



Community Anchor Institution Broadband Progress Report On the Five Year Anniversary of the National Broadband Plan March 17, 2015

At the mid-point of the National Broadband Plan's Goal #4 for community anchor institutions (CAIs), the Schools, Health & Libraries Broadband Coalition (SHLB Coalition) finds that the U.S. has made great progress toward achieving this goal, but much more work needs to be done, especially for CAIs in rural areas of the United States.

The Federal Communications Commission's National Broadband Plan, released on March 17, 2010, set forth Goal #4 as follows:

"Every American community should have affordable access to at least 1 gigabit per second (Gbps) broadband service to anchor institutions such as schools, [libraries], hospitals and government buildings [by the year 2020]."

Five years after the release of the National Broadband Plan and Goal #4, we are pleased to say that the US has made progress. The Broadband Technology Opportunities Program (BTOP) successfully provided fiber optic and other high-speed broadband connections to at least 23,500 community anchor institutions (approximately 10% of all CAIs). The FCC's significant reforms of the E-rate program in July and December 2014 should spur additional investment in high-bandwidth wireless and fiber networks and lower Internet prices for all schools and libraries.

While progress has been made, the facts show that we remain far from achieving Goal #4, and the work required in the next five years will be even more difficult than the previous five years. The SHLB Coalition has assembled the attached **Fact Sheet** that details the disturbing shortage of adequate broadband for anchor institutions, including the following:

- According to the FCC, an estimated 65% of the nation's public schools have a fiber optic connection to the Internet, and this figure probably overstates the availability of fiber to schools.

- According to the Consortium for School Networking, only 10% of the nation's public schools meet the 1 Gbps goal, and one-quarter of school districts say none of their schools meet the bandwidth goals.
- Libraries face an even bigger climb – according to the American Library Association, half of public libraries have a broadband connection slower than 10 Mbps. Two-thirds of public libraries say they will need to increase their bandwidth in the next two years, but budget constraints make this difficult.
- Neither the FCC, nor (to our knowledge) any other government agency has collected adequate data to identify the broadband capabilities of health clinics, especially those in rural areas.

Anchor institutions in rural and high-cost areas face extraordinary challenges in obtaining adequate broadband capacity. A fiber cost study funded by the SHLB Coalition and performed by CTC Technology and Energy showed that the costs of deploying fiber to schools in more rural regions of the US can be 2 to 3 times higher than the average cost of deploying fiber to schools in metro or suburban areas. The ALA's Digital Inclusion Survey finds that the median download speed for rural libraries is one-fifth the speed of urban libraries.

Goal #4 in the National Broadband Plan calls for rates to be “affordable”, but rates for broadband services in rural areas can be extremely high. Data provided by Education Superhighway reveals that even when a school has access to fiber, 83% cannot afford to pay for the capacity needed to meet the 1 Gbps goal. Further, many of these schools also cannot afford to obtain sufficient Wi-Fi capacity inside the building to provide wireless access to each student's device.

To make matters worse, the U.S. is not on track to gather sufficient data on the broadband speeds of schools, libraries, health organizations and other anchor institutions. The broadband mapping program funded by the American Recovery and Reinvestment Act (ARRA) is coming to a close, and the U.S. Government may not continue to collect state-by-state data on the broadband connections of community anchor institutions. It will be impossible to measure whether we have accomplished the National Broadband Plan Goal #4 without such information.

The lack of anchor institution broadband hinders America's economic growth and competitiveness. Several papers document the significant social and economic benefits of providing affordable, high-capacity broadband for anchor institutions and their communities:

- In April, 2012, Dr. William Lehr wrote a paper for the SHLB Coalition called “Anchor Institutions Help to Secure Broadband's Promise.” (available at: <http://tinyurl.com/mj8cexb>).

- Dr. Ellen Goodman wrote a paper in August 2014 that documents the important role of “smart cities” and anchor institution broadband (See, *“Smart Cities” Meet “Anchor Institutions”: The Case for Broadband and the Public Library*. Ellen Goodman. Fordham Urban Law Journal. Vol. XLI, available at <http://tinyurl.com/mag85be>).

Fortunately, the FCC recognizes that it has a statutory obligation to ensure that schools, libraries, and health care providers have access to advanced telecommunications and information services. In the 2012 Connect America Fund Order, the Commission required “eligible telecommunications carriers” to engage with community anchor institutions in the network planning stages for networks supported with the Connect America Fund. See, <http://www.fcc.gov/blog/wcb-cost-model-virtual-workshop-2012-community-anchor-institutions>.

But the FCC is not the only agency responsible for ensuring that anchor institutions have sufficient broadband capacity. Policy-makers at all levels of government – federal, state and local – need to follow through on the important recommendations laid out in the National Broadband Plan to ensure that their anchor institutions have open, affordable, high-quality broadband connections to the Internet. The Benton Foundation has tracked the National Broadband Plan proceedings and concludes that many of the proposed recommendations are not yet completed and some have not even begun. Several of these policy proceedings are multi-agency collaborative efforts that will need strong leadership and a concentrated effort by many parties.

The SHLB Coalition stands ready to work with policy-makers to ensure that our nation’s community anchor institutions can obtain the open, affordable, high-capacity broadband that they need to serve their communities and strengthen the U.S. economy.

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A Fact Sheet Concerning Anchor Institution Broadband

Modernizing the E-Rate Program for Schools and Libraries. Federal Communications Commission. Released July 23, 2014.

https://apps.fcc.gov/edocs_public/attachmatch/FCC-14-99A1.pdf

- “We adopt the State Education Technology Directors Association’s (SETDA) target recommendation of Internet access for schools of at least 100 Mbps per 1,000 students and staff (users) in the short term and 1 Gbps Internet access per 1,000 users in the longer term. Para 34)
- “In most cases, a 1 Gbps fiber connection can be readily scaled to 10 Gbps with upgraded networking equipment. (para. 39)
- “With respect to libraries, we initially adopt as a bandwidth target the American Library Association’s recommendation that all libraries that serve fewer than 50,000 people have broadband speeds of at least 100 Mbps and all libraries that serve 50,000 people or more have broadband speeds of at least 1 Gbps. (para. 37)

Wireline Competition Bureau & Office Of Strategic Planning And Policy Staff Report. Federal Communications Commission. August 2014.

https://apps.fcc.gov/edocs_public/attachmatch/DA-14-1177A2.pdf.

- [W]e estimate that roughly 65 percent of public schools have fiber facilities to the building. . . . We caution that this analysis may somewhat overstate the extent of fiber connectivity to schools. We do not believe that the half of public schools for which we have data are perfectly representative of all schools in the country. (paras. 19-20)
- The connectivity situation appears to be worse for libraries. Based on a similar analysis using data from various states and the National Broadband Map, we estimate that approximately 15 percent of libraries have fiber connectivity to the building. (para. 21)

2015 Broadband Progress Report. Federal Communications Commission. Released February 4, 2015. <http://www.fcc.gov/reports/2015-broadband-progress-report>

<http://www.fcc.gov/reports/2015-broadband-progress-report>

- The data indicate that roughly 35 percent of public schools do not have fiber facilities to the building. The data further reveal that approximately 41 percent of public schools in rural areas do not have access to fiber whereas approximately 31 percent of public schools in urban areas are without fiber. The data we have regarding deployment of fiber to schools is consistent with other studies that indicated a large gap between schools’ broadband access and their needs. While many schools may not be subscribing to Gbps speeds yet, having fiber facilities in place gives schools the option to easily increase bandwidth as needed. A recent

CoSN survey finds that only 10 percent of school districts currently meet the Commission's longer-term Internet access target of 1 Gbps per 1,000 users; however, the majority of schools say that affordability and inadequate funding are the most significant barriers to connectivity (as opposed to access). (para. 129)

2013 Digital Inclusion Survey: Survey Findings and Results. Information Policy & Access Center, University of Maryland, College Park. July 21, 2014.

<http://digitalinclusion.umd.edu/sites/default/files/uploads/2013DigitalInclusionNationalReport.pdf>.

- City libraries report an average subscribed download speed of over 100Mbps, as compared to an average subscribed download speed of just over 21Mbps for rural public libraries. Two-thirds of libraries overall report a desire to increase broadband connectivity. However, 58.8 percent of libraries report that budgetary constraints affect their ability to increase bandwidth while slightly less than one-third of libraries report that outside entities make the decisions regarding their branch's bandwidth. (p. 4)

Broadband Technology Opportunities Program Quarterly Program Status Report. National Telecommunications and Information Administration, U.S. Department of Commerce. November 2014. <http://www.ntia.doc.gov/report/2015/twenty-second-quarterly-status-report-congress-regarding-btop>.

- Thus far, recipients have connected approximately 25,300 total community anchor institutions. (p.2)

CoSN's Second Annual E-rate and Infrastructure Survey. Consortium for School Networking. 2014. <http://cosn.org/cosns-second-annual-e-rate-and-infrastructure-survey>.

- One-quarter of districts reported that not a single school in their district could meet the FCC's short-term goal of 100Mbps/1000 students.
- Only 9 percent of [school] districts have adequate bandwidth to fully meet the demand for online assessments and digital content anticipated over the next 18 months.

EducationSuperHighway National K-12 E-rate Spending Report. EducationSuperhighway. April 2014.

<http://www.educationsuperhighway.org/wp-content/uploads/2014/11/Connecting-Americas-Students-K12-E-rate-Spending-Report-April-2014.pdf>.

- In making these digital learning opportunities available to more students, schools' need for bandwidth is growing 30 - 50% per year. (p.3)
- Data from the SchoolSpeedTest indicates that 63% of U.S. schools do not meet the Current Goals for high-speed connectivity. Because schools with large student populations are more likely to have inadequate bandwidth,

this connectivity gap impacts an estimated 75% of K-12 students, leaving nearly 40 million children without enough bandwidth for digital learning. Looking ahead to projected bandwidth needs in five years, 99% of schools will be behind the standard, impacting approximately 50 million public school students. (p.5)

- Even if a school has fiber, 83% are not meeting current ConnectED goals. (Chart 11a, p.14)
- The key factor that prevents some districts from purchasing enough bandwidth to meet the ConnectED goals is the affordability of high-speed connections. Districts that do not meet Current Goals reported connectivity costs that were three times higher on average than those reported by districts that do meet Current Goals. When the price of connectivity is too high, districts are unable to purchase the level of bandwidth that they need. (p. 14)

A Model for Understanding the Cost to Connect Schools and Libraries with Fiber Optics. CTC Technology & Energy prepared for the SHLB Coalition. October 2014. <http://shlb.org/news/2014/10/SHLB-and-CTC-Connecting-Schools-and-Libraries-Cost-Study-Analysis-Published/>

- Our analysis of the FCC data finds that 22 percent of rural schools report having no fiber and 17 percent of non-rural schools report having no fiber. In addition, 42 percent of rural schools and 44 percent of non-rural schools were listed as unknown. Either they did not report fiber connectivity, they reported that they did not know the status of their fiber connectivity, or they had multiple, inconsistent reports. The model splits the unknown school category in half and assigns an equal amount to the fiber-connected and no-fiber categories. For rural schools, based on this assignment of the unknowns, 43 percent have no fiber and 57 percent have fiber. For non-rural schools, 39 percent have no fiber and 61 percent have fiber. (p.8-9)
- Our analysis of the FCC data finds that 52 percent of the libraries report having no fiber, and 33 percent of libraries were listed as unknown. Either they did not report fiber connectivity, they reported that they did not know the status of their fiber connectivity, or they had multiple, inconsistent reports. The model splits the unknown library category in half and assigns an equal amount to the fiber-connected and no-fiber categories. Based on this assignment of the unknowns, 59 percent of libraries have no fiber and 41 percent have fiber. (p.9)

Comments of the American Library Association, September 15, 2014. http://www.ala.org/offices/sites/ala.org.offices/files/content/ALAFNPRMComments9_15_14.pdf.

- [H]alf of all of America's public libraries report connection speeds less than 10 Mbps. (p.7)

- For rural libraries, the gaps at both ends of the speed spectrum are even more dramatic. In spite of incremental progress, nearly one in five rural libraries *still* report download speeds of 1.5 Mbps or less, and fewer than 4% report speeds of 100 Mbps or higher. (p. 8)