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## COMMUNITY ANCHOR INSTITUTIONS SERVED by GOVERNMENT and NON-PROFIT FIBER NETWORKS

State and local government networks can often provide anchors with high-quality bandwidth at affordable rates.

*by Joanne Hovis*

The SHLB Broadband Action Plan includes the following:

## Connecting Anchor Institutions: A Vision of Our Future

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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**

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## Introduction

State and local governments have been providing anchor institutions with high-speed data connections using fiber-optic networks for several decades. Indeed, tens of thousands of schools, libraries, community centers, and public health and safety providers obtain their broadband connectivity from local government and state non-profit networks, including state research and education networks. Policymakers should strongly consider developing or augmenting their municipal or statewide governmental or non-profit networks to ensure that their anchor institutions have the highest-quality broadband connectivity, to establish a foundation for economic growth, and to meet fundamental societal needs.

Government and non-profit anchor networks generally do not require short-term profits and, in most cases, can focus on long-term and community-based goals. These networks enable anchors to benefit from high bandwidth and reliability at reasonable per-unit pricing. These networks also benefit the private sector; many anchor networks lease excess capacity to and from commercial providers. While some criticize municipal broadband providers that serve residential customers, there are very few objections to networks that focus on serving anchor institutions.

## Addressing the Unmet Needs of Government Agencies and Anchor Institutions

Anchor institutions often cannot afford to purchase high-capacity circuits from the private sector; rather, anchors simply cap their bandwidth and choose not to deploy applications that require high bandwidth. In other cases, high bandwidth capacity is just not available to anchor institutions at any price because the commercial carriers have not deployed the required infrastructure in that region.

The town of Holly Springs, North Carolina, for instance, was paying private providers higher bills each year, and it was struggling to afford the bandwidth it needed. The town decided to construct a municipal network to provide telecommunications services to public buildings and community anchor institutions. The network cost \$1.5 million to build, and is set to pay for itself in less than 10 years. The network offers connection speeds that are exponentially faster than the services previously obtained from the private provider. The network will also lease extra fiber strands to companies who want to serve homes and businesses, thereby allowing the private sector to “piggy back” on its network.<sup>1</sup>

Similarly, in response to the increasing cost of service from a commercial provider, county officials in Martin County, Florida, decided to connect public buildings to the county’s fiber network. The decision reduced the cost by sharing conduit with the county’s traffic division, which was upgrading its intelligent transportation system. The county reduced the cost even further by negotiating a fiber swap with a rural exchange company in the region. The county built the network using a \$3.12 million loan and the network is expected to provide \$30.3 million in savings over the next 20 years.<sup>2</sup>

## Fiber-Based Networks Offer Affordable Scaling as Needs Grow

Fiber-optic networks have a useful life of decades because the capacity can be upgraded simply by changing the electronics at the end of the fiber. These networks are capable of supporting greater speeds and bandwidths as anchor institution needs and applications grow. Anchor networks commonly upgrade any one of their backbone fiber pairs to hundreds of gigabits per second – which is often faster than available commercial service offerings. Further, government and non-profit anchor networks often offer increases in capacity at little or no increase in recurring costs to the anchor because of how they typically

structure their cost recovery models. Cost savings from aggregating traffic from multiple users sharing the same network are passed along in the form of lower prices to all users, including the anchor institutions.

For instance, Merit Network (a non-profit research and education network in Michigan), received two federal Broadband Technology Opportunities Program (BTOP) grants to deploy fiber throughout the state. Merit has realized operational cost savings as a result of this fiber infrastructure and has passed those savings onto its anchor institution members. Merit provides several examples of schools and libraries that increased their capacity from 3 Mbps to 1 Gbps (about a 300% increase in speed) at prices that are less than what they had been paying a commercial provider.<sup>3</sup>

## The Efficiencies of Shared Construction

Many of the government anchor networks in operation were built through the economically-efficient mechanism of shared construction, in which agencies and organizations agree to build cooperatively and simultaneously. For instance, the network that serves the four partnered entities in and around the city of Seattle (including the City, King County, University of Washington, and school district) was made affordable by the agreement of the four entities that, in the event that one of the partners planned to deploy fiber infrastructure, the others would have the option of contributing funds to build additional capacity in this shared infrastructure. Each partner agency operates its own network services over the shared physical infrastructure, but only one physical network was built to enable these many functional networks. The end result has been a robust, high-speed bandwidth infrastructure that realizes economies of scale in both construction and maintenance—and delivers world-class services to Seattle-area anchor institutions, including schools, higher education, public safety, and libraries.<sup>4</sup>

Walton County in the Florida Panhandle offers another example:

Incumbent providers have failed to invest in the region’s infrastructure, and as a result, connectivity has been both poor and expensive. Some county agencies pay as much as \$500 per month for 3 Mbps DSL connections that don’t meet their needs. “Basic functions of our government are not working due to inadequate speeds,” explains Rick Wilson, projects and programs manager for the Walton County Board of County Commissioners.<sup>5</sup>

Walton County joined with several surrounding counties to build a new network using Alabama-based fiber provider Southern Light. The network will connect more than 50 public buildings, including schools, libraries, firehouses, sheriff’s offices, a rural health care office, road crew offices, commissioners’ offices, and community centers.

## A Platform for Last Mile Deployment to Homes and Businesses

Local government and non-profit anchor networks often realize yet another key efficiency – these networks also can serve as an open platform for last mile deployment, both public and private. By their nature, most government networks to anchor institutions will reach deep into neighborhoods that house schools, libraries, public health offices, and government facilities such as water towers and fire stations. Many localities then lease excess capacity to private sector providers to enable service provision and last-mile build-out in the neighborhoods. This trend is fast accelerating as hundreds of localities make available spare fiber optic capacity to private carriers at rates designed to catalyze new private sector investment and opportunity.<sup>6</sup>

In Clackamas County, Oregon, a public fiber-optic network serving anchor institutions was purposely built with excess capacity that the county now leases to eight retail Internet service providers (ISPs). Access to the county's middle-mile network allows the ISPs to provide significantly better service to end customers and improves the business case for additional investment in last-mile networking solutions. The county is able to cover the ongoing cost of operating the network with the revenues generated from leasing excess network capacity.<sup>7</sup>

Similarly, Arlington County, Virginia, recently built a fiber-optic network to meet the county's internal communication needs. The county is now using excess network capacity to attract businesses to the area, in support of the county's economic development goals. The county offers three-, five-, and ten-year leases for up to 48 strands of dark fiber to any entity that can demonstrate it will use the connection to expand economic opportunities within the county.<sup>8</sup>

## Strategies to Finance Government Anchor Networks

There are several strategies local and state governments have used to finance anchor networks. Where there is sufficient leeway in the general fund, governments can appropriate funds to cover the necessary initial capital expenditure, either on a one-time or multi-year basis. If there is not sufficient leeway in the general fund, a number of municipalities have used general obligation bonds, revenue bonds, or certificates of participation to finance the network build-out.

While these financing strategies do come at a cost, the lack of a high-capacity anchor network can pose a greater threat to the community's long-term financial situation. Government agencies' and anchor institutions' demand for bandwidth will continue to grow in the coming years. Failing to invest in high-capacity broadband can impede the community's economic growth.

Anchor networks tend to have a relatively modest payback period, with the initial investment often being offset through avoided costs in roughly 3-10 years. This holds true even when bonds are used to finance the network build-out, taking into account the cost of servicing the debt.

Once constructed, there will also be ongoing operational costs associated with maintaining the network. Often, the network manager charges agencies and anchor institutions fees for their use of the network that are limited to the actual operational costs. Most networks have been able to reach financial self-sufficiency while charging agencies far less than a private carrier would charge for comparable services.

There is also growing interest amongst private financial institutions willing to invest in municipal networks. Local governments may be able to find alternative means of financing government anchor networks using private capital.

## Addressing Criticism of Municipal Networks

Despite numerous examples of successful municipal networks providing broadband services on a wholesale or retail basis,<sup>9</sup> some critics argue that such networks unfairly compete with private industry and can pose a risk to taxpayers. While much of the criticism is unfounded and based on factual errors,<sup>10</sup> these criticisms are largely irrelevant to anchor networks. Very few of the critics of municipal retail and wholesale networks argue against municipalities' right to own and operate a network to meet their agencies' internal needs. Commercial companies generally do not question anchor institution networks in part because these networks are analogous to private, corporate networks that are usually provisioned by commercial companies.

## Policy Recommendations

To help community anchors obtain the high-capacity broadband they need, policymakers should consider the following options:

- State and local governments should consider creating or upgrading their municipal or state non-profit networks to expand broadband service to anchor institutions. States and municipalities have successfully used anchor networks to control the cost of communications services for decades. While the success of such networks depends on wise financing decisions, quality engineering, and skilled operation, there is often a strong business case for local and state governments to invest in fiber infrastructure in order to serve local anchor institutions in a cost effective manner while benefiting the private sector as well.<sup>11</sup>
- State and local governments that deploy fiber optics for internal use, including to government and public safety facilities, should include the full range of anchor institution types in their plans, including education, health care, libraries, community centers, public media, and digital inclusion training sites.
- The Federal Communications Commission should continue its successful policy of allowing municipal and non-profit networks to serve as eligible providers under the E-rate and Healthcare Connect Fund programs, thus enabling schools, libraries, and health care facilities to benefit from the competitive bids and services of public as well as private sector networks.
- Federal and state broadband funding programs, including but not limited to those specifically designed to extend or improve services to anchor institutions, should include local governments and affiliated non-profits as eligible entities for funding.
- Policymakers should encourage shared construction by multiple government agencies to deploy fiber conduit, lower their costs, and avoid deploying duplicate networks.
- Municipal and non-profit networks should be encouraged to build excess capacity that they can lease to the private sector in order to promote competition by commercial service providers and generate revenue to pay for the operating costs of the network.

## Endnotes

- 1 Paul Specht, “Holly Springs completes fiber network,” The News and Observer (June 27, 2014) <http://www.newsobserver.com/news/local/community/cary-news/article10336517.html>
- 2 Jessica Renee Napier, “County Government Asks: Why Rent When You Can Own?” Government Technology (March 20, 2014) <http://www.govtech.com/network/County-Government-Asks-Why-Rent-When-You-Can-Own.html>
- 3 Merit Network, Michigan Research and Education Network (September 10, 2013) <http://apps.fcc.gov/ecfs/document/view?id=7520943537>
- 4 Community Connectivity Consortium, “Fiber Consortium Fast Facts,” May 2014, <http://communityconnectivity.org/wp-content/uploads/2011/11/Fiber-Consortium-Fast-Facts-0514.pdf>, accessed June 2, 2016.
- 5 Masha Zager, “Fiber to the Panhandle: Walton County, FL,” Broadband Communities (November/December 2015) [http://www.bbpmag.com/2015mags/Nov\\_Dec/BBC\\_Nov15\\_WaltonCountyFL.pdf](http://www.bbpmag.com/2015mags/Nov_Dec/BBC_Nov15_WaltonCountyFL.pdf)
- 6 The value of shared construction and open access and interconnection policies are also addressed in “Promoting Competition for Broadband Services” in this Action Plan.
- 7 Clackamas Broadband Express, Clackamas County <http://www.clackamas.us/ts/cbx.html> accessed June 2, 2016.
- 8 “ConnectArlington Fact Sheet,” Arlington County <http://departments.arlingtonva.us/dts/connectarlington/fact-sheet/> accessed June 2, 2016.
- 9 See, for example, Andrew Cohill, “Danville Transforms its Economy with Fiber,” Broadband Communities Magazine (November 2011) <http://www.bbpmag.com/MuniPortal/EditorsChoice/1111editorschoice.php>; Jon Brodtkin, “Where Broadband is a Utility, 100Mbps costs just \$40 a month,” ars technica (August 4, 2015) <http://arstechnica.com/business/2015/08/how-a-small-city-offers-60-gigabit-fiber-with-no-taxpayer-subsidies/>; Todd O’Boyle and Christopher Mitchell, Carolina’s Connected Community: Wilson Gives Greenlight to Fast Internet, Institute for Local Self-Reliance and Common Cause (December 2012) <http://ilsr.org/wp-content/uploads/2012/12/wilson-greenlight.pdf>
- 10 Christopher Mitchell and Edyael Casaperalta, Reply Comments in the Matter of Petitions Pursuant to Section 706 of the Telecommunications Act of 1996 for Removal of State Barriers to Broadband Investment and Competition (FCC WC Docket No. 14-115, 14-116), Institute of Local Self Reliance and Rural Broadband Group (September 29, 2014) <http://apps.fcc.gov/ecfs/document/view?id=60000869736>
- 11 Joanne Hovis, “The Business Case for Government Fiber Networks,” Broadband Communities Magazine (March 2013) <http://www.bbpmag.com/MuniPortal/EditorsChoice/0313editorschoice.php>

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

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**“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](http://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/](http://www.shlb.org/).

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