8

GOVERNMENT FUNDING for BROADBAND NETWORK PROVIDERS SERVING COMMUNITY ANCHOR INSTITUTIONS

Providing government funding to broadband network providers serving CAIs encourages economic development, expands educational opportunity, improves health care services and promotes digital equity.

by Amelia Bryne

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

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**

by Amelia Bryne. Trained in cultural anthropology and new media, Amelia Bryne is co-Director of DeepTech.org, a research consultancy that focuses on the social and environmental impacts of information and communications technologies. She has worked with the American Library Association Office for Information Technology Policy, the University of Helsinki, the Social Science Research Council, the Community Wireless Infrastructure Research Project, byDesign eLab, and other public interest research projects and institutions. Her research has been published in journals such as *Telematics & Informatics, Policy & Internet,* and the *Journal of Community Informatics.*

9 Rural Broadband Programs and Community Anchor Institutions

10 Community Anchor Institutions and Residential Broadband Adoption

Introduction

Governments can play an important role in funding broadband infrastructure deployment to ensure robust, affordable access for anchor institutions beyond what the market is able to do. Failing to take action to spur broadband deployment creates risks for the community – losing businesses, jobs, services, and population. A U.S. Government Accountability Office report found that in communities with government-funded broadband projects, small businesses experience higher speeds and lower prices as compared to communities without such projects.[1]

Many governments are financing at least a portion of broadband network build-out.

There are several ways that governments can finance broadband deployment, including subsidies for investment, equity in public-private partnerships (PPPs), preferential tax treatment, long-term loans, on-lending loans, [2] and guarantees to offset regulatory or political risk.[3] One strategy that can minimize risk to the government and the provider is to fund broadband builds first to community anchor institutions (CAIs) in a region: CAIs can then serve as the "anchor tenants" to support the network's economic viability. This strategy can ensure that schools, libraries, health providers, and other anchor institutions receive the high-capacity broadband services they need, while also providing capacity that can be shared with surrounding residential and business consumers.[4]

Despite Significant Broadband Network Investment, CAIs Face Connectivity Gaps

Despite broadband's critical importance, many anchor institutions struggle to obtain the high-speed Internet connectivity they need at a reasonable price.

In rural, sparsely-populated areas, commercial providers may have little economic incentive to build out fiber networks, or to maintain and adequately upgrade infrastructure, because the costs of building a network are so high -- especially compared to potential revenues. In this scenario, rural CAIs are left without sufficient connectivity to serve their communities.

Even in some non-rural areas, broadband providers may provide lower-speed, residential grade service (such as DSL) leaving anchor institutions unable to obtain the high-speed connectivity that they need. For example, the Conference of Churches, a business incubator in downtown Hartford, CT, was unable to receive sufficient service from either of the two local commercial Internet service providers (ISPs). While one broadband provider served the building with copper-based DSL, the speeds offered (maximum download speeds of 10.5 Mbps) were far short of the organization's needs (50 to 100 Mbps). Another provider requested a $30,000 installation fee and a monthly $1,000 to $2,000 service charge.[5]

While the market sometimes provides sufficient financial incentives for broadband companies to deploy high-capacity broadband, the market does not always work. There are several factors that contribute to this market failure, including:

- The expense and complexity of building out and maintaining high-capacity broadband infrastructure;
- The limitations of legacy infrastructure, such as aging DSL lines;
- The absence of competition and open access policies that could allow multiple ISPs to operate using the same infrastructure; and
- Little return on investment when it comes to serving certain communities and regions.

Public Funding for Broadband Networks Benefit CAIs

Federal, state, and local governments are playing an increasingly important role in funding ubiquitous, high-capacity broadband infrastructure to CAIs and the general public. Reversing the privatization trend of the 1980s and 1990s,[6] more governments are financing at least a portion of broadband network build-out, particularly where there is a market failure to reach unserved or underserved areas.

The federal Broadband Technology Opportunities Program (BTOP) was a catalyst for broadband infrastructure deployment benefiting anchor institutions across the country.[7] BTOP grantees were awarded matching Federal grants to deploy "middle mile" broadband infrastructure in every state in the U.S. Grantees were required to connect anchor institutions and to abide by non-discrimination and open interconnection policies that allowed other "last mile" broadband providers to build off the BTOP-funded infrastructure to serve surrounding residential and business consumers. BTOP funding resulted in approximately 116,000 miles of new and upgraded broadband networking and improved connections to 25,766 anchor institutions.[8] CAIs served by BTOP infrastructure experienced a 95 percent decline in broadband prices, among other benefits.[9] For example,

> The BTOP-funded Lane Council of Governments (LCOG) network in Oregon provides middle mile connectivity at lower prices than before the construction of the network. Price and capacity data from six CAIs interviewed … show that the average price of broadband per megabit per month was reduced from $343 to $7, while the average speed increased by more than 27 times the original speeds. Additionally, the LCOG network is more reliable than the network it replaced. The increased route redundancy provided by the new network has enabled CAIs to implement more bandwidth-intensive applications. For example, healthcare providers can implement tele-stroke applications that are sensitive to interruptions in service, and schools can use online standardized testing.[10]

The American Recovery and Reinvestment Act provided a total of $4.7 billion to the National Telecommunications and Information Administration to fund projects that would expand access to, and adoption of, broadband services across the United States.

In September 2015, the National Telecommunications and Information Administration (NTIA) issued a new Guide to Federal Funding of Broadband Projects[11] to answer questions from communities on how to access federal funding to support broadband planning, public access, digital literacy, adoption, and deployment. The guide contains a chart of 29 Federal Government programs that support broadband.

Several states are also engaged in funding broadband deployment by private sector companies. Illinois created a broadband grant program in 2013 that specifically includes anchor institutions. Former Governor Pat Quinn instituted the "Gigabit Cities Challenge" program to award $6 million in funding for broadband networks.[12] One award of $1.5 million was given to a coalition that included Frontier Communications, the City of Carbondale, Southern Illinois University, and Connect SI to build a high-speed fiber optic network to Carbondale's businesses, schools, hospitals, and neighborhoods.[13] The first phase of the network was completed in December 2014, providing speeds 50 times faster than what was previously available, and making Carbondale Illinois' first "Gigabit City." The City of Carbondale has leveraged its grant to create a "playbook" to transition from a city that was initially defined by railroads into a globally-connected and nationally-recognized, innovative and entrepreneurial community.[14]

Several other states – including New York,[15] California,[16] Wisconsin,[17] Minnesota,[18] Maine,[19] and Massachusetts[20] – have also developed state broadband grant programs. California and Minnesota

administer "scored" grant programs to give targeted awards to entities that present the strongest business case and best use of state funding.

In 2011, the FCC created the Connect America Fund with an annual budget of $4.5 billion to extend broadband infrastructure to the millions of Americans who currently have no access to broadband.

Even when a broadband program is focused on residential customers, the program can include an obligation to serve the anchor institutions in residential communities. The Federal Communications Commission employs this approach in implementing the Connect America Fund (CAF), which provides financial support for telecommunications networks serving rural and high-cost areas of the country.[21] The program requires recipients of CAF funding to engage with CAIs in the network planning stages and establishes an expectation that broadband companies will provide CAIs with high-capacity connections at rates that are reasonably comparable to the rates offered to CAIs in urban areas.

Public funding to spur broadband network development can have additional benefits, such as a deepening collaboration between local entities working on infrastructure deployment and those working on digital inclusion. New funding opportunities, even if small, can have a tremendous positive impact on local planning and partnering. Even coalitions that did not receive BTOP funding often developed "shovel-ready" projects that were able to attract additional funding post-BTOP.[22]

High-Quality, CAI Broadband Delivers Many Broader Community Benefits

Supporting anchor institution connectivity is an effective means to help achieve public interest goals for education, health, and economic development. Broadband networks around the country built with public funds offer many examples of these benefits:

- With access to a new, higher capacity (1 Gbps) network made possible by BTOP funding, students at Arlington High School in South Dakota are now able to take previously-unavailable online foreign language classes during school hours.[23]

- Investing in broadband networks can provide significant cost savings in tele-health. In New York, a study found that 40 percent of nursing home hospitalizations were avoidable. With hospitalizations costing approximately $12,000 per occurrence, eVisits, with a fee of as little as $40, have the potential to lead to millions of dollars in annual savings.[25]

- In northwest Pennsylvania, there are only two board-certified pediatric dermatologists practicing within a 125-mile radius, leading to excessive travel and wait times for children in the region. The Children's Hospital of Pittsburgh leveraged the region's connectivity to create a telemedicine program in pediatric dermatology. During the first two years, 500 time-sensitive e-consultations were conducted – which were typically followed up by an in-person visit. The consultations allowed for "more time-efficient, precise care, decreasing patient travel and expense, and even in many cases decreasing prolonged hospital stays."[24]

- High-quality, affordable broadband infrastructure can help stimulate economic development and job growth. The BTOP investments are estimated to generate increased annual economic activity of between $5.17 billion and $21 billion. The additional broadband infrastructure could also be expected to create more than 22,000 long-term jobs and generate more than $1 billion in additional household income each year.[26]

Recommendations

To support the development of high capacity, affordable broadband infrastructure for community anchor institutions, federal, state and local policymakers can:

- Provide government funding to broadband network providers to stimulate network deployment that benefits anchor institutions, especially in unserved or underserved areas.
- Supplement government funds by helping secure additional and/or matching funds, whether from private or grant sources, to build out necessary broadband infrastructure.
- Offer open eligibility requirements in regard to the types of entities that can apply for funding to increase the number and quality of proposals.
- Ensure that grantees are strong enough and have the expertise to sustain a project for the long-run after the initial funding has been exhausted.
- Require recipients of funding to include anchor institutions in the design and planning of the network build-out.
- Work with stakeholders – including anchor institutions and the broadband industry – to understand how the provision of high-quality broadband to anchor institutions can help reach non-broadband policy goals, such as those related to distance learning or telemedicine services.
- Develop a scored grant program that allows the grantor to target awards to entities that present the best case for funding.
- Ensure that government-funded networks have open access and interconnection policies that facilitate competition and promote service to surrounding business and residential consumers.
- Act as facilitators to help coalitions of entities apply for broadband infrastructure funding.
- Keep up relationships with grantees to help identify and solve issues before they become problems.

Resources for Further Reading

Taxali, Sandeep "Broadband Infrastructure Case Studies Released – How Broadband Changes the Game" National Telecommunications and Information Administration, April 13, 2015. Several case studies detailing the impact of BTOP projects. https://www.ntia.doc.gov/blog/2015/broadband-infrastructure-case-studies-released-how-broadband-changes-game

ASR Analytics, *National Telecommunications and Information Administration Broadband Technology Opportunities Program Evaluation Study,* September 15, 2014. Offers a comprehensive analysis of the impact of BTOP including economic benefits. http://www2.ntia.doc.gov/files/asr_final_report.pdf

Ben Lennett, Patrick Lucey, Joanne Hovis, and Andrew Afflerbach, *The Art of the Possible: An Overview of Public Broadband Options,* New America Foundation and CTC Technology and Energy, May 5, 2014. Gives detailed examples of how CAIs and communities benefit from government-funded broadband, as well as a general overview of different business models for broadband infrastructure development that involve the public sector. https://www.newamerica.org/downloads/TheArtofthePossible-OverviewofPublicBroadbandOptions_NAFOTI-CTC.pdf

CTC Technology and Energy, *Recommendation: The Potential for Pilot Funding for Gigabit Networking in Connecticut,* March 9, 2016. Useful guidance for states thinking about offering funding for broadband infrastructure and why this policy mechanism can be beneficial. Also includes examples and lessons learned from other state programs. http://www.ct.gov/occ/lib/occ/2016-0309_ctc_report__pilot_funding_program.pdf

Endnotes

1 Mark Goldstein, Federal Broadband Deployment Programs and Small Business (Government Accountability Office: February 2014) http://www.gao.gov/assets/670/660734.pdf

2 When an organization lends money that they have borrowed from another organization or person.

3 Tim Kelly and Carlo Maria Rossotto, editors, Broadband Strategies Handbook, (The World Bank 2012) http://broadbandtoolkit.org/4.3

4 This approach is sometimes called a "success-based build" strategy.

5 CTC Technology & Energy, *A Brief Overview of Broadband Deficiencies in Connecticut* (January 2016) http://www.ct.gov/occ/lib/occ/2016-0124_ctc_report_on_connecticut_broadband_deficiencies.pdf

6 Wei Li and Lixin Colin Xu, "The Impact of Privatization and Competition in the Telecommunications Sector around the World" (October 2002) http://faculty.darden.virginia.edu/liw/papers/Impact_of_Privatization.pdf

7 In 2009 and 2010, the National Telecommunications and Information Administration invested about $4 billion – provided by the American Recovery and Reinvestment Act – in 233 BTOP projects benefiting every state, as well as five territories and the District of Columbia. The most significant portion of funding was allocated for Comprehensive Community Infrastructure projects to deploy new or improved broadband to connect households, businesses, and community anchor institutions.

8 National Telecommunications and Information Administration, *Broadband Technology Opportunities Program Quarterly Program Status Report,* Department of Commerce (April 2016) https://www.ntia.doc.gov/files/ntia/publications/ntia_btop_27th_qtrly_report.pdf

9 ASR Analytics, *National Telecommunications and Information Administration Broadband Technology Opportunities Program Evaluation Study,* (September 15, 2014) http://www2.ntia.doc.gov/files/asr_final_report.pdf

10 ASR Analytics, *National Telecommunications and Information Administration Broadband Technology Opportunities Program Evaluation Study,* (April 4, 2014) http://www2.ntia.doc.gov/files/lane_case_study_report_order_number_d10pd18645.pdf

11 National Telecommunications and Information Administration, *BroadbandUSA: Guide to Federal Funding of Broadband Projects* (September 2015) http://www2.ntia.doc.gov/files/broadband_fed_funding_guide.pdf

12 Partnership for a Connected Illinois, "Illinois Gigabit Communities Challenge" http://www.broadbandillinois.org/Use-it/Illinois-Gigabit-Challenge.html accessed May 11, 2016.

13 Nathan Woodside, "Governor Quinn Awards $1.5 million to Carbondale Area as Part of Gigabit Communities Challenge," Partnership for a Connected Illinois (August 26, 2013) http://www.broadbandillinois.org/news/307 accessed May 11, 2016.

14 Carbondale Main Street, "Connecting Carbondale: On Track to Becoming One of America's Best Communities" http://carbondalemainstreet.com/wp-content/uploads/2015/07/ConnectingCarbondalePlaybook1.pdf accessed May 11, 2016

15 New York State, "Connect NY Broadband Program" http://nysbroadband.ny.gov/ConnectNY2012 accessed May 11, 2016

16 California Public Utilities Commission, "California Advanced Services Fund (CASF)" http://www.cpuc.ca.gov/casf/ accessed May 11, 2016.

17 Public Service Commission of Wisconsin, State Broadband Office, "About LinkWISCONSIN," http://www.link.wisconsin.gov/about-link-wisconsin accessed May 11, 2016.

18 Minnesota Department of Employment and Economic Development, "Broadband Grant Program: Overview," http://mn.gov/deed/programs-services/broadband/grant-program/ accessed May 11, 2016.

19 State of Maine, "ConnectME Infrastructure and Community Broadband Planning Grants," https://www.maine.gov/connectme/grants/index.shtml accessed May 11, 2016.

20 Commonwealth of Massachusetts, "Governor Deval Patrick Signs Broadband Access Law," (August 4, 2008) http://broadband.masstech.org/sites/mbi/files/documents/who-we-are/broadband-pr808.pdf

21 Federal Communications Commission, WCB Cost Model Virtual Workshop 2012 - Community Anchor Institutions https://www.fcc.gov/news-events/blog/2012/06/01/wcb-cost-model-virtual-workshop-2012-community-anchor-institutions accessed May 11, 2016.

22 CTC Technology and Energy, *Recommendation: The Potential for Pilot Funding for Gigabit Networking in Connecticut* (March 9, 2016) http://www.ct.gov/occ/lib/occ/2016-0309_ctc_report__pilot_funding_program.pdf

23 Sandeep Taxali "Broadband Infrastructure Case Studies Released – How Broadband Changes the Game" National Telecommunications and Information Administration (April 13, 2015) https://www.ntia.doc.gov/blog/2015/broadband-infrastructure-case-studies-released-how-broadband-changes-game

24 Ben Lennett, Patrick Lucey, Joanne Hovis, and Andrew Afflerbach, *The Art of the Possible: An Overview of Public Broadband Options,* (New America Foundation and CTC Technology and Energy, May 5, 2014) https://www.newamerica.org/downloads/TheArtofthePossible-OverviewofPublicBroadbandOptions_NAFOTI-CTC.pdf

25 *Ibid.*

26 Taxali , Broadband Infrastructure Case Studies Released – How Broadband Changes the Game,

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