

REPORT ON THE

2014 IDAHO PUBLIC LIBRARY BROADBAND ACCESS SURVEY

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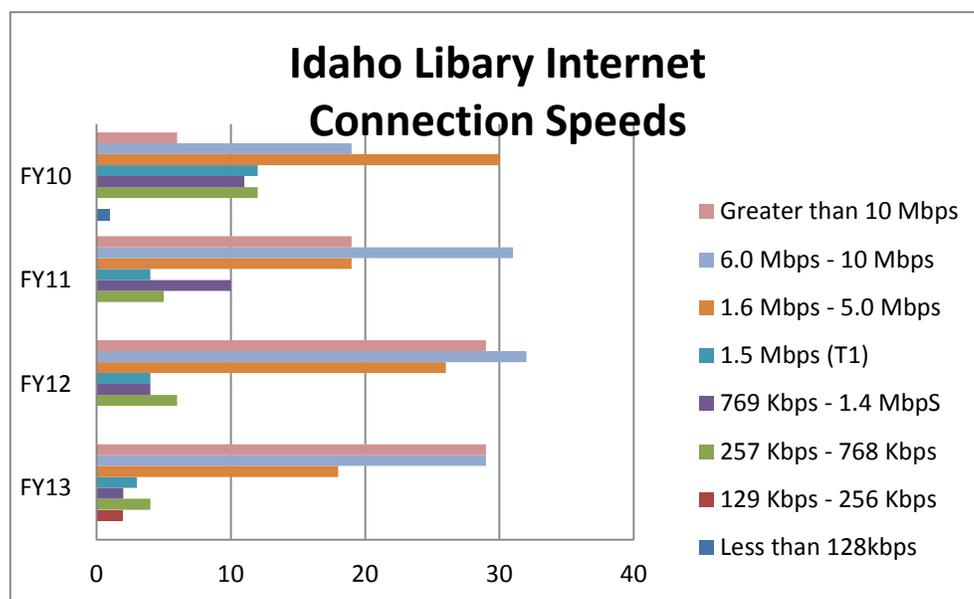
2014 Idaho Public Library Broadband Access Survey

In the fall of 2014, the Idaho Commission for Libraries (ICfL), in partnership with the Idaho Library Association, conducted an online survey of Idaho public libraries to collect information about broadband Internet connections, speeds, costs, and other information. Main and branch library locations were included in the survey. One hundred twenty-five locations responded, a response rate of 86.8%. Of those, three responses were incomplete and not included in the results. A response to all questions was not required and the design of the survey directed respondents to relevant questions depending on their answers to other questions. As a result, there were not one hundred twenty-two responses to each question.

The survey covered the following topics: Idaho library broadband connections, wireless network access, Internet content filtering, and Idaho library services to Idaho citizens. This report summarizes the results of the survey and includes trends, conclusions, and recommendations to the Commission.

Idaho Library Broadband Connections

In the past five years, Idaho public libraries have increased their Internet bandwidth significantly. Idaho public library statistics reported annually to the Commission show that Idaho libraries have increased Internet bandwidth each of the past five years. In FY 2010, thirty-six libraries reported connection speeds of 1.5Mbps (T-1) or less. In FY2013, only eight libraries reported connection speeds of 1.5Mbps (T-1) or less. In FY2010 there were only six libraries that reported connection speeds greater than 10Mbps. In FY2013, twenty-nine libraries reported connection speeds greater than 10Mbps. The graph below shows the connection speed ranges from these annual surveys. (Note: each year some libraries responded "Don't know".)



In the 2014 Idaho Public Library Broadband Access Survey, the average speed of Internet connections is just over 22Mbps as measured by speed tests conducted by the libraries. The survey was answered by 122 library locations with 93 of the locations reporting speed test data. The range was from a low of 1.21Mbps to a high of 93.87Mbps. Forty-five reported speeds between 1.21Mbps and 9.96Mbps. Thirty-one locations reported speeds between 10Mbps and 47.43Mbps. The remaining seventeen locations reported speeds of 50Mbps or higher. Three libraries reported having no Internet access: Prairie District Library, Ola District Library, and the Iona branch of the Idaho Falls Public Library.

The amount of Internet bandwidth a library needs depends largely on the number of Internet connected devices using the connection. Other factors, such as the kind of applications using the Internet, impact the capacity needed. For example, two-way interactive video and streaming video require more bandwidth than email. Most libraries have wireless connections available for patron use, which impacts the amount of bandwidth the library needs. One measure derived from this survey is the amount of bandwidth the libraries have for each library-owned Internet capable device, including workstations, laptops, tablets, and any other Internet enabled devices. The average Mbps per library-owned Internet enabled device is 0.14. The low is 0.10 and the high is 13.24. In 2011 the Commission determined that for the Broadband Technology Opportunities Program (BTOP) libraries 0.60Mbps was the desired level of bandwidth per device. With the amount of video on the Internet today, that is no longer ideal. Forty-eight of the ninety-three libraries reporting numbers of Internet-capable devices and speeds are below the 0.60Mbps per device. This would indicate that over half the libraries need more Internet bandwidth even without taking into account the bandwidth required to support patron wireless access.

In a 2012 TechNibble article discussing Internet bandwidth requirements (<http://www.technibble.com/estimate-bandwidth-needs-customers/>), author Derrick Wlordarz suggests that 0.80 to 1.0 Mbps of bandwidth per user might be a conservative estimate of bandwidth that would be adequate. Given the rapid increases in video content available today, 1.0Mbps or more per user may be conservative. Of the 93 libraries reporting, 64 (69%) fall below 1.0Mbps per device.

Internet bandwidth to Idaho libraries is delivered by wireless, cable, DSL, and fiber connections, with wireless being the most common. There are some bonded T-1 connections over copper and some DS-3 connections over fiber. There are direct fiber connections to a number of Idaho libraries in both urban and rural areas of the state. DSL, cable, and wireless connections are often shared services with asymmetrical service (download and upload data rates are different). The T-1, DS-3, and most of the fiber connections are dedicated services with symmetrical service (download and upload data rates are the same). These dedicated connections are the preferred service technically, but are more expensive than the shared connections. The shared connections exhibit varying performance depending on how many other locations are using the service at a given time. Wireless service including microwave services account for 32% of the library connections, while 24% of the connections are fiber, 21% are DSL, 19% are cable broadband connections, and 2% are satellite connections. The remaining 2% are Ethernet over copper and bonded T-1 connections.

The cost for Internet connections for Idaho public libraries varies widely. A few fortunate libraries receive their Internet service at no charge. Some of these receive no-charge service in exchange for

allowing their Internet service provider (ISP) to locate equipment (usually microwave towers) on library or city property. A couple of rural ISPs do not charge the libraries in their service area for Internet access. There is one cable Internet service provider in eastern Idaho that, as a policy, connects public libraries in its service area at no charge. At one time it was common for local cable franchise agreements to include provisions for free or reduced rate charges to cities, schools, and libraries for cable TV service. Some of these provisions may allow for free or reduced charges for cable Internet services. This is something libraries could investigate further. If such provisions are not currently in the franchise agreement, perhaps they could be negotiated when the franchise agreement comes up for renewal. However, with the advent of statewide video franchising, opportunities for such negotiations may become a thing of the past.

In this survey, ninety-seven libraries (not counting those who get free service mentioned above) reported their annual Internet service cost before any E-rate discounts. The total for these libraries is \$597,642. The average annual cost is \$6,161.26. The range for these libraries is \$40 to \$44,400. Seventy-five of these libraries reported their connection speeds as well as their annual Internet service cost before E-rate. The average cost per Mbps for these libraries is \$59.13 per month. The range of costs per Mbps is wide, from a low of \$0.22 per Mbps to a high of \$453.02 per Mbps per month. The higher cost connections are dedicated connections over leased circuits (T-1s or DS-3), dedicated fiber-based services, or dedicated microwave connections. The inexpensive connections are primarily shared, asymmetrical (upload speeds much less than download speeds) such as DSL and consumer cable services.

Wireless Network Access

Most Idaho libraries provide wireless Internet access for library-owned devices and/or for patron-owned Internet accessible devices. A great majority of libraries that offer wireless access to the Internet keep the wireless networks available 24/7 to areas outside the library proper, such as patios, attached buildings, and parking lots. In many rural locations, the library is the only Internet hot spot in the community. And in others, it is the only hot spot with no restrictions such as having to purchase coffee, a meal, a drink or something else to use the hot spot.

Over 95% of the libraries responding to this survey offer some level of wireless Internet access. In about 10% of these libraries, this access is limited to certain areas of the library. In over 85% of these libraries, the wireless access is available inside the library as well as outside in areas such as parking lots. The wireless service is available 7x24 in 90% of these libraries.

In 95% of the reporting library locations, wireless access is available to anyone with a wireless access device. Some libraries require acceptance of their Internet Use Policies or use of a library-issued password to access their wireless networks.

The increase in patron-owned devices such as laptop computers, smartphones, and tablets results in an increasing demand on the library wireless networks. At least half the libraries responding to the survey indicated that they would need to acquire additional wireless access points in order to expand wireless coverage areas in the library or to allow more patron access.

Almost 20% of the locations responding to this survey report some issues with wireless Internet access that need addressing, including: wireless network is slow, network doesn't accommodate enough simultaneous users, and wireless signal is weak or not available in some areas of the library.

Providing Internet access for devices not owned by the library introduces some dilemmas. Software on such devices belongs to the owners. Libraries have no control over what may be on these devices, including viruses, malware, and possible illegal content. The public access wireless networks in over half of the reporting locations are on separate networks from the network for library-owned hardwired devices and/or wireless networks that are dedicated to library-owned devices. Physically or logically separating public access wireless networks from other library networks is a good practice where feasible. It is prudent to restrict access from such devices to internal library network(s) and equipment. Network management, security, and content filtering are usually easier when these networks are separate.

With most DSL and cable services, the Internet hardware provided by the ISP includes wireless access capability. This has made it easy and inexpensive for smaller libraries to provide Internet access to their patrons. As mentioned above, some libraries separate public access wireless networks from their other networks. Some accomplish this with cable or DSL services in addition to the Internet connections they use for library-owned devices. In doing so, their patrons use the wireless service without impacting other library applications. In these situations, patrons access library resources by using the library's Internet portal or website. This means they have to go through the library's firewalls and servers. With this approach, the library doesn't need to worry as much about malware, viruses, etc. from patron-owned devices.

Internet Content Filtering

Librarians are generally opposed to censorship. However, when it comes to filtering Internet content, according to these survey results, librarians accept Internet content filtering as a requirement, even if somewhat reluctantly. Over half of the respondents accept filtering as a legal requirement and a condition for E-rate funding. With filtering of computers used by minors being required by state statute (Idaho Code 33-2741), librarians prefer a solution that lets staff easily override filtering when requested by adults. The survey indicates that requests from patrons to override filters are not significant. Four responses reflected a preference for giving adults a choice of filtering for themselves and their minor children. Such a position could be appealing to some, but would likely be difficult to administer.

Eighty-five percent of the libraries responding to this survey filter all library-owned public access computers and mobile devices such as tablet computers. Five percent only filter devices that are used by children and young adults. The remaining 10% either allow adults to opt-in for filtering, have a few computers with no filtering restricted to adult use, or only allow adult use of library-owned computers.

Librarians responding to this survey expressed their preferred philosophy regarding Internet content filtering for library-owned devices.

- 22.4% prefer no filtering of Internet content.

- 35.3% prefer only filtering to satisfy minimum CIPA requirements so the library remains eligible for E-rate subsidies or to satisfy Idaho Code 33-2741.
- 11.2% prefer to have strong content filtering for children and young adult Internet access.
- 24.1% prefer strong filtering for all patrons using library-owned devices. Most in this group want the ability for library staff to easily override filtering when requested by adults.
- 2.6% want no exceptions to filtering on library-owned devices even for adults.
- 4.3% something else (4 respondents prefer to give adults choices about filtering for themselves and their minor children, 1 had no opinion)

Despite these philosophical preferences, Idaho libraries appear to be meeting federal and state Internet filtering requirements for library-owned Internet accessible devices that are used by children and young adults. Most all libraries have written Internet Use Policies posted publicly. Only six libraries responding to this survey reported they have not yet developed a written Internet Use Policy. Commission consultant staff members are following up with them.

Nearly 90% of the locations allow the unblocking of Internet sites for adult patrons or staff members, while 10% prohibit the unblocking of sites or their filtering solution does not allow for the unblocking of legitimate sites. Half the libraries report they have never been asked to unblock filtered sites. For the other half, the frequency of requests to unblock sites ranges from one request per day to a couple of times per month, with once per month reported most often.

Forty-two libraries reported they have a total of 122 Internet accessible public access computing devices that are not currently filtered. If these computers were required to be filtered, the libraries estimate it would cost about \$32,000 to filter them. Depending on the technology used for Internet content filtering, the estimates ranged from \$30 per computer to \$675 per computer.

Just over half, 53%, of the libraries surveyed think the same filtering policies for library-owned devices should also apply to users who bring their own devices to the library to use wired Internet access or the library's wireless network. The other 47% do not believe the library should filter patron-owned devices used for Internet access at the library.

Although over 90% of the library-owned devices are filtered, only half the libraries now filter their public access wireless networks. About 26% of the libraries responding to the survey reported costs to provide content filtering for wireless users. The average one-time cost reported was about \$1,000. The assumption is that this is the incremental cost to filter wireless in addition to filtering the library's wired network, but this is not entirely clear from the data reported. The average for on-going cost for filtering reported is \$521 per year. For some solutions the on-going cost includes license or subscriptions fees which may vary according the number of concurrent users or some other per-user cost. Some 70% of the libraries reporting do not track the number of wireless sessions. This makes it difficult to project the cost to filter wireless access. Sixteen, or 12%, of the libraries that do not presently filter wireless users provided estimates of what they think the additional cost would be. The average estimate for one-time cost is \$1,170 and \$871 annually in on-going cost.

For independent information on cost of library content filtering this web site is a good starting resource: <http://libraryfiltering.org/product/compare/platform>.

There are over thirty different filtering solutions used in Idaho public libraries. Just over half the solutions are system-based (installed on the library's router or server), providing filtering for all devices using the library's network. A bit over 25% of the libraries use filtering software installed on each workstation. And just fewer than 20% use a filtering service from their Internet service provider or a remote service (cloud based). The Sonic Wall filtering solution is used by 33 (28%) of the libraries responding to this question in the survey. Open DNS is the next most used solution and is used by 12 libraries (10%). Next is the K-9 workstation filtering solution used by 10 libraries (8.5%). The Websense filtering solution is used by 8 libraries (7%).

There are philosophical, technical, and economic reasons that may make the filtering of Internet content on user-owned devices difficult or impossible in some cases. While those libraries using a system-based filtering solution could possibly filter Internet content to patron-owned devices, there may be good reasons they would not opt to do so. There may be legal implications if the solution would require putting library-licensed software on patron-owned devices. Filtering solutions that require software on user devices may not have versions available for all the devices that are now capable of Internet connections such as tablets, smartphones, and e-readers. As noted earlier, there are libraries that have separate Internet connections dedicated to wireless-only service that does not go through library routers and servers. Many of these connections are not filtered.

Using separate Internet connections for wireless access by patrons has advantages to the library for security and other reasons. Their service to their patrons is public Wi-Fi connections for those in their communities who don't have Internet access in their homes.

Further, it is somewhat futile to filter patron-owned devices. Some patrons may already have filtering software on their Wi-Fi capable devices. Devices that have cell phone access in addition to wireless access that use library Wi-Fi and get blocked from a site can use their cell connection to connect to the site they are wanting to access.

For those interested in learning more about filtering in libraries including best practices, products, costs and more, visit <http://libraryfiltering.org/>. Examples of library and library network practices and policies there will be helpful to those responsible for filtering in the library.

Idaho Library Services to Idaho Citizens

The libraries responding to this survey have almost two thousand Internet-accessible computing devices available for public use. There were twenty-four library locations that did not submit responses to this survey. So it is reasonable to assume there are nearly twenty-five hundred public access computing devices in Idaho libraries for use by students after school, by patrons who do not have computers at home, those who have computers but no Internet access or very slow access, and those needing library staff help finding what they need on the Internet.

These libraries reported there were well over 1.5 million Internet sessions last year, not counting sessions from patrons using the libraries' Wi-Fi connections. Over 70% of the libraries do not or cannot track wireless sessions accurately. These libraries estimate about ¾ million Internet sessions over their wireless networks. In total this is well over two million Internet sessions by Idaho citizens provided by our libraries. This is a huge positive impact on these citizens.

Patrons of Idaho libraries are using the computers and Internet access provided at the libraries for all kinds of applications and at all times of the day and into the night. Common examples provided were for education activities, employment related applications, filing taxes, and communicating with friends and relatives. Education activities include GED preparation, community college classes, bachelor's degrees, and graduate education. One family in north Idaho has no electricity or Internet connectivity in their home and comes to the library for access to education resources to home school their children. Employment activities include filing for unemployment, job search, job application, and education to qualify for new job opportunities. It was interesting to note this was mentioned by several libraries located where the collapse of forest product related jobs has especially impacted their communities. Filing taxes on line and applying for health insurance by those who have no Internet access was mentioned by several libraries. Contact with friends and relatives over the Internet is a common application and one library mentioned family staying in contact with children serving as church missionaries as an example.

The impact of computers and Internet access in public libraries is especially apparent in some of Idaho's rural communities. Some comments from library directors at a few of these libraries are listed below. There were similar examples from other libraries.

The option for the community to have a place to go online if they don't have the option at home. Students have access to resources they may not have normally. The broadband at the library is much faster most of the time so patrons come to download information they aren't able to at home.

A patron uses a library computer station to order supplies from around the world to construct specialty guitars. He has no Internet access at his home. He sent pictures of an instrument to a dealer in Australia this past week.

One patron used the library tools and broadband connectivity to start a small local business.

We have had several patrons who do not have Internet access at home be able to search for jobs online and print their resume here at the library. We also have students (both homeschool and public school) utilizing the workstations/Internet to complete research assignments for school and take online proctored tests.

Because of where I live, I frequently travel past the Juliaetta branch library in the late evenings in the summer - around 9:00 ~ 10:00 p.m. In the summer there is a girl that is always on the front steps of the library using the Wi-Fi network. One time I had to deliver some stuff to the library so I asked her what she's always doing there and it turns out she's using the library's Wi-Fi network

- which was the only public Wi-Fi network in Juliaetta until the winery opened a few months ago
 - to talk to her father via Skype. Her parents are divorced and he lives in California.

We have had CSI students taking classes and tests for classes because it is such a long drive to Twin Falls.

We have several loggers in the community who are able to file for unemployment insurance and weekly claims.

Library user who lost Internet due to mill shutdown uses library Internet and finds job.

We consistently have patrons return to the library to share the news that with the use of library computers and helpful staff, they got the job! To our delight, this happens frequently.

Job seekers are able to apply for unemployment benefits, search for employment opportunities, and apply online. Students are able to access online classes and have online tests proctored.

There is only one other Wi-Fi and public access computer site in the community, making us a high demand facility.

Missionaries connect with family who use the library Internet connection.

The libraries participating in this survey identified additional activities and applications that are ongoing in some libraries and planned in many others. These include additional instructional support (individual and group on-line education, computer classes), streaming of digital content (news, webinars, public service programming), access to external digital content such as health care information, e-books, and video on demand. Some Idaho libraries make unique technical resources available to their patrons, including video production equipment and software and 3D printers for example. Idaho libraries that are not yet doing these things learn from those that are doing them: what works, what patrons want, and best practices for providing them. To deliver these additional services will require more Internet bandwidth in most all situations.

The following tables show some of the applications of computers and Internet connections Idaho libraries are providing to citizens now, and what are planned by those libraries not currently providing the service.

Instructional and Educational Support for Idaho Citizens

	Doing Now	Planning to Do	Desirable	Not sure	Total
Support of individual online learning	59.81% 64 libs	0.93% 1 lib	21.50% 23 libs	17.76% 19 libs	107 libs
Support for group online learning	14.42% 15	6.73% 7	36.54% 38	42.31% 44	104
Computer classes	25.71% 27	12.38% 13	32.38% 34	29.52% 31	105

	Doing Now	Planning to Do	Desirable	Not sure	Total
One-on-one tutorials	52.38% 55	4.76% 5	23.81% 25	19.05% 20	105
Partnerships with community organizations offering instruction (e.g. literacy, health care, veterans' services, etc.)	18.87% 20	7.55% 8	39.62% 42	33.96% 36	106

Administration and Public Support Activities

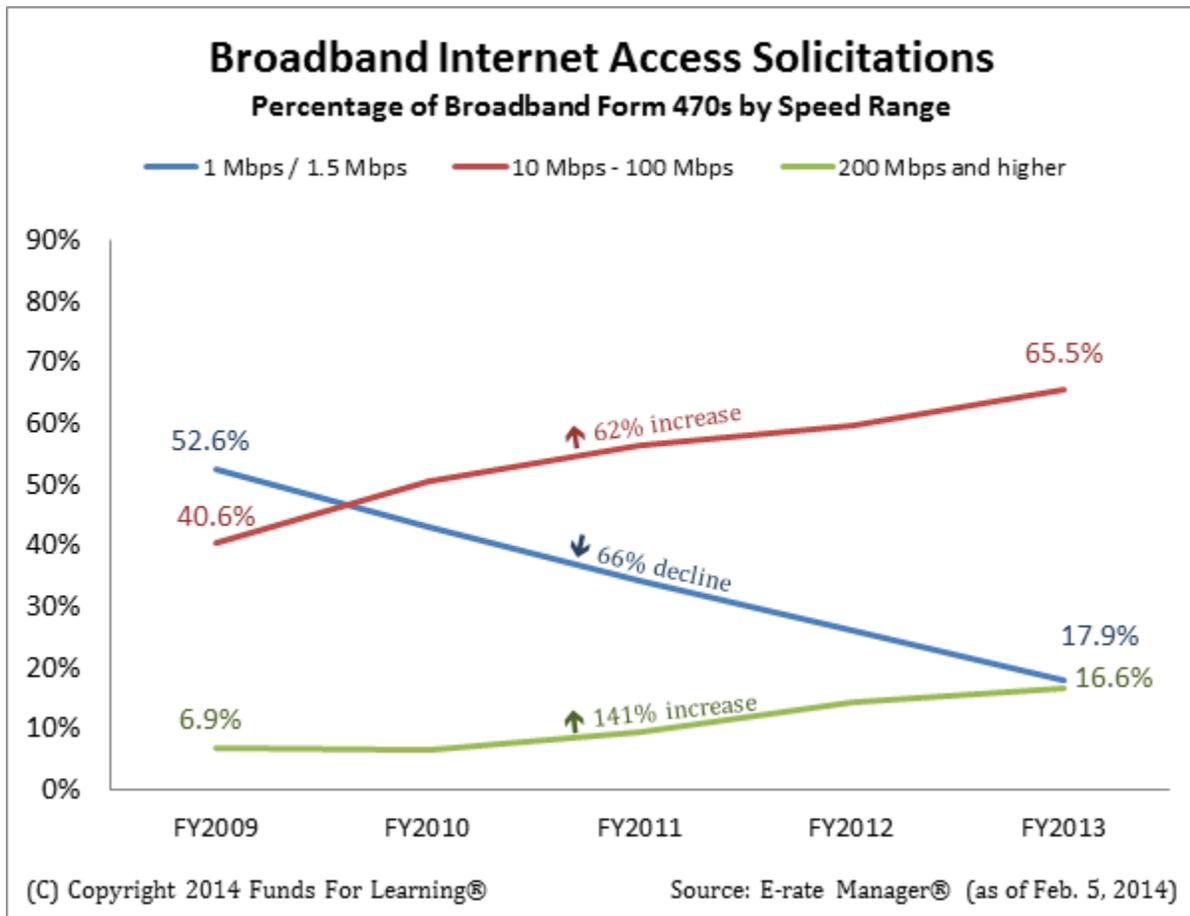
	Doing Now	Planning to Do	Desirable	Not sure	Total
Install or expand wireless network	26.67% 28 libs	9.52% 10 libs	28.57% 30 libs	35.24% 37 libs	105 libs
Administration efficiencies (e.g. videoconference meetings, self-checkout, etc.)	15.38% 16	11.54% 12	41.35% 43	31.73% 33	104
Patron support (e.g. online tutorials for frequent question, librarians on the floor answering questions with mobile devices, etc.)	14.29% 15	7.62% 8	42.86% 45	35.24% 37	105
Cloud hosting of applications or services	18.45% 19	4.85% 5	24.27% 25	52.43% 54	103
Expand existing computer workstations	2.94% 3	11.76% 12	41.18% 42	44.12% 45	102

Digital Content and Technical Resources

	Doing Now	Planning to Do	Desirable	Not sure	Total
Streaming live events from around the country into the library	4.81% 5 libs	5.77% 6 libs	45.19% 47 libs	44.23% 46 libs	104 libs
Expanding community research options (e.g. digitizing family and community history materials)	10.48% 11	7.62% 8	51.43% 54	30.48% 32	105
Develop and support a small business incubation center	2.91% 3	1.94% 2	35.92% 37	59.22% 61	103
Provide and support use of social media by patrons	53.33% 56	0.00% 0	22.86% 24	23.81% 25	105
Distribution of e-books and/or video on demand services	49.51% 51	8.74% 9	29.13% 30	12.62% 13	103
Creating a "maker space" where patrons can create content (e.g. use video equipment and 3D printers)	11.76% 12	10.78% 11	27.45% 28	50.00% 51	102

Trends

There is no doubt the Internet is impacting the way this world works in ways not imagined twenty years ago when commercial Internet connections began becoming available. Businesses with T-1 (1.5Mbps) access and consumers with 56kbps dial-up connections were considered fast at that time. Things are much different today where connections of 1Mbps are deemed slow. This is true in all sectors of our economy. The trend has been for ever faster Internet connection speeds. For education and library communities, the trend for higher connection speeds can be seen in requests to USAC (Universal Service Administrative Company) which oversees the E-rate program for the FCC. The chart below illustrates the trend away from lower-speed connections and the trend to higher-speed connections by schools and libraries participating in the E-rate program.



For broadband Internet access:

- The portion of Form 470s requesting 1 Mbps or 1.5 Mbps connection speeds declined from 52.6% in FY2009 to 17.9% in FY2013.
- The portion of Form 470s requesting 1 gigabit or fast connection speeds increased from 6.9% in FY2009 to 16.6% in FY2013.

Growth in Priority 1 (reoccurring telecommunication services) discounts is being driven by demand for broadband telecommunications and Internet access services. A review of Form 470 solicitations posted by E-rate applicants from FY2009 to FY2013 shows a dramatic shift with a growing percentage of forms indicating higher speed connections.

The trend is no different for Idaho libraries. Data reported in this survey shows that Idaho libraries are increasing their connection speeds to meet the requirements of their patrons. The libraries have been able to increase their connection speeds in spite of budget constraints. There are a number of reasons for this. Pricing for Internet bandwidth has historically declined. In urban areas where there is competition prices have dropped greatly. Dedicated, symmetrical, 10Mbps service is \$300 to \$350 per month.

Many library directors and governing boards have increased budgets for both computers and Internet connectivity. The Commission's "online at your library" project under BTOP funded a number of initiatives that contributed to increased Internet connectivity, including training, network checkups, and network upgrades. The BTOP activity that provided E-rate workshops in 2010 significantly increased the participation rate for Idaho libraries using E-rate for Internet services. More libraries participating in the E-rate program has resulted in increased bandwidth for many Idaho libraries. In 2011 and 2012 "online at your library" assisted fifty-five participating library locations to increase their contracted Internet bandwidth from an average of 1.31Mbps to an average of 10.58Mbps.

Internet service providers have expanded their offerings and increased bandwidth for their customers. Many cable companies in Idaho have upgraded their networks to the latest equipment and standards in the past few years and now commonly offer download speeds up to 50Mbps. Many Idaho rural telephone companies are deploying fiber to the premises. The larger telephone companies have greatly increased the speed of their DSL services as well as deploying metro Ethernet services in many Idaho communities. With this increased competition, prices for service have decreased on a per megabit basis.

Over the same period, the demand for Internet connectivity has increased for administrative applications as well as from patron demand for information, applications, and other services available on the Internet. The rapid increase in portable, connected devices such as smart phones and tablet computers has driven a demand for not only Internet access for wired Internet-capable computers and devices owned by the libraries, but also for Internet access for devices owned by patrons. And as expected, the increased bandwidth available at the libraries has driven more use by library patrons.

This trend for higher Internet connection speeds is expected to continue as library patrons increasingly connect to the Internet through library-owned devices as well as an assortment of patron-owned devices including laptop computers, phones, game consoles, tablets, e-readers, Google Glasses, and Apple Watches. More devices capable of connecting to the Internet will be adopted by users. More applications and more web sites drive the demand for more Internet bandwidth with video applications leading the way as they require large amounts of bandwidth.

Digital learning in Idaho is exploding as reported in recent news media articles and programs. Librarians notice young and adult learners needing more time to use computers and Internet resources to do homework and to complete on-line education from GED to advanced degrees. Citizens who cannot afford computers and/or Internet access in their homes because of economic hardship come to Idaho's libraries for these resources that help them improve their lives.

The result is that many Idaho libraries find their networks are busy and already need more Internet bandwidth or they will soon need additional bandwidth. Over 25% of the libraries reported that their Internet bandwidth is insufficient. Their observation is supported by network utilization reports and speed test data reported under varying conditions. These libraries have network utilization rates that indicate a need to increase their bandwidth now. Another 40% are at utilization rates high enough that they should be planning to increase their bandwidth in the near future.

The need for more Internet bandwidth was expressed by one library director saying: "When our Internet is down, the library empties out - there is no one left. When it is very slow our users are getting up and milling about chatting with each other - not a bad thing, but not what they came to the library to do. At times patrons have been unable to send time sensitive documents - very frustrating for them."

For some Idaho libraries, their Internet bandwidth is adequate for current activities and demand. However, as noted above the trend is that bandwidth requirements are on the increase for current applications. The libraries participating in this survey identified additional activities and applications that are ongoing in some libraries and planned in many others. Internet usage is increasing rapidly throughout the nation.

Conclusions

Computers and Internet access in Idaho libraries in both urban and rural areas are positively impacting the lives of Idaho citizens in many ways. Our survey shows this to be true and that the need continues to grow for additional bandwidth and wireless access in libraries across the State.

The .14Mbps average per library-owned device reflected in this survey documents a considerable need for additional bandwidth. Idaho libraries need to carefully track Internet use and plan for increasing their broadband Internet capacity on a continuing basis. The requirement for wireless connectivity will expand as patron-owned mobile computing devices capable of higher bandwidth consumption become nearly ubiquitous. Issues with wireless access reported in this survey will likely grow with the increase in demand.

Given the need illustrated with this study, the Idaho leaders should be concerned about citizen access to library-provided digital content and Internet access. They can ensure computer and Internet access for all Idaho citizens in rural and urban areas at their local libraries by finding ways to provide these libraries with financial assistance. This should be tied to the emphasis on employment activities and on improving education for students as Idaho libraries are an important partner in providing access and support for our students.

Recommendations to the Commission based on survey results

The survey data shows there are initiatives and activities the Commission and Idaho libraries could do to help improve the services the libraries provide our citizens. Some of these would require additional staff and/or budget. But the return on even minor investments will provide benefits to Idaho citizens through its public libraries. Other suggestions can be considered for adoption and done with existing resources.

- Continue discussions with IEN leadership about future implementation of Phase 3 of the IEN plan to extend the broadband infrastructure to public libraries.
- Continue consulting activities to educate the library community about Internet Use Policies and continued compliance with Idaho Code.
- Develop and/or continue to provide instruction solutions (articles, consulting, training, or ready-to-implement program plans) to assist libraries to:
 - Develop a better understanding about security for internal library networks, including information about separating public access from the network staff uses for library administration functions.
 - Put in place educational support for Idaho citizen services that survey participants indicated were “desirable,” such as support for group learning in the library, computer classes in the library, and partnerships with communication organizations that provide instruction.
 - Use their broadband access for administration efficiencies and creation of public support services like FAQs, frequently needed tutorials, mobile reference services, etc.
 - Implement technology planning and management, including equipment replacement plans, policies regarding use of technology, network utilization, and needs assessment for public access computing.
 - Utilize broadband connectivity for digital content programming such as streaming live events and digitizing local history materials.
 - Adopt established or new agreed upon process for measuring public access wireless usage (number of logins, bandwidth consumed, number of unique patrons, etc. in consideration of upcoming IMLS/NCES (Institute of Museum and Library Services/ National Center for Education Statistic) survey requirements.
- Share case studies of use of library broadband drawn from survey responses to communicate exemplary models of libraries as community anchors.
- Periodically update Commission management and staff on the trends in Internet service and wide area networks, including technology, solutions, best practices, and pricing. (A vendor you trust and who is willing to do this and not do high pressure sales could provide this if they just want to help out).
- Provide wide area network and Internet management expertise to Idaho libraries (including periodic network checkups) and to Commission internal IT staff. Additional staffing capacity is likely required for this even on a modest basis.
- Help libraries understand their contracts and invoices for connectivity and Internet access.

- Help libraries understand the value of periodically checking actual Internet access speeds against contracted amounts.
- Help libraries to understand the terminology and infrastructure so they can participate more fully in community conversations about infrastructure and in communication with sales and IT support.

For future survey(s):

- Include a question asking the name of the Internet service provider.
- Include a question asking how much bandwidth the library is supposed to be receiving – get this from the contract, user agreement, or monthly bills.

Lastly, keep up the good work you do!