Five Models For Community Broadband

Cities and counties in Minnesota have followed several approaches to providing fiber broadband for their residents and businesses.

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Editor's note: This article was adapted from a report published by the Institute for Local Self-Reliance. You can read the full report at www.ilsr.org/minnesota-local-governments-advance-super-fast-internet-networks/.

In 2010, Minnesota set ambitious statewide goals for universal Internet access: By 2015, everyone should have access to download speeds of 10 Mbps to 20 Mbps and upload speeds of 5 Mbps to 10 Mbps. The state is not on track to meet those goals. Though most residents of the Twin Cities have access to at least the minimum standard of 10 Mbps down, fewer than half of households in Greater Minnesota [outside the Twin Cities metropolitan area] have such access. A significant number of Greater Minnesota households are still relegated to the horse-and-buggy days of dial-up, and many more have access only to slow DSL connections that do not meet the Federal Communications Commission goals for basic broadband (4 Mbps/1Mbps).

Aside from creating a task force and setting goals, the legislature and recent governors have taken a hands-off approach to expanding Internet access. Where broadband access has expanded in recent years, government has often been involved. Federal programs offer a variety of loans and ongoing subsidies for Internet access, mostly to private companies and cooperatives in rural areas.

Frustrated by the reluctance of incumbent phone and cable companies to significantly upgrade their networks, a growing number of counties and towns have begun building their own networks. This article focuses on some of the strategies local governments have embraced to improve Internet access for local businesses and/or residents.

The counties of Lac qui Parle and Sibley entered into public-private partnerships with cooperative entities. Lac qui Parle partnered with an existing telephone cooperative and Sibley with a newly created broadband cooperative. Scott County first connected anchor institutions such as schools, municipal facilities and public safety communication towers and later expanded the network to drive economic development. Windom and Monticello, by contrast, built their own citywide FTTH networks.

Local governments have a continuum of options that range from enabling other providers to building and operating their own citywide networks. Because each community has different needs and preexisting assets, any decision about how to expand access must be made at the local level by those who will have to live with the consequences.

LAC QUI PARLE COUNTY

Home to 7,000 Minnesotans, Lac qui Parle County borders South Dakota. Madison, the

county seat and "Lutefisk Capital USA," is one of eight towns and 22 townships. Agriculture and construction dominate the economy.

Prior to the partnership to expand high-speed access, much of the county was served by Frontier's DSL system, whose connection speeds reached about 1.5 Mbps downstream and much less upstream. Slightly faster connections of 3 to 5 Mbps were available from Mediacom in two towns, and most residents outside the towns had to settle for slow dial-up or satellite connections. Understanding the crucial importance of high-speed Internet access, the county Economic Development Authority (EDA) asked Frontier to upgrade its network. Pamela Lehmann, the head of EDA, recounted her experience to Minnesota Public Radio:

"We had two meetings with some of the upper management. They said they didn't have the funds available for a project like this. When they are looking at the big picture, a small county in west central Minnesota was not their priority at that time."

The county issued a formal request for information, but Frontier did not respond. Meanwhile, Farmers Mutual Telephone (FMT), a cooperative serving some 40 percent of the county territory, already had plans to upgrade its subscribers to fiber optic service. FMT proposed a partnership with the county and agreed to share the costs of a feasibility study, with matching funds provided by the Blandin Foundation, to evaluate the idea of extending this upgrade further.

The study, completed in early 2010, found that a significant area of the county was unserved and desired better access.

FMT and Lac qui Parle shared the costs of a grant writer to submit an application in the second round of the federal broadband stimulus funding. Because the towns of Madison and Dawson were considered to be served by Mediacom cable, they were excluded from the project to upgrade the communications infrastructure.

> Lac qui Parle County and Farmers Mutual Telephone were jointly awarded broadband stimulus funding to build a fiber optic network that covers most of the county.

In late 2010, the county-FMT partnership received an American Recovery and Reinvestment Act award of $9.6 million, of which half was a grant and the balance a loan. The stimulus award allowed FMT to connect most of the rest of the county with fiber, rather than just upgrading its existing subscriber base.

FMT and the county quickly discovered that costs were likely to exceed initial projections. The county agreed to pay half the shortfall and to lend FMT the other half at no interest for 10 years.

The new project will connect at least 1,738 residential and business premises in addition to two K–12 schools, a library, two medical facilities, three public safety facilities, two community support facilities and two government facilities. Ultimately, the network will cover 339 square miles.

The network will eventually offer standard triple-play services of telephone, Internet access, and television, but currently it delivers just telephone and Internet access. FMT is working on the necessary agreements to offer cable television, but small-scale providers are often at an extreme disadvantage in securing content.

The project began in early 2011. FMT began by expanding fiber it had already run to hospitals in Dawson, Madison and Appleton. The cooperative began offering services in 2013, and the project was nearly complete in early 2014. Because Madison was excluded from the project, it has slower service than the surrounding areas. Pamela Lehmann, who lives in Boyd but works in Madison, notes that her home

connection is faster and more reliable than her work connection. Over time, this may have the effect of hollowing out Madison as businesses find they are more competitive with access to FMT fiber than with slower cable and DSL.

Those who have been able to take service from FMT have been quite pleased. Most residential and business subscribers take 20 Mbps symmetrical Internet service along with telephone services for $68.45 (local service only) or $99.45 (unlimited long distance). However, Frontier began imposing early termination fees on customers who attempted to switch providers, something that the Minnesota Public Utilities Commission has been examining.

SCOTT COUNTY

Scott County had long watched as its neighbor Dakota County expanded a county-owned fiber network to improve access for schools and other community anchor institutions. Local leaders learned from those efforts, and the Scott County Board of Commissioners approved the $4 million budget for its 90-mile ring in January 2007. The savings from no longer having to lease expensive connections from existing carriers was estimated at $500,000 per year.

The county bonded for the project, spreading the cost of building it over many years. Combining the bond payments and operating expenses, the county saves $35,000 per year compared with its cost of leasing lines. The new fiber network also offers much higher-capacity connections, a much lower cost per bit delivered and greater reliability.

The network connected all county-owned facilities, including public

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safety communication towers, libraries, city halls, police departments, school districts and the state of Minnesota's high-capacity backbone. Ultimately, it also connected with the Dakota and Carver County networks and provided redundant paths out of the county, one to Mankato and the other to the 511 Building in Minneapolis, where hundreds of carriers interconnect. The connection to the 511 Building meant that any carrier in the building could offer services to Scott County, rather than the county's being dependent on the small number of carriers with infrastructure in the county. The state Office of Enterprise Technology agreed to manage portions of the network in return for access to some of the connections, which lowered costs.

Even early in the network's useful life, the results have been tremendous. The local school district, which had paid approximately $58 per Mbps, slashed its costs to less than $7 per Mbps. The schools now have almost unlimited capacity to upgrade to faster speeds that would have been cost-prohibitive to lease from a telephone or cable company.

The network is also responsible for bringing jobs to the region. When Emerson Process Management was selecting a site for a 500-job, $70 million investment, Scott County could offer it affordable access to the fiber network. Shakopee News reported: "Dependent on projected usage and other assumptions, over a 20-year period, it is estimated this would result in a net-present-value savings of between $1.1 million and $1.7 million for Emerson." Emerson picked Scott County.

The recent decision from Shutterfly to locate in Scott also came with an agreement to use Scott County fiber to lower its costs of connectivity.

Ensuring that businesses will have an affordable – and, often more important today, reliable – Internet connection is increasingly essential to a healthy business environment. The Dakota and Scott County conduit and fiber investments position them to ensure that those connections are available.

WINDOM

In southwestern Minnesota, approximately 4,600 people call Windom home. The community is 135 miles southwest of the Twin Cities metro and is the county seat of Cottonwood County. Traditionally an agricultural community, Windom is home to several manufacturing plants. PM Beef, Toro, Fortune Trucking and Big Game Tree Stands are some of the biggest employers.

Windom Municipal Utilities (WMU) began providing electric services to the community in 1895, at a time when private electric companies often claimed that electric networks were too complicated for local governments to manage.

The city also provides water and wastewater services. WMU began offering cable services via its Windom Cable Communications (WCC) in the mid-1980s.

In the late 1990s, Windom residents were frustrated by the refusal of the private sector to provide high-speed Internet connections. Dial-up was available, but Qwest had not yet deployed DSL in town. Meanwhile, the municipally owned cable company was losing customers to satellite providers, part of a larger cable trend nationally. When it investigated upgrading the cable facility, WMU realized that upgrading to FTTH would benefit the community significantly by allowing the utility to also offer telephone and

Internet access. However, per state law, offering phone service would require passing a referendum by a 65 percent supermajority. Minnesota is the only state to have such a requirement.

In 1999, Windom put the measure on the ballot but did not meet the supermajority threshold, in part because Qwest announced prior to the vote that it would soon expand DSL to Windom. After the referendum lost, Qwest chose to delay the investment. Exasperated local citizens asked for another referendum. Local officials were skeptical, given the time and expense of another ballot initiative on which the city was legally prohibited from taking a position and whose opponents were much better financed. However, in 2000, more than 70 percent of the voters supported the new initiative.

In 2004, Windom issued $9.47 million in revenue bonds, using the financial tool most municipal fiber networks have used. The utility sold bonds to private investors to be repaid with the revenues of the system. Shortly after beginning to connect subscribers to the new network, the utility encountered a problem not uncommon among small networks: The demand was actually too high; more people were taking service than expected.

Though this may seem an odd problem, it results from the high up-front costs of connecting a home. At that time, connecting a home cost more than $1,500, an amount that is gradually paid off over a few years as the subscriber makes monthly payments for services. Adding too many subscribers too quickly requires an enormous up-front investment.

The mix of services is also important. Those who subscribe to all three services – television, telephone, and Internet access – generate enough revenue to pay off the connection costs in a year or two, but a household taking only telephone services could take more than five years to recoup costs. Community-owned networks can face a tough decision in this situation, choosing between rapidly paying off

network debt or keeping prices low to benefit the community.

WindomNet chose to keep prices low. The city decided to take out a $1 million line of credit from a local bank in 2005 to meet subscriber demand rather than putting new customers on a waiting list. In 2007, still needing to raise capital for new connections, the city issued $2.3 million in general obligation bonds that paid back the line of credit and paid back internal loans from other city departments.

Not all of those requesting access were even within town limits. Fortune Trucking, which employs 47 people, decided to engage in a major IT upgrade in 2008. It verified that the private company that supplied it with telecommunications services at the time could support the new system with better connectivity. After it bought the system, Fortune found the private company could not fulfill its connectivity promises. Fortune considered shutting down and moving those jobs to New Mexico, but first it called Dan Olsen, WindomNet general manager.

Though Fortune Trucking was located a mile outside Windom, Olsen quickly agreed to get a fiber line out to the facility. In a 2011 story on Minnesota Public Radio, Dale Rothstein of Fortune Trucking observed, "It's a great relationship. When there is a problem, I call, and it's taken care of. It's great to have a local company to deal with."

WindomNet benefits the city's residents and businesses in many ways that don't show up on an internal balance sheet. For example, it delivers free services to city buildings and the library, saving agencies tens of thousands of dollars each year that can be spent on direct public services. Windom has higher-capacity connections with better customer service for far lower prices than peer communities.

WindomNet has even benefited nearby, smaller towns. Eight surrounding towns that were stuck on dial-up received a federal broadband stimulus award of $12.7 million, allowing them to build a 125-mile fiber network ring that uses WindomNet as a hub. In expanding its networks to nearby communities, WindomNet follows in the footsteps of municipal networks in Reedsburg, Wisc., and Cedar Falls, Iowa, each of which expanded fiber optic networks to what previously was dial-up country nearby.

Now, residents of nearby Jackson, Lakefield, Round Lake, Bingham Lake, Brewster, Wilder, Heron Lake and Okabena have fiber optic connections capable of a gigabit rather than dial-up or satellite. No private company was interested in serving those small towns, even with significant federal subsidies. Because Windom embarked on a path of local self-reliance, it built a foundation capable of being expanded to meet its neighbors' needs.

Critics of WindomNet have long claimed WindomNet was a money-losing failure. However, Windom's business model called for the network to break even in the seventh year, and in recent years, network expenses have been roughly in balance with revenues after depreciation.

ILSR estimates that Windom used about $1 million in tax dollars to support WindomNet over its first 10 years. Was this a wise use of taxpayer dollars? That $100,000 per year kept at least 47 jobs in the community; almost certainly, more were retained and yet more attracted. WindomNet brought gigabit service to some of the smallest towns in the world. In providing free services to the library and city buildings, it effectively reduced taxes that would have otherwise been spent on telecommunications. Property values are almost certainly higher, both in Windom and the surrounding communities, than they would be without fiber access.

SIBLEY COUNTY

After unsuccessfully asking incumbent providers to expand and improve broadband access, the Winthrop City Council tasked town administrator Mark Erickson to work with other local governments in the region to develop a

Citizens in Renville and Sibley counties formed a new telecom cooperative; in a unique public-private partnership, local governments will provide seed funding for the cooperative.

solution. In 2010, the Renville-Sibley Fiber project (RS Fiber) was born.

RS Fiber was originally anticipated to be a joint project of the towns in Sibley County, the county government and a slice of eastern Renville County, including the Fairfax area. This area is farm country, with slow broadband access in many towns and dial-up/satellite access between towns.

The RS Fiber group held more than 100 public meetings to discuss the plan, often spending an entire day in each town and holding morning, afternoon and evening meetings to accommodate people's schedules.

The feasibility study showed that covering only population centers would be less expensive and involve less risk, but the project's leaders remained dedicated to universal access. They wanted to build fiber to the farm and not leave anyone behind because they reasoned that the fates of the farms and towns were woven together.

After hesitation by the Sibley County Board and some difficulty in arranging preliminary financing for approximately $67 million of debt, RS Fiber decided in July 2013 to form a new cooperative rather than owning the network via a joint powers board. The cooperative will be owned by all those who take service from it.

Historically, the challenge of creating a new Internet service cooperative was raising capital. Few will lend a new entity tens of millions of dollars, especially to finance a difficult venture. Recognizing that reality, RS Fiber developed an innovative public-private partnership. Local governments will use their bonding authority to provide initial financing to the co-op. Investors are far more likely to put their

money into a project after it already has attracted significant seed funding, particularly if the private investors are the first in line to be repaid in the event of any financial difficulty.

As of March 2014, the project comprised 10 cities and 21 townships that included 7,200 potential customers (households and businesses, the vast majority of them in Sibley County). The local governments will together sell $15 million in general obligation tax abatement bonds and make an economic development loan of that amount to the RS Fiber Cooperative. That initial financing should allow the co-op to unlock another $42 million from bank sources to build and operate the network. All the borrowing will be repaid by subscribers from the services sold. The $15 million economic development loan from local governments will be subordinated to loans from private investors.

If all goes as planned, the RS Fiber Cooperative will not only connect the 7,200 potential subscribers in the immediate area but could also begin expanding into nearby towns and townships that have no realistic expectation of private-sector investment.

Cooperatives, assisted by long-term, low-interest federal loans, were essential in spreading electricity to nearly every home in America. Now they may again fill an important void.

MONTICELLO

Home to 12,000 people and located on the I-94 corridor 40 miles west of Minneapolis, Monticello is probably the only place on earth served by two competing citywide FTTH networks. One is owned by the city of Monticello; the other is owned by TDS, a private

telephone company. Still another company, Charter, offers cable services, making Monticello one of the most competitive telecommunications environments in the upper Midwest.

How did such vigorous competition come about? It began in 2006 when local citizens and businesses began complaining about the inadequate services they were receiving from TDS and Charter. One local businessman told Minnesota Public Radio, "The service we had in Monticello was horrible. ... My employees would sometimes take the data home, where they had a better Internet connection than we did, and do their uploads at night."

When the incumbents refused to upgrade their networks, the city decided to build its own. A referendum held in 2007 resulted in a remarkable 74 percent support for the project. However, when Monticello began selling bonds to finance the network, TDS filed a lawsuit. The court dismissed the case with prejudice, but TDS appealed, delaying Monticello's fiber network and eventually costing the city millions of dollars. During the delay, TDS, which had argued for years that Monticello did not need a fiber network, decided to build one.

Even during the lawsuit, Monticello offered to do joint trenching with TDS, which would have reduced the cost to both parties to build their respective networks, but TDS refused. Monticello considered ceasing to build its network, but decided that the only way to ensure the community would actually get modern services at a reasonable price was to build a network owned by the community. Monticello started building its network in 2009.

Hiawatha Broadband Communications, a well-respected Minnesota company located in Winona, agreed to offer services over the network. (This relationship is no longer in force.) However, the TDS delaying tactic succeeded in harming FiberNet Monticello. The network had to begin repaying its debt even before

revenues began coming in, creating a permanent cash-flow problem.

On top of the costs incurred because of the TDS lawsuit, Monticello had to deal with an extremely aggressive countermarketing campaign by Charter. Charter offered a package of its fastest Internet access and every cable channel for only $60 per month. It charges $145 for such a package in other communities where there is no real competition. Many who are familiar with channel contracts, which are subject to nondisclosure agreements, believe that Charter's costs to deliver that package must exceed $60 per month, meaning that it loses money on every subscriber that takes the deal.

Between the delays resulting from the lawsuits by TDS and the price cutting by Charter, FiberNet Monticello failed to hit its financial targets and is in the midst of negotiating with bondholders to take a significant haircut. Meanwhile, the network has borrowed funds from the municipal liquor store fund to continue operating as it changes strategies to become financially viable over the long term.

Though FiberNet's internal balance sheet has been in the red, the citywide impact of FiberNet has clearly been positive. Lower prices by Charter and TDS have resulted in savings to local businesses and households of more than $1 million each year. FiberNet improved the business climate and put Monticello on the map as having some of the best connectivity in the country.

Prior to FiberNet, TDS charged more than $40 per month for telephone services, and calls to the Minneapolis/Saint Paul metro area were long distance. FiberNet began charging $21 and included the metro area in the local calling plan. TDS has since lowered its rates, ensuring that everyone is saving money and seeing benefits from the newly competitive environment.

A recent GAO report noted that "following the construction of a fiber-to-the-home municipal network in Monticello, Minn., the two other broadband providers in the area made investments in their infrastructure to improve their broadband speeds. One of these providers stated that all of its networks undergo periodic upgrades to improve service, but upgrade schedules can change in order to stay competitive when there is a new service provider in a particular market." ❖

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