Chapter 3

The Rural Public Library as Leader in Community Broadband Services

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Abstract

This chapter of The Transforming Public Library Technology Infrastructure *proposes a leadership role for rural public libraries as a linchpin among broadband anchor institutions in the community. This chapter utilizes recent research to explore the need for new models of how the rural public library can take a leadership role in utilizing education and training to increase the impact of broadband on the community. In addition, the chapter offers one possible approach for how the public library can take a leadership stance in promoting community-based broadband planning.*

Introduction

Broadband is a community asset. The Federal Communications Commission (FCC), in *Connecting America: The National Broadband Plan*, sets a goal that every US community should have affordable access to at least a 1 gigabit per second (Gbps; 1 Gbps equals 1,000 Mbps and 1,000,000 kbps) connection through its anchor institutions, such as public libraries, schools, community colleges, and health-related organizations.[1] Rural public libraries can and should take very strong leadership positions to leverage and coordinate community broadband resources. The public library clearly is playing a linchpin role in many rural communities already. The public library provides training and information services for a wide range of needs and has staff members who understand technical issues—knowledge that may be at a premium in rural areas that lack countywide or regional IT support for anchor institutions. In addition, the library's user base overlaps with the user bases of other anchor institutions. But the rural public library faces many of the same issues as other rural anchor institutions, such as lack of resources, support from elected officials, and access to affordable high-speed broadband Internet.

Anchor institutions are "sticky capital"[2] because they are assets that stay in their communities, as opposed to businesses that can leave at any time.[3] CEOs for Cities, a national group of urban leaders, notes that anchor institutions can have extended impacts on their communities when they think of their successes as community success. In this way, they can "project ambition" and increase their relevance through leadership roles that address community needs.[4]

This chapter proposes a new service model for the rural public library as the "anchor institution of the anchor institutions." Such an approach to rural public library service will be challenging to implement and maintain, especially in difficult times. However, the current economic situation in which the rural public library and rural communities in general find themselves demands a rethinking of broadband service delivery on a communitywide basis. The public library cannot continue with business as usual, as there simply are too many rural community broadband needs to be met. One way to bring rural communities into the future is for local governments and anchor institutions to work together to deliver high-quality broadband services.

The rural public library, through provision of

information services and support, has accrued credibility and high visibility—the library is a highly trusted institution in the community. In addition, library staff understands how new broadband services and applications can transform the life of the community and its residents. This combination of knowledge, credibility, visibility, and community support means that the rural public library has a great opportunity to take a leadership position to encourage coordination, planning, and leveraging of these new and exciting broadband services and applications. In addition, a role as the "anchor of the anchors" might position the rural library to continue to receive the funding and support needed to sustain service to the community.

Broadband training, planning, and deployment are crucial components in educating and building enthusiasm and awareness among key stakeholders about the value of broadband and associated broadband-enabled services in order to increase access and subscribership to broadband Internet among rural Americans. Such support also will be required to successfully implement the broadband goals outlined in the National Broadband Plan, such as the provision of 100 Mbps broadband Internet to at least 100 million homes, affordable access to robust service for all Americans, and affordable access to a minimum 1 Gbps broadband service to community anchor institutions.[5]

Background: Building a Middle Mile Broadband Infrastructure in Rural Florida

While Florida's large urban areas such as Miami-Dade and Jacksonville may be top of mind to outsiders, large swathes of the state are rural. In fact, about half of Florida's sixty-seven counties are designated rural.[6] High-speed broadband Internet has the potential to affect a wide range of aspects of the rural economy and quality of life, but research is finding that many residents of rural counties in Florida have little or no access to broadband, with little competition among Internet service providers (ISPs). In fact, even in 2011, some communities have residents who are underserved or, in some cases, not served by broadband at all.[7]

The FCC previously defined broadband based on two minimum tiers: "first generation data," from 200 kilobits per second (kbps) to less than 768 kbps in the faster direction, and "basic broadband tier 1," from 768 kbps to less than 1.5 megabits per second (Mbps; 1 Mbps equals 1,000 kbps).[8] However, these standards were extreme minimums—for example, at 200 kpbs, an average movie download would take 8.12 hours; even at 786 kbps that download would take 2.12 hours.[9] In December 2010 the FCC changed the definition of minimum broadband speed to 4 Megabytes per second (Mbps).[10] What this means to users today is that what was considered a high-speed connection a few months ago is now in need of upgrade. The T1 line is now insufficient (a T1 line offers transfer speeds of up to 1.544 Mbps), and combining two T1 lines still falls short of what is now considered to be high-speed Internet.

The American Recovery and Reinvestment Act (ARRA) provided over $7 billion to expand access to broadband services in the United States. As part of this program, the National Telecommunications and Information Administration (NTIA), through its Broadband Technology Opportunities Program (BTOP), has awarded Last Mile, Middle Mile, and Comprehensive Community Infrastructure grants to connect anchor institutions to new or improved broadband Internet facilities.[11]

Two such projects were funded to build out middle mile infrastructure to rural Florida counties: the North Florida Broadband Authority (NFBA) received funding to build a middle mile network in the North Central Rural Areas of Critical Economic Concern (RACEC),[12] and the Florida Rural Broadband Alliance received funding to build a middle mile network in the Northwest and South Central RACECs (figure 3.1). Both the NFBA and FRBA contracted with the Information Use Management and Policy Institute (Information Institute) at the Florida State University College of Communication and Information to conduct broadband needs assessments of rural anchor institutions in Florida's three RACECs.

Information Use Management and Policy Institute
http://ii.fsu.edu

Florida State University College of Communication and Information
http://cci.fsu.edu

Bringing a broadband connection to an anchor institution's front door, however, is just the first step. Research has found that the speed and quality of many anchor institutions' broadband services at the workstation level are severely compromised by inefficient and poorly designed network configurations; also, many staff members do not know the speed or quality of their front door broadband connections and do not understand the ways in which speed to the workstation can be degraded.[13] LaRose, Strover, Gregg, and Straubhaar report that rural infrastructure grants to build out rural broadband Internet are not sufficient, on their own, to ensure adoption of broadband among rural residents.[14] Rather, LaRose and his colleagues find that "Community education efforts appear to stimulate adoption over and above what is possible through either public or private infrastructure investments alone."[15]

The broadband needs assessments for NFBA and FRBA reached similar conclusions, that is, significant training and awareness-raising efforts need to accompany broadband build-out projects in order to ensure increased use and subscribership. The public library has long been known as an anchor institution that provides technology access and training for the communities, among other Internet service roles,[16] and the National Broadband Plan recognizes that "Local leaders can play an important role by building on existing social programs and partnering with community organizations that non-adopters already rely on as trusted sources of information."[17] The rural public library has an opportunity to expand upon existing Internet service roles to embrace a role that includes serving as an anchor among anchors, that is, serving as a central and critical agency that can coordinate and facilitate community-based broadband planning, deployment, training, and awareness-raising efforts.

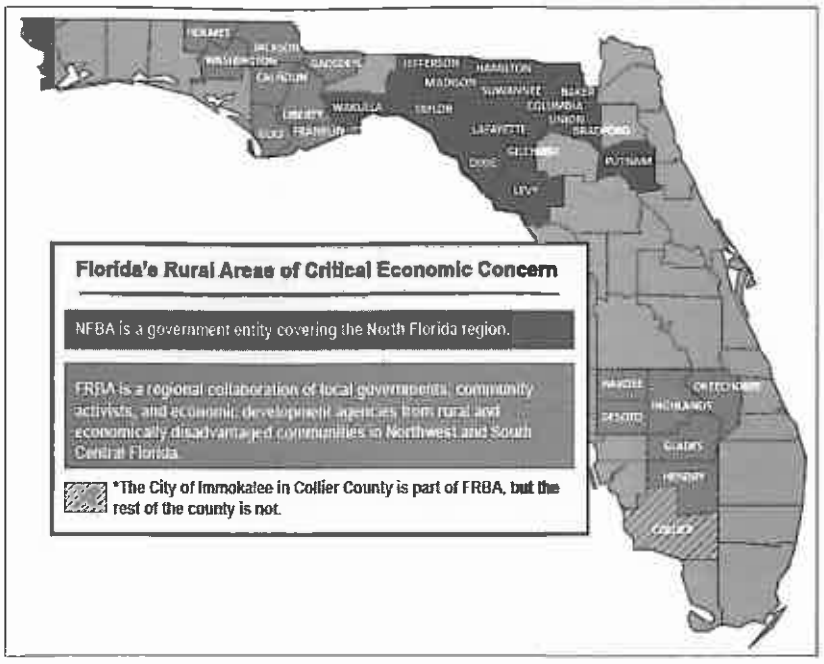

Figure 3.1
NFBA and FRBA coverage areas

This chapter utilizes preliminary data from the NFBA and FRBA needs assessment projects to understand the role of the rural public library as a broadband anchor institution, to explore the need for new models of how the rural public library can collaborate with other broadband anchor institutions, and to propose ways that the rural public library can enhance its success as a provider of free public access to high-speed broadband Internet.

Rural Anchor Institutions and Broadband Internet

The Information Institute developed a multimethod research design for the NFBA and FRBA needs assessments. The design includes:

- a survey to collect baseline data;
- focus groups to follow up on survey results and to help understanding of situational factors affecting anchor institutions' broadband usage and needs; and
- on-site broadband/network diagnostics to collect data on anchor institutions' capacities, policies, and network configurations and to help understanding of the enablers and barriers to their broadband usage and improvement.

Data analysis for the NFBA and FRBA projects are in process. Thus, the data used for this chapter rely on preliminary analysis of existing data and focus on findings related to the public library and its interactions with other community anchor institutions.

Preliminary analysis identifies a number of key broadband-related issues. The issues presented here are those that relate specifically to the library and the needs and roles that the rural public library can fulfill with regard to broadband deployment, training, and awareness building on a communitywide basis. These issues are bound together by one of the main preliminary findings—that the rural public library could be poised to take on a community broadband leadership position to leverage and coordinate community-based broadband services. This changes the paradigm of the library user to that of the community broadband user and the paradigm of the public library as an anchor institution to one of the library as the "anchor of the anchors."

Access to Broadband Internet and Broadband-Enabled Services

There is a clear need to promote the role of the public library as an anchor institution that provides community broadband access, considering that the prevalent attitude is that the Internet has made the library obsolete. The rural public library needs to make a strong case that it is a hub of twenty-first-century technology, which can be accessed freely by the public. Preliminary analysis of the research shows that 94 percent of public

libraries in the study report having dedicated public workstations. As one rural public library director commented, "Access to the Internet is absolutely essential for us to provide broadband services and compete in the digital economy."

In addition to being a source of free public broadband Internet access, the rural public library provides assistance in accessing and using e-government applications via its broadband connection. One focus group participant said, "What I see every day is people struggling to stay alive," and the library is instrumental in people getting unemployment and food stamps and filling out job applications. These library users "don't have computer skills, you are helping them do those things, they need their unemployment, they need a job application online." Survey findings show that public library users engage in a number of e-government and economic-related tasks while accessing the Internet via public library computers, such as job seeking, accessing government information and services, learning about small business development, and finding information about investments (figure 3.2). The training and information access opportunities provided by the rural public library is the reason that it is already, to some extent, a linchpin anchor institution. Through this provision of services that benefit the users of other anchor institutions, the rural public library has taken what may be an unplanned-for leadership role among community anchor institutions.

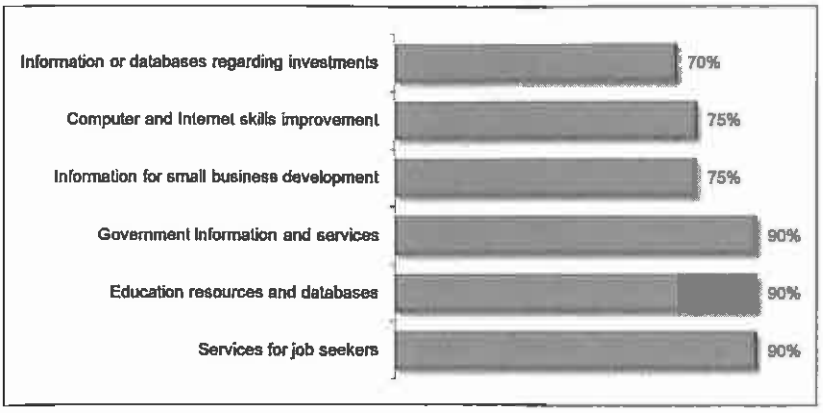

Figure 3.2
Percentage of libraries reporting patron use of public library computers by task

A recurrent theme is that the question that really needs to be asked by local and county government officials is "What new ways can the public be served through broadband and how can local community broadband services be leveraged?" This is an area where the local public library can offer leadership and provide much-needed assistance in identifying broadband-enabled services as well as mechanisms for providing these services. The public library already provides access to and assistance with e-government and emergency or disaster management services that are enabled by the library's broadband connection. The provision of these services came about as a natural extension of the library's role as a trusted source of information; expansion into other broadband-enabled services, such as economic development and job-placement services, needs to continue if the library is to maintain its relevance in the increasingly electronic world.

Technology Training and Education

Focus group participants noted that the greatest challenge in trying to market or promote broadband access and availability is the fact that "there are a lot of people who are disadvantaged for whom Internet and computers are just not in their realm," and who do not understand why they need broadband access. These residents require training and education regarding the value of broadband and what it can do for them and their quality of life.

Such training and education can be provided by the local public library, and many focus group participants commented on the contributions that the public library makes in their counties to provide a range of broadband, workstation, and software training. For some, the public library is the only place in the county where free training and one-on-one assistance for activities such as submitting online job applications can be obtained. In fact, training is a critical need; as one focus group participant noted, "More than anything else we need education."

The local public library is a known and trusted source of that training. In one county, the school district tried providing training classes, but no one attended, effectively quashing the initiative. The library system serving the same county noted that its training class is always full, suggesting that people (1) do know they need technology training and (2) prefer to receive such training at their local public library. However, library staff note they are extremely hard-pressed to maintain such training and that most likely it will be cut back with any additional budget cuts.

Indeed, preliminary survey results show that library training for the public still focuses on basic computer, e-mail, and Internet skills (figure 3.3). The survey inquired about training planned for the next year in the following areas:

- basic computer skills, such as using the mouse
- advanced computer skills, such as choosing and using software packages

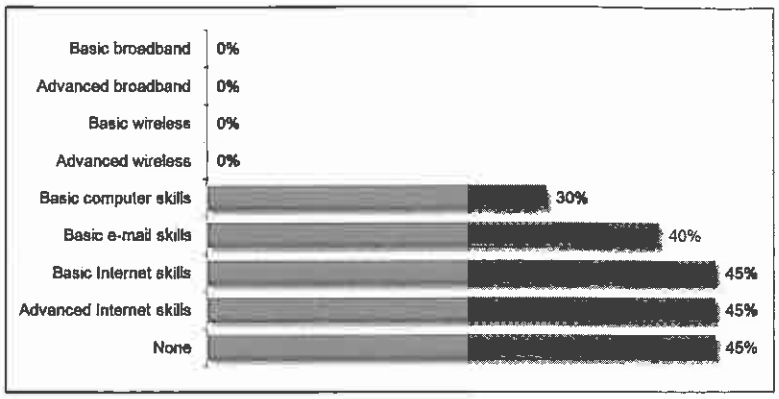

Figure 3.3
Percentage of libraries reporting plans for training by topic. Note: Does not add up to 100% because some libraries offer training on multiple topics.

A critical preliminary finding from the rural anchor institution needs assessment research is that when community members need computer, Internet, and broadband training, the institution to which they turn is the public library. This points to a new paradigm in which library users are understood to be residents of the community at large—and in rural America, these communities are in dire need of training and education. The rural public library could be poised to leverage its knowledge and position of trust to seize a leadership position in community-based broadband planning, education, and implementation.

- basic e-mail skills, such as creating an account and writing and sending e-mail
- basic Internet skills, such as getting online
- advanced Internet skills, such as searching for information and determining information accuracy
- basic broadband, such as what it is and the major uses of it
- advanced broadband, such as configuring an internal network and network security skills
- basic wireless, such as what it is and the major uses of it
- advanced wireless, such as setting up wireless access points

Libraries do report training on advanced Internet skills; this is most likely related to information search training. However, training for other advanced topics is not being provided.

These findings are supported by the *2010–2011 Public Library Funding and Technology Access Survey* report.[18] In that study, 77.3 percent of rural libraries report offering informal point-of-use assistance, and a quarter (25.2 percent) report offering formal training classes. Technology training offered by the public library could include training for staff at other anchor institutions. At an on-site diagnostic for a county health department, the health department staff noted that such training is provided at their local public library, indicating that some libraries already are fulfilling this role. Findings from the on-site diagnostics show that anchor institutions' staff, including IT staff, do not feel in control of their technology options. Many IT staff do not know how to make their networks better or whether attempting to make the network better would do any good. The public library could become a hub of knowledge about broadband deployment and then share that knowledge with other anchor institutions via communitywide anchor institution staff training sessions.

Communitywide Broadband Planning

Most pressing is for anchor institutions, either separately or in collaboration with other county or regional anchor institutions (or with others), to develop broadband plans. When the research team conducted on-site diagnostics at anchor institutions that had technology plans, these institutions generally had better broadband connections and equipment and more technology-savvy staff members than anchor institutions without technology plans. Lacking a technology plan or having only a partial IT plan results in inconsistent performance from the network and confusion among employees and public users about technology policies. Having a dedicated technology plan significantly affects an institution's ability to provide technology-based services.

Technology plans need to succinctly describe and schedule a process for the anchor institution (with others) to take advantage of the coming high-speed broadband that is likely to be offered at significantly reduced rates compared to what is available currently. The plans need to identify strategies related to awareness; education; network, hardware, and software development; collaboration; implementation of new broadband services; organizational impacts from broadband; economic development; and other topics.

A common comment or question arising in focus groups was: "Who do we go to for assistance in educating our staff, who can help us with connecting to the middle mile deployment, how do we use and deploy the broadband successfully in our organization [or governmental agency], and how do we promote our improved broadband to attract new jobs and for overall economic development?" These are areas where the rural public library can step into a vital role—as organizer, facilitator, and planner for other anchor institutions on a communitywide basis.

Technology planning is a key area in which the

public library can utilize its knowledge base to take the lead in developing community broadband and technology resources. Individual people already trust the library as a valued source of information and training about technology; it would not require a large leap for multiple institutions in a community to turn to their local public library as a source of information and training about technology. Stepping into such a role might place a burden on the local public library at first, but serving in the capacity of "anchor to the anchors" also can bring the library greater recognition and support in times of financial difficulties.

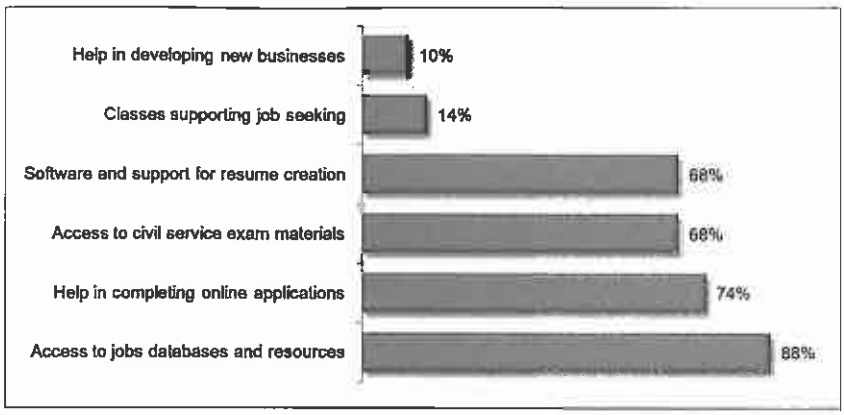

Figure 3.4
Job-seeking services provided by rural public libraries

Rural Public Libraries as Leaders in Broadband Community Services

There are a number of ways in which the rural public library not only can plan for its own broadband future, but also can seek to become a linchpin anchor institution in the regions—or anchor for anchors—thereby providing a public service and enhancing its community profile. In this new model of public library community leadership, the public library can leverage its resources and training expertise to help other community anchor institutions with jobs training and economic development as well as technology planning and training. The Information Institute's research finds that communities have little or no understanding of how to leverage broadband deployment and access to promote economic development. In fact, a number of participants asked, "Who is in charge [of such planning]?" This finding shows a need for communities to understand broadband and broadband-related education and training as essential building blocks for rural economic growth and jobs training.

The Library's Expanding Internet Service Roles

McClure and Jaeger identified key service roles of the public library in the Internet age:[19]

- a place for public access to the Internet
- e-government service provider
- emergency and disaster relief provider
- Internet and technology trainer
- youth educational support provider
- connector of friends, families, and others
- anyplace, anywhere, anytime individualized information provider
- digital library manager
- virtual, seamless, and endless electronic resources provider
- digital workplace/space, and digital ombudsperson

A number of these roles are connected to the idea of the library as the anchor of the anchors within local communities or counties, especially as these roles relate to other anchor institutions' users and staffs as the users of the library.

Libraries provide economic support to communities in numerous ways through the availability of digital resources and technology. For example:

- Market entry costs for new businesses can be reduced when government agencies partner with libraries to provide business development data, workshops and research.
- Libraries' technology training experience have helped local workforce agencies in program outreach.
- Investments in early literacy correlate to long-term economic success.
- Libraries are found to contribute to the stability, safety, and quality of life in neighborhoods.[20]

The *2010–2011 Public Library Funding and Technology Access Survey* report details a number of ways in which rural libraries provide key services for job seekers, especially as the job search goes more and more online (figure 3.4).[21]

In addition to this role as economic support provider, the roles identified by McClure and Jaeger—most particularly those relating to disaster support and recovery; e-government provision and support; technology training; digital management and electronic resources provision; anyplace, anywhere, anytime, individualized information provision; digital technology workplace provision; and virtual information

provision—mean that the public library not only can, but should, take an active leadership role in community broadband development.

Planning for the Future

There are several models for broadband strategic planning: plans developed for individual anchor institutions and community anchor institutions working together, countywide planning, and regional planning. One possible approach to community-wide planning is presented in figure 3.5. This model follows a cyclical approach, such that communitywide broadband planning, adoption, and deployment occur continuously, with expansions of broadband speed and services possible over the course of the cycle. In this approach, anchor institutions and others in the community work together to coordinate and leverage the available broadband. More importantly, they coordinate and leverage the range of broadband services that can be provided within the community. For example, the library can coordinate e-government services with local city and county government or with the local county health department by use of interactive, high-resolution video—where city and county government and the county health department can simultaneously assist a community resident in determining how best to meet that resident's needs.

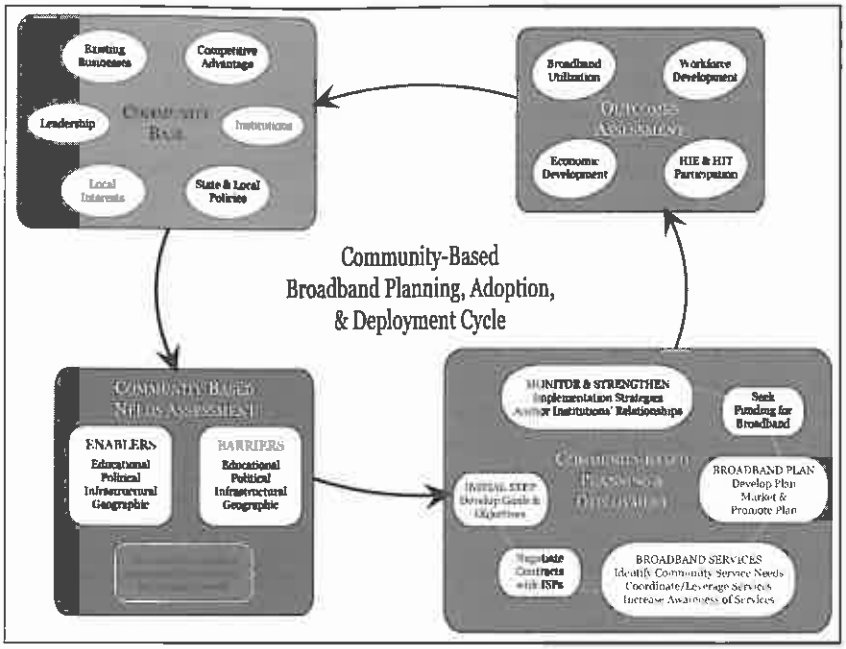

Figure 3.5
Community-based broadband planning model

As indicated in figure 3.5, communitywide broadband planning should be built around the community base, including the mandates of anchor institutions, the needs of their user bases, and existing situational factors at play in individual anchor institutions and the community as a whole. The process should include a detailed needs assessment that evaluates the barriers and enablers to broadband deployment and adoption in the community. It may be that, as a result of the needs assessment, a community finds that it has other needs in addition to the need for broadband deployment. These needs should not be addressed instead of broadband-related needs; rather, the community should work to deploy broadband and address other needs concurrently, seeking to leverage efforts at improving the community's broadband and other services.

The rural broadband needs assessments conducted for the NFBA and FRBA have helped identify a set of enablers that are likely to contribute to broadband success in anchor institutions, and an accompanying set of barriers that can inhibit such success (figure 3.6). The enablers fall into several broad areas:

- broadband and technical knowledge, including employees' individual knowledge of broadband, its use, and how best to deploy it, and an available and trained IT staff
- access to an ISP with inexpensive high-speed broadband connections
- administrative leadership and community support, including the ability to develop a strategic plan to obtain and deploy broadband, and the interest and enthusiasm to experiment with and promote innovative applications of broadband
- existing internal high-quality network within the anchor institution

Many of the identified barriers are connected to a lack of resources, but others involve organizational issues and administrative or political support:

- lack of resources or knowledge about broadband and broadband applications
- inability to contract successfully with ISPs, including lack of the knowledge necessary to conduct a successful negotiation and administrative constraints on ISP contracts such as those that inhibit institutions from choosing particular ISPs
- difficulties in educating patrons on how to use new broadband-based services successfully, which

can be affected by both knowledge and economics as institutions may not have staff available for such training
- lack of support from local elected and appointed officials, which may be impacted by their awareness of the potential for broadband deployment;
- previous failed efforts to upgrade broadband availability or reduce its cost, which can ensure that future attempts will not be made
- resistance to change and organizational inertia
- old and out-of-date network hardware and software because technology issues can not only impede efforts to upgrade, but administrators and staff may not understand the impact of old technology on broadband performance
- inability of various city and county or other anchor institutions to work together on broadband planning and economic development due to individual mandates and goals with little incentive for them to work together

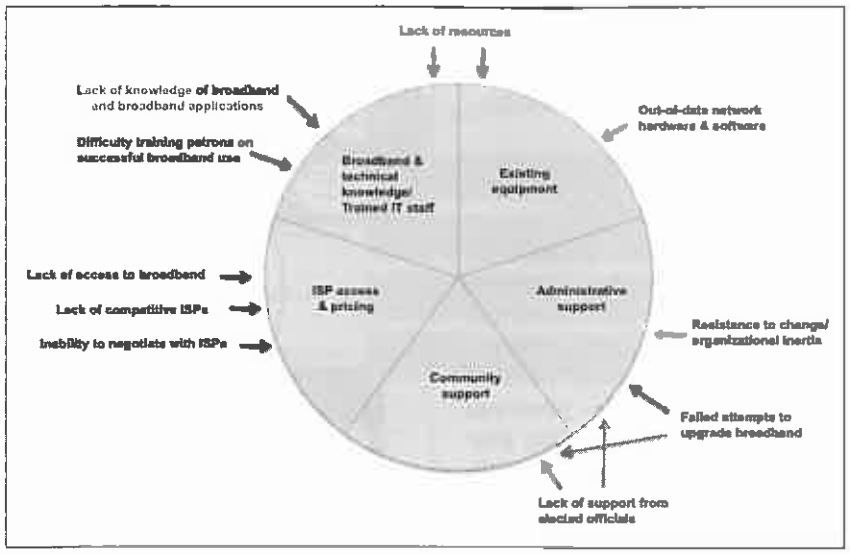

Figure 3.6
Potential broadband enablers and barriers

Although other approaches are possible, such as through the cooperation of two or more community anchor institutions where each institution's enablers and barriers can be balanced against the other institutions' strengths and weaknesses, this chapter proposes a role for the rural public library as the linchpin anchor that can serve as the central, driving force behind communitywide broadband planning. On a broader canvas, countywide and regional planning can allow communities to leverage their full resources toward broadband improvement, and a good plan should seek to maximize enabling factors and minimize barriers to successful broadband deployment. An important component of community-based broadband planning is for the public library to take a leadership role in identifying the anchors and others to participate in the process, to work with the anchors and others to improve overall community broadband services, and to determine additional types of broadband services might be included in the plan (e.g., local economic development).

A rural public library is unlikely to have to begin from scratch with the development of a community-based broadband plan. The approach suggested in figure 3.5 can be built into the library's existing technology plan; there are a number of resources available to help with the development of such a plan.[22] In most instances, a rural public library already will have developed a technology plan as part of the library's E-Rate submission, or perhaps done in conjunction with TechAtlas. It may be less important which type of community-based broadband plan is used than that some type of plan has been developed and is being implemented with the library taking the lead.

Library Technology Planning

Technology Planning
www.usac.org/sl/applicants/step02/technology-planning

Alachua County Library District 2010/2011/2012 Technology Plan
http://dlis.dos.state.fl.us/bld/library_tech/pdfs/AlachuaTechnologyPlan2010.pdf

TechAtlas
www.webjunction.org/techatlas

The Rural Public Library as the Linchpin Broadband Anchor Institution

One of the takeaways from the NFBA and FRBA broadband needs assessment projects is that many anchor institutions are aware of the role that the local public library plays in bringing broadband, broadband-enabled services, and broadband-related training to their communities. However, while the staffs of other institutions may appreciate the "free" training and

programs offered by libraries, librarians know that these services are not "free" at all. In the focus groups, library staff noted that they are extremely hard-pressed to maintain such training and are concerned about the impacts from any additional budget cuts.

One solution to these concerns is a community-wide planning model, such as the one presented in figure 3.5, in which libraries partner with other local anchor institutions to address community broadband needs. Most specifically, communitywide planning can address issues that individual institutions cannot address on their own, such as education to increase awareness of community broadband needs among the public and elected officials. Research has found that community outreach can impact significantly the perceived benefits of broadband.[23] Such awareness campaigns can impact local resource allocation to broadband. In addition, partnerships can address resource and training issues that institutions share.

New Strategies for Community-Based Broadband Services

The new, improved, exciting broadband future is on its way *right now*. Even as the FCC's broadband plan lays out that future, communities are beginning to step up to the plate. In Chattanooga, Tennessee, the community-owned electric utility has installed a fiber-optic network that promises to deliver up to a gigabyte of high-speed Internet for home use. And the network is being promoted not for its hardware—the delivery system or the platform—but for the possibilities that it opens for "mass innovation, accelerated R&D, broad testing and deep creativity."[24] In addition, these gigabyte speeds will become exceedingly inexpensive as the various BTOP initiatives become operational.

As the world moves to gig-level broadband availability, rural communities cannot afford to be left behind. Local rural governments, anchor institutions, and public libraries can no longer go it alone. Rather, they need to work together to leverage available broadband, plan how best to access and deploy that broadband, become more knowledgeable about broadband services, and teach and work with each other to better exploit the new high-speed broadband for improved quality of life, economic development, education, telemedicine, global e-commerce, and e-government.

While it is clear that a number of rural public libraries are hard-pressed by budget concerns and maintaining both traditional and broadband services, new priorities and skills for flourishing in the coming broadband environment will be needed. One priority will be coordinated broadband planning and learning with other community anchor institutions. Another will be setting priorities as to *which* library services can be provided in the new broadband world rather than just adding more services to existing service. Yet another is to increase library staff knowledge and skills related to broadband and network deployment, use, and applications.

By seizing a leadership role for the coming gig-level broadband future, the rural public library can expand its public service role and make the case for itself as an essential community anchor institution. This approach envisions the rural public library leveraging knowledge it possesses to bring communities together through their anchor institutions and, in doing so, opening the possibilities of the new broadband-based economy and future to rural America. In fact, rural communities are a key focus of the NTIA's BTOP and BIP.[25] But, while financing is important, these programs cannot by *themselves* produce growing, vibrant communities. Building new broadband infrastructure is only the first step—"If you build it they will come" may be a good movie tag line, but it is not a plan for the future. Communities as a whole, including residents, elected and appointed officials, businesses, and anchor institution leaders must have the knowledge and training necessary to understand and implement the possibilities enabled by broadband technology. The rural public library can serve as the linchpin anchor institution to ensure that such broadband planning, knowledge, and training are brought to the community.

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