

LIMITATIONS OF DATA USED IN THIS REPORT

Most of the data in this report come from the Federal Communications Commission's (FCC) Form 477 provider data. Twice each year, all high-speed Internet providers in the US provide the FCC with information about Internet connections with speeds over 200 Kbps in at least one direction. High-speed Internet providers include telephone companies, cable system operators, terrestrial wireless service providers, satellite service providers, and others. Despite being the only comprehensive and standardized published source on broadband, the data are an imperfect measure. Keep these things in mind when reviewing the data in this report:

- ◆ Form 477 data overstate availability in many census tracts. Form 477 data show the number of broadband providers with at least one Internet subscriber in each census tract. Almost every census tract in the nation has at least one provider and at least one subscriber. However, broadband cannot necessarily be accessed by all households in a given census tract. This is especially true in large census tracts where providers may offer service in only a portion of the entire region.
- ◆ Form 477 data understate availability in places where service is available but there are no subscribers. Satellite and mobile broadband fall into this category.
- ◆ If a provider offers connections at various speeds, Form 477 only counts the purchased connection speed.
- ◆ Where there are 1-3 providers in a given region, the FCC does not disclose the actual number. Also, multiple providers within a holding company are counted as a single provider. Confidentiality issues make it impossible to calculate the exact percentage of households with coverage in each census tract.
- ◆ FCC data are based on maximum advertised speeds, not actual speeds experienced by the end user. According to the FCC's Sixth Broadband Deployment Report, actual speeds can be roughly half of advertised speeds.

BROADBAND – Currently defined by the FCC as high-speed Internet access with download speeds of at least 4Mbps.

CENSUS TRACT – A county sub-region with 2,500 - 8,000 people. Census tracts in metro areas are small compared to those in very rural areas. Based on the 2000 Census, Idaho has 280 census tracts.

FIXED-LOCATION CONNECTION – Any terrestrial broadband connection that is not mobile wireless.

KBPS – Kilobit per second.

MBPS – Megabit per second.

RURAL – Counties in which the largest town or city has fewer than 20,000 residents. For this report, all census tracts within rural counties are classified as rural.

URBAN – Counties in which the largest town or city has 20,000 or more residents. For this report, all census tracts within urban counties are classified as urban.

SOURCES: **Federal Communications Commission**—http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-314630A1.pdf, <http://transition.fcc.gov/wcb/iatd/comp.html>, and http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-10-129A1.pdf; **National Telecommunications & Information Administration**—http://www.ntia.doc.gov/files/ntia/publications/ntia_internet_use_report_february_2011.pdf, http://www.ntia.doc.gov/data/CPS2010_Tables_, http://www.ntia.doc.gov/files/ntia/publications/networkednationbroadbandinamerica2007_0.pdf; **Kolko, Jed.** 2010. "A new measure of US residential broadband availability." *Telecommunications Policy*. 34(2010): 132-143.

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IDAHO AT A GLANCE

MEASURING BROADBAND

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OVERVIEW

Households in Idaho's urban areas tend to have faster broadband access and more choices of providers than those in more remote, sparsely populated regions. Markets are responding where demand is highest, as providers compete for new customers. In areas with less demand, lower cost alternatives are emerging. Policy makers may consider whether to encourage broadband access and adoption in places where demand is not currently high enough to generate positive returns on investment.

Idaho at a Glance is a series of reports designed to inform policy discussions on critical issues in Idaho. The analysis for this report was conducted as part of LinkIDaho (www.linkidaho.org), a statewide initiative to expand broadband availability and adoption through state and regional planning, mapping service gaps, and capacity building.

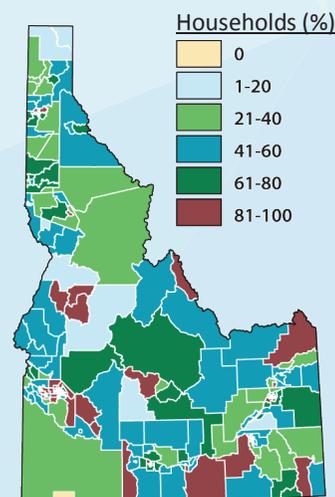
HOUSEHOLD SUBSCRIPTION RATES ARE INCREASING BUT REMAIN LOW IN PARTS OF THE STATE

About three-fourths of Idaho households subscribed to Internet services in 2010, up from less than half in 2007. The maps below show areas where subscription rates are the lowest. The map on the left shows services at least fast enough for basic email and simple web browsing. As download speeds increase, household subscription rates go down. This is evident even for the slightly higher download speeds shown in the map on the right. Where mountains make broadband infrastructure more expensive to provide and update, especially in north and north central Idaho, subscription rates are much lower than elsewhere, likely because of the high cost of infrastructure.

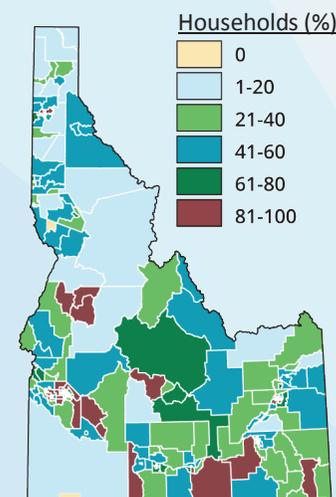
HOUSEHOLDS WITH FIXED-LOCATION BROADBAND CONNECTIONS, 2011

Includes any terrestrial broadband connection that is not mobile wireless

Download speeds of at least 200 Kbps



Download speeds of at least 768 Kbps



Source: FCC

SPEED MATTERS

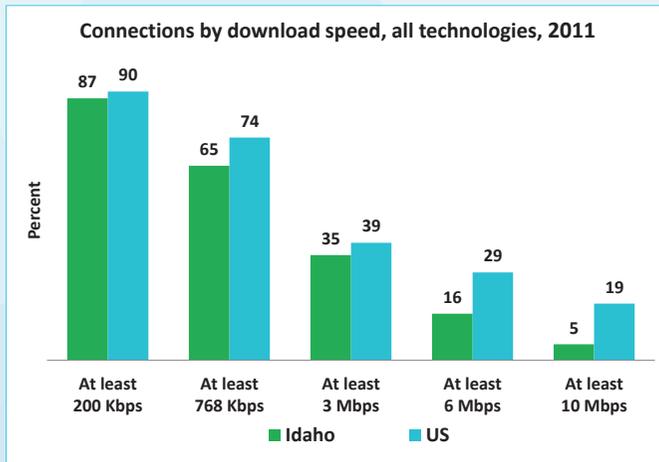
Broadband data are often reported at the rate of 200 Kbps in either direction, a standard set in 1999 when web pages were mostly text. In 2010, the FCC updated its standard to download speeds of at least 4 Mbps, the minimum required to power many of today's video-rich applications and services. The data have not yet caught up to this standard, however, and are often reported at slower speeds. The table below shows that even 4 Mbps is not fast enough to support applications such as complex telemedicine and education services.

Examples of what can be done in a range of broadband speeds

768 Kbps - 1.5 Mbps	BASIC: Always-on connection, basic email, browsing of simple websites
1.5 Mbps - 3 Mbps	TYPICAL: Remote medical monitoring (e.g. measuring vital signs), online classes, basic telecommuting, complex web browsing, medium-size file sharing, streaming video or music
3 Mbps - 10 Mbps	ENHANCED: Remote medical diagnosis, basic medical file sharing, remote education (between two or more educational sites), large-size file sharing, online gaming
10 Mbps - 100 Mbps	PREMIUM: Complex telemedicine (e.g. sharing medical images), complex education services, complex telecommuting, high-quality video conferencing
More than 100 Mbps	ADVANCED: High-definition telemedicine, multiple interactive education services

As of 2011:

- ◆ Idaho lagged the rest of the nation in terms of faster-speed connections. Only 16% of subscribers had download speeds of at least 6 Mbps (generally fast enough for distance education between two sites, for example), compared to 29% for the US. Only 5% had download speeds of at least 10 Mbps, compared to 19% for the US.



Source: FCC

- ◆ The distribution of Idaho's broadband connections with download speeds of at least 200 Kbps looked very much like the rest of the nation: about 85% of all connections were household-based and about 15% were business-based.
- ◆ At lower download speeds – at least 200 Kbps – the majority of Idaho's broadband connections were via mobile wireless (58%), followed by DSL (20%), cable modem (16%) and fixed wireless (3%). This was very similar to the rest of the nation.
- ◆ At higher download speeds – at least 3 Mbps – Idaho users of broadband were much more likely to connect via DSL (42% in Idaho, compared to 14% in the US). Conversely, Idaho users were much less likely to connect via cable modem (18% in Idaho, compared to 52% in the US).

COMPETITION AMONG PROVIDERS IS INCREASING STATEWIDE

Based on the number of filings with the Federal Communications Commission (FCC), there were 61 broadband providers in Idaho in 2011, compared to 58 in 2009. The FCC makes some census tract level data from the providers' reports available to the public.

In 2011, all but one census tract in southwest Idaho's Owyhee County had at least one provider that offered residential fixed-location broadband with download speeds of at least 200 Kbps. Nine tracts – 8 rural and 1 urban – lacked providers offering download speeds of at least 3 Mbps.

There was more competition for residential broadband service in urban than in rural census tracts in 2011. For fixed-location download speeds of at least 3 Mbps, 23% of urban census tracts had at least 4 providers from which to choose, compared to 11% of rural tracts.

Competition among providers of residential broadband increased between 2009 to 2011. For download speeds of at least 3 Mbps, the share of rural census tracts with at least 4 providers increased from 3% to 11%, while the share of urban tracts with at least 4 providers increased from 10% to 23%.

During this time, the largest increases occurred among providers of mobile broadband (such as smart phones). For download speeds of at least 200 Kbps, the share of rural census tracts with at least 4 mobile providers increased from 2% to 23%. The share of urban tracts with at least 4 providers increased from 57% to 77%. Rural census tracts without a mobile broadband provider decreased from 20% to 6%.

The maps below show the number of providers of residential fixed-location broadband having at least one household subscriber in each census tract.

Idaho providers, by type of connection offered Download speeds of at least 3 Mbps

DSL	41%
Fiber	33%
Other wireline	30%
Fixed wireless	28%
Cable modem	21%
Mobile wireless	13%
Satellite	NA

Source: FCC

PROVIDERS OF RESIDENTIAL FIXED-LOCATION BROADBAND, 2011

Includes any terrestrial broadband connection that is not mobile wireless

Download speeds of at least 200 Kbps



Source: FCC

Download speeds of at least 3 Mbps

