INFORMATION INSTITUTE
Research, Planning, Development, Evaluation, Policy & Education
The Florida State University, College of Communication & Information
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September 6, 2011

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Dear Ms. Dortch:

We appreciate this opportunity to provide comments to the Federal Communications Commission (FCC) regarding its Notice of Inquiry (NOI) on the Deployment of Advanced Telecommunications Capability to All Americans (GN Docket No. 11-121). Since its formation in 1999, the Information Use Management and Policy Institute (Information Institute; http://www.ii.fsu.edu) has been recognized as a leading contributor to broadband research. We are particularly well qualified to offer commentary on selected key issues based on our history of academic and funded research that critically examines the capabilities and uses of the Internet, including the ways the Internet has changed society. The Information Institute has participated in several research efforts that directly support improved policymaking,[1] and has studied our nation's broadband policy development efforts .[2] The Information Institute is pleased to offer the FCC comments that may help shape the future development of our national broadband policy.

The following comments address specific questions in the NOI on topics that directly concern the studies that the Information Institute has conducted for boththe North Florida Broadband Initiative (NFBA) and the Florida Rural Broadband Alliance, LLC (FRBA).

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[1] McClure, C. R., Mandel, L. H., & Alemanne, N. D., Wiessenberger, L. K., & McLaughlin, C. A. (2011). *North Florida Broadband Authority (NFBA) ubiquitous middle mile project: Broadband needs assessment, diagnostics, and benchmarking of selected anchor institutions: Second interim report of project activities.* Tallahassee, FL: Information Use Management and Policy Institute, Florida State University. Available at http://ii.fsu.edu/content/view/full/39900; McClure, C. R., Mandel, L. H., & Alemanne, N. D., Wiessenberger, L. K., & McLaughlin, C. A. (2011). *Florida Rural Broadband Alliance (FRBA) ubiquitous middle mile project: Broadband needs assessment, diagnostics, and benchmarking of selected anchor institutions: Second interim report of project activities*. Tallahassee, FL: Information Use Management and Policy Institute, Florida State University. Available at http://ii.fsu.edu/content/view/full/45135; Bertot, J. C., McClure, C. R., Wright, C. B., & Jensen, E. (2009). *Public libraries and the Internet 2009: Study results and findings.* Tallahassee, FL: Information Use Management and Policy Institute, Florida State University. Available at http://www.ii.fsu.edu/content/view/full/17025; McClure, C. R., Mandel, L. H., Snead, J. T., Bishop, B. W., & Ryan, J. (2009). *Needs assessment of Florida public library E-government and emergency/disaster management broadband-enabled services.* Tallahassee, FL: Information Use Management and Policy Institute, Florida State University. Available at http://ii.fsu.edu/content/download/18354/118602.

[2] Mandel, L.H., Bishop, B.W., McClure, C.R., Bertot, J.C., & Jaeger, P.T. (2010). Broadband for public libraries: Importance, issues, and research needs, *Government Information Quarterly, 27*(3), 280-291.

I. Introduction

- *Is advanced telecommunications being deployed to all Americans in a reasonable and timely fashion?*
- *Is the adoption of broadband broader than just physical deployment of broadband networks? What other factors should be included in assessing this issue?*

As part of the American Recovery and Reinvestment Act (ARRA), the National Telecommunications and Information Administration (NTIA), through its Broadband Technology Opportunities Program (BTOP), has awarded Comprehensive Community Infrastructure grants to connect anchor institutions to new or improved broadband Internet facilities.[3] Two such projects were awarded to rural alliances in Florida.

The NFBA and FRBA each received over $20 million in BTOP funds to build middle mile networks in rural Florida. In support of these projects, the Information Institute study team is conducting broadband needs assessments for anchor institutions in these rural regions. The NFBA is a government entity covering North Central Florida. FRBA is a regional collaboration of local governments, community activists, and economic development agencies, from rural and economically disadvantaged communities in Northwest and South Central Florida.

Data collected from the FRBA and NFBA studies support many of the conclusions listed in the FCC *Eighth Broadband Progress Notice of Inquiry (Progress Report[4])*. For instance, many of the anchor institutions visited by the project team have a single Internet Service Provider (ISP) available in their region and receive mediocre service because they are rural and so remote from urban or suburban areas. Further, restrictions placed on participants in the Schools and Libraries Program (E-Rate) or the Rural Health Care Pilot Program (RHCPP) reinforce the lack of choice, even if additional ISPs are available, it is unlikely more than one is eligible for E-Rate or RHCPP. Study participants indicate that without the funding provided by these programs, Internet connectivity and the associated hardware/software would be beyond the budget available to many of these organizations. Further, in spite of an institution's best efforts, advertised speeds and service reliability are not met.[5]

This NOI represents a shift in the FCC's approach. Prior to Progress Report 7, the FCC considered broadband deployment to be reasonable and timely; the FCC has changed its position with the new State Broadband Data and Development (SBDD) efforts that controvert the findings submitted by ISPs via Form 477. This change is supported by Information Institute research and can be considered a natural evolution of the program as more details about the reality of broadband deployment and adoption, particularly in anchor institutions, are discovered. Preliminary research findings suggest that availability of an ISP is not an indicator that adoption

[3] *BroadbandUSA* website, National Telecommunications and Information Administration, http://www2.ntia.doc.gov (accessed <August 17, 2011>).
[4] Federal Communications Commission. (2011) . Eighth Broadband Progress Notice of Inquiry, GN Dockey No. 11-121. Washington, D.C.: Federal Communications Commission. Available at: http://www.fcc.gov
[5] Preliminary findings from broadband surveys, onsite focus groups, and onsite anchor institution diagnostics are available from the Information Institute upon request.

will result: 29% of survey respondents state that ISP availability is an obstacle, and almost 40% cite technical issues that they could not overcome.[6] Other inhibitors of adoption include start-up cost, maintenance costs, and availability of trained personnel. Specifically, the majority of focus group participants, comprised of anchor institution administrators, managers and information technology (IT) staff were completely unaware of what broadband is and what its capability is. It clearly is not just a matter of the infrastructure becoming available.

II. Issues for Inquiry

B.2. 14 Broadband Deployment Measurement: Form 477 or SBDD? New Methodology?

The value of the preliminary findings of the NFBA and FRBA projects is in the granular data that supports the use of the SBDD data to inform the "de minimis" threshold. Comparison of Florida counties' demographics illustrate that the current "de minimis" threshold utilizing data from Form 477 could mask the current numbers of unserved or underserved citizens (Table 1).

Table 1: Comparison of Two Rural and Two Urban Florida Counties[7]

County	**County pop.**	**Area (sq. mi.)**	**Pop. density**	**Largest pop. center**	**Pop. center population**	**Area (sq. mi.)**	**Pop. density**
Palm Beach	1,320,134	2386.33	553.28	West Palm Beach	142,518	58.2	2448.76
Duval	864,263	918.24	941.22	Jacksonville	821,784	885	928.57
Calhoun	14,625	524	25.8	Blountstown	2514	3.2	760
Levy	40,801	1412	28.9	Bronson	1113	4.0	278

A view of two densely populated Florida urban counties, Palm Beach and Duval, and two sparsely populated rural counties, Calhoun and Levy, shows how the results would not represent a large proportion of each county and thus, the assertion that all citizens have the availability of broadband connectivity cannot be made. For example:

- Density rates, even at the county level, are widely divergent;
- Levy County's population is less than 5% that of Duval County, yet it has more than 50% greater area in square miles, thus a lower population density leading to an increased potential for the non-availability of broadband;
- Levy County's largest population center represents only 2.7% of the County's entire population, with 278 persons per square mile – again, this low population density indicates a greater potential for non-availability of broadband when compared to the urban counties with higher population densities; and,
- Palm Beach County's largest population center, West Palm Beach, represents only 10.8% of the County's, with over 2448.76 persons per square mile, which is a higher population density indicating a likely greater chance of having *more* availability of broadband.

[6] Preliminary findings from broadband surveys, onsite focus groups, and onsite anchor institution diagnostics are available from the Information Institute upon request.
[7] United States Census 2010 available at http://2010.census.gov/

In Palm Beach County alone, a County that has significant population as well as large geographic area, many residents could be without service, as based on Form 477 data.Questions that can be raised are the following:

- How can county level assessments as provided by Form 477 represent the number of people in a county like Levy County, where the largest population center represents less than 3% of its citizens?
- In a county as large as Palm Beach County, how does the assessment insure that the number of citizens left out of the major population center, (almost 90%, representing over one million people), are represented accurately if conducted using Form 47?

In addition to potentially missing those for whom broadband is non-existent or not serviceable, Form 477's built-in bias is that one has to basically "opt in" in order to be counted as a negative sign of deployment. The measurement of participation is calculated falsely by dividing total households by subscription rates. While this may provide a simple baseline for comparison, the method is flawed, in that what is being counted is potential realized, not true potential.

As an example, while Florida's large urban areas such as Miami-Dade County and the City of Jacksonville may be the state's icons to outsiders, large swaths of the state are rural. In fact, about half of Florida's 67 counties are designated rural.[8] High-speed broadband Internet has the potential to affect a wide range of aspects about the rural economy and quality of life, but our research is finding that many residents of rural counties in Florida have little or no access to broadband, with little competition among ISPs. In fact, even in 2011, some communities have residents who are underserved or, in some cases, not served by broadband at all.[9]

C.15 Are there other sources of data, surveys, or any other information that could assist us in our efforts to understand the status of broadband for particular groups of Americans?

Assessment of NTIA-funded initiatives in Florida and Texas support the suspicion that simply building out middle mile infrastructure is not enough to ensure adoption.[10] The active participation of the anchor institution is critical in making that last connection between the hardware delivery and the adoption by the end user. Anchor institutions are trusted and well-known organizations that offer education, training, and solutions. Anchor institutions also offer the ability to mobilize demand for services.

Preliminary findings from studies underway at the Information Institute for the NFBA and the FRBA show a number of potential anchor institution and community outcomes resulting from the BTOP awards, including:

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[8] Enterprise Florida. (2011). Florida: Rural strategic marketing site [website]. Tallahassee, FL: Enterprise Florida. Retrieved from http://www.eflorida.com/FloridasFuture.aspx?id=2108

[9] Florida Department of Management Services. (2011). Florida broadband mapping project [website]. Tallahassee, FL: Department of Management Services. Retrieved from http://www.dms.myflorida.com/suncom/broadband_initiative_arra/florida_broadband_mapping_project

[10] McClure et al. (2011). *North Florida Broadband Authority (NFBA)*; McClure et al. (2011). *Florida Rural Broadband Alliance (FRBA)*; LaRose, R., Strover, S., Gregg, J. L., & Straubhaar, J. (2011). The impact of rural broadband development: Lessons from a natural field experiment. *Government Information Quarterly, 28,* 91-100.

- Change in attitudes toward regional broadband planning among local government officials and anchor institutions administrators;
- Increased opportunities for broadband, network, and other advanced technology training for anchor institution staff;
- Increased awareness among anchor institution staff, local government officials, and local residents about the need for and importance of broadband to promote economic development, improve institutional productivity, and increase local quality of life;
- Increased use of broadband-intensive applications such as interactive, high resolution video, telemedicine, etc.;
- Changes in economic opportunities in a region as a result of new or expanded broadband capabilities; and
- Increased subscribership or upgraded subscribership to broadband among anchor institutions, government agencies, and local residential subscribers.

These potential outcomes are illustrative only and suggest key areas where measurement and changes can be identified over time.

These outcomes need to be measured systematically in order to be able to say if they are achieved, and to what degree. Perhaps most significantly, many of these institutional behaviors do not register immediately as "new jobs" or "additional revenue," even though those are the outcomes expected by many advocates for additional and better broadband services. Rather, changes in internal attitudes and behaviors and new comprehension of possibilities and altered ways of doing business will take root within institutions and, in the longer term, result in a variety of positive economic and social outcomes. In rural regions in particular, high profile demonstrations and endorsements of broadband capabilities can reach sizable constituencies otherwise unaware of how fast Internet might bring benefits. The role of local institutions in creating trusted environments for testing out new technologies cannot be underestimated.

A collaborative project between the Information Institute and the Telecommunications Information and Policy Institute (TIPI)[11] that is in the proposal stage would identify and describe the community anchor institution outcomes that result from the NTIA BTOP awards. More specifically the project would have the following objectives:

- Identify a geographically representative sample of BTOP awards;
- Identify a set of key outcomes that may result from the BTOP awards, at the community anchor institution level;
- Collect benchmark data that identifies where the community anchor institutions in the sample are at the beginning of this project with regard to the identified outcomes;
- Use the benchmark data to identify additional community anchor institution outcomes that are resulting from the BTOP awards;

[11] Telecommunications Information and Policy Institute. Available at http://www.utexas.edu/research/tipi/

- Collect longitudinal data that shows changes in the anchor institutions in the sample with regard to the identified outcomes (both the original set and any additional outcomes identified during data collection); and
- Determine the degree to which the identified outcomes are achieved as a result of the BTOP awards.[12]

To conclude, our qualitative studies provide substance to the anecdotal evidence that the reality of non-adoption obstacles are complex, often based on perceptions and attitudes as much as on technical prowess or awareness. The solutions to many of these challenges are multi-method approaches to training and development, providing skills assessment and refinement along with mentoring administrative leaders to initiate their own economic development programs. These efforts will not be manageable without outside assistance.

C.17 How should the Commission evaluate the adequacy of broadband connectivity for schools and libraries?

Preliminary analysis of NFBA and FRBA research data 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.'[13]

Broadly speaking, the role of libraries increasingly serves as an appropriate model for evaluating the use and effectiveness of broadband deployment. Based on the latest report by the Online Computer Library Center, Inc. (OCLC), libraries' role as the 'community third space' and source for information continues to rise.[14] In particular, users are finding their online presence to be more reliant upon broadband provision at libraries:

- From 2005 to 2010, Americans who are online increased from 69% to 77% of the population, a 12% growth;
- The number of information consumers who have a library card is 68%, a number that grows to 81% for those who are economically challenged;
- The number of libraries offering Internet access has grown from 37% to 82%; and,
- The number of libraries reporting that they are their community's *only* access to a free source of computers and broadband is 67%.

[12] Additional information on this proposal is available from the Information Institute.
[13] Alemanne, N. D., Mandel, L. H., & McClure, C. R. (in press). The rural public library as leader in community broadband services. *Library Technology Reports*. Preprint available at: http://mcclure.ii.fsu.edu/publications/2011/Broadband_and_Rural_Libraries_Preprint_Jun7_11.pdf
[14] OCLC. (2010). Perceptions of libraries: Context and community. Available at http://www.oclc.org/reports/2010perceptions.htm

What is interesting about these statistics is that, as the number of economically-challenged library users continues to grow, the citizens' convictions about funding libraries is held most dearly by those for whom the economy is not as large a burden. Those who are economically-challenged are more likely to have a lower than average income (i.e., less than $30,000 for a family of four), struggle to make ends meet, and claim to be unable to pay more taxes to support libraries. In 2008, this represented 10.6% of the U.S. population, ages 18-69. This group is less likely to have Internet at home and live in urban communities.[15]

A survey that reflects the current use patterns at schools and libraries, for both required and extra-curricular needs would measure this. As demonstrated by the site visits conducted by the Information Institute for the NFBA and FRBA needs assessment projects, the top perceptions that underlie connectivity challenges according to anchor institution staff are the following:

- Technical issues, including internal infrastructure and network layout; and
- Limited availability of ISPs in rural areas to only one, either because that is the sole ISP in the area or because that is who the institution is required to use based on funding restrictions.

Other issues for anchor institutions include prohibitive cost structures, sustainability costs (which often are only sustained through grant acquisition), and the availability of trained staff.

In the specific case of schools and libraries, many states are moving all required assessments to an online format and most outreach efforts by teachers are managed more easily and effectively by electronic communications with parents. For example, in the state of Florida in Spring 2011, the Florida Depart of Education (FLDOE) implemented a computer-based format for four K-12 assessments. Of the four assessments, two are not available in a paper format for any accommodation. This means the assessments test not only subject content competency, but also digital literacy. Those students with online access are likely to display greater facility with the digital medium, removing that obstacle from the testing challenge. The FLDOE provides an ideal technology set-up for the classroom in recognition of the need for a "comfort level with using technology" for each student. In anticipation of study aids, the FCATExplorer website was created by the FLDOE to support online tutoring for students who need assistance to improve their Florida Comprehensive Assessment Test (FCAT) grades.[16]

As the NFBA and FRBA research shows, 72% of libraries and K-12 schools that responded to the survey are staffed by individuals who are challenged by the technology, the ability to negotiate a high speed network setup, or the basic ability to ensure that their internal hardware infrastructure supports quality broadband access. With ongoing budget cuts and increased reliance upon unstable grant funding, administrators and institution management are faced with far more barriers to adoption than current data can only begin to suggest.

C.19 Should broadband access at anchor institutions be included in an assessment of deployment, and if so, how could these be measured?

[15] OCLC. (2008) From awareness to funding: A study of library support in America. Available at http://www.oclc.org/reports/funding/default.htm
[16] Florida Department of Education. (n.d.). FCATExplorer. Available at http://www.fldoe.org/

Our research finds that inefficient and poorly designed network configurations severely compromise the speed and quality of many anchor institutions' broadband services. 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.[17] We suggest that the pivotal role of anchor institutions, particularly in their interactions with new middle mile facilities as users of additional (and less expensive) capacity, requires careful assessment. These are the critical "connectors" to end-users; they often also serve as the physical site for broadband access, a function that is especially important for lower income populations that may lack other access. Such institutions mobilize demand for services and may play important roles in educating users regarding broadband services and applicability.

These findings are supported by the most recent (2010-2011) American Library Association's (ALA) *Public Libraries and the Internet Report*, in which 77.3% of rural libraries report offering informal point of use assistance, and a quarter (25.2%) report offering formal training classes.[18] Technology training offered by the public library could include training for staff at other anchor institutions. At an onsite 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 onsite diagnostics show that anchor institutions' staff do not feel in control of their technology options, including IT staff. Many IT staff do not know how to make their networks better or that 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.

Anchor institutions, in particularly, public libraries, provide the community space for all citizens to engage in vital and vibrant information services. This is both a physical and virtual space that is available to all in the community. McClure and Jaeger identify 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;

[17] McClure, C. R., Mandel, L. H., Snead, J. T., Bishop, B. W., & Ryan, J. (2009). *Needs assessment of Florida public library e-government and emergency management broadband services*. Tallahassee, FL: Florida State University, College of Communication & Information, Information Use Management & Policy Institute. Retrieved from http://www.ii.fsu.edu/Research/Projects/All/Projects-from-2009-to-1999/2009-Project-Details

[18] Bertot, J. C., Sigler, K., DeCoster, E., McDermott, A., Langa, L., Grimes, J., & Katz, S. (2011). *2010-2011 Public Library Funding & Technology Access Survey: Survey findings and report.* College Park, MD: Information Policy & Access Center, University of Maryland College Park. Retrieved from http://www.plinternetsurvey.org/?q=node/13.

[19] McClure, C. R., & Jaeger, P. T. (2009). *Public libraries and Internet service roles: Measuring and maximizing Internet services*. Chicago: American Library Association.

- Anyplace, anywhere, anytime, individualized information provider;
- Digital library manager;
- Virtual, seamless, and endless electronic resources provider; and
- 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/counties, especially as these roles relate to other anchor institutions' users and staff as the users of the library.

G.29 Are there other barriers we should consider? How can we reduce the impact of these barriers?

All of the key barriers to adoption identified in the FCC's 7th broadband progress report manifest in the findings from our research, most especially low broadband service quality, including performance insufficient to enable consumers to use the applications and service they wish to use; lack of affordability; lack of access to computers; lack of relevance of broadband for some consumers; poor digital literacy; and consumers' lack of trust in broadband and Internet content services, including concerns about inadequate privacy protections.

However, other barriers do exist. Notably, when the Information Institute research team conducted onsite 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 Information Technology (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.

In addition to identifying the lack of a technology plan as an additional barrier, the NFBA and FRBA rural broadband needs assessments 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. The enablers fall into several broad areas:

- Onsite broadband and technical knowledge;
- 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,
- 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/political support:

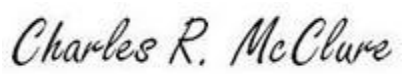
- Lack of resources and/or knowledge about broadband and broadband applications;
- Inability to contract successfully with ISPs, including lack of the knowledge necessary to conduct a successful negotiation and administrative constraints on ISP contracts such as those that inhibit institutions from choosing particular ISPs;

- Difficulties in educating patrons on how to use new broadband-based services successfully.
- Lack of support from local elected and appointed officials, which may be impacted by their awareness of the potential for broadband deployment;
- Failed previous efforts to upgrade broadband availability and/or reduce its cost can ensure that future attempts will not be made;
- Resistance to change and organizational inertia; and,
- Old and out-of-date network hardware and software.

Based on these results, the Information Institute currently is developing instructional modules that will (1) increase knowledge of anchor institutions' broadband connections, network configurations, and ways in which they can be improved; (2) improve understanding by decision-makers of staff training needs in areas such as broadband networks, network deployment, and broadband-enabled applications; (3) develop metrics for diagnostic evaluations of anchor institutions' Internet network deployment and configurations; and, (4) provide important examples of successful economic development initiatives in which broadband is intrinsic and fundamental.

The Information Institute appreciates this opportunity to help shape policy development in this critically important area and would be pleased to discuss the above recommendations with FCC staff in greater detail. Successful broadband deployment and adoption rest upon the awareness of key decision-makers, commitment of community stakeholders, understanding of community users, and empowerment of anchor institution staffs. Indeed, it may be that the most important factors affecting broadband deployment and adoption are not technical issues, but social and organizational issues.

Sincerely,



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