



RURAL MINNESOTA AT THE DIGITAL CROSSROADS:

Broadband Challenges in 2011

A Whitepaper by the Blandin Foundation Broadband Strategy Board
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Blandin Foundation™
STRENGTHENING RURAL MINNESOTA



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! Executive Summary !

From Appleton to Hovland, Australia to Hong Kong, local, national and international leaders recognize broadband infrastructure and services as an essential utility necessary for economic vitality. Equally important is affordable access, and a citizenry with the skills to take advantage of technology tools.

In April 2010, the goals recommended by the Minnesota Ultra High-Speed Broadband Task Force (Task Force) were signed into state statute by Governor Pawlenty. Changes in leadership at the state capitol provide an opportunity to examine the State of Minnesota's approach to meeting these goals.

The Blandin Foundation's Broadband Strategy Board, in service to rural Minnesota and policy makers around the state, has assessed the current status Minnesota's broadband policies and telecommunications investments. This whitepaper includes their findings and offers related policy recommendations in light of the state's current budget realities.

Specifically, this whitepaper examines:

- ! Ubiquity and speed
- ! The impact of ARRA broadband projects in Minnesota
- ! State and local broadband efforts
- ! Digital inclusion
- ! Economic development

MINNESOTA BROADBAND DISCUSSIONS

The Blandin Foundation Broadband Strategy Board offers the following statements to Minnesota's legislative and executive branch leadership to inform their broadband policy discussions.

! STATEMENT NO. 1 !

World-class broadband networks and services are essential for jobs, economic development, community vitality and quality of life.

! STATEMENT NO. 2 !

The state broadband goals, adopted by statute in 2010, will not be met without additional investment, barrier removal and partnerships.

! STATEMENT NO. 3 !

Community leaders throughout Minnesota are working to create and strengthen the local and regional broadband networks and services that will enable long-term economic and social sustainability.

! STATEMENT NO. 4 !

Technology tools, enabled by broadband networks and services, are a critical asset for addressing the issues Minnesota faces for jobs, health care, education and governing.

! Current Status !

UBIQUITY AND SPEED

Minnesota's current average broadband speed is slightly below the national average. The 2010 Minnesota State Legislature set a statewide goal of 10 to 20 Mb per second to every household in Minnesota by the year 2015; this is now generally referred to as the 10 Mb goal. As a minimum standard with its tie to ubiquitous statewide coverage and a relatively short timeframe, this goal will be a difficult, but necessary challenge to meet.

Ubiquity is as important as speed. Minnesota still has many disadvantaged areas with no access to broadband or with access to broadband that is less than 1 Mb. Increasing high-speed access for our disadvantaged and remote areas will be a key driver for educational and economic improvement.

UBIQUITY – PRESENCE EVERYWHERE
OR IN MANY PLACES ESPECIALLY
SIMULTANEOUSLY

In contrast, the Federal Communications Commission (FCC) recently adopted a goal that 100 million households nationwide should be served with 100 Mb download capacity within the next decade. Those without 100 Mb should have access to at least a 4 Mb broadband service. This two-tier approach will surely shortchange Minnesota's rural communities and residents.

Minnesota's leadership needs to understand that anything less than 10 Mb is inadequate today. Many believe that a gigabit will be needed in five to 10 years. Some, especially in the telecommunications provider community, dispute this need for bandwidth. In fact, gigabit service is available to, and being used by residential customers in Hong Kong today!

Also important is the ability to obtain symmetrical service that provides the ability to upload information at high speeds. Traditional network design and management emphasizes download speeds to deliver content to home users. Symmetrical connections enable home and small businesses to be content creators rather than just content consumers. It also enables the two-way videoconferencing capability so necessary to home health and education applications.

The age and quality of Minnesota's telecommunications network varies across the state. In some areas, and especially those served by rural telephone cooperatives, municipalities and in limited areas competitive providers, fiber to the home and fiber to the node networks are prevalent. These networks are all capable of meeting the state broadband goal of 10 Mb, and some are capable of meeting the FCC goal of 100 Mb.

Across wide swaths of rural Minnesota, the telecommunications network is quite old and inadequate for the task of providing ubiquitous high-speed Internet. These areas are clearly identified on the Connected Minnesota maps [<http://connectedmn.org>]. In addition, significant portions of the state, now indicated on the maps as served, do not have the infrastructure to provide these higher levels of service (4 Mb, 10 Mb or 100 Mb) necessary to meet the state and federal goals. These portions of our network must be replaced to deliver high capacity broadband across the state. Until state leadership seriously considers this issue, little progress will occur.

IMPACT OF ARRA BROADBAND PROJECTS IN MINNESOTA

A list of projects funded through the American Recovery and Reinvestment Act (ARRA) is included in the Minnesota Task Force report [http://www.state.mn.us/mn/externalDocs/Commerce/Broadband_Report__2010_122910044617_BroadbandReport2010.pdf]. A summary is provided here.

Blandin Foundation received a \$4.8 million dollar federal stimulus grant for **Minnesota Intelligent Rural Communities (MIRC)** [<http://broadband.blandinfoundation.org>], a project administered on behalf of a coalition of 29 statewide organizations, including 11 rural communities to fund the following activities:

- | Eleven “demonstration communities” were chosen to develop and implement broadband-based economic development programs. Each rural Minnesota community received \$100,000 to fund locally identified and administered projects addressing digital inclusion, broadband development, knowledge workers and innovation initiatives.
- | University of Minnesota Extension received \$734,000 to energize its program to assist small businesses to effectively use the Internet and technology tools.
- | The Minnesota Department of Employment and Economic Development (DEED) Workforce Centers received \$924,000 to expand computer center access and provide introductory computer training to job seekers.
- | Minnesota State Colleges and Universities (MNSCU), through the Minnesota Learning Commons, received \$240,000 to create a “knowledge worker” training program to help job seekers explore careers while learning how to access on-line training programs.
- | Minnesota Renewable Energy Marketplace, a private-public partnership, received \$235,000 to focus on alternative energy firms’ use of technology.
- | Blandin Foundation will sub-grant up to \$700,500, primarily for health care and education broadband-based applications and for community broadband studies.
- | PC’s for People, a non-profit organization, will use \$95,000 in MIRC funds to collect, refurbish and distribute a minimum of 1,000 computers to low-income families and organizations in greater Minnesota. In some communities, Internet Service Providers are donating free or reduced cost broadband service to enable these families to get online. Atomic Learning, a Little Falls company is donating online learning tutorial subscriptions for each of the 1,000 computers.

OTHER MINNESOTA ARRA PROJECTS

Federal broadband stimulus grants are administered by two agencies: Department of Commerce – National Telecommunications and Information Administration and USDA Rural Utilities Services. Projects were funded in six general categories: Mapping, Technical Assistance, Last Mile, Middle Mile, Public Computer Centers and Sustainable Broadband Adoption. Blandin Foundation’s grant award (above) was in the Sustainable Broadband Adoption category.

Twenty-four projects were funded in Minnesota, totaling \$242 million dollars, including:

- | The State of Minnesota, with Connected Nation as contractor, received funding for the next several years to continue to upgrade and update previously completed maps of broadband availability.

- | Northeast Service Cooperative (\$200,000) and the Mille Lacs Band of Ojibwe (\$48,361) received Technical Assistance Planning Grants.
- | Four middle mile networks were funded totaling \$79 million dollars, including projects in southern MN (Enventis), northeastern MN (Northeast Service Coop), and Carver and Anoka Counties (Zayo). Middle mile networks connect communities and key anchor institutions like health care, education and government with additional capacity available for lease to other providers, including incumbent or competitive local providers.
- | Fourteen last mile networks were funded totaling \$148 million dollars. These grants and loans went to existing small incumbent telephone providers as well as a variety of competitive providers, including county governments, an electric coop and incumbent providers expanding their service territories as competitive providers.
- | Two public computer center grants were funded, one within the Twin Cities and one for a tribal coalition in northern Minnesota. The Leech Lake Band of Ojibwe ultimately declined their grant.

These projects have the potential to significantly upgrade the availability and quality of broadband services in the project areas. Areas that did not seek or obtain these grants will be left behind.

STATE BROADBAND ACTIVITIES

The extent of broadband-related activities by the State of Minnesota has been the creation and marginal support of the Minnesota Ultra High-Speed Broadband Task Force and the follow-up Broadband Advisory Committee. Some states, North Carolina and Texas for example, have had long-standing efforts to promote broadband deployment, use and technology-based economic development.

The State of Minnesota has been active in facilitating network deployment to reach state agencies, higher education and county government. However, these efforts have not been effectively linked to improve local broadband services with wired or wireless networks. K12 educational networks are regionally based with wide disparities between the broadband services available to regions and school districts.

While the State of Minnesota has little power to promote broadband by regulating providers, states are in a position to eliminate barriers for providers. Some of the most frequently cited barriers are rights of way permits and fees and requirements for municipal referendums.

The Task Force Report provides an excellent comparison of state efforts. Some states have provided direct funding incentives to telecommunications providers to improve broadband networks. Minnesota, excluding the wireless pilot project noted on the next page, has done little in this area beyond what was necessary to support its own needs. DEED has recently expanded its definition of infrastructure to include telecommunications.

In 2005, Blandin Foundation received a special grant from DEED to expand its *Get Broadband* community grant program to more than 25 communities across the state. This program helped communities, in partnership with

telecom providers, promote and increase the use of broadband. The state also funded a small wireless ISP demonstration grant program in 2002 that helped to establish broadband in unserved areas.

It is clear that some areas of the state, due to demographics and terrain, cannot support market-driven telecommunications investment. The costs are too high with too few customers to generate returns on investment necessary to attract market capital. The federal stimulus program focuses new resources on some of these areas. Other areas have long benefitted from federal telecom policies that subsidized small rural telephone companies so that these areas generally have some level of broadband services. Other rural areas, generally served by larger carriers, do not benefit from these subsidies.

LOCAL GOVERNMENT ACTIVITIES

A growing number of Minnesota municipalities offer broadband services. These include at least two that have been in the telecommunications business for decades. Others have been offering service for ten years or more. A significant number of local units of government are in the planning stages, either independently or in partnership with a private sector provider. This mirrors a national trend towards local governments stepping in to ensure that their community benefits from world-class broadband. Few communities have been able to attract a third private sector provider without significant community involvement due to the high capital costs of telecommunications infrastructure that limits immediate return on investment.

While most incumbent providers and some citizens may disapprove of government entry into the telecommunications business, the results are clear. In those communities with a third facilities-based telecommunications provider – public or private, the competitive situation changes radically. Services are better and less expensive.

Rather than abandon these markets, private sector incumbent providers improve their networks and lower their prices in response to the increased competition. Clear anecdotal evidence of this practice is evident in Winona, Windom, Monticello and Brainerd. The new entrants in these specific markets include pure private sector, municipal and private-public partnership models.

State law requires a 65 percent supermajority referendum approval for municipal telephone service. Proponents of the supermajority requirement cite three reasons that justify the requirement as necessary: 1) this is a significant investment in a competitive and dynamic industry; 2) the investment should be approved by the people rather than a small group of elected officials; and 3) the supermajority requirement indicates a high level of dissatisfaction with current service offerings necessary for the municipal investment to be successful.

Community broadband advocates provide five reasons to eliminate the supermajority provision: 1) New technologies like VOIP have confused the definition of a telephone exchange; 2) Convergence of voice, data and video has eliminated many former distinctions of telephone, cable television and broadband companies; 3) Developing a successful broadband company without the ability to provide voice services is difficult; 4) State law regarding the applicability of this referendum requirement to public-private partnerships is unclear; and 5) This is the only community investment requiring a 65 percent majority referendum approval to enter a new service area.

Local governments are generally the leaders in promoting enhanced broadband in their communities, usually in response to identified community needs voiced by business owners and citizens. In addition, local government with other key anchor tenants like schools and hospitals, derive significant operational benefits from operating their own fiber networks that enable 100 Mb or 1 Gb communications that are currently priced out of reach by private sector providers.

DIGITAL INCLUSION

Digital inclusion is the concept that all people should have the technology skills, computer access and Internet connectivity necessary to participate fully in society. This is relevant for Minnesota because today, all government agencies, employers and health care providers use the Internet as their primary vehicle to reach constituents and consumers. In the new interconnected economy of the 21st century, access denied is opportunity denied. Unequal opportunity undermines democracy.

Research shows that older, poorer and rural residents are more likely to lack broadband access and/or computer skills. For some, broadband is simply not available where they live. Their jobs may or may not allow them to access the Internet at work. Another group of non-subscribers have never experienced the wealth of information and access available online so they don't know what they are missing and thus see no need to connect or use computers. For other nonsubscribers, the average broadband subscription fee of \$40 per month is simply too expensive. Prices are definitely higher in some rural areas.

In Minnesota today, digital inclusion is addressed primarily through the public library system. Some public schools and workforce centers also are open for public access, but offer limited night or weekend hours. Libraries, from regional centers to the smallest most rural places, are packed with people waiting to use computers. Often time limits on use are imposed so as to serve as many people as possible. Budget issues are forcing some libraries to reduce hours.

ECONOMIC DEVELOPMENT

Quality infrastructure and a highly skilled workforce drive economic vitality. Broadband is now widely recognized as the indispensable infrastructure for the new economy. National research documents and Blandin Foundation's experience shows that economic growth follows telecommunications investment.

100 MB AND GIGABIT CONNECTIVITY IS THE INTERNATIONAL STANDARD FOR ECONOMIC DEVELOPMENT AND THESE SERVICES ARE WIDELY AVAILABLE IN A GROWING NUMBER OF INTERNATIONAL LOCATIONS.

With ever increasing global competition for jobs, investment and talented workforce, Minnesota leaders must expand their view of the definition of world-class broadband. It is not the 4 Mb connection cited in the National Broadband Plan for rural areas, nor is it the 10 Mb connection stated in Minnesota's broadband goals. **100 Mb and gigabit connectivity is the international standard for economic development and these services are widely available in a growing number of international locations.**

Continuous learning, often enabled via online training, is necessary for maintaining a quality workforce. Companies seeking new locations quickly bypass communities without world-class broadband. Most college graduates would never consider moving to a community without broadband; communities with inadequate representation on the web are invisible to these young people as they chose where to live.

A good portion of Minnesota's economic activity takes place outside of towns. Home-based businesses, farms, tourism and natural resource development all take place in the countryside. These areas need broadband to connect to local and national markets. The growing importance of connectivity means that unconnected communities and rural areas stand little chance of attracting or retaining citizens and companies now, or even more so, into the future.

Broadband networks and services provide an infrastructure with far reaching benefits. Broadband enables new solutions to our most critical challenges. Examples include:

- | Smart grid electrical systems that monitor and control electrical supplies and usage making businesses more efficient, reducing residents' utility costs and cutting the state's need for additional generating capacity.
- | Tele-health services that enable Minnesotans to access increasingly sophisticated health care services from local clinics or their homes, thereby increasing choice of health care providers and reducing transport costs for people of all ages. Close electronic monitoring of those with chronic diseases improve health and reduce costs.
- | New forms of educational opportunities can be provided through broadband, including online learning, video conferencing, customized lesson plans, and home schooling options. The four-day school week, now forced by budget cuts, could be supplemented or even enriched, through online educational offerings.
- | Telework and entrepreneurship require broadband. As the trend towards self-employment and contract employment accelerates, statewide ubiquitous broadband will provide a platform by which rural Minnesotans will have access to work provided by metro area employers or by companies around the world.
- | Government services can be made more efficient and effective through more sophisticated intergovernmental collaboration and by providing 24 x 7 x 365 access to e-government services.

Across Minnesota, community leaders are recognizing the importance of world-class broadband for community vitality. Their efforts to ensure the economic competitiveness of their communities should not be hindered by the investment decisions and service offerings of private sector telecommunications providers. It is our experience that well-served communities rarely engage in significant discussions of municipal telecommunications investments. Ultimately, the judgment of broadband service adequacy should be a local decision.

Recommendations from the Blandin Foundation Broadband Strategy Board to the State of Minnesota

UBIQUITY AND SPEED

- 1 Minnesota is not on target to reach its stated goals for speed or access. Top state officials should take the lead to encourage telecommunications provider investment to reach those goals.
- 2 Develop incentives for existing and prospective telecommunications providers to leverage private and public sector investments to reach the state ubiquity goals and FCC goals.
- 3 Explore opportunities to partner with the FCC, USDA RUS and the Department of Commerce's NTIA to spur investment in broadband infrastructure.
- 4 Reduce or eliminate barriers limiting the ability of cities and counties to enhance local telecommunications services, either directly or in partnership with existing or prospective private sector partners. Public sector telephone service should be decided by the local governing body or reduced to a majority approval referendum requirement.

GOVERNMENT PURCHASING AND OPERATIONS

- 5 Continue to aggregate public sector needs to drive public sector costs down.
- 6 Ensure public sector aggregation provides local benefits through investment and/or enhanced competition.
- 7 Ensure that public sector telecommunications investments leverage additional benefits to the general public.
- 8 Drive broadband demand by significantly increasing local government's e-government capabilities through shared application development, including transactions of all types, mapping, web sites, etc.

DIGITAL INCLUSION

- 9 Develop policies that recognize that all Minnesotans require access to computers and the Internet and the skills necessary to use these technology tools.
- 10 Ensure that schools, workforce centers and libraries have adequate resources to provide computers and Internet access for adequate public access.
- 11 Provide consistent and continuous access to computer training at libraries, community education centers, workforce centers, community technology centers, senior centers and other appropriate locations.

ECONOMIC DEVELOPMENT

- 12 Make telecommunications investments more explicitly a part of DEED infrastructure finance program offerings and market the availability to communities and providers.
- 13 Adopt a statewide broadband-based economic development framework, like that created by the Intelligent Community Forum and adopted by the Blandin Foundation's MIRC project. Recognize and promulgate community best practices.
- 14 Support the efforts of U of MN Extension, MNSCU and Enterprise Minnesota to provide technology training and information to small and medium size businesses.

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