Residential	42	15	23	58	63	96	58	0	88
At least 6 mbps and less than 10 mbps	Total Connections	*	*	*	8	32	2	*	0	41
	% Residential	0	0	100	0	46	83	0	0	39
At least 10 mbps and less than 25 mbps	Total Connections	0	0	*	*	*	151	3	*	155
	% Residential	0	0	100	100	75	72	54	0	72
At least 25 mbps and less than 100 mbps	Total Connections	0	0	0	*	*	*	22	#	22
	% Residential	0	0	0	0	0	0	4	0	4
At least 100 mbps	Total Connections	0	0	0	0	0	0	*	*	26
	% Residential	0	0	0	0	0	0	0	36	36
Total	Total Connections	4,950	10,553	11,998	14,937	22,806	11,504	143	35	76,926
	% Residential	86	92	82	88	97	96	49	44	91

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

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

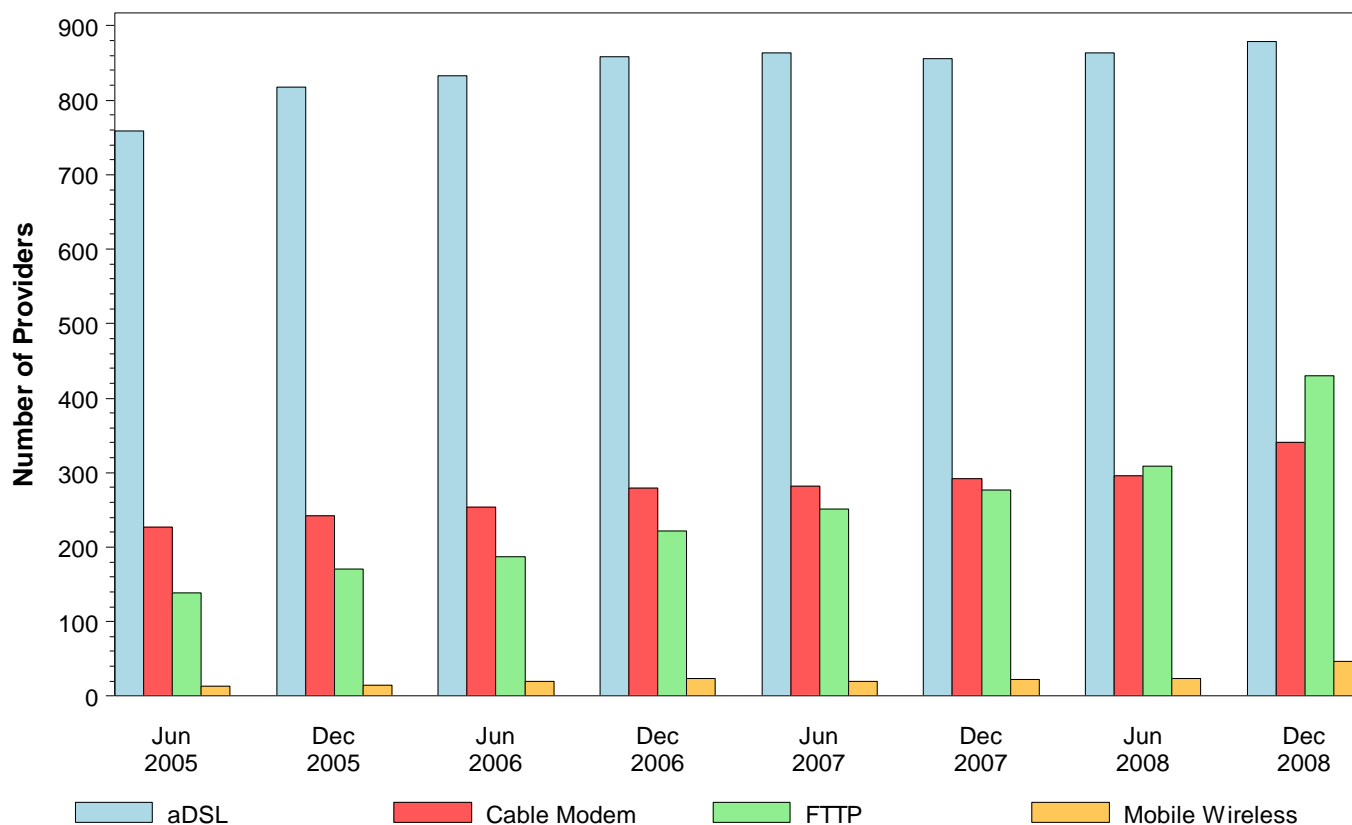
Source: FCC Form 477, Parts I and VI.

**Table 10**  
**Nationwide Number of Providers of High-Speed Connections by Technology 2005 - 2008**  
 (Connections over 200 kbps in at least one direction, in thousands)

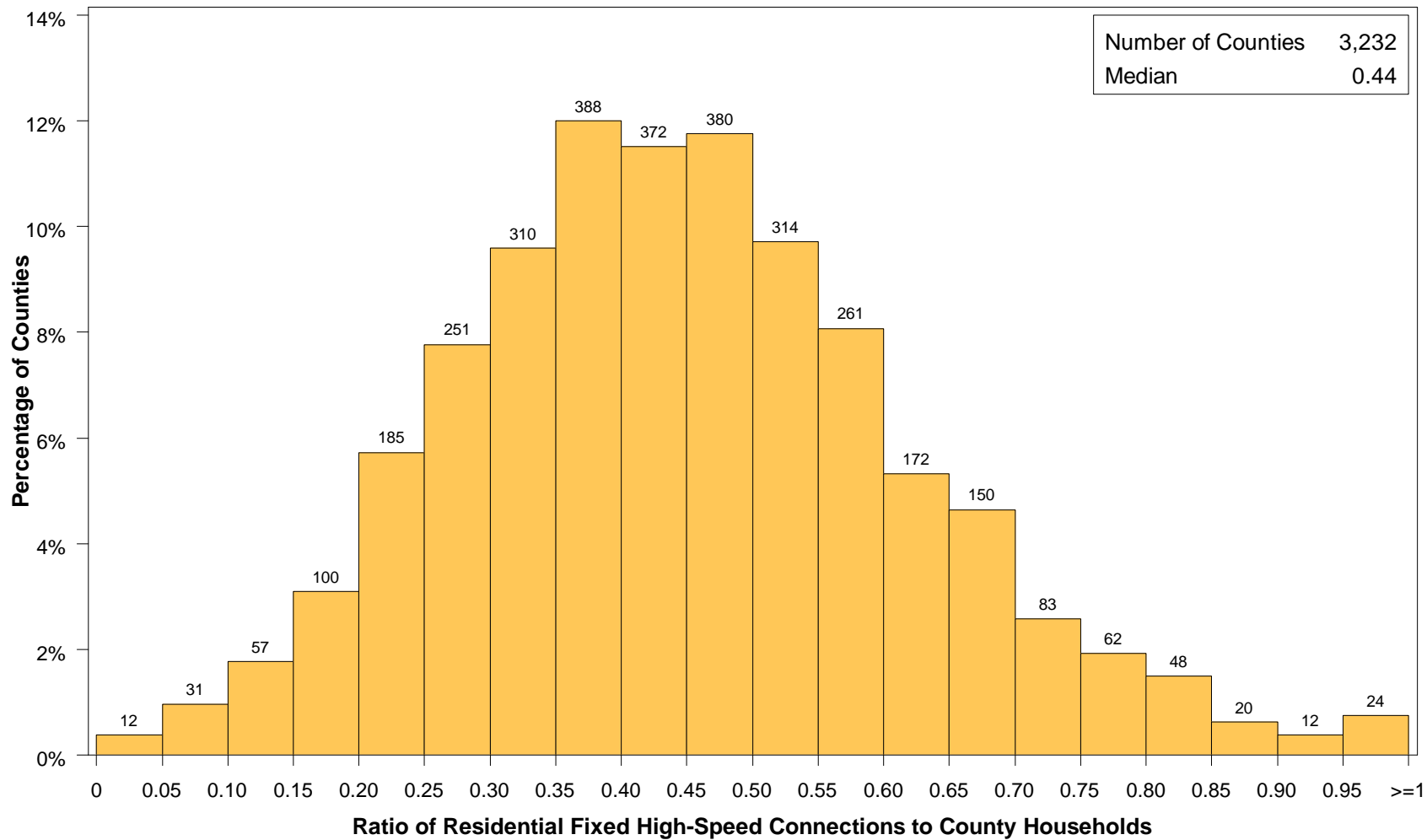
Technology	2005		2006		2007		2008		
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	
aDSL	758	818	833	858	864	856	863		<b>879</b>
sDSL	270	269	256	257	242	233	238		<b>262</b>
Other Wireline	206	241	246	256	246	250	259		<b>290</b>
Cable Modem	227	242	254	279	282	292	296		<b>341</b>
FTTP	138	170	187	222	251	276	308		<b>430</b>
Satellite	10	4	5	5	5	5	4		<b>5</b>
Fixed Wireless	423	463	452	505	484	514	505		<b>617</b>
Mobile Wireless	13	15	19	24	19	22	24		<b>46</b>
Power Line and Other	18	7	6	6	6	7	6		<b>5</b>
<b>Total</b>	<b>1,270</b>	<b>1,345</b>	<b>1,327</b>	<b>1,396</b>	<b>1,374</b>	<b>1,399</b>	<b>1,395</b>		<b>1,554</b>

Note: Multiple Form 477 filers within a holding company structure count as one provider.  
 Source: FCC Form 477, Part I.

**Chart 16**  
**Nationwide Number of Providers of High-Speed Connections**  
**Selected Technologies 2005 - 2008**



**Chart 17**  
**Distribution of Counties by Ratio of Residential Fixed High-Speed Connections to County Households**  
**as of December 31, 2008**



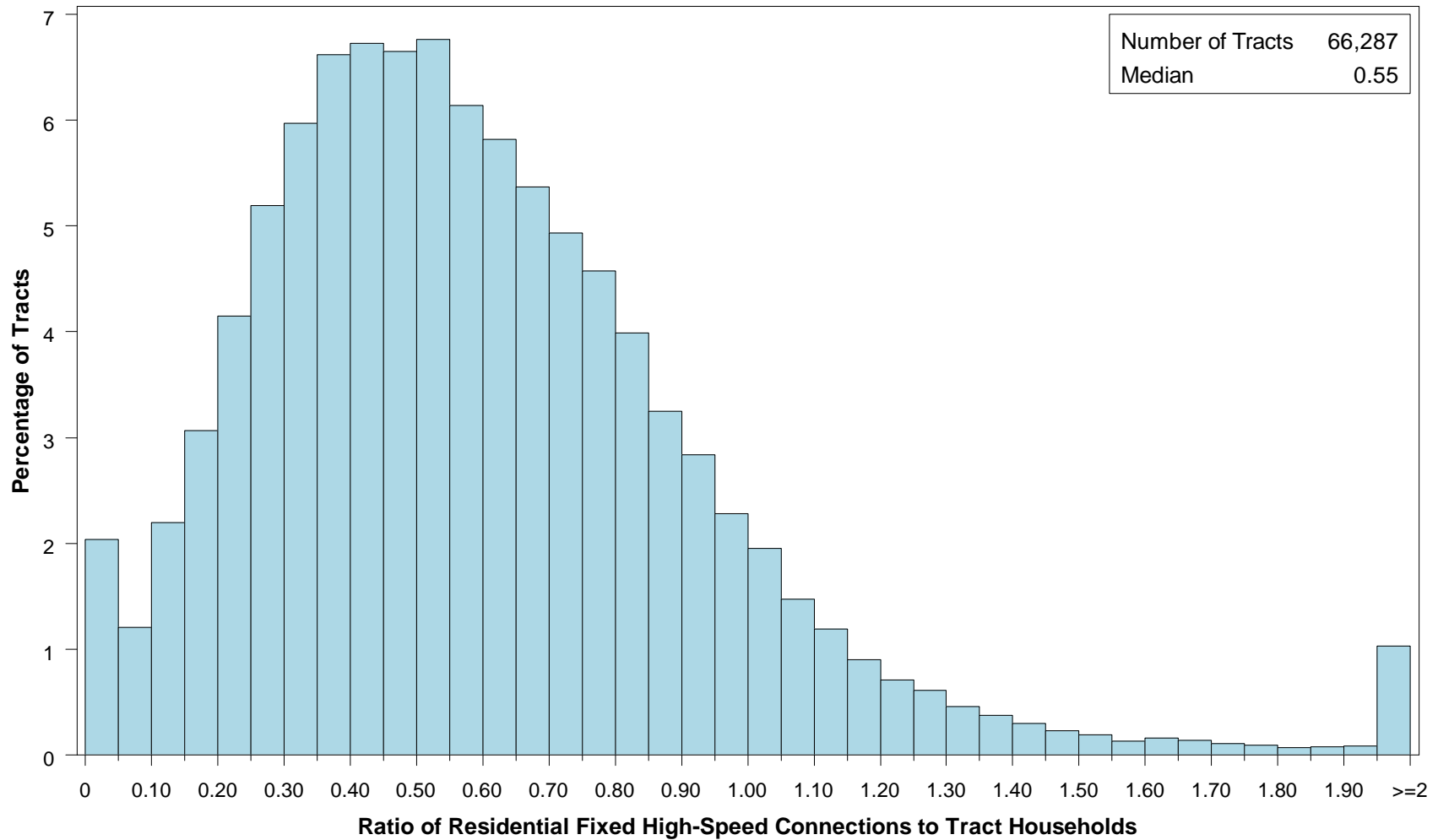
Note: Ratios over 1 were set to 1. See Technical Notes at the end of the report.  
 Sources: FCC Form 477, Part VI; Geolytics 2009 Block-Level Estimates; and Census 2000.

**Table 11**  
**Distribution of Counties by Ratio of Residential Fixed High-Speed Connections to County Households**  
**by Technology as of December 31, 2008**

<i>Technology</i>	<i>Ratio of Residential Fixed High-Speed Connections to County Households</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 75%</i>	<i>Greater than 75 and no more than 100%</i>	<i>100% or more</i>
aDSL	0.7	2.1	7.0	34.4	33.3	16.0	4.9	1.1	0.4	0.1	0.0
sDSL	85.0	13.8	0.4	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Other Wireline	95.4	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cable Modem	15.8	12.7	12.2	20.3	16.8	10.6	6.5	3.0	1.6	0.4	0.1
FTTP	76.5	18.0	2.4	1.6	0.9	0.4	0.2	0.0	0.0	0.0	0.0
Satellite	1.0	95.1	3.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fixed Wireless	52.7	39.4	5.2	2.1	0.5	0.1	0.1	0.0	0.0	0.0	0.0
Power Line	99.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All Other	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.2	0.2	1.0	4.9	13.5	21.6	23.3	17.8	12.5	4.6	0.6

Note: Figures may not sum to totals due to rounding. See Technical Notes at the end of the report.  
Sources: FCC Form 477, Part VI; Geolytics 2009 Block-Level Estimates; and Census 2000.

**Chart 18**  
**Distribution of Census Tracts by Ratio of Residential Fixed High-Speed Connections to Tract Households**  
**as of December 31, 2008**



Note: Ratios over 2 were set to 2. See Technical Notes at the end of the report.  
 Sources: FCC Form 477, Part VI; Geolytics 2009 Block-Level Estimates; and Census 2000.

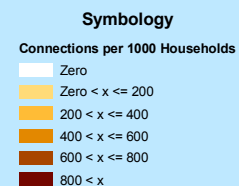
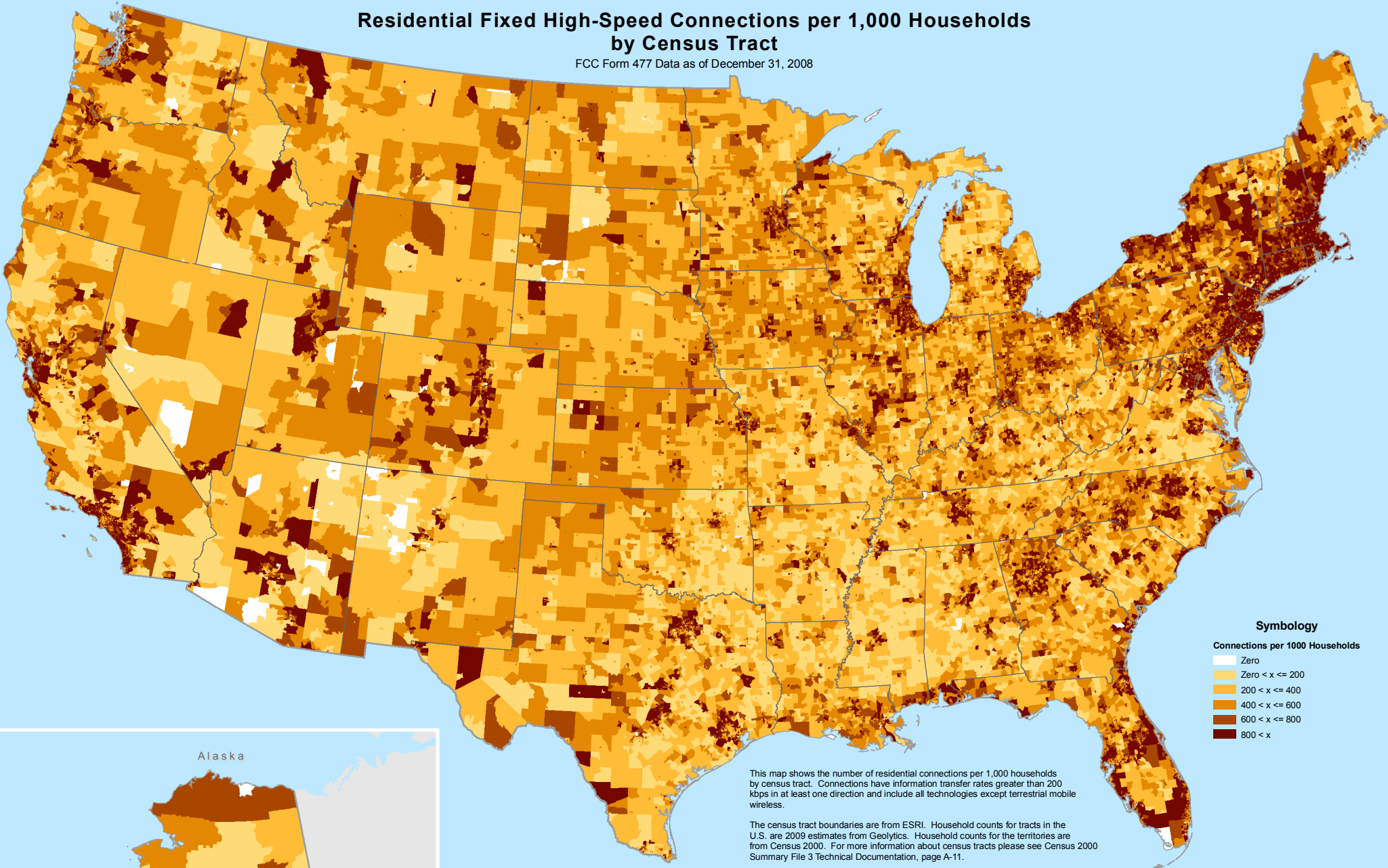
**Table 12**  
**Distribution of Census Tracts by Ratio of Residential Fixed High-Speed Connections to Tract Households**  
**by Technology as of December 31, 2008**

<i>Technology</i>	<i>Ratio of Residential Fixed High-Speed Connections to Tract Households</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 75%</i>	<i>Greater than 75 and no more than 100%</i>	<i>100% or more</i>
aDSL	4.3	10.1	10.5	27.4	21.0	13.2	6.6	3.2	1.9	1.1	0.8
sDSL	96.0	3.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Wireline	99.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cable Modem	8.6	4.9	5.5	15.0	16.1	15.1	12.7	8.7	7.2	4.0	2.2
FTTP	86.7	5.1	1.6	2.3	1.6	1.2	0.7	0.4	0.2	0.1	0.1
Satellite	45.2	51.9	2.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Fixed Wireless	87.3	10.4	1.2	0.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0
Power Line	99.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All Other	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>1.1</b>	<b>1.0</b>	<b>1.2</b>	<b>5.3</b>	<b>9.3</b>	<b>12.6</b>	<b>13.4</b>	<b>12.9</b>	<b>16.1</b>	<b>16.9</b>	<b>10.2</b>

Note: Figures may not sum to totals due to rounding. See Technical Notes at the end of the report.  
Sources: FCC Form 477, Part VI; Geolytics 2009 Block-Level Estimates; and Census 2000.

# Residential Fixed High-Speed Connections per 1,000 Households by Census Tract

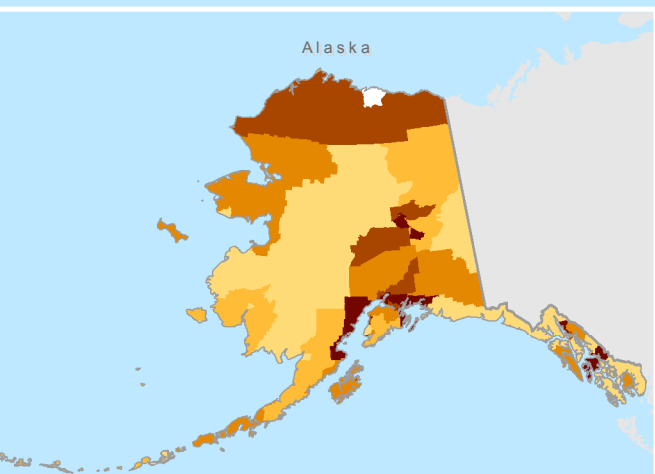
FCC Form 477 Data as of December 31, 2008



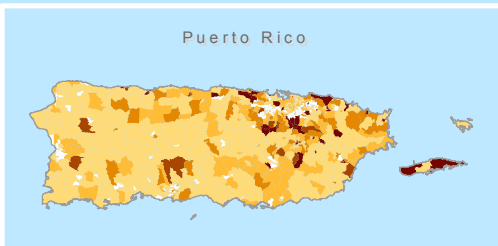
This map shows the number of residential connections per 1,000 households by census tract. Connections have information transfer rates greater than 200 kbps in at least one direction and include all technologies except terrestrial mobile wireless.

The census tract boundaries are from ESRI. Household counts for tracts in the U.S. are 2009 estimates from Geolytics. Household counts for the territories are from Census 2000. For more information about census tracts please see Census 2000 Summary File 3 Technical Documentation, page A-11.

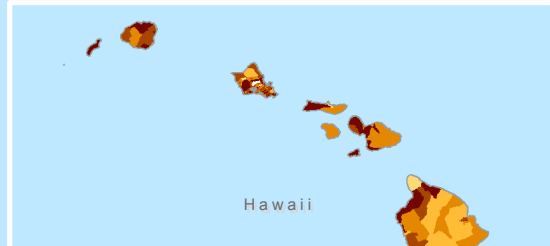
Alaska



Puerto Rico



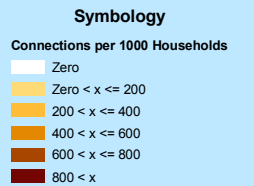
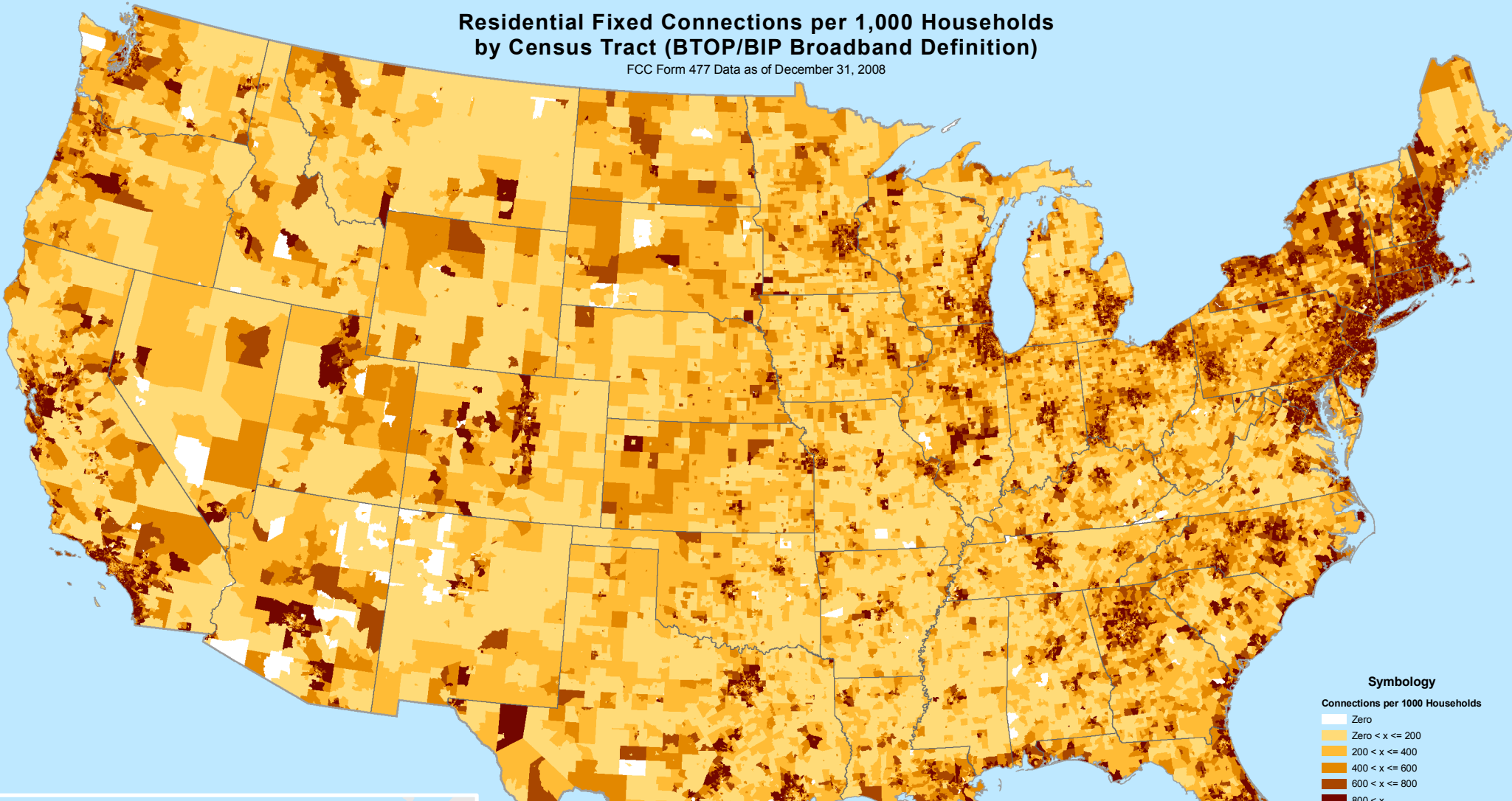
Hawaii





# Residential Fixed Connections per 1,000 Households by Census Tract (BTOP/BIP Broadband Definition)

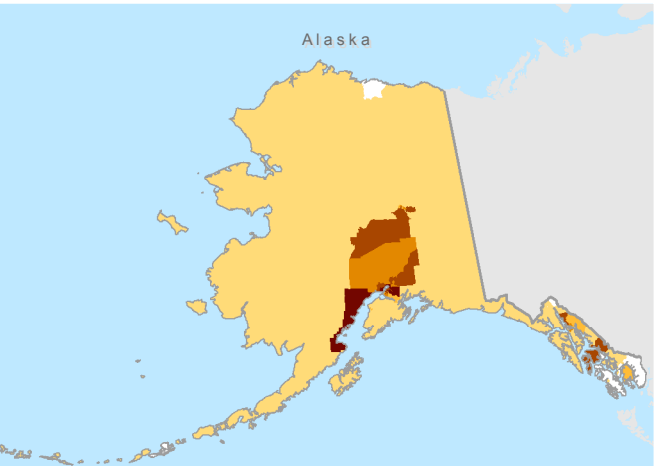
FCC Form 477 Data as of December 31, 2008



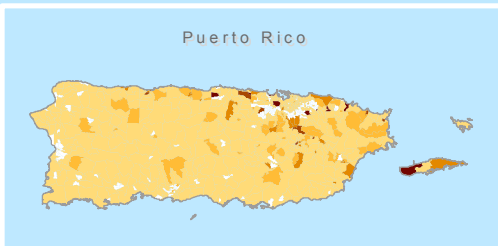
This map shows the number of residential connections per 1,000 households by census tract. Connections have information transfer rates greater than 200 kbps upstream and at least 768 kbps downstream. All technologies except terrestrial mobile wireless are included.

The census tract boundaries are from ESRI. Household counts for tracts in the U.S. are 2009 estimates from Geolytics. Household counts for the territories are from Census 2000. For more information about census tracts please see Census 2000 Summary File 3 Technical Documentation, page A-11.

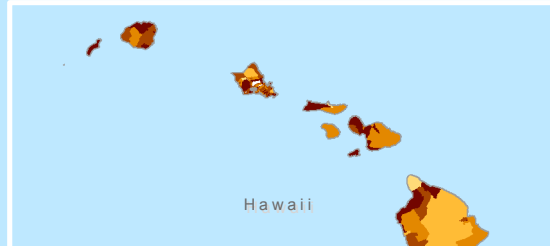
Alaska



Puerto Rico

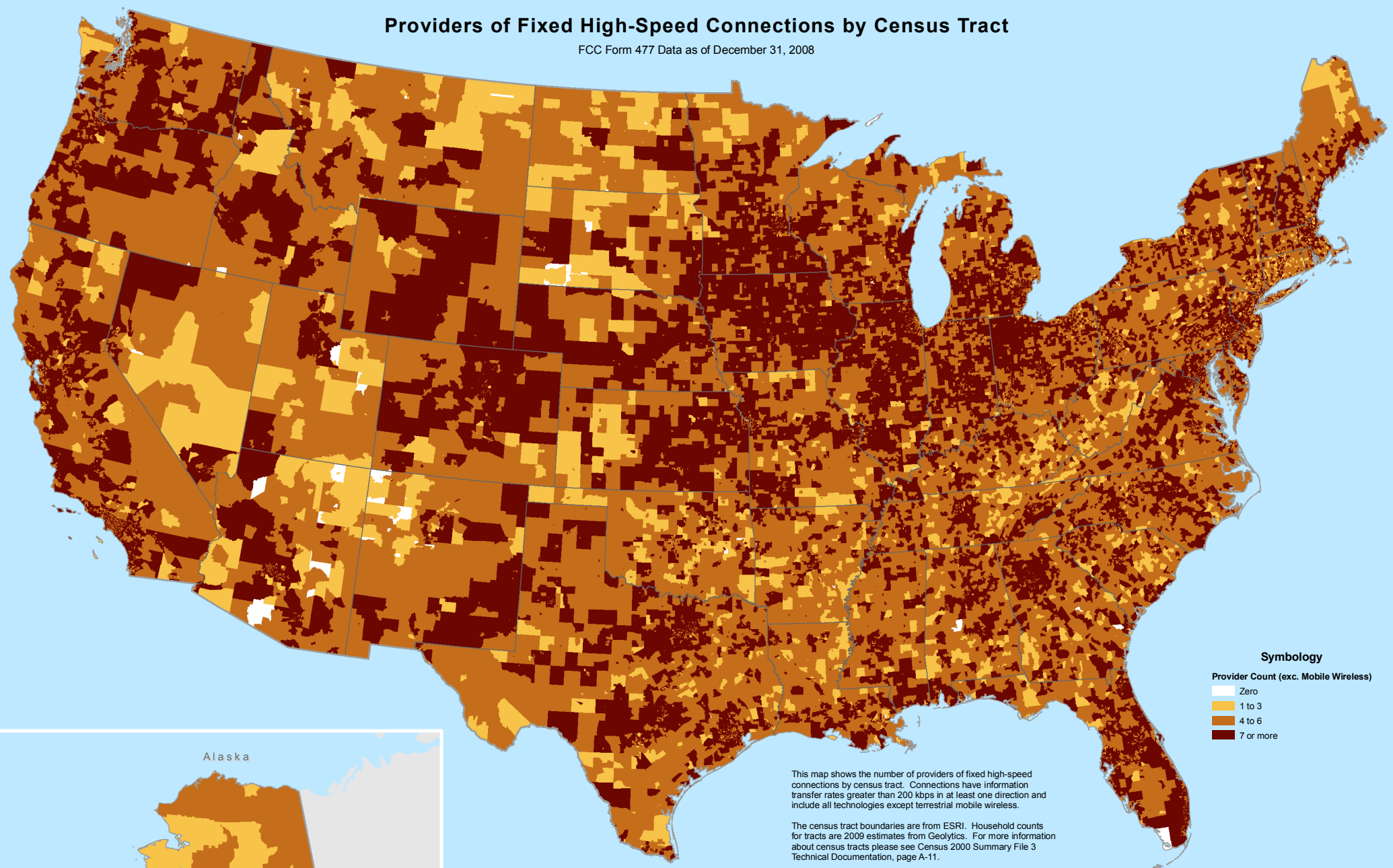


Hawaii



# Providers of Fixed High-Speed Connections by Census Tract

FCC Form 477 Data as of December 31, 2008



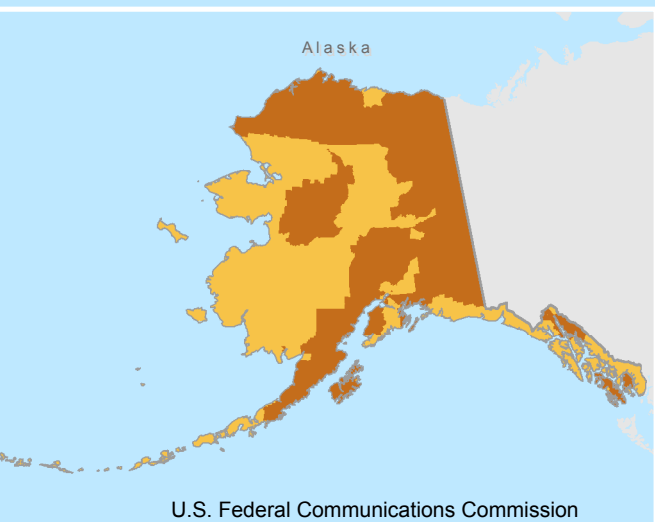
### Symbology

- Provider Count (exc. Mobile Wireless)
- Zero
  - 1 to 3
  - 4 to 6
  - 7 or more

This map shows the number of providers of fixed high-speed connections by census tract. Connections have information transfer rates greater than 200 kbps in at least one direction and include all technologies except terrestrial mobile wireless.

The census tract boundaries are from ESRI. Household counts for tracts are 2009 estimates from Geolytics. For more information about census tracts please see Census 2000 Summary File 3 Technical Documentation, page A-11.

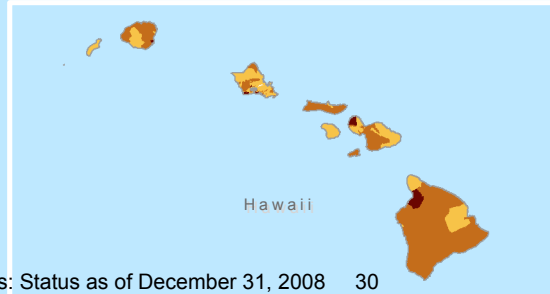
Alaska



Puerto Rico

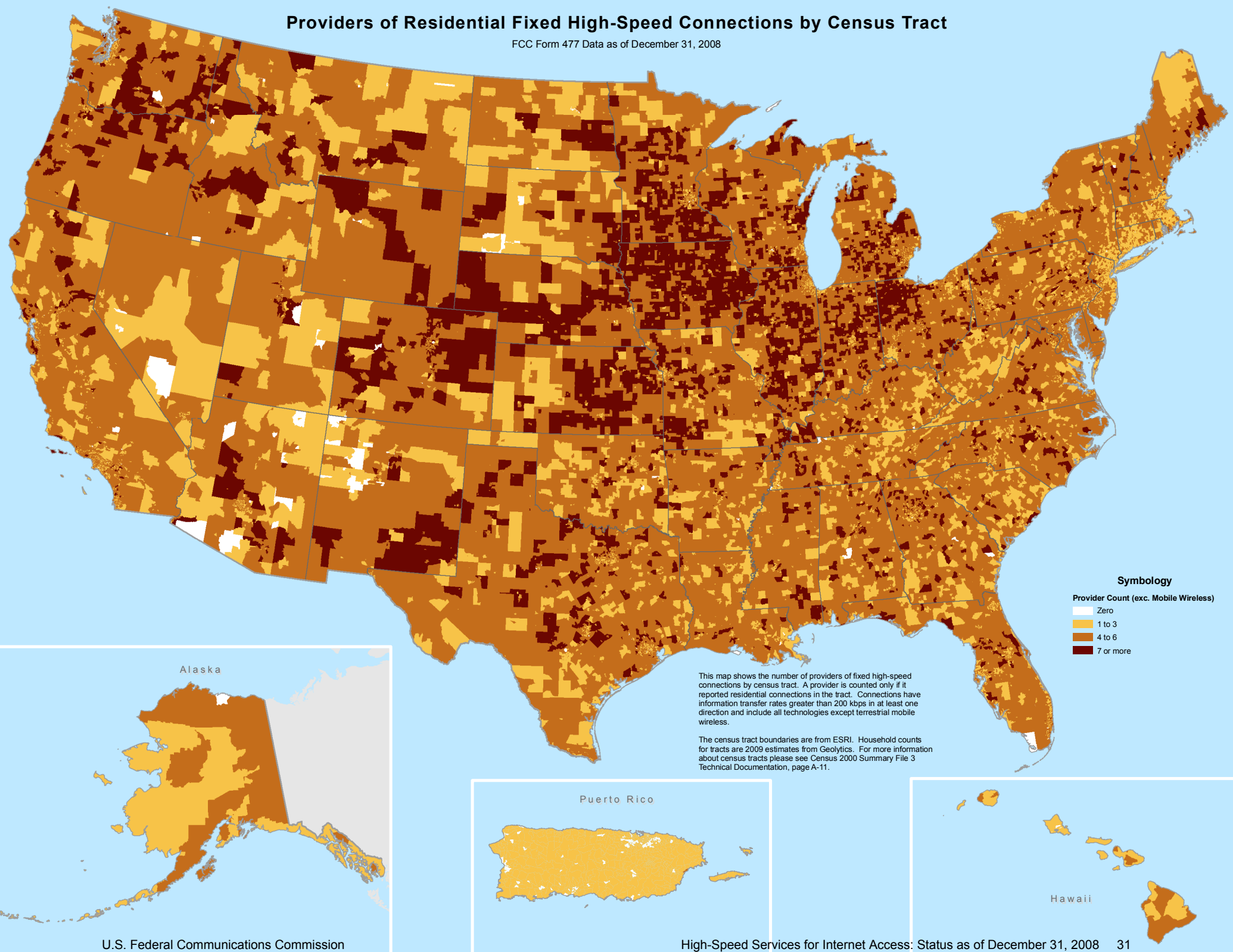


Hawaii



# Providers of Residential Fixed High-Speed Connections by Census Tract

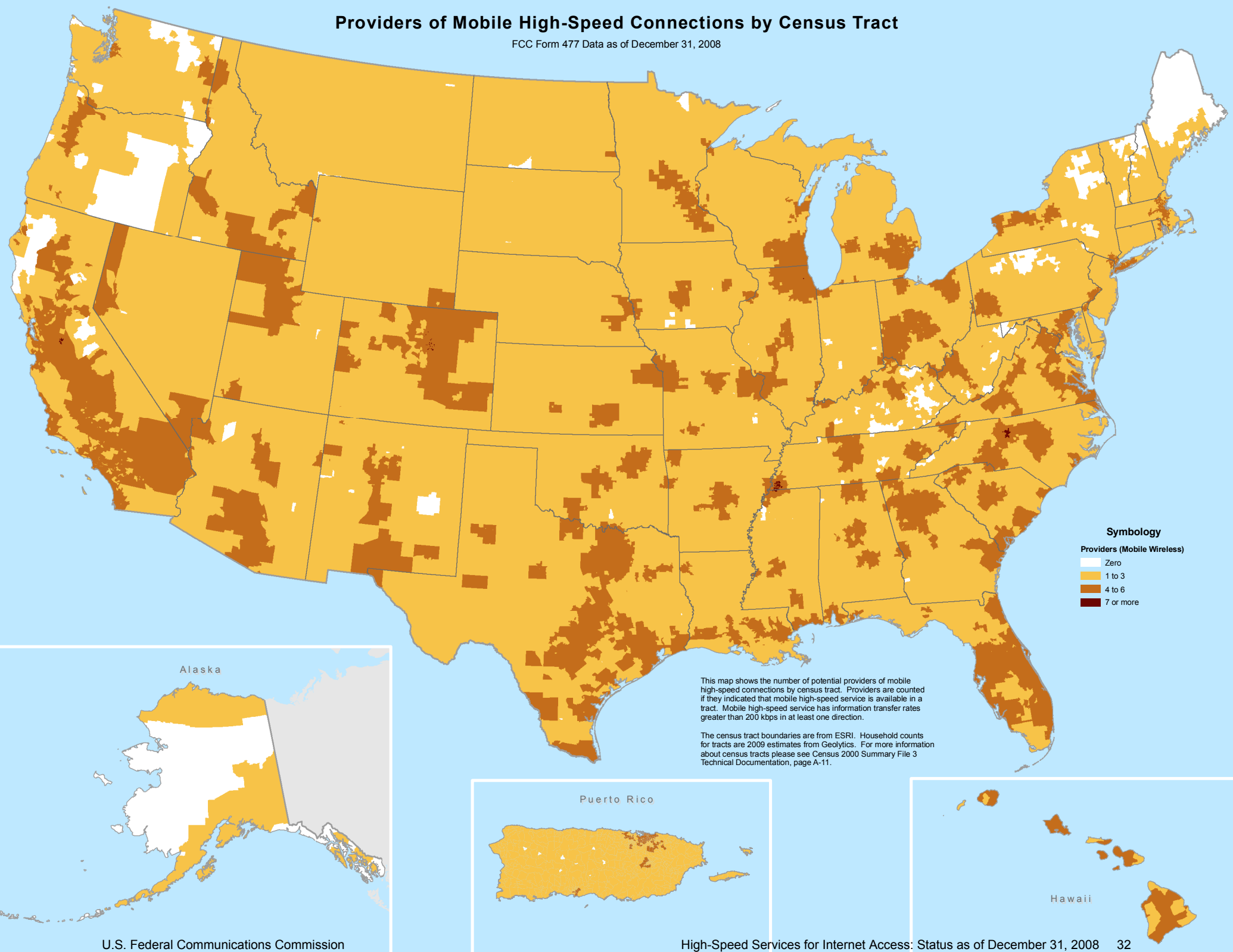
FCC Form 477 Data as of December 31, 2008





# Providers of Mobile High-Speed Connections by Census Tract

FCC Form 477 Data as of December 31, 2008



**Table 13**  
**Percentage of Census Tracts with Residential Fixed High-Speed Connections by Technology as of December 31, 2008**  
 (Connections 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	4.3	40.7	38.4	13.4	2.7	0.4	0.1	0.0
sDSL	96.0	3.8	0.2	0.0	0.0	0.0	0.0	0.0
Other Wireline	99.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Cable Modem	8.6	79.3	11.6	0.6	0.0	0.0	0.0	0.0
FTTP	86.7	13.0	0.2	0.0	0.0	0.0	0.0	0.0
Satellite	45.2	24.6	24.5	5.6	0.0	0.0	0.0	0.0
Fixed Wireless	87.3	10.2	2.0	0.4	0.1	0.0	0.0	0.0
Power Line	99.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0
aDSL and/or Cable Modem and/or FTTP	1.5	6.6	34.7	35.7	16.2	4.3	0.8	0.2
Any Technology	1.1	2.6	15.1	25.7	26.1	16.7	7.9	4.8

Note: Figures may not sum to totals due to rounding.  
 Sources: FCC Form 477, Part VI and Census 2000.

**Table 14**  
**High-Speed Connections by Technology by State as of December 31, 2008**  
(Connections over 200 kbps in at least one direction, in thousands)

<i>State</i>	<i>ADSL</i>	<i>SDSL</i>	<i>Other Wireline</i>	<i>Cable Modem</i>	<i>Fiber</i>	<i>Satellite</i>	<i>Fixed Wireless</i>	<i>Mobile Wireless</i>	<i>Power Line and Other</i>	<i>Total</i>
Alabama	457	4	9	460	3	*	1	281	*	1,235
Alaska	75	4	#	*	#	*	4	43	0	224
American Samoa	*	*	0	0	0	0	*	0	0	*
Arizona	466	2	*	987	2	*	20	522	0	2,033
Arkansas	273	#	*	248	1	*	1	178	0	723
California	4,617	22	*	3,994	315	*	23	3,494	0	12,649
Colorado	624	2	*	659	3	*	28	461	0	1,816
Connecticut	*	2	5	615	2	*	*	338	0	1,402
Delaware	*	#	4	*	*	*	0	77	0	330
District of Columbia	*	2	4	*	1	*	*	181	0	375
Florida	2,005	5	*	2,825	247	*	5	1,542	0	6,729
Georgia	1,242	2	*	973	16	*	#	773	0	3,065
Guam	*	*	*	*	0	0	0	*	0	25
Hawaii	*	*	1	*	1	*	*	146	0	498
Idaho	160	1	*	121	1	*	21	133	0	448
Illinois	1,503	9	*	1,591	5	*	37	1,057	0	4,265
Indiana	672	4	9	626	55	*	24	384	*	1,796
Iowa	336	3	*	330	9	*	25	115	0	837
Kansas	243	1	*	425	13	*	16	207	0	924
Kentucky	421	7	*	452	4	*	3	246	0	1,154
Louisiana	385	1	*	518	19	*	2	395	0	1,346
Maine	114	4	1	288	1	*	*	40	0	454
Maryland	471	7	24	799	*	*	#	595	0	2,193
Massachusetts	*	3	17	1,307	*	*	1	566	0	2,600
Michigan	779	8	16	1,411	4	*	17	606	*	2,881
Minnesota	544	30	*	666	14	*	20	357	0	1,662
Mississippi	229	#	*	216	1	*	#	142	0	614
Missouri	727	1	13	553	4	*	12	364	*	1,711
Montana	108	3	1	92	1	*	13	*	0	320
Nebraska	151	1	*	278	2	*	16	152	0	607

**Table 14 - Continued**  
**High-Speed Connections by Technology by State as of December 31, 2008**  
(Connections over 200 kbps in at least one direction, in thousands)

<i>State</i>	<i>ADSL</i>	<i>SDSL</i>	<i>Other Wireline</i>	<i>Cable Modem</i>	<i>Fiber</i>	<i>Satellite</i>	<i>Fixed Wireless</i>	<i>Mobile Wireless</i>	<i>Power Line and Other</i>	<i>Total</i>
Nevada	222	1	8	*	1	*	7	257	0	918
New Hampshire	91	2	3	298	*	*	#	85	0	499
New Jersey	666	4	26	1,637	*	*	*	903	0	3,517
New Mexico	231	#	*	146	1	*	15	141	0	546
New York	1,122	17	38	4,139	*	*	3	1,708	0	7,405
North Carolina	891	1	*	1,551	5	*	1	701	0	3,203
North Dakota	62	1	*	85	10	*	5	41	0	206
Northern Mariana Isl	*	0	*	*	*	0	*	*	0	*
Ohio	1,069	9	15	1,943	6	*	20	816	*	3,910
Oklahoma	337	1	*	408	4	*	8	239	0	1,022
Oregon	371	11	*	516	54	*	7	267	0	1,252
Pennsylvania	1,232	12	23	1,807	*	*	1	871	0	4,225
Puerto Rico	*	*	3	*	#	*	*	126	0	464
Rhode Island	*	1	2	*	*	*	*	81	0	378
South Carolina	400	#	10	752	14	*	*	313	0	1,501
South Dakota	54	3	#	122	9	*	7	*	0	246
Tennessee	542	1	*	717	28	*	2	452	0	1,784
Texas	2,607	9	*	2,081	258	*	37	2,349	0	7,484
Utah	299	4	6	*	5	*	30	189	0	762
Vermont	61	*	1	71	*	*	*	*	0	168
Virgin Islands	*	*	*	0	0	*	*	*	0	21
Virginia	553	3	30	1,096	252	*	9	901	*	2,887
Washington	599	7	16	980	37	*	11	682	*	2,357
West Virginia	152	*	3	205	#	*	1	80	0	452
Wisconsin	556	16	5	810	5	*	15	306	*	1,739
Wyoming	57	2	*	64	#	*	3	43	0	175
<b>Total</b>	<b>30,190</b>	<b>245</b>	<b>711</b>	<b>41,468</b>	<b>2,881</b>	<b>938</b>	<b>488</b>	<b>25,117</b>	<b>5</b>	<b>102,043</b>

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

Figures may not sum to totals due to rounding.

Source: FCC Form 477, Part I.

**Table 15**  
**Percentage of High-Speed Connections by Download Speed by State as of December 31, 2008**  
(Connections over 200 kbps in at least one direction)

State	Over 200 kbps Upstream and				
	% Over 200 kbps Downstream	% at least 768 kbps Downstream	% at least 3 mbps Downstream	% at least 6 mbps Downstream	% at least 10 mbps Downstream
Alabama	82.3	76.1	44.3	17.9	4.3
Alaska	76.0	58.9	*	*	*
American Samoa	*	*	*	*	*
Arizona	85.3	76.3	43.2	37.6	13.5
Arkansas	82.7	76.6	*	*	*
California	86.2	78.3	40.5	19.7	3.9
Colorado	87.8	77.5	44.5	39.0	1.5
Connecticut	87.9	80.8	46.5	37.5	*
Delaware	82.5	75.6	*	*	*
District of Columbia	62.6	55.7	39.6	22.6	5.0
Florida	86.0	82.2	51.8	40.3	8.6
Georgia	81.8	76.7	43.8	23.7	1.8
Guam	*	*	*	*	*
Hawaii	92.5	88.3	60.5	*	*
Idaho	81.6	72.4	35.1	*	*
Illinois	87.9	79.6	43.0	31.9	7.5
Indiana	84.3	76.2	45.8	32.6	13.9
Iowa	87.0	74.6	46.5	*	*
Kansas	83.3	77.0	42.8	33.7	3.8
Kentucky	88.5	76.7	49.3	31.2	26.2
Louisiana	85.3	81.7	39.0	*	*
Maine	86.0	82.9	69.4	57.6	4.0
Maryland	78.3	72.1	59.0	40.2	11.7
Massachusetts	81.5	76.4	65.2	46.9	11.0
Michigan	85.6	78.8	48.3	32.6	*
Minnesota	85.9	77.3	45.1	31.1	3.9
Mississippi	85.4	76.2	*	*	*
Missouri	85.4	77.4	36.6	16.8	5.2
Montana	72.9	57.9	31.7	*	*
Nebraska	81.5	71.1	45.2	*	*



**Table 15 - Continued**  
**Percentage of High-Speed Connections by Download Speed by State as of December 31, 2008**  
 (Connections over 200 kbps in at least one direction)

State	Over 200 kbps Upstream and				
	% Over 200 kbps Downstream	% at least 768 kbps Downstream	% at least 3 mbps Downstream	% at least 6 mbps Downstream	% at least 10 mbps Downstream
Nevada	88.8	83.0	44.3	30.4	6.6
New Hampshire	81.1	75.7	66.8	54.6	3.7
New Jersey	80.9	75.6	64.0	53.4	35.1
New Mexico	81.1	70.3	*	*	*
New York	83.1	79.1	65.5	56.4	55.6
North Carolina	81.0	76.6	53.1	38.0	4.1
North Dakota	85.0	75.3	*	*	*
Northern Mariana Isl	*	*	*	*	*
Ohio	80.7	74.0	48.8	37.2	4.5
Oklahoma	90.2	84.8	40.2	28.0	3.0
Oregon	87.3	79.4	51.1	39.2	5.3
Pennsylvania	79.9	73.5	57.1	37.5	8.9
Puerto Rico	94.5	69.6	*	*	*
Rhode Island	85.5	80.9	*	*	*
South Carolina	80.2	75.9	54.9	33.1	3.5
South Dakota	81.0	72.6	*	*	*
Tennessee	81.2	73.5	46.6	29.0	2.9
Texas	86.3	78.1	37.6	24.3	5.2
Utah	88.6	78.5	39.5	33.2	2.9
Vermont	74.0	68.9	*	*	*
Virgin Islands	55.9	13.6	0.1	0.1	0.0
Virginia	78.8	69.5	52.6	38.0	21.5
Washington	85.7	78.5	48.0	40.6	4.8
West Virginia	83.5	75.8	*	*	*
Wisconsin	87.8	81.2	50.3	27.8	6.4
Wyoming	82.9	68.2	*	*	*
Total	84.1	77.2	48.6	33.8	11.4

\* = Data withheld to maintain firm confidentiality.  
 Source: FCC Form 477, Part I.

**Table 16**  
**ADSL High-Speed Connections by State 2005-2008**  
(Connections over 200 kbps in at least one direction, in thousands)

State	2005		2006		2007		2008		
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	
Alabama	177	221	269	315	357	403	431		<b>457</b>
Alaska	39	43	54	60	64	68	72		<b>75</b>
American Samoa	*	*	*	*	*	*	*		<b>*</b>
Arizona	153	208	276	365	406	437	454		<b>466</b>
Arkansas	127	150	181	200	227	249	267		<b>273</b>
California	3,079	3,592	4,002	4,343	4,626	4,780	4,755		<b>4,617</b>
Colorado	268	333	405	473	530	573	575		<b>624</b>
Connecticut	*	*	*	*	*	*	*		<b>*</b>
Delaware	*	*	*	*	*	*	*		<b>*</b>
District of Columbia	*	*	*	*	*	*	*		<b>*</b>
Florida	1,285	1,509	1,723	1,873	1,960	2,046	2,045		<b>2,005</b>
Georgia	758	890	1,009	1,126	1,219	1,307	1,361		<b>1,242</b>
Guam	*	*	*	*	*	*	*		<b>*</b>
Hawaii	*	*	*	*	*	*	*		<b>*</b>
Idaho	63	82	98	113	129	142	154		<b>160</b>
Illinois	848	980	1,094	1,212	1,300	1,382	1,419		<b>1,503</b>
Indiana	305	379	443	515	584	636	651		<b>672</b>
Iowa	119	151	189	233	271	298	322		<b>336</b>
Kansas	136	160	179	203	225	236	241		<b>243</b>
Kentucky	180	213	251	303	340	367	385		<b>421</b>
Louisiana	191	207	236	271	306	333	354		<b>385</b>
Maine	52	73	90	105	115	118	120		<b>114</b>
Maryland	306	379	450	490	512	514	495		<b>471</b>
Massachusetts	*	*	*	*	*	*	*		<b>*</b>
Michigan	375	463	534	607	690	733	749		<b>779</b>
Minnesota	228	276	331	395	449	496	529		<b>544</b>
Mississippi	88	106	129	154	180	202	220		<b>229</b>
Missouri	342	399	468	546	618	683	712		<b>727</b>
Montana	47	57	70	83	96	102	108		<b>108</b>
Nebraska	66	81	95	112	124	135	143		<b>151</b>

**Table 16 - Continued**  
**ADSL High-Speed Connections by State 2005-2008**  
(Connections over 200 kbps in at least one direction, in thousands)

State	2005		2006		2007		2008		
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	
Nevada	116	140	168	190	207	220	225	<b>222</b>	
New Hampshire	54	72	85	94	98	100	97	<b>91</b>	
New Jersey	444	540	638	704	735	735	700	<b>666</b>	
New Mexico	82	105	131	157	180	200	217	<b>231</b>	
New York	737	861	1,003	1,104	1,182	1,184	1,169	<b>1,122</b>	
North Carolina	413	489	561	648	725	820	870	<b>891</b>	
North Dakota	27	32	39	46	51	56	60	<b>62</b>	
Northern Mariana Isl	0	*	*	*	*	*	*	<b>*</b>	
Ohio	556	663	753	859	951	1,024	1,034	<b>1,069</b>	
Oklahoma	189	222	247	277	302	324	334	<b>337</b>	
Oregon	198	245	280	312	339	356	361	<b>371</b>	
Pennsylvania	541	692	871	1,013	1,126	1,191	1,209	<b>1,232</b>	
Puerto Rico	*	*	*	*	*	*	*	<b>*</b>	
Rhode Island	*	*	*	*	*	*	*	<b>*</b>	
South Carolina	155	206	243	285	323	359	386	<b>400</b>	
South Dakota	21	26	33	40	46	48	53	<b>54</b>	
Tennessee	237	294	348	397	447	499	535	<b>542</b>	
Texas	1,301	1,514	1,733	1,997	2,294	2,464	2,475	<b>2,607</b>	
Utah	130	160	189	222	250	270	284	<b>299</b>	
Vermont	35	44	51	61	68	72	73	<b>61</b>	
Virgin Islands	*	*	*	*	*	*	*	<b>*</b>	
Virginia	309	384	446	505	548	568	561	<b>553</b>	
Washington	364	427	491	534	569	592	600	<b>599</b>	
West Virginia	53	69	87	105	124	138	147	<b>152</b>	
Wisconsin	243	298	360	418	484	528	556	<b>556</b>	
Wyoming	24	33	39	44	50	53	55	<b>57</b>	
<b>Total</b>	<b>16,316</b>	<b>19,515</b>	<b>22,584</b>	<b>25,413</b>	<b>27,793</b>	<b>29,449</b>	<b>29,964</b>	<b>30,190</b>	

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

Figures may not sum to totals due to rounding.

Source: FCC Form 477, Part I.

**Table 17**  
**Cable Modem High-Speed Connections by State 2005-2008**  
(Connections over 200 kbps in at least one direction, in thousands)

State	2005		2006		2007		2008	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec
Alabama	257	285	311	342	374	399	417	<b>460</b>
Alaska	*	*	*	*	*	*	*	*
American Samoa	0	0	0	0	0	0	0	<b>0</b>
Arizona	584	679	761	838	850	897	992	<b>987</b>
Arkansas	118	137	149	184	205	214	236	<b>248</b>
California	2,467	2,735	2,957	3,156	3,411	3,603	3,799	<b>3,994</b>
Colorado	383	433	476	523	561	604	626	<b>659</b>
Connecticut	372	404	441	454	513	550	576	<b>615</b>
Delaware	*	*	*	*	*	*	*	*
District of Columbia	*	*	*	*	*	*	*	*
Florida	1,560	1,758	1,939	2,178	2,344	2,543	2,631	<b>2,825</b>
Georgia	523	584	650	743	802	862	904	<b>973</b>
Guam	0	0	0	0	0	*	*	*
Hawaii	*	*	*	*	*	*	*	*
Idaho	78	74	75	109	116	123	127	<b>121</b>
Illinois	842	956	1,042	1,332	1,466	1,570	1,625	<b>1,591</b>
Indiana	397	445	490	370	410	439	456	<b>626</b>
Iowa	187	220	225	234	268	287	309	<b>330</b>
Kansas	259	273	317	321	351	369	380	<b>425</b>
Kentucky	217	269	306	333	384	435	482	<b>452</b>
Louisiana	329	255	379	420	446	485	481	<b>518</b>
Maine	116	132	146	152	169	179	197	<b>288</b>
Maryland	547	592	637	781	829	865	871	<b>799</b>
Massachusetts	826	886	955	1,044	1,088	1,136	1,159	<b>1,307</b>
Michigan	892	954	1,019	1,103	1,197	1,265	1,307	<b>1,411</b>
Minnesota	441	494	517	541	571	608	622	<b>666</b>
Mississippi	96	104	114	136	152	166	188	<b>216</b>
Missouri	323	353	401	444	473	498	517	<b>553</b>
Montana	36	45	54	65	74	83	90	<b>92</b>
Nebraska	177	201	218	239	238	252	262	<b>278</b>

**Table 17 - Continued**  
**Cable Modem High-Speed Connections by State 2005-2008**  
(Connections over 200 kbps in at least one direction, in thousands)

State	2005		2006		2007		2008	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec
Nevada	*	*	*	*	*	*	*	*
New Hampshire	176	188	202	210	230	240	250	<b>298</b>
New Jersey	1,108	1,205	1,312	1,386	1,474	1,538	1,586	<b>1,637</b>
New Mexico	78	89	100	109	117	127	137	<b>146</b>
New York	2,216	2,445	2,765	2,967	3,164	3,342	3,548	<b>4,139</b>
North Carolina	762	862	964	1,041	1,134	1,196	1,266	<b>1,551</b>
North Dakota	51	55	58	71	76	80	83	<b>85</b>
Northern Mariana Isl	0	0	0	0	0	*	*	*
Ohio	961	1,065	1,185	1,303	1,406	1,498	1,627	<b>1,943</b>
Oklahoma	234	262	284	313	348	373	382	<b>408</b>
Oregon	336	375	407	453	490	531	554	<b>516</b>
Pennsylvania	962	1,075	1,164	1,256	1,271	1,399	1,492	<b>1,807</b>
Puerto Rico	*	*	*	*	*	*	*	*
Rhode Island	*	*	*	*	*	*	*	*
South Carolina	290	326	368	418	459	496	517	<b>752</b>
South Dakota	84	89	93	100	101	111	115	<b>122</b>
Tennessee	422	460	506	602	663	703	715	<b>717</b>
Texas	1,468	1,618	1,692	1,944	2,082	2,183	2,214	<b>2,081</b>
Utah	*	*	*	*	*	*	212	*
Vermont	*	*	*	*	*	*	*	<b>71</b>
Virgin Islands	0	0	0	0	0	0	0	<b>0</b>
Virginia	749	817	893	877	906	921	941	<b>1,096</b>
Washington	585	660	726	806	862	909	944	<b>980</b>
West Virginia	118	128	145	145	156	159	167	<b>205</b>
Wisconsin	447	497	543	592	637	676	711	<b>810</b>
Wyoming	*	*	*	*	*	*	*	<b>64</b>
<b>Total</b>	<b>24,017</b>	<b>26,558</b>	<b>29,173</b>	<b>31,982</b>	<b>34,404</b>	<b>36,507</b>	<b>38,190</b>	<b>41,468</b>

# = Rounds to Zero.  
\* = Data withheld to maintain firm confidentiality.  
Figures may not sum to totals due to rounding.  
Source: FCC Form 477, Part I.

**Table 18**  
**High-Speed Connections by Type of End User by State as of December 31, 2008**  
 (Connections over 200 kbps in at least one direction, in thousands)

State	Connections		Percentages		Total
	Residential	Business	Residential	Business	
Alabama	1,044	191	84.5	15.5	1,235
Alaska	191	33	85.4	14.6	224
American Samoa	*	*	*	*	*
Arizona	1,737	296	85.5	14.5	2,033
Arkansas	603	120	83.4	16.6	723
California	10,538	2,111	83.3	16.7	12,649
Colorado	1,514	302	83.4	16.6	1,816
Connecticut	1,176	226	83.9	16.1	1,402
Delaware	273	57	82.7	17.3	330
District of Columbia	231	144	61.6	38.4	375
Florida	5,684	1,045	84.5	15.5	6,729
Georgia	2,541	525	82.9	17.1	3,065
Guam	22	3	89.0	11.0	25
Hawaii	421	77	84.6	15.4	498
Idaho	381	67	85.1	14.9	448
Illinois	3,601	664	84.4	15.6	4,265
Indiana	1,534	262	85.4	14.6	1,796
Iowa	730	108	87.2	12.8	837
Kansas	790	134	85.5	14.5	924
Kentucky	996	158	86.3	13.7	1,154
Louisiana	1,114	232	82.8	17.2	1,346
Maine	415	39	91.5	8.5	454
Maryland	1,851	343	84.4	15.6	2,193
Massachusetts	2,240	360	86.1	13.9	2,600
Michigan	2,455	427	85.2	14.8	2,881
Minnesota	1,407	255	84.6	15.4	1,662
Mississippi	518	96	84.4	15.6	614
Missouri	1,443	268	84.3	15.7	1,711
Montana	279	42	87.0	13.0	320
Nebraska	522	85	86.0	14.0	607
Nevada	780	138	84.9	15.1	918
New Hampshire	447	52	89.5	10.5	499
New Jersey	2,946	572	83.7	16.3	3,517
New Mexico	468	77	85.8	14.2	546
New York	6,382	1,023	86.2	13.8	7,405
North Carolina	2,733	470	85.3	14.7	3,203
North Dakota	175	31	84.8	15.2	206
Northern Mariana Isl	*	*	*	*	*
Ohio	3,336	574	85.3	14.7	3,910
Oklahoma	860	163	84.1	15.9	1,022
Oregon	1,060	191	84.7	15.3	1,252
Pennsylvania	3,578	646	84.7	15.3	4,225
Puerto Rico	404	61	86.9	13.1	464
Rhode Island	320	58	84.6	15.4	378
South Carolina	1,300	201	86.6	13.4	1,501
South Dakota	214	32	87.0	13.0	246
Tennessee	1,472	313	82.5	17.5	1,784
Texas	6,159	1,325	82.3	17.7	7,484
Utah	626	136	82.2	17.8	762
Vermont	151	17	89.8	10.2	168
Virgin Islands	19	2	91.1	8.9	21
Virginia	2,399	488	83.1	16.9	2,887
Washington	1,933	424	82.0	18.0	2,357
West Virginia	396	56	87.7	12.3	452
Wisconsin	1,517	222	87.2	12.8	1,739
Wyoming	150	25	85.7	14.3	175
<b>Total</b>	<b>86,078</b>	<b>15,965</b>	<b>84.4</b>	<b>15.6</b>	<b>102,043</b>

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

Figures may not sum to totals due to rounding.

Source: FCC Form 477, Part I and VI.

**Table 19**  
**Percentage of Residential End-User Premises with Access to High-Speed Services by State**  
**(Connections over 200 kbps in at least one direction)**

<i>State</i>	<i>xDSL Availability Where ILECs Offer Local Telephone Service</i>	<i>Cable Modem Availability Where Cable Systems Offer Cable TV Service</i>
Alabama	80	92
Alaska	79	*
American Samoa	*	0
Arizona	86	93
Arkansas	78	72
California	89	98
Colorado	89	96
Connecticut	*	100
Delaware	*	*
District of Columbia	*	*
Florida	92	97
Georgia	96	90
Guam	*	*
Hawaii	*	*
Idaho	80	99
Illinois	86	97
Indiana	81	94
Iowa	87	91
Kansas	84	95
Kentucky	86	93
Louisiana	84	97
Maine	73	96
Maryland	76	95
Massachusetts	*	100
Michigan	74	91
Minnesota	88	97
Mississippi	76	91
Missouri	81	95
Montana	80	80
Nebraska	87	94
Nevada	90	*
New Hampshire	63	98
New Jersey	88	100
New Mexico	87	80
New York	79	99
North Carolina	89	96
North Dakota	87	92
Northern Mariana Isl	*	*
Ohio	85	98
Oklahoma	80	89
Oregon	83	96
Pennsylvania	85	98
Puerto Rico	*	*
Rhode Island	*	*
South Carolina	85	93
South Dakota	83	87
Tennessee	84	98
Texas	81	96
Utah	90	*
Vermont	72	91
Virgin Islands	*	0
Virginia	69	96
Washington	84	95
West Virginia	66	88
Wisconsin	83	96
Wyoming	78	85
Total	84	96

\* = Data withheld to maintain firm confidentiality.

Note: This table summarizes responses to Form 477 questions about service availability, as opposed to subscribership. xDSL includes both asymmetric and symmetric DSL. Each state-specific estimate is a weighted average of the availability percentages that ILECs or cable system operators report for the areas they serve. Reported xDSL availability is weighted by ILEC end-user switched access lines and VoIP lines. Reported cable modem availability is weighted by cable TV subscribers. The weighted averages include ILECs or cable system operators that report no availability. Figures are presented to the nearest percent.

Source: FCC Form 477, Parts I and II; Warren Communications News, Inc., Television & Cable Factbook: Online (Cable General Information, June 2007).

**Table 20**  
**Providers of High-Speed Connections by Technology by State as of December 31, 2008**  
(Connections over 200 kbps in at least one direction)

<i>State</i>	<i>ADSL</i>	<i>SDSL</i>	<i>Other Wireline</i>	<i>Cable Modem</i>	<i>Fiber</i>	<i>Satellite</i>	<i>Fixed Wireless</i>	<i>Mobile Wireless</i>	<i>Power Line and Other</i>	<i>Total</i>
Alabama	28	11	23	21	16	*	12	7	*	78
Alaska	12	5	6	*	5	*	7	5	0	21
American Samoa	*	*	0	0	0	0	*	0	0	*
Arizona	22	7	21	10	18	*	15	7	0	66
Arkansas	21	9	13	15	8	*	8	6	0	57
California	29	19	37	17	19	*	27	9	0	95
Colorado	34	13	28	15	19	*	29	9	0	88
Connecticut	8	8	21	6	10	*	*	4	0	36
Delaware	8	8	21	*	5	*	0	4	0	32
District of Columbia	12	10	23	*	9	*	*	4	0	35
Florida	27	17	47	19	31	*	13	6	0	93
Georgia	40	15	30	33	36	*	10	6	0	103
Guam	*	*	*	*	0	0	0	*	0	6
Hawaii	*	*	7	*	7	*	*	6	0	18
Idaho	25	11	19	9	15	*	17	8	0	62
Illinois	59	27	38	20	16	*	46	9	0	132
Indiana	40	16	30	14	25	*	39	6	*	105
Iowa	125	41	29	38	42	*	65	6	0	197
Kansas	42	14	23	30	32	*	28	10	0	96
Kentucky	28	10	23	23	17	*	16	8	0	87
Louisiana	20	9	20	14	14	*	7	5	0	57
Maine	13	10	15	6	8	*	*	4	0	34
Maryland	17	12	26	11	9	*	4	5	0	52
Massachusetts	14	10	26	7	11	*	6	4	0	47
Michigan	42	19	34	12	17	*	25	8	*	94
Minnesota	65	24	26	18	38	*	23	6	0	108
Mississippi	21	6	19	15	7	*	6	7	0	59
Missouri	40	16	25	20	18	*	32	6	*	99
Montana	21	9	13	4	8	*	13	*	0	44
Nebraska	36	10	15	17	15	*	25	5	0	73



**Table 20 - Continued**  
**Providers of High-Speed Connections by Technology by State as of December 31, 2008**  
(Connections over 200 kbps in at least one direction)

<i>State</i>	<i>ADSL</i>	<i>SDSL</i>	<i>Other Wireline</i>	<i>Cable Modem</i>	<i>Fiber</i>	<i>Satellite</i>	<i>Fixed Wireless</i>	<i>Mobile Wireless</i>	<i>Power Line and Other</i>	<i>Total</i>
Nevada	20	10	20	5	10	*	9	7	0	50
New Hampshire	14	7	17	5	10	*	4	4	0	39
New Jersey	17	13	41	6	13	*	*	4	0	55
New Mexico	23	8	15	8	8	*	14	9	0	51
New York	42	18	43	20	21	4	12	6	0	97
North Carolina	29	13	32	16	17	*	7	8	0	77
North Dakota	25	12	12	7	11	*	12	4	0	42
Northern Mariana Isl	*	0	*	*	*	0	*	*	0	*
Ohio	41	22	33	24	25	*	22	8	*	104
Oklahoma	41	8	23	13	14	*	15	12	0	84
Oregon	43	13	26	15	22	*	13	6	0	78
Pennsylvania	37	19	39	24	21	4	11	6	0	87
Puerto Rico	*	*	7	*	4	*	*	6	0	15
Rhode Island	7	6	14	*	5	*	*	4	0	24
South Carolina	22	5	23	16	11	*	*	6	0	52
South Dakota	27	10	15	8	14	*	16	*	0	53
Tennessee	29	13	29	16	15	*	12	8	0	84
Texas	68	25	52	28	36	*	52	13	0	161
Utah	15	10	18	*	12	*	11	8	0	50
Vermont	11	4	13	4	4	*	*	*	0	31
Virgin Islands	*	*	*	0	0	*	*	*	0	8
Virginia	28	17	35	16	20	*	14	7	*	79
Washington	28	12	29	18	23	*	24	7	*	81
West Virginia	10	*	14	10	7	*	5	6	0	37
Wisconsin	46	14	22	14	16	*	22	9	*	89
Wyoming	13	7	9	4	4	*	7	8	0	37
<b>Total</b>	<b>879</b>	<b>262</b>	<b>290</b>	<b>341</b>	<b>430</b>	<b>5</b>	<b>617</b>	<b>46</b>	<b>5</b>	<b>1,554</b>

\* Indicates one to three providers.  
Source: FCC Form 477, Part I.

**Table 21**  
**Residential Fixed High-Speed Connections and Households by State as of December 31, 2008**  
(Connections over 200 kbps in at least one direction and Households, in thousands)

<i>State</i>	<i>Connections</i>	<i>Households</i>	<i>Subscribership Ratio</i>
Alabama	861	1,821	0.47
Alaska	155	248	0.62
American Samoa	*	9	*
Arizona	1,403	2,436	0.58
Arkansas	487	1,119	0.44
California	8,311	12,646	0.66
Colorado	1,230	1,886	0.65
Connecticut	973	1,362	0.71
Delaware	236	337	0.70
District of Columbia	170	263	0.65
Florida	4,697	7,436	0.63
Georgia	2,062	3,628	0.57
Guam	*	39	*
Hawaii	*	450	*
Idaho	283	562	0.50
Illinois	2,943	4,775	0.62
Indiana	1,299	2,457	0.53
Iowa	654	1,180	0.55
Kansas	648	1,077	0.60
Kentucky	829	1,687	0.49
Louisiana	851	1,609	0.53
Maine	392	540	0.73
Maryland	1,461	2,140	0.68
Massachusetts	1,892	2,493	0.76
Michigan	2,081	3,869	0.54
Minnesota	1,188	2,011	0.59
Mississippi	418	1,076	0.39
Missouri	1,220	2,323	0.53
Montana	192	385	0.50
Nebraska	411	698	0.59
Nevada	603	1,015	0.59
New Hampshire	389	514	0.76
New Jersey	2,408	3,202	0.75
New Mexico	365	748	0.49
New York	5,260	7,297	0.72
North Carolina	2,277	3,617	0.63
North Dakota	146	255	0.57
Northern Mariana Isl	*	14	*
Ohio	2,844	4,495	0.63
Oklahoma	701	1,423	0.49
Oregon	890	1,489	0.60
Pennsylvania	3,113	4,831	0.64
Puerto Rico	301	1,262	0.24
Rhode Island	274	418	0.66
South Carolina	1,084	1,721	0.63
South Dakota	176	310	0.57
Tennessee	1,197	2,455	0.49
Texas	4,655	8,730	0.53
Utah	518	858	0.60
Vermont	135	247	0.55
Virgin Islands	14	41	0.34
Virginia	1,824	3,003	0.61
Washington	1,533	2,533	0.61
West Virginia	343	737	0.47
Wisconsin	1,310	2,200	0.60
Wyoming	112	206	0.54
<b>Total</b>	<b>70,148</b>	<b>116,181</b>	<b>0.60</b>

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

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

Sources: FCC Form 477, Part VI (Connections); Geolytics 2009 Block-Level Estimates (Households for U.S. and District of Columbia); Census 2000 (Households for Puerto Rico, American Samoa, Guam, Northern Mariana Islands and U.S. Virgin Islands).

Table 22

**Distribution of Counties by Ratio of Residential Fixed High-Speed Connections to County Households by State as of December 31, 2008**  
(Connections over 200 kbps in at least one direction)

State	Counties	Ratio of Residential Fixed High-Speed Connections 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 75%	Greater than 75 and no more than 100%	100% or more
Alabama	67	0	0	1	4	23	17	10	7	5	0	0
Alaska	27	0	0	2	7	3	3	2	4	6	0	0
American Samoa	5	3	0	1	1	0	0	0	0	0	0	0
Arizona	15	0	0	0	1	2	2	4	3	3	0	0
Arkansas	75	0	0	0	4	25	28	12	6	0	0	0
California	58	0	1	0	0	1	12	9	12	16	7	0
Colorado	64	0	0	0	0	8	11	12	15	9	7	2
Connecticut	8	0	0	0	0	0	0	0	0	3	5	0
Delaware	3	0	0	0	0	0	0	0	0	3	0	0
District of Columbia	1	0	0	0	0	0	0	0	0	1	0	0
Florida	67	0	0	0	0	9	10	7	10	28	3	0
Georgia	159	0	0	1	8	16	44	35	29	23	3	0
Guam	1	0	0	0	0	0	0	1	0	0	0	0
Hawaii	5	0	1	0	0	0	0	0	1	1	2	0
Idaho	44	0	0	2	2	5	10	11	11	2	1	0
Illinois	102	0	1	1	0	11	22	24	23	14	6	0
Indiana	92	0	0	0	0	7	30	35	10	9	1	0
Iowa	99	0	0	0	0	2	11	47	31	7	1	0
Kansas	105	0	0	0	0	4	17	42	28	12	2	0
Kentucky	120	0	0	0	6	21	43	27	11	12	0	0
Louisiana	64	0	0	0	2	12	16	10	17	5	1	1
Maine	16	0	0	0	0	1	0	2	4	6	3	0
Maryland	24	0	0	0	1	0	2	3	3	10	5	0
Massachusetts	14	0	0	0	0	0	0	0	0	7	4	3
Michigan	83	0	0	1	7	12	17	25	13	8	0	0
Minnesota	87	0	0	0	0	2	13	34	25	12	1	0
Mississippi	82	0	0	0	21	34	13	6	4	4	0	0
Missouri	115	0	0	2	9	25	37	22	13	4	3	0
Montana	56	0	0	0	1	7	15	18	13	2	0	0
Nebraska	93	0	0	0	1	4	25	36	21	5	1	0

**Table 22 - Continued**

**Distribution of Counties by Ratio of Residential Fixed High-Speed Connections to County Households by State as of December 31, 2008**  
(Connections over 200 kbps in at least one direction)

State	Counties	Ratio of Residential Fixed High-Speed Connections 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 75%	Greater than 75 and no more than 100%	100% or more
Nevada	17	0	0	0	0	4	6	1	3	3	0	0
New Hampshire	10	0	0	0	0	0	0	0	2	4	4	0
New Jersey	21	0	0	0	0	0	0	2	1	6	11	1
New Mexico	33	0	0	0	1	9	8	7	7	1	0	0
New York	62	0	0	0	0	0	1	4	8	22	20	7
North Carolina	100	0	0	0	0	9	23	19	26	15	8	0
North Dakota	53	0	1	0	5	4	8	14	10	10	1	0
Northern Mariana Isl	4	2	1	0	0	0	0	0	0	0	0	1
Ohio	88	0	0	0	0	5	7	22	24	26	4	0
Oklahoma	77	0	0	0	3	22	16	22	9	5	0	0
Oregon	36	0	0	0	0	3	7	11	9	5	1	0
Pennsylvania	67	0	0	0	0	0	6	14	20	19	7	1
Puerto Rico	78	0	1	12	34	16	11	2	2	0	0	0
Rhode Island	5	0	0	0	0	0	0	0	1	1	3	0
South Carolina	46	0	0	0	2	7	9	11	7	2	6	2
South Dakota	66	0	0	1	1	6	18	22	12	4	2	0
Tennessee	95	0	0	1	5	24	33	15	12	4	1	0
Texas	254	0	1	1	11	55	76	59	35	9	7	0
Utah	29	0	0	0	0	1	2	12	4	9	1	0
Vermont	14	0	0	0	0	1	4	4	2	3	0	0
Virgin Islands	3	0	0	0	0	1	2	0	0	0	0	0
Virginia	134	0	0	4	16	24	22	26	16	14	12	0
Washington	39	0	0	0	1	3	7	8	12	7	1	0
West Virginia	55	0	0	1	2	6	15	18	10	3	0	0
Wisconsin	72	0	0	0	1	1	15	21	19	12	3	0
Wyoming	23	0	0	0	0	1	4	5	9	4	0	0
Total	3,232	5	7	31	157	436	698	753	574	405	148	18

Note: Figures may not sum to totals due to rounding. See Technical Notes at the end of the report.  
Source: FCC Form 477, Part VI.

**Table 23**

**Distribution of Census Tracts by Ratio of Residential Fixed High-Speed Connections to Tract Households by State as of December 31, 2008**  
 (Connections over 200 kbps in at least one direction)

State	Tracts	Ratio of Residential Fixed High-Speed Connections 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 75%	Greater than 75 and no more than 100%	100% or more
Alabama	1,081	3	14	30	134	191	205	136	111	104	93	60
Alaska	158	1	1	10	13	4	14	16	18	41	32	8
American Samoa	21	18	0	0	0	0	0	1	0	1	0	1
Arizona	1,107	16	23	31	72	125	114	147	143	181	146	109
Arkansas	624	2	11	29	79	139	116	79	49	53	49	18
California	7,049	40	26	59	269	447	733	786	850	1,358	1,597	884
Colorado	1,075	12	1	3	22	84	138	146	160	186	181	142
Connecticut	815	3	1	1	9	29	36	63	92	184	333	64
Delaware	197	1	0	2	6	20	20	22	24	22	38	42
District of Columbia	188	6	1	1	2	10	17	18	24	40	47	22
Florida	3,153	10	4	8	87	235	387	447	428	582	560	405
Georgia	1,618	6	7	16	100	210	265	254	231	214	179	136
Guam	56	11	1	2	5	8	7	8	3	5	0	6
Hawaii	286	8	2	0	4	6	7	26	52	85	67	29
Idaho	280	2	1	8	15	39	61	54	27	35	20	18
Illinois	2,964	20	16	18	73	253	378	453	447	577	509	220
Indiana	1,412	3	5	10	55	171	277	302	231	173	128	57
Iowa	793	2	1	3	11	41	130	204	184	130	65	22
Kansas	727	7	2	2	10	54	119	146	113	127	85	62
Kentucky	994	2	8	15	78	123	194	191	138	132	73	40
Louisiana	1,106	5	8	10	68	174	150	162	142	182	150	55
Maine	344	0	2	2	12	21	16	27	50	71	98	45
Maryland	1,216	8	14	8	66	92	92	118	133	197	275	213
Massachusetts	1,361	5	0	0	52	102	89	94	92	216	433	278
Michigan	2,716	14	17	34	205	297	347	362	414	467	425	134
Minnesota	1,300	6	4	3	14	85	170	238	238	261	201	80
Mississippi	605	0	5	22	132	125	108	66	41	47	40	19
Missouri	1,320	9	14	23	109	175	224	197	153	178	171	67
Montana	270	6	9	1	15	34	48	56	47	26	22	6
Nebraska	503	4	0	2	10	38	91	97	84	88	52	37

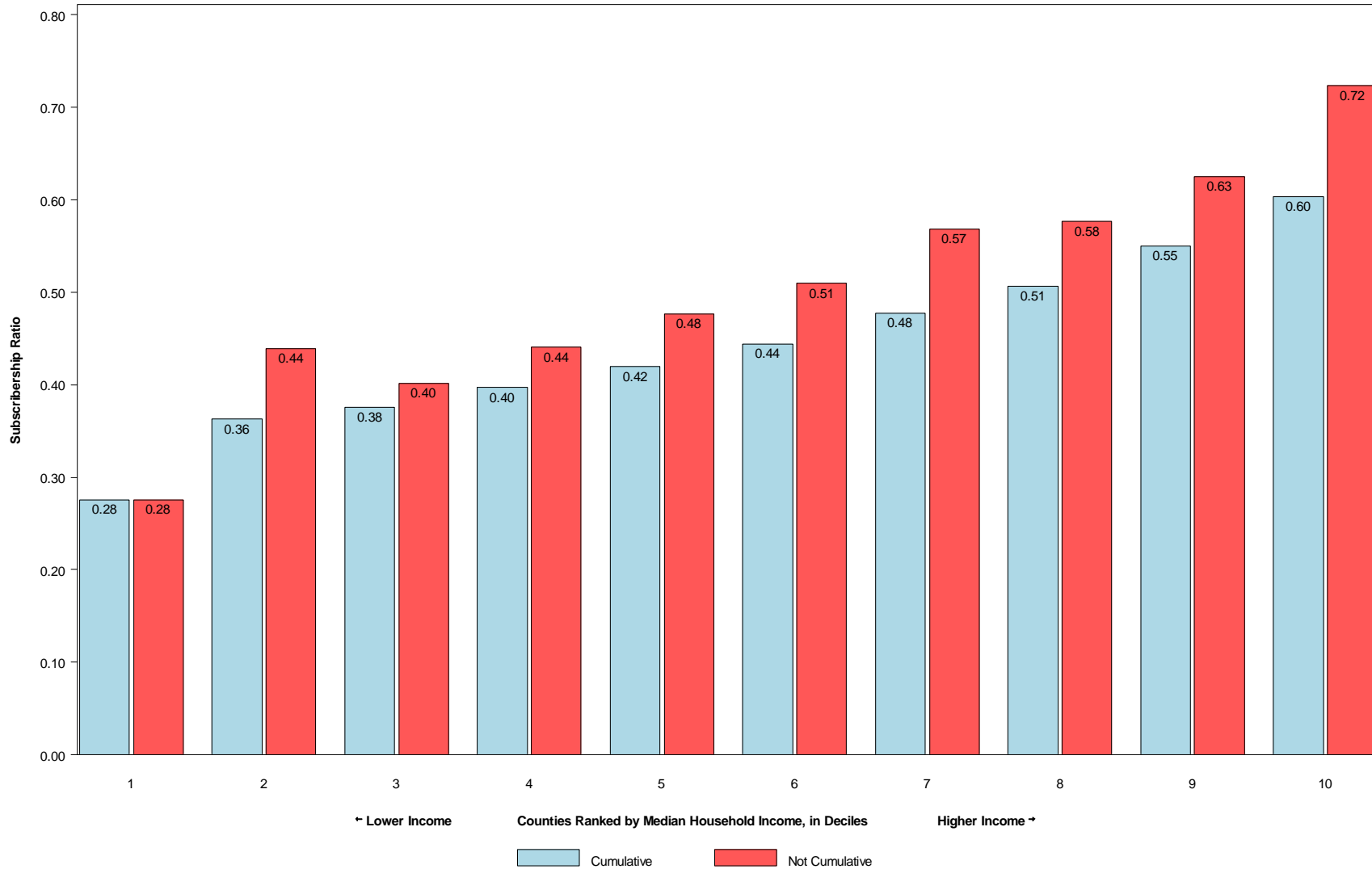
**Table 23 - Continued**

**Distribution of Census Tracts by Ratio of Residential Fixed High-Speed Connections to Tract Households by State as of December 31, 2008  
(Connections over 200 kbps in at least one direction)**

State	Tracts	Ratio of Residential Fixed High-Speed Connections 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 75%	Greater than 75 and no more than 100%	100% or more
Nevada	487	9	6	8	34	50	75	60	59	70	66	50
New Hampshire	272	0	0	0	2	5	6	20	35	70	92	42
New Jersey	1,944	16	27	10	55	114	149	156	146	292	553	426
New Mexico	456	22	12	17	36	57	82	57	50	58	44	21
New York	4,898	112	130	13	66	187	516	654	524	722	1,022	952
North Carolina	1,555	2	1	5	53	149	224	266	203	241	221	190
North Dakota	227	6	5	5	13	23	32	39	33	41	22	8
Northern Mariana Isl	21	4	15	1	0	0	0	0	0	0	0	1
Ohio	2,934	14	1	8	84	214	332	377	490	643	557	214
Oklahoma	990	5	18	17	92	115	190	143	126	122	110	52
Oregon	755	1	1	1	12	46	83	135	140	164	128	44
Pennsylvania	3,134	20	19	18	195	281	317	335	391	480	666	412
Puerto Rico	823	171	74	122	212	85	47	31	23	13	21	24
Rhode Island	233	0	0	0	7	23	21	24	21	41	67	29
South Carolina	867	6	4	15	63	123	125	101	99	93	108	130
South Dakota	235	17	5	4	13	23	34	48	27	28	24	12
Tennessee	1,261	9	11	25	117	226	231	191	141	125	113	72
Texas	4,388	23	63	114	466	697	691	573	424	491	468	378
Utah	496	7	5	5	11	27	50	75	98	95	74	49
Vermont	179	1	2	0	13	16	23	22	41	34	21	6
Virgin Islands	32	27	0	0	0	0	0	0	0	1	0	4
Virginia	1,530	6	19	38	105	145	172	176	182	215	304	168
Washington	1,318	3	3	5	37	81	131	188	233	294	251	92
West Virginia	466	0	9	10	47	60	81	77	66	69	41	6
Wisconsin	1,320	7	4	5	30	106	176	209	234	285	179	85
Wyoming	127	1	0	1	4	7	17	21	29	33	13	1
Total	66,287	719	632	800	3,494	6,192	8,358	8,894	8,534	10,683	11,234	6,747

Note: Figures may not sum to totals due to rounding. See Technical Notes at the end of the report.  
Source: FCC Form 477, Part VI.

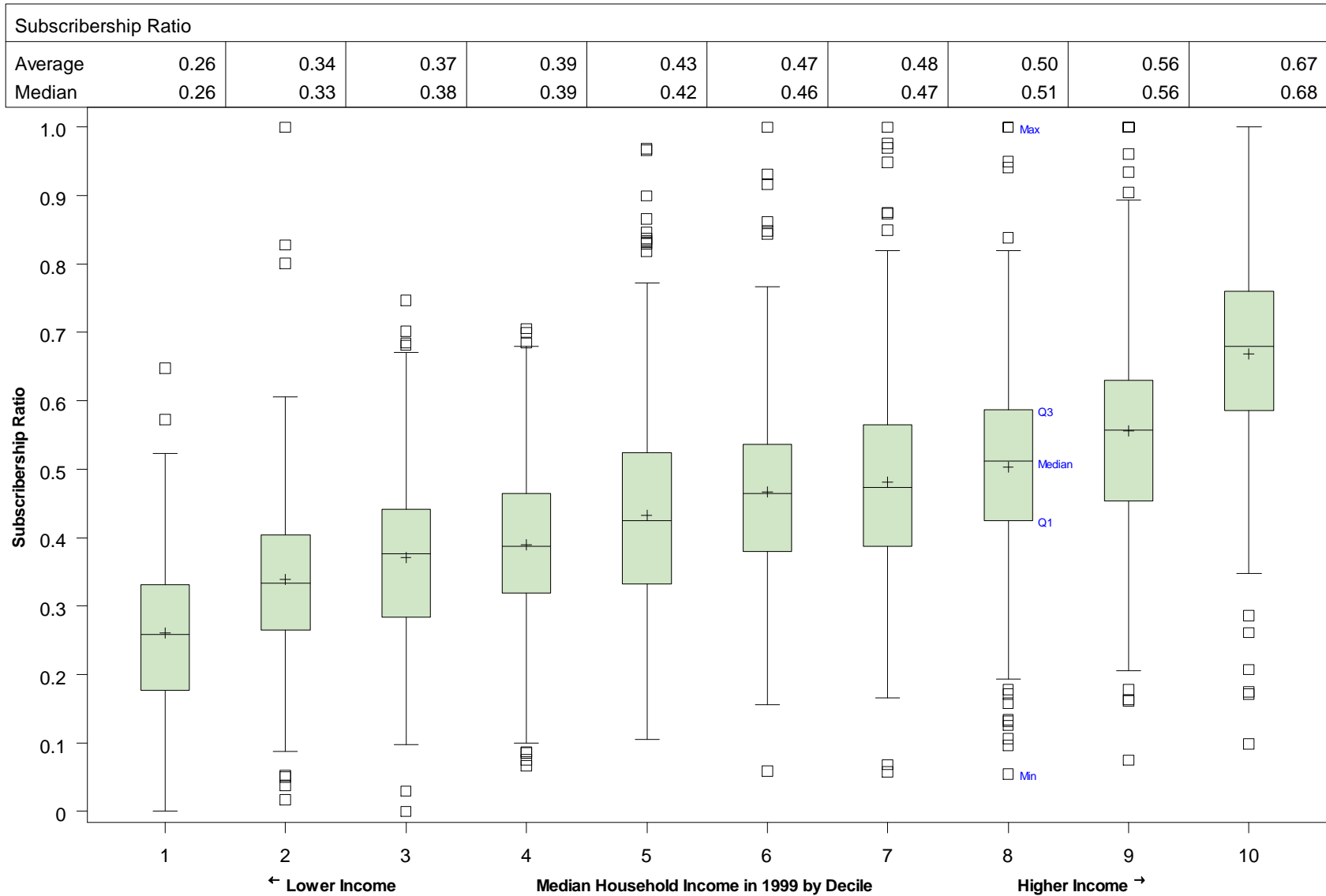
**Chart 19**  
**Ratio of Residential Fixed High-Speed Connections to Households by Income Decile**  
 (County Data)



This chart shows cumulative and non-cumulative subscribership ratios by income deciles. Counties were grouped into income deciles based on county median household income in 1999, as reported by the Census Bureau. For each decile, the height of any red, non-cumulative bar represents the ratio of the sum of residential fixed connections across counties in the decile to the sum of households across counties in the decile. The height of the blue, cumulative bar for decile N represents the ratio of the sum of residential fixed connections across all counties in decile N and all deciles less than N to the number of households in all the counties in decile N and deciles less than N.

Sources: FCC Form 477, Part VI; Geolytics 2009 Block-Level Estimates (Households in 2009); and Census 2000 (Median household income in 1999).

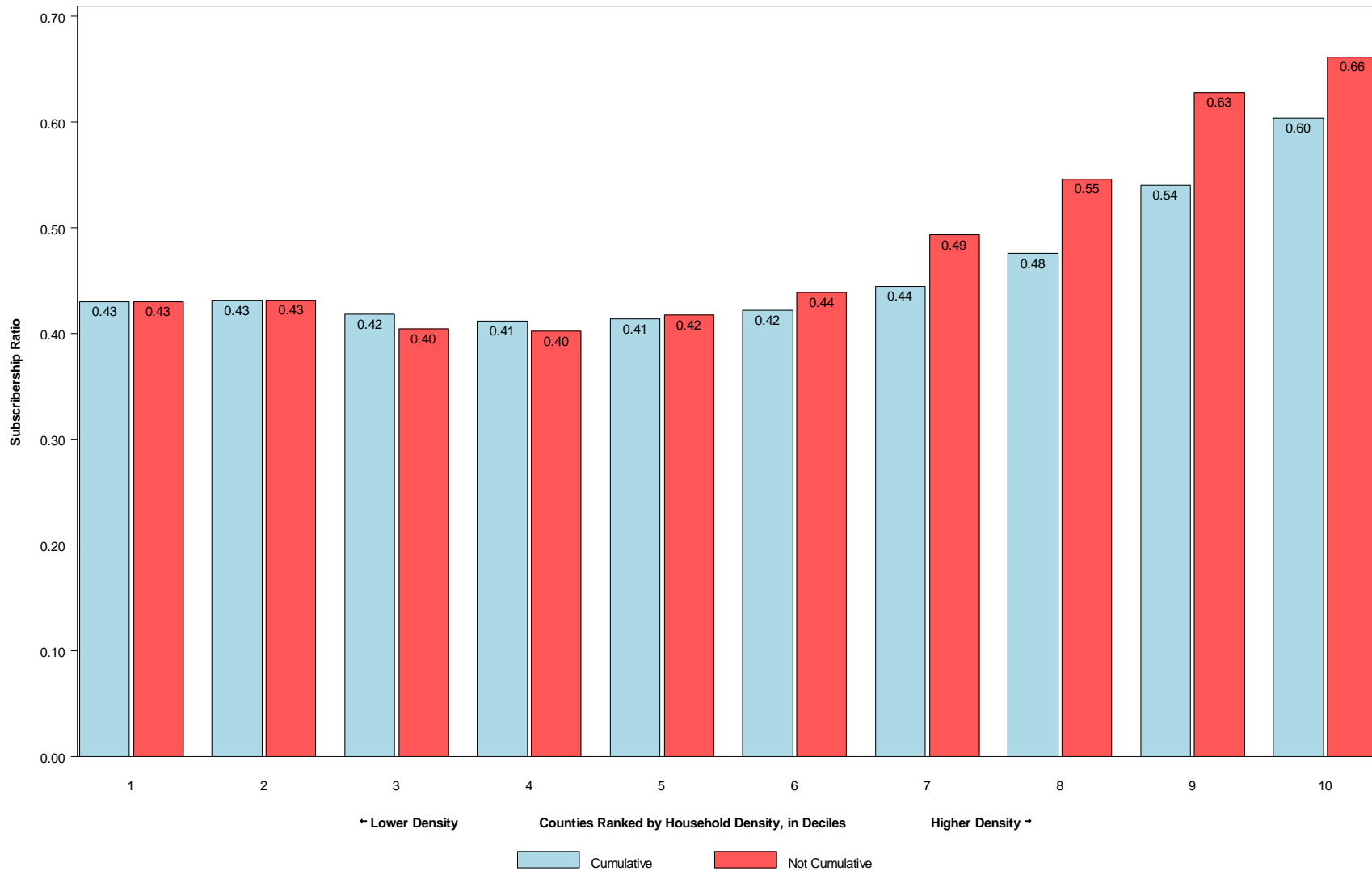
**Chart 20**  
**Subscribership Ratio Distributions by Income Deciles as of December 31, 2008**



Note: Each box plot shows the distribution of residential subscribership 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, Part VI; Geolytics 2009 Block-Level Estimates (Households in 2009); and Census 2000 (Median household income in 1999).

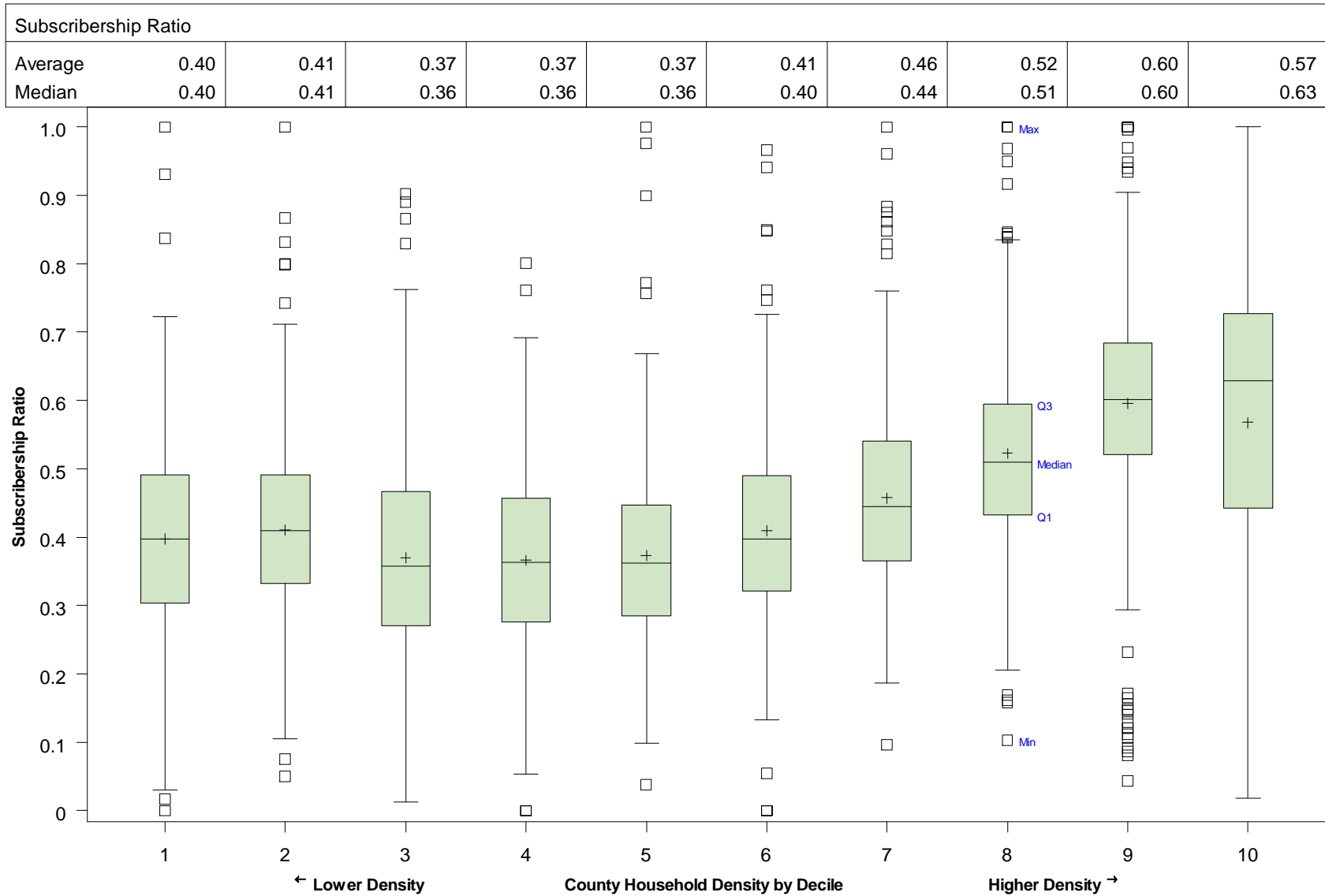


**Chart 21**  
**Ratio of Residential Fixed High-Speed Connections to Households by Density Decile**  
 (County Data)



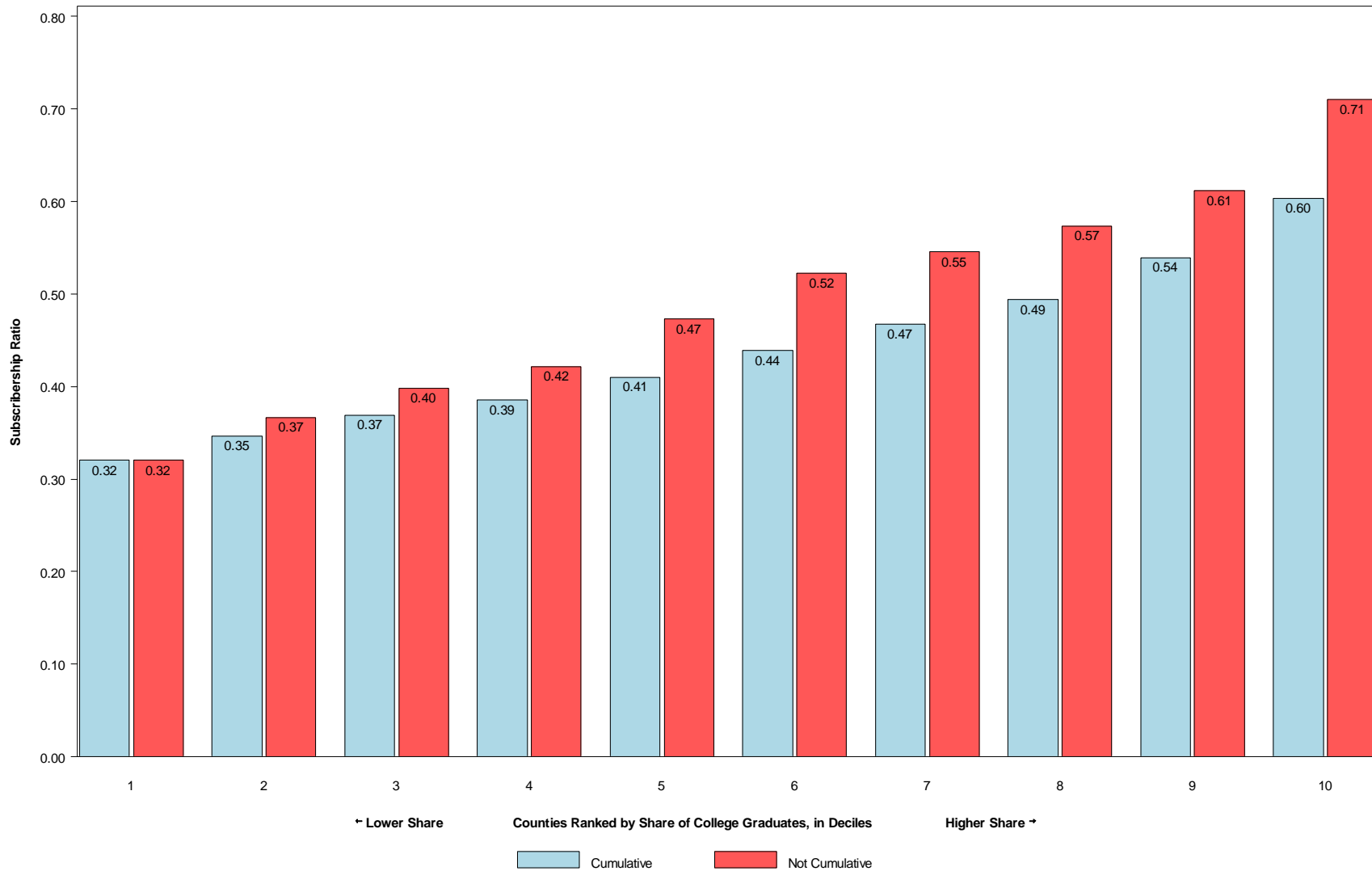
This chart shows cumulative and non-cumulative subscribership ratios by density deciles. Counties were grouped into density deciles based on households per square mile, calculated as the ratio of estimated county households in 2009 to county land area from the Census Bureau. For each decile, the height of any red, non-cumulative bar represents the ratio of the sum of residential fixed connections across counties in the decile to the sum of households across counties in the decile. The height of the blue, cumulative bar for decile N represents the ratio of the sum of residential fixed connections across all counties in decile N and all deciles less than N to the number of households in all the counties in decile N and deciles less than N. Sources: FCC Form 477, Part VI; Geolytics 2009 Block-Level Estimates (Households in 2009); and Census 2000 (County land area).

**Chart 22**  
**Subscribership Ratio Distributions by Density Deciles as of December 31, 2008**



Note: Each box plot shows the distribution of residential subscribership for counties in the density 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, Part VI; Geolytics 2009 Block-Level Estimates (Households in 2009); and Census 2000 (County land area).

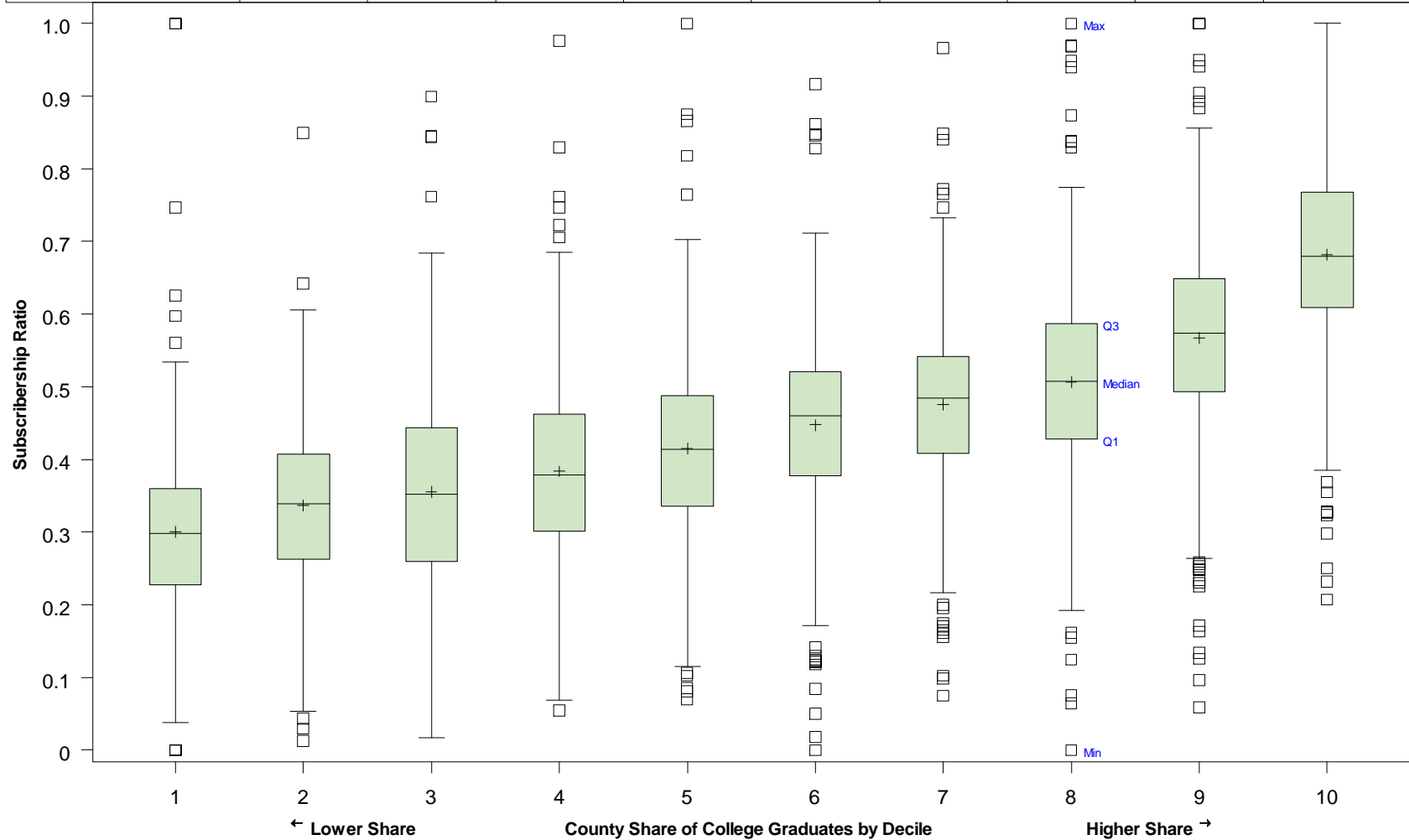
**Chart 23**  
**Ratio of Residential Fixed High-Speed Connections to Households by Share of College Graduates in Deciles**  
 (County Data)



This chart shows cumulative and non-cumulative subscribership ratios by county share of college graduates in deciles. Counties were grouped into deciles based on the share of the county population at least 25 years of age with a college degree or higher educational attainment. For each decile, the height of any red, non-cumulative bar represents the ratio of the sum of residential fixed connections across counties in the decile to the sum of households across counties in the decile. The height of the blue, cumulative bar for decile N represents the ratio of the sum of residential fixed connections across all counties in decile N and all deciles less than N, to the number of households in all the counties in decile N and deciles less than N.  
 Sources: FCC Form 477, Part VI; Geolytics 2009 Block-Level Estimates (Households in 2009); and Census 2000 (County educational attainment).

**Chart 24**  
**Subscribership Ratio Distributions by Share of Population with a College Degree (in Deciles) as of December 31, 2008**

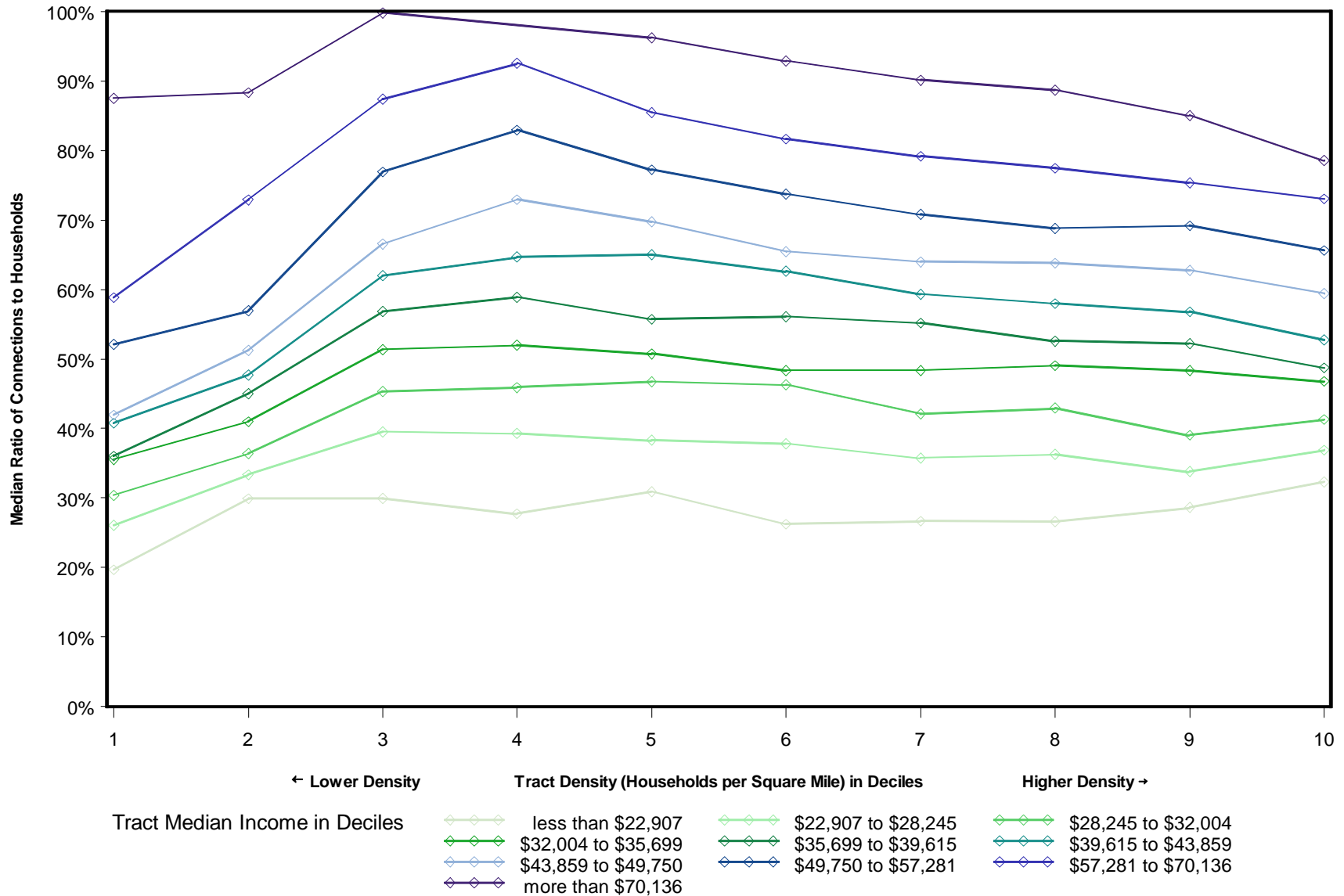
Subscribership Ratio										
Average	0.30	0.34	0.36	0.38	0.41	0.45	0.48	0.51	0.57	0.68
Median	0.30	0.34	0.35	0.38	0.41	0.46	0.48	0.51	0.57	0.68



Note: Each box plot shows the distribution of residential subscribership for counties in the share 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 a 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, Part VI; Geolytics 2009 Block-Level Estimates (Households in 2009); and Census 2000 (County educational attainment).

**Chart 25**  
**Median Ratios of Residential Fixed High-Speed Connections to Households by Income and Density**  
**Tract Data as of December 31, 2008**



Sources: FCC Form 477, Part VI; Geolytics 2009 Block-Level Estimates (Households in 2009); and Census 2000 (Median household income in 1999).

## Technical Notes

### General

Detailed information about FCC Form 477 reporting requirements is available at <http://www.fcc.gov/form477/>.

Wherever a number of providers is cited in this report, multiple Form 477 filers within a holding company structure count as one provider.

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 connections in 72 speed tiers defined by ranges of upstream speeds and downstream speeds. See report Table 8 for specifications of the speed tiers. Connections are further categorized by the technology employed by the part of the connection that terminates at the end-user location (see below). To provide continuity with published historical data, this particular report uses the term “high-speed” to describe all reported connections and, additionally, uses the term “advanced services” to describe the subset of connections with advertised speeds above 200 kbps both to and from the end user (but not necessarily the same speed in each direction). (Consistent with the Form 477 data collection orders, “broadband” and “high-speed” are synonyms when these Technical Notes are discussing particular elements of those orders.)

“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 broadband, or provisions/equips a broadband wireless channel 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 wireline, cable modem, optical fiber to the end-user premises (“FTTP”), satellite, fixed wireless (using licensed or unlicensed spectrum), mobile wireless (using licensed or unlicensed spectrum), electric power line, 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 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**

Starting with data as of December 31, 2008, facilities-based providers of fixed-location high-speed Internet access connections must report connection counts and percentage residential information at the census tract level of detail. Because of the inherent mobility of their service, facilities-based mobile wireless providers do not report subscriber counts by census tract. Instead, they report the census tracts in the state that best represent the areas where service is available over the provider's own network, for each of the speed tiers in which the provider offers service.

For the 2000 decennial census, the Census Bureau assigned a default census tract code of 000000 to some coastal and Great Lakes water and territorial sea. These default-code tracts are not included in the statistics presented in this report, which therefore summarize data for 66,287 census tracts.

According to GeoLytics, Inc. estimates for 2009, fewer than 200 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 *residential* high-speed 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 (*see*, for example, Table 12).

## **Tables 1 – 4 (December 2008 vs. June 2008)**

*See* pp. 3-4 of this report for a discussion of the changed reporting requirements for mobile wireless providers.

## **Charts 17-18, Tables 11-12 and 21-22 (ratios above 100%)**

Possible explanations of ratios above 100% include (1) geocoding misallocations in this first collection of data for census tracts (an unfamiliar geography for many filers), with unresolved service locations attributed to a single census tract; (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 (for 2009, from GeoLytics, Inc.), which could have an independent effect.

## **Maps showing number of providers by census tract**

Readers of previous reports in this series may note certain differences in the provider-count maps in this report as compared to the previous maps, which showed the number of providers by 5-digit geographical ZIP Code. The ZIP Code-based maps counted (at the holding company level) each provider with any fixed-location connections (wired, terrestrial fixed wireless, or satellite) reported for the ZIP Code and also any mobile wireless service provider who listed the ZIP Code as part of its broadband service area. By contrast, in this report we provide separate maps for providers (counted at the holding company level) of fixed-location connections and for mobile wireless providers. Second, in this report we present an entirely new map showing the number of providers that reported any *residential* fixed-location connections, thereby excluding any providers of exclusively business fixed-location connections in the census tract.

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

The two maps based on estimated high-speed Internet access connections per 1,000 households (that is, estimated household subscribership, or *adoption*, rates) are entirely new and are not comparable to the ZIP Code-based maps in earlier reports in this series. These maps present information that could not be presented in earlier reports because *numbers* of connections were never reported for individual ZIP Codes. Readers should note that these particular maps (1) exclude all connections identified as business connections and (2) necessarily exclude residential mobile wireless connections (which are reported for the state but not for individual census tracts).

# Customer Response

Publication: *High-Speed Services for Internet Access: Status as of December 31, 2008*

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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2. Please rate the report:      Excellent      Good      Satisfactory      Poor      No opinion

Data accuracy	( )	( )	( )	( )	( )
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Timeliness of data	( )	( )	( )	( )	( )
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3. Overall, how do you rate this report?      Excellent      Good      Satisfactory      Poor      No opinion

( )                      ( )                      ( )                      ( )                      ( )

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