1

BROADBAND NEEDS ASSESSMENT and PLANNING for COMMUNITY ANCHOR INSTITUTIONS

Governments should identify anchor institution broadband needs and develop plans with stakeholders, broadband providers, and other partners to attract and target additional investment to fill broadband gaps.

by Kelleigh Cole

The SHLB Broadband Action Plan includes the following:

Connecting Anchor Institutions: A Vision of Our Future

1 Broadband Needs Assessment and Planning for Community Anchor Institutions

Kelleigh Cole is the Director of the Utah Broadband Outreach Center in the Governor's Office of Economic Development. In her current position, she leads an effort to work with broadband providers and other stakeholders across Utah to develop strategies to increase Internet access for all Utahns. She was the principal author of the state's first broadband plan and works with communities statewide to help them improve services. In 2011, she helped organize the Utah Broadband Advisory Council.

2 Wi-Fi and Wireless Networking for Community Anchor Institutions

3 Partnerships, Sharing, and Community Anchor Institution Broadband

4 Promoting Competition for Community Anchor Institution Broadband Services

5 Broadband Infrastructure Policy and Community Anchor Institutions

6 Community Anchor Institutions Served by Government and Non-Profit Fiber Networks

7 Broadband Subsidies for Community Anchor Institutions

8 Government Funding for Broadband Network Providers Serving Community Anchor Institutions

9 Rural Broadband Programs and Community Anchor Institutions

10 Community Anchor Institutions and Residential Broadband Adoption

Introduction

Broadband needs assessment and planning for community anchor institutions (CAIs) is one of the most critical steps that state and local governments can take to improve broadband connectivity and promote economic growth in their regions. Conducting an inventory of the locations and speeds of the existing broadband services for CAIs – and identifying the gaps in broadband coverage – can help attract new funding and target investments to the areas with the most need. Conducting an inventory among all CAIs can also facilitate meaningful partnerships and strategies to ensure that the entire community has adequate broadband connectivity. This paper provides an overview of the variety of tools and processes that government leaders can use to meet the broadband needs of schools, libraries, health care providers, and other anchor institutions and their surrounding communities.

Conducting an inventory of existing broadband services for CAIs can help attract new funding and target investments to the areas with the most need.

The National Telecommunications and Information Administration (NTIA) has recently issued an excellent community broadband planning toolkit that recommends how communities can evaluate broadband connectivity to homes, businesses, and institutions.[1] NTIA suggests the following six planning steps, regardless of the size of the project:

- Assemble a team to identify a community broadband vision;
- Assess communities' broadband-related resources, gaps, and needs;
- Engage local stakeholders;
- Choose appropriate technology;
- Select a business or organizational model (the framework for implementation); and
- Develop project plan(s), e.g. implementation and financial plans.

The following discussion draws particular attention to gathering the detailed data necessary to develop a broadband plan that serves CAIs' needs and to facilitate partnerships that can make the difference between a successful and unsuccessful project.

Starting Points for Understanding the Current Level of Broadband Connectivity

In 2010, the Federal Government created the State Broadband Initiative (SBI), which provided funding to each state and territory of the U.S. to map the availability of broadband networks and broadband subscribership across the U.S. That effort, administered by the NTIA, culminated in the creation of the National Broadband Map.[2] While the map is frequently cited and the quality of the data improved over time, the process of gathering and compiling the data was challenging. Questions have been raised about the consistency of the data across states and the accuracy compared to other data collections.[3]

NTIA's mapping effort came to an end in 2015 and responsibility for updating the map has been transferred to the Federal Communications Commission (FCC). Unfortunately, the FCC has not received additional funding to maintain the map.[4] The FCC continues to gather data through its annual reporting obligations on telecommunications carriers (Form 477), but these reports do not specifically ask for information about broadband connectivity for CAIs and instead is primarily focused on residential and business services.[5]

The FCC also makes information publicly available about the broadband services purchased by schools and libraries in the E-rate program.[6] The FCC has aggregated the data and published the average purchase prices for each state. While this information is useful, it does not provide the detailed data that an individual school or library will need to assess its particular location.

Although the FCC collects data for the National Broadband Map, it does not specifically ask for information about broadband connectivity for CAIs.

Some states are continuing to gather information about broadband networks, and it may be helpful for all state and local government leaders to find ways to continue this data collection. The information about these networks changes as providers enter and exit different geographic markets and upgrade available broadband services. Many SBI grantees began to work with local communities to conduct broadband planning within regions, counties, and cities and these efforts resulted in over 200 local broadband planning teams.[7] Drawing from these existing resources, conducting needs assessments and broadband planning does not have to start from a blank slate.

Rigorous Needs Assessment is Essential

While the National Broadband Map and the FCC's data provide a useful overview, a community that wishes to develop a broadband plan should engage in a local, granular approach that evaluates detailed information in the specific geographic area. The current FCC mapping model does not allow providers to report data beyond the census block level, and thus, a block is considered "served" even if just one location in the area receives service. This can be misleading. The fact that a consumer across town has residential or small business broadband capabilities may be irrelevant to determining whether a particular school, library, or health provider has access to a high-speed connection at its specific location. And anchor institutions need much more bandwidth than a typical residential consumer. Even if a residential consumer is "served" by a residential-quality broadband service, the anchor institution in the same neighborhood may be "underserved" if it cannot obtain the high-capacity service it needs.

Each community should develop its own detailed needs assessment. The analysis can determine whether existing providers are well-positioned to serve the future needs of CAIs, or whether additional investment is needed. Policymakers will then be in a better position to attract or raise additional funding because they know the funding will be targeted to the areas most in need.

One way to determine whether or not anchor institutions have sufficient broadband available is to conduct a survey of the broadband providers serving that particular location to determine the level of services offered. For example, Northern Illinois University (NIU) commissioned a survey of anchor institutions' broadband needs to determine how the unmet needs could be improved.[8] The survey found a significant degree of dissatisfaction on all measures of existing Internet experience. "Connection speed" showed the biggest gap between the importance of the issue and actual experience.

Another example is the survey conducted by the Corporation for Education Network Initiatives in California (CENIC), the California State Library, and the library consortium, Califa, in 2014.[9] That survey concluded that the status of libraries' connectivity in the state was "dire" based on the following findings:

- *Three-quarters* of California's public libraries had low-speed connectivity of 20 Mbps or less – slower connectivity than what is found in most homes, even though each library must serve thousands of patrons and the operational activities of the library itself.

- *Two-thirds* of California's public libraries were using their connectivity at or over capacity – effectively rendering the connection useless for serving the public or operational activities. The proliferation of mobile devices, especially in underserved areas, made the situation even worse.
- California's public libraries were paying an exorbitant *$14 million* for this woefully inadequate connectivity, according to a conservative estimate of costs.
- *Less than half* of all jurisdictions were taking advantage of E-rate or California Teleconnect Fund (CTF) discounts that would help them shoulder these costs due to the administrative overhead required to apply. Only one-quarter were taking advantage of both.

This needs assessment led to the "Lighting Up Libraries" initiative to connect California's public libraries to the high-speed private broadband network operated by CENIC.[10]

There are a number of entities that work with state and local governments to support CAI broadband planning. One such provider, EducationSuperHighway, a non-profit organization focused on improving K-12 school broadband capability, is working with several state governors, school districts, and Internet providers on a process to identify districts that lack sufficient broadband access. For instance, EducationSuperHighway recently entered a partnership agreement with Governor Greg Abbott (R-TX) to assess broadband options and to upgrade Internet access in nearly 1,000 public schools across the state that currently lack access to high-speed fiber. This initiative is intended to help many schools attain fiber connections that are both scalable and affordable.[11]

Conducting assessments on both the connections to the CAI and the wireless capacity within the CAI is critical to undertaking an effective planning process. For instance, planning teams should collect data on the number of devices being used, the number of Wi-Fi access points per room, and the age of this equipment.[12]

One example is the "Utah School Technology Inventory." The Utah Education and Telehealth Network (UETN) commissioned Connected Nation to evaluate the availability of technology in Utah school districts.[13] UETN also published the "Utah Education and Telehealth Network WAN, Wi-Fi, Security and Content Filtering Roadmap" which evaluated infrastructure required for Utah schools' increasing technology needs.[14]

An Effective Planning Process Is Essential

While conducting a needs assessment is of paramount importance, there are several other critically important steps that must be included in a broadband plan. It is important to assemble local stakeholders, including anchor institutions and broadband providers, and to develop a financial plan for sustainability. These additional steps are discussed briefly below.

Identify the Community Anchor Institutions in Your Region

There are several sources for identifying the anchor institutions in a state or region:

- The National Broadband Map contains a state-by-state list of over 347,000 anchor institutions with their physical addresses.[15]
- The National Center for Education Statistics maintains a database of public and private schools, as well as colleges and universities.[16]

- Pubic libraries can be found by searching the Institute of Museum and Library Services (IMLS) database.[17] Additional information about other libraries can be found on the American Library Association (ALA) Library Factsheet.[18]

As for health organizations, researchers found 62,000 health entries in 2014 in the dataset for the National Broadband Map, but they note that the 62,000 figure probably understates the actual number of health entities, because some states reported several thousand while other states reported less than one hundred.[19]

Establish a Realistic Timeline for Serving the CAIs that Will Be Included in the Plan

Once the locations of the CAIs are identified and their needs are understood, planning teams should create a schedule for serving the CAIs with enhanced broadband access. This is easier said than done. CAIs located in underserved areas are often the primary focus of planning efforts, but these CAIs may be located in the most-rural, and thus most-costly, areas. Planning leaders may choose to focus first on areas with multiple anchor institutions to aggregate demand and encourage providers to enter into these markets. Serving these aggregated institutions first may also support the financial sustainability of the project. Once these networks are deployed, it will be easier to build off them to reach outlying and more remote locations.

Form Partnerships

Including strategic partners in the planning process is a critical component in aligning efforts. Planning teams should consider working with local businesses and other institutions that have funding available such as government, for-profit medical facilities, and public safety entities. The planning outreach should be comprehensive and include transportation, economic development, energy, and agriculture agencies in addition to CAIs and broadband providers.

Broadband planners should consider both current and potential broadband service providers as key partners in connecting CAIs. Holding meetings with providers to share information on deployment plans and barriers can also help develop an effective planning process. This strategy will reduce the costs of deployment and encourage capital investment in areas where providers could not otherwise make a business case.

Develop and Implement a Broadband Plan

Once the groundwork has been established by conducting the needs assessment and coordinating with stakeholders, it will be easier to put the plan together. But the broadband plan must be extremely well thought-out, as there are many factors that affect the long-term sustainability of the plan. NTIA's toolkit contains an excellent list of factors that should be included in the broadband plan:

- Identification of which CAIs will specifically benefit and what services will be provided to them;
- A competitively-neutral process to identify which broadband providers will be selected to build and operate the network;
- A financial plan that identifies costs and revenue streams, and a timeline for the project to become self-sustaining;
- An analysis of the political and regulatory landscape, including a review of government permits for use of rights-of-way, that will impact the feasibility of the project; and
- A plan for trialing and testing the network services along the way to address any shortcomings.

Recommendations

Developing and implementing a broadband plan is time-consuming, but absolutely essential. Failing to conduct a needs assessment of CAIs' present and future broadband services can lead to missed opportunities, unmet needs, or wasteful investment. Failing to include all stakeholders, including the broadband providers, in the planning process can make the difference between a long-lasting, sustainable project and a project that results in stranded assets. Perhaps the most important recommendation is for planners to gather detailed, granular data about the broadband assets in an area, rather than relying on generalized descriptions of whether an area is served, unserved, or underserved, especially because CAIs' broadband needs are very different from residential and business needs.

Here are some of the key recommendations for federal, state, and local policymakers who wish to develop a broadband plan for their regions:

- Funding should be allocated to states and local governments to continue to engage in broadband mapping of networks available to and used by CAIs. Efforts should be made to gather such information in a consistent manner to help state-by-state comparisons of results. National standards and a national repository for state and local broadband assessment data should be established to ensure data consistency and avoid duplicative efforts.[20]

- State and local governments should gather local, granular information about the availability and use of broadband services by CAIs, rather than relying on general industry claims. Such state and local planning efforts should include:

  1. Identifying the CAIs in their region;

  2. Surveying CAIs about their broadband needs and level of satisfaction with existing broadband services;

  3. Evaluating the broadband services available to their local CAIs from existing broadband service providers;

  4. Establishing a reasonable timeline for serving the CAIs that are most in need of additional broadband investment;

  5. Working with partners and all stakeholders to consider aggregate solutions to maximize the efficiencies of shared networks and community needs;

  6. Working with private sector broadband providers to understand where they plan to expand and how they can facilitate the broadband plan; and

  7. Developing a broadband plan that includes financial models, a review of government and regulatory requirements, testing, and timelines for sustainability.

Resources for Further Reading

Several organizations have produced planning materials that may help communities evaluate their needs. Plans from these organizations can serve as a model for other communities.

Kathleen McMahon, Ronald Thomas, Charles Kaylor, Planning and Broadband: Infrastructure, Policy, and Sustainability, American Planning Association (July 1, 2012) https://www.planning.org/publications/book/9026893/

Colorado Governor's Office of Information Technology, "Broadband Mapping" http://www.oit.state.co.us/strategy/broadband/broadband-mapping accessed June 16, 2016.

Connect Michigan, Final Grant Report (March 2015) http://www.connectmi.org/final-grant-report

MoBroadbandNow, "Regional Planning," http://mobroadbandnow.com/regional-planning/ accessed June 16, 2016.

The Nevada Broadband Task Force and Connect Nevada, State Broadband Action Plan (November 2014) http://www.connectnv.org/sites/default/files/connected-nation/Nevada/files/nv_broadband_plan_final.pdf

Utah Governor's Office of Economic Development, "Utah Broadband Outreach Center," http://business.utah.gov/programs/broadband/ accessed June 16, 2016.

West Virginia Broadband Mapping Program http://www.wvgs.wvnet.edu/bb/grants.html accessed June 16, 2016.

Wisconsin State Broadband Office, "Connecting Wisconsin to the World" http://www.link.wisconsin.gov/ accessed June 16, 2016.

Endnotes

1 National Telecommunications and Information Administration, "Planning a Community Broadband Roadmap: A Toolkit for Local and Tribal Governments" (April 2016) http://www2.ntia.doc.gov/files/planning-community-broadband-roadmap-apr2016.pdf

2 The National Broadband Map (NBM) is a searchable and interactive website that allows users to view broadband availability across every neighborhood in the United States. First published in February 2011, the NBM was updated every six months through April 2015. See, www.broadbandmap.gov/about

3 Justin Grimes, John Bertot, and Ruth Lincoln, "Public Libraries and the National Broadband Map: Findings and Recommendations," College of Information Studies, University of Maryland. (May 14, 2012) http://ipac.umd.edu/Files/CAI_NBM_final_15May2012.pdf

4 Federal Communications Commission, "About National Broadband Map," http://www.broadbandmap.gov/about accessed June 16, 2016. ["The Commission sought funding for FY 2016 to maintain and update the National Broadband Map, but this request was not granted. While the Commission is not currently in a position to update the map in light of funding constraints, it continues to collect and report on deployment through its semi-annual Form 477 data collection and annual Broadband Progress Report."]

5 Federal Communications Commission, "Broadband Deployment Data from FCC Form 477" https://www.fcc.gov/general/broadband-deployment-data-fcc-form-477 accessed June 16, 2016.
[Fixed providers file lists of census blocks in which they can or do offer service to at least one location, with additional information about the service.
Note: A provider that reports deployment of a particular technology and bandwidth in a census block may not necessarily offer that service everywhere in the block. Accordingly, a list of providers deployed in a census block does not necessarily reflect the number of choices available to any particular household or business location in that block, and the number of such providers in the census block does not purport to measure competition.]

6 Jonathan Chambers, Lisa Hone and Jon Wilkins, "A Dialogue on E-rate Pricing Data," Federal Communications Commission (November 16, 2015) https://www.fcc.gov/news-events/blog/2015/11/16/dialogue-e-rate-pricing-data

7 Brian Gibbons, NTIA, interview with the author, April 13, 2016.

8 CTC Technology & Energy, The Use of Broadband and Demand for iFiber Among Community Anchor Institutions (July 2012) http://www.broadbandillinois.org/uploads/cms/documents/niu_ctc_broadbandsurvey_report080512_final.pdf

9 California State Library, High-speed Broadband in California Public Libraries: Needs Assessment and Spending Plan (2014) http://www.library.ca.gov/lds/docs/Public_Library_Broadband_Assessment_2014.pdf

10 Greg Lucas, Lighting Up Libraries: High-speed Broadband in California Public Libraries -- An Update on the First Nine Months, California State Library (April 2, 2015) http://cenic.org/files/network/LightingUpLibraries2.pdf

11 Office of the Governor Greg Abbott, Governor Abbott Hosts Reception On Classroom Connectivity With EducationSuperHighway" (March 10, 2016) http://gov.texas.gov/news/press-release/22047

12 EducationSuperHighway publishes a School Wi-Fi Buyer's Guide, an online tool for technology directors who want to make educated wireless equipment purchase decisions, but do not have the time it takes to conduct extensive research. The Guide is intended to help technology directors understand wireless features and functionality and create a requirements list to give them confidence when evaluating solutions from multiple vendors. See http://www.educationsuperhighway.org/buyersguide/

13 Connected Nation and Utah Education and Telehealth Network, Utah School Technology Inventory (January 2016) www.uen.org/digital-learning/downloads/inventory/UtahSchoolTechnologyInventoryReport.pdf

14 Utah Education and Telehealth Network, WAN, WiFi, Security and Content Filtering Engineering Study & Road Map www.uen.org/digital-learning/downloads/UETN_Engineering_Study_Final_Report.pdf

15 Federal Communications Commission, "National Broadband Map – Download Data" http://www.broadbandmap.gov/data-download accessed June 16, 2016.

16 National Center for Education Statistics, "Search for Schools and Colleges," www.nces.ed.gov/globallocator accessed June 16, 2016.

17 Census Bureau, Department of Commerce, "Search for Public Libraries," https://harvester.census.gov/imlssearch/ accessed June 16, 2016.

18 American Library Association, "Number of Libraries in the United States," http://www.ala.org/tools/libfactsheets/alalibraryfactsheet01 accessed June 16, 2016.

19 Brian Whitacre, Denna Wheeler, and Chad Landgraf, "What Can the National Broadband Map Tell Us About the Health Care Connectivity Gap?" The Journal of Rural Health (2016) http://www.ncbi.nlm.nih.gov/pubmed/26934373

20 This recommendation is consistent with the Broadband Opportunity Council (BOC) call for the Department of Education to develop greater data, analysis and research on broadband connectivity for schools and students, except that this effort should not be limited to schools. See US Department of Commerce and US Department of Agriculture, Broadband Opportunity Council Report and Recommendations, (August 20, 2015) https://www.ntia.doc.gov/files/ntia/publications/broadband_opportunity_council_report_final.pdf

OPEN, AFFORDABLE, HIGH-CAPACITY BROADBAND for COMMUNITY ANCHOR INSTITUTIONS IS AN ATTAINABLE GOAL, BUT ONLY IF WE REACH TOGETHER.

SHARE

Share on social media about SHLB's Broadband Action Plan and the Grow2Gig+ Campaign.

Tweet @SHLBCoalition and follow using #Grow2Gig.
Follow us on Facebook and LinkedIn.

LEARN

Stay informed and learn about the best broadband policies and examples of how to improve anchor institution connectivity by reading and contributing to SHLB Coalition's Action Plan web portal.

ADVOCATE

Reach out to policymakers at the local, state, and federal level and help us fight for digital equity.

GROW2GIG+
ANCHORS ADVANCE COMMUNITIES

"Grow2Gig+: Anchors Advance Communities" is the SHLB Coalition campaign to make gigabit speeds for anchor institutions a national priority. "Connecting Anchor Institutions: A Broadband Action Plan" is a crucial component of the Grow2Gig+ campaign, which also includes an interactive website that provides a hub for discussion, updates, and information to guide these national efforts. Gigabit broadband for community anchor institutions is an attainable goal, but only if we reach together. Help us Grow2Gig+! www.shlb.org/action-plan

The **Schools, Health & Libraries Broadband (SHLB) Coalition** is a 501(c)(3) advocacy organization that supports research and public policies that promote open, affordable, high-capacity broadband connectivity for anchor institutions and their communities. Founded in 2009 in Washington, DC, the SHLB Coalition receives financial support from its non-profit and corporate members and from the Bill & Melinda Gates Foundation. For more information, visit www.shlb.org/.

Published by

The **Benton Foundation** works to ensure that media and telecommunications serve the public interest and enhance our democracy. It pursues this mission by: 1) seeking policy solutions that support the values of access, diversity and equity; 2) demonstrating the value of media and telecommunications for improving the quality of life for all; and 3) providing information resources to policymakers and advocates to inform communications policy debates. For more information, visit www.benton.org.

Thank you to the following organizations for their sponsorship of the SHLB Broadband Action Plan:

www.ena.com

www.globalstar.com

www.fundsforlearning.com

www.ctcnet.us

Please include the following attribution when citing this report:

Schools, Health & Libraries Broadband (SHLB) Coalition. "Connecting Anchor Institutions: A Broadband Action Plan." Evanston, IL: Benton Foundation, July 2016.
www.shlb.org/action-plan
www.benton.org/SHLB-broadband-action-plan

Design by M Greiner