

MINNESOTA LOCAL GOVERNMENTS ADVANCE SUPER FAST INTERNET NETWORKS

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Back in 2010, Minnesota set ambitious goals for universal Internet access across the state. By 2015, everyone should have access to download speeds of 10-20 Mbps and upload speeds of 5-10 Mbps. The state is not on track to meet those goals. While most residents of the Twin Cities have access to at least the minimum standard of 10 Mbps down, fewer than half of Greater Minnesota households 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 only have access to a slow DSL connection that does not meet the Federal Communications Commission definition of “basic broadband.”

Few areas of the state have robust competition for services. Like most of America, Minnesotans generally have to choose between a single cable company and a single telephone company for a broadband connection. Though 4G wireless can offer fast connections in many areas, it will continue to be a complement to wired service in the home, not a substitute. 4G plans come with bandwidth caps for data that dramatically increase the prices for anyone trying to operate a business or do homework all month. The average household on a DSL or cable connection uses approximately 50 gigabytes per month.¹ That would cost between

\$500 and \$1200 per month on a 4G wireless network depending on the contract.

The Minneapolis/Saint Paul metro region has access to high speed broadband, but it is beginning to fall behind other metro areas that have or are building more robust networks. Comcast offers cable throughout the vast majority of the metro and many households have access to a decent DSL connection. These connections will continue to meet the needs of average users for the near future but already fail to adequately meet the needs of early adopters and small businesses.

Among cable providers, Comcast tends to provide faster speeds and more reliability than its rivals. Though Comcast serves the overwhelming majority of the metro, most of the rest of the state is served by Charter and Mediacom, who have been much slower to upgrade their cable systems. For instance the *fastest* cable Internet speed advertised in Rochester is 30 Mbps down, similar to the *standard* residential tier offered in most metro areas. Even in the best circumstances, cable networks cannot compare to full fiber optic networks, often called fiber-to-the-home (FTTH). Across the country, metro regions are increasingly focusing on ensuring universal access to ultra-fast gigabit FTTH networks. Neither Minneapolis nor Saint Paul have any plan or prospect for gigabit services.

COMMUNITY NETWORK MAP



The Institute for Local Self-Reliance is tracking over 400 local governments that provide telecommunications services to local businesses and/or residents in the United States.

<http://MuniNetworks.org/communitymap>

Some rural areas in Minnesota actually have very good access to the Internet, including in areas where local governments have invested as we discuss below. Rural cooperatives, mostly telephone but also some electric, have also invested significantly in fiber optic connections that are delivering very reliable connections capable of very high speeds. However, coops have often continued to offer similar speeds as are available over cable systems, for a variety of reasons, both cultural and economic.

Additionally, Minnesota has a uniquely high number of independent local telephone providers, some of whom have been able to invest expanding fiber capacity and others have not. Finally, wireless Internet service providers (WISPs) also serve rural areas with a range of speeds using specialized wireless equipment.

The range of providers, from locally owned networks to distant mega-corporations, has resulted in a wide gamut of access, from modern fiber networks to nothing.

WHAT IS BROADBAND?

Definitions vary but it generally refers to an always on connection that is faster than dial-up (56 kbps or .056 Mbps). The FCC is currently defining “basic broadband” as 4 megabits down and 1 megabit up, saying that this is the minimum connection needed to use common Internet applications.

Most in Minnesota connect via DSL or cable. With recent upgrades, cable connections are capable of meeting the Minnesota broadband goals of 10-20 Mbps down and 5-10 up. In the metro, Comcast can deliver those speeds but other cable companies have not upgraded recently. DSL connections are limited by distance, meaning real connection speeds in rural areas are often much lower than advertised rates. Even under optimal conditions, DSL will struggle to meet the Minnesota upload goals.

Modern fiber networks often offer symmetrical connections, meaning a user can send data as rapidly as receiving it. DSL and cable networks are asymmetrical, meaning that uploads are much slower than downloads, making it harder to work from home or send large files to clients.

Aside from creating a task force and setting goals, both 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 in rural areas and cooperatives.

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 brief focuses on some of the strategies local governments have embraced to improve Internet access for local businesses and/or residents.

We offer an overview of several approaches, each of which will be fleshed out in greater detail in a forthcoming report. The counties of Lac qui Parle and Sibley have entered into a public-private partnership with a consumer cooperative. Lac qui Parle partnered with an existing telephone cooperative and Sibley with a newly created broadband cooperative.

Scott County has built a network by first connecting anchor institutions such as schools, municipal facilities, and public safety communication towers, later using it to drive economic development. This strategy could be appropriate for almost any city or county, involving low risk and repaying the investment with internal savings.

Other local governments have pursued different strategies. Windom and Monticello built their own city-wide FTTH networks in the face of forceful opposition by incumbents. Chaska and Buffalo have invested in both fiber and wireless technologies to connect anchor institutions, businesses, and residents. Still other local governments approaches will be covered in an upcoming, longer report on Minnesota.

ILSR has nearly a decade of experience both studying and working with local governments to expand Internet access. Local governments have a continuum of options, from investments to enable other providers to building and operating their own citywide networks. Each community's needs and preexisting assets have varied, leading us to the conclusion that any decision about how to expand access must be made at the local level, by those who will have to live with the consequences. The rest of this brief introduces how some local governments have taken action.



LAC QUI PARLE COUNTY

Home to 7,000 Minnesotans, Lac qui Parle County borders on 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 where connection speeds reached about 1.5 Mbps downstream and much less upstream. Slightly faster connections of 3-5 Mbps from Mediacom were available in two towns, and those outside of the towns had to mostly settle for slow dial-up or satellite connections.

Understanding the crucial importance of high speed Internet access, the County’s Economic Development Authority (EDA) asked Frontier to upgrade its network. Pamela Lehmann, the head of EDA recounted her experience to MPR: “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.”²

The County gave Frontier yet another opportunity to work with them by issuing a formal request for information (RFI) but Frontier did not bother to even 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. The study was completed in early 2010 and found that a significant area 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 “served” due to Mediacom’s cable service, they were excluded from the project to upgrade communications infrastructure.

In late 2010, the county-coop 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 expand fiber beyond just upgrading its subscriber-base to connect most of the rest of the county.

FMT and the County quickly discovered the costs were likely to exceed initial projections. The County agreed to pay half the shortfall and loan FMT the other half. For the first 10 years, the loan will bear no interest but would begin accruing interest after that period if the loan had not yet been entirely repaid.

The new project will connect at least 1,738 resident 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 delivers just telephone and Internet access. FMT is working on the necessary agreements to offer cable television, but small scale providers are

POLICY SUGGESTIONS

To truly achieve border-to-border, high speed Internet access, the state should remove barriers to local investment. Local governments should be empowered to work together and partner both to invest in their own networks and with partners as they see fit. A key barrier in Minnesota is the 65 percent referendum requirement to own or operate a telephone exchange. Minnesota should remove this barrier and join the majority of states that do not limit local authority.

The state can also expand Internet access by establishing a loan fund. Loans should be prioritized to areas with the greatest need and to entities that have consistently reinvested in upgrades and customer service – cooperatives and local governments. These entities are democratically accountable to subscribers, a check against any potential abuse or neglect. Loans should come with conditions similar to that of the stimulus broadband programs, requiring interconnection and basic principles of non-discrimination.

often at an extreme disadvantage in securing channels owned by massive corporations (including big cable companies like Comcast). The content owners generally charge far more to small scale operations than big firms, just one of the many reasons there is so little competition for cable television.

The project began in early 2011. FMT was able to begin 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.

Ironically, because Madison was excluded from the project, it has become a reverse oasis –

OVERBUILDING POLICY

One of the frequent concerns in Internet policy is whether a government program should allow “overbuilding” or building a new network where another already exists. In Lac qui Parle, the new fiber optic network avoided areas already served by much slower cable and DSL, which may result in people and businesses moving just outside town limits to get much better Internet access.

The Lake County fiber project decided to connect the entire county and portions of nearby Saint Louis County, including the towns of Two Harbors and Silver Bay. Mediacom has protested this action at all levels of government, saying it should not have to compete against a subsidized network. However, one could also argue that decades of a monopoly is also a form of subsidy that has historically protected Mediacom from competition.

The larger policy problem is that encouraging networks only in the hardest to reach areas increases the costs significantly. By including the more dense areas of Lake County, the project is much more likely to achieve positive cash flow – areas of higher revenue balance the areas of lower revenue. Without the higher density areas, the network may need ongoing subsidies, which is often decried by the same people demanding that no overbuilding occur.

The best question may be: What is the most fiscally responsible way to ensure Minnesota has high quality border-to-border Internet access? The answer will almost certainly involve some level of “overbuilding,” though almost always where the existing networks have refused to upgrade to deliver modern services.

having access only to slower services from Frontier and Mediacom rather than the modern fiber connections surrounding them.³ Pamela Lehmann lives in Boyd but works in the county seat, Madison. As many in her situation have found, 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 stuck with slower cable and DSL.

After FMT began offering services, some residents contacted the EDA to report that Frontier was trying to charge a \$250-\$300 penalty when they attempted to switch providers.⁴ After long periods on hold (up to an hour reported), customers were told that they signed a contract with Frontier that gives the telecommunications company the right to charge the fine.

FMT complained to the Public Utilities Commission (PUC) about Frontier’s behavior and that process is still ongoing. Those who have been able to take service from FMT have been quite pleased. Jean Menden is a jewelry artist in Boyd, one of the many small business owners that uses her fiber connection for business. In addition to an improved online store, she now can access video tutorials to improve her silversmith skills as we learned from an article in *Pioneer Press* with this quote:

“If you had two hours, you could watch a 10-minute video,” Menden said as she described the fitful connection that used to be the best available around Boyd.”⁵

The standard offering that most residential and local businesses subscribe to is 20 Mbps symmetrical service for Internet along with telephone services. The bundle with just local telephone is \$68.45 and with unlimited long distance is \$99.45.



SCOTT COUNTY

Scott County had long watched as its neighbor, Dakota County, expanded a county-owned fiber network to improve access to schools and other community anchor institutions. We will cover this in depth in a future report. Local leaders learned from those efforts and its Board of Commissioners approved the \$4 million budget for its own 90 mile ring in January 2007. The savings from no longer having to lease expensive connections from existing carriers were 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 to 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 towers used for public safety communications, libraries, city halls, police departments, school districts, and the state of Minnesota's high capacity backbone. Ultimately, it also interconnected with Dakota and Carver networks as well as providing redundant paths out of the county, one to Mankato and one to the "511 building" in Minneapolis, where hundreds of carriers interconnect networks. Having that connection effectively meant that any carrier in the 511 building could offer services to Scott County, rather than the county being dependent on the small number of carriers that already built infrastructure in the county.

They worked with local provider Access Communications to build the network though Access was later bought by a company called Zayo. The partnership resulted in a lower cost to both parties – the County paid the capital costs to install the fiber and Zayo is responsible for ongoing maintenance. The state Office of Enterprise Technology has also agreed to manage portions of the network in return for access to some of the connections, lowering costs.

Even this early in the network's useful life, the results have been tremendous. The local school district has slashed its expenses, from paying approximately \$58 per megabit to under \$7 per megabit. And due to the network, the schools 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 more jobs in the region. When Emerson Process Management was engaging in site selection 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."⁶ Emerson picked Scott County.

The more 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 importantly today, reliable – Internet connection is increasing essential to a healthy business environment. The Dakota and Scott County conduit and fiber investments position them to ensure those connections are available.

Some nearby counties, most notably Carver, are also starting along similar paths but others, most notably Ramsey, are doing very little.



Toward the southwest area of Minnesota, approximately 4,600 people call Windom home. The community rests 135 miles west 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, a time when private electricity companies regularly 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 found itself 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, despite some investments nearby.

Meanwhile, the municipally owned cable company was losing customers to satellite providers, part of a larger cable trend nationally. In looking to upgrade the cable facility, WMU realized that upgrading to a fiber-to-the-home (FTTH) would benefit the community significantly, allowing the utility to also offer telephone and Internet access. However, offering phone service would require passing a 65% supermajority referendum per state law. Minnesota is the only state to have such a requirement.

LOCAL AUTHORITY

The U.S. National Broadband plan recognizes the importance of local authority to build networks as necessary. Recommendation 8.19 says, "Congress should make clear that Tribal, state, regional and local governments can build broadband networks."

And a recent opinion from the D.C. Circuit Court, *Verizon v. FCC*, specifically noted that the Federal Communications Commission has the power to remove barriers to infrastructure deployment, specifically citing state laws creating barriers to municipal networks.

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 in which the city was legally prohibited from taking a position and opponents were much better financed. As is supposed to happen in a democracy, the people had their way and in 2000, the new initiative was supported by over 70 percent of the voters.

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, they discovered a peculiar 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 upfront costs of connecting a home. At that time, connecting a home cost over \$1500, an amount that is gradually paid off over a few years as the subscriber makes monthly payments for services. Having too many subscribers too quickly requires an enormous upfront investment. This is also where the mix of services is important. Those who subscribe to all three services - television, telephone, and Internet access - generate enough revenue to pay off those connection costs in a year or two, but a household only taking telephone services could take more than five years to recoup.

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 employs 47 people and decided to engage in a major IT upgrade in 2008.⁷ They verified that the private company supplying them telecommunications services at the time could support the new system with better connectivity. But after they 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 called WindomNet General Manager Dan Olsen.

Though Fortune Trucking was located a mile outside of Windom, Olsen quickly agreed to get a

fiber line out to the facility. In a 2011 story on MPR, 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."⁸

WindomNet benefits the city's residents and businesses in many ways that don't show up on an internal balance sheet. WindomNet delivers free services to city buildings and the library, saving agencies tens of thousands of dollars a 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.

The municipal network offers up to a gigabit of service. Examining CenturyLink's offerings in town suggest that the best the telephone giant can deliver in town is DSL at 7 Mbps down and less than 1 Mbps up. In similar towns, CenturyLink offers up to 12 Mbps down and still less than 1 Mbps up. Those connections are advertised from \$47 - \$52 before the fine print fees are factored in. A 10/2 Mbps (down/up) connection from WindomNet runs \$38 and 30/20 is \$68.

WindomNet has even benefitted nearby, smaller towns. Eight surrounding towns that were stuck on dialup 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, Wisconsin and Cedar Falls, Iowa, each of which expanded fiber optic networks to what previously was dial-up country nearby.

Now, nearby Jackson, Lakefield, Round Lake, Bingham Lake, Brewster, Wilder, Heron Lake, and Okabena all 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 to do so. But because Windom had embarked on a path of local self-reliance, it had built a foundation capable of being expanded to meet its neighbors' needs.

Critics of WindomNet, who are often funded by national cable and telephone companies that oppose municipal networks, have long claimed WindomNet was a money losing failure. But those familiar with telecommunication network investments know that all networks operate in the red for some period of time. Many on Wall Street hated Verizon's fiber-optic service, called FiOS, because it took so many years before turning a profit – but as a long term investment, it is now often praised. Windom's business model called for the network to break even in the seventh year, so anyone who argued that WindomNet was a failure because it lost money in its initial years was being disingenuous. In recent years, network expenses have been roughly in balance with revenues after depreciation.

Due diligence for the broadband stimulus programs involved examining whether a network was financially solvent. The fact that Windom was chosen for the grant/loan award among all the applications from other municipalities, cooperatives, and private companies, provides more evidence that WindomNet is much healthier than its critics charge.

ILSR estimates that about \$1 million in tax dollars have been used 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 in telecommunications budgets. Property values are

MUNICIPAL NETWORKS AND SMALL BUSINESSES

A [recent report](#) from the General Accounting Office looked both at broadband projects funded by the broadband stimulus programs and municipal networks to analyze the impact on small businesses. They found these networks tend to have higher speeds and lower prices.

“According to small businesses GAO met with, the speed and reliability of their broadband service improved after they began using federally funded or municipal networks.”

almost certainly higher, both in Windom and the surrounding communities, than they would be without fiber access.

Given how many subsidies are often used by various levels of government to encourage private companies to deliver telecommunications services in rural areas, or indeed, for economic development generally, Windom's use of its own resources should hardly be controversial.



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

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

The group held more than 100 public meetings to discuss the plan, often spending an entire day in each town to hold a morning, afternoon, and evening meeting to make sure people could find one that fit with their schedule.

The feasibility study showed it would be less expensive and involve less risk to cover only population centers. But the project's leaders remained dedicated to universal access. They wanted to build fiber-to-the-farm, with no one left behind because they reasoned that the fate of both the farms and towns are 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 loan 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 coop. 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 comprises 10 cities and 21 townships that include 7200 potential customers (households and businesses, the vast majority of which are 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 coop to unlock another \$42 million from various 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 7200 potential subscribers in the immediate area, it could begin expanding into nearby towns and townships with no realistic expectation that the private sector would invest there.

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, located on the I-94 corridor 40 miles west of Minneapolis, Monticello is the only place on earth we can identify after consulting with international analysts that is served by two competing citywide FTTH networks. One is owned by the city of Monticello; the other by TDS, a private telephone company. Still another company, Charter, offers cable services, making Monticello one of the most competitive telecommunications environment 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."⁹

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. But when Monticello began selling bonds to finance the network, TDS filed a frivolous lawsuit intended to delay and disrupt the project. The court dismissed the case with prejudice, but TDS appealed, thereby delaying Monticello's fiber network startup and eventually costing the city millions of dollars. During the delay, TDS, which

OTHER MINNESOTA NETWORKS

Local governments have been much more involved in delivering telecommunications than many realize. In addition to the examples in this paper, Cook County established a partnership with Arrowhead Electric Cooperative that is building FTTH out to every address with electricity. Lake County is working with a nonprofit to build FTTH to the whole county and parts of Saint Louis County.

Crosslake and Barnesville have long been incumbent municipal providers in their community. Pine City built a fiber backbone and Eagan has built a fiber loop, both to serve businesses. Many school districts operate on publicly owned fiber, whether from the municipality, county, or their own asset.

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, reducing the cost to both parties to build their respective networks, but TDS refused. Monticello considered ceasing to build its network with TDS upgrading, but perhaps wary of the Qwest precedent of making promises later abandoned in Windom, 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. However, the TDS delaying tactic succeeded in harming FiberNet Monticello. The network had to begin paying its debt even before it had revenues 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 counter marketing campaign by Charter. Charter offered a package of its fastest Internet access and every cable channel for only \$60 per month.¹⁰ Speaking with those familiar with channel contracts, all of which are subject to non-disclosure agreements, Charter's costs to deliver that package must be above \$60/month, meaning that it loses money on every subscriber that takes the deal. It charges \$145 for such a package in other communities where there is no real competition. This practice is referred to as predatory pricing, where a firm with market power takes a loss indefinitely to drive competitors out of business, whereupon it again raises prices. Unfortunately the federal government rarely intervenes to stop predatory pricing.

Between the delays resulting from the lawsuits by TDS and the predatory pricing of Charter, FiberNet Monticello not surprisingly 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.

While FiberNet's internal balance sheet has been in the red, the city-wide impact of FiberNet has clearly been positive. Lower prices by Charter and TDS has resulted in savings to local businesses and households of over \$1 million each year. FiberNet has 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 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 that discussed municipal networks and impact on local businesses included this interesting disclosure:

"For example, following the construction of a fiber-to-the-home municipal network in Monticello, Minnesota, 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."



CHASKA, BUFFALO, AND WI-FI

Chaska and Buffalo both have municipal electric utilities that have been quite involved in expanding Internet access, connecting anchor institutions, local businesses, and even residents. They are most well known for their Wi-Fi networks but they also maintain substantial fiber networks. ILSR's forthcoming in-depth report will focus more on the fiber networks, but here we want to address Wi-Fi in particular.

Both Chaska and Buffalo have invested in different types of technologies to solve different problems. They use fiber and some line-of-sight wireless to connect anchor institutions and businesses. They also built citywide Wi-Fi networks to connect small businesses and residents, originally bringing broadband to many who had no other option to access it.

Over time and in hundreds of cities, Wi-Fi has proved to be ill-suited to providing citywide access generally, especially high quality access in the home. This is true for both privately owned networks and publicly owned – all were similarly taken in by overstated vendor claims as the technology was maturing. Some have used difficulties faced by municipal Wi-Fi networks to suggest that local governments should do nothing in the telecommunications space.

However, it was the refusal of existing telecommunications firms to offer Internet access (or not offer it at a reasonable price) that led to municipal Wi-Fi in the first place. Many networks did exactly what they were intended to

do: ensure everyone had affordable broadband Internet access. After the private sector caught up, some local governments decided the purpose for the network had been met. This is not evidence of a failure. Regardless, any lessons from Wi-Fi are not necessarily relevant for fiber optic networks.

Fiber optics are a much longer term investment fitting with the long standing practice of local governments investing in long standing infrastructure. Local governments may make a range of investments, from focusing on the passive infrastructure of conduit and dark fiber to taking a more active role in ensuring everyone has access.

Finally, anyone confused the absence of discussion about the USI Wi-Fi network in Minneapolis should note that the network is privately owned and publicly subsidized, not a model we encourage.

CONCLUSION

In nearly a decade of study and work with local governments to build networks, we believe Internet networks will follow a similar trajectory as electrification. Just as it took the combined efforts of the private sector, municipalities, and cooperatives to ensure everyone had access then, so shall it be with Internet access. Currently, Minnesota law privileges private sector solutions while discouraging municipal networks, and is doing little to help create or expand cooperatives. We need an all-hands-on-deck approach that recognizes communities should at least have the choice of being involved in meeting this essential need.

REFERENCES

- 1 Global Internet Phenomena Report, Sandvine Intelligent Networks, <https://www.sandvine.com/downloads/general/global-internet-phenomena/2013/2h-2013-global-internet-phenomena-report.pdf>
- 2 <http://www.mprnews.org/story/2011/03/24/ground-level-broadband-building-networks>
- 3 An earlier version of this brief incorrectly listed Dawson as a community that was not included in the Lac qui Parle stimulus project. Madison was the only community in the county where the fiber infrastructure was not deployed. Our apologies to the partners who made the network possible, Farmers Mutual Telephone Company and Lac qui Parle County.
- 4 See the Public Utilities Commission Docket here: <https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=eDocketsResult&docketYear=13&docketNumber=941>
- 5 “Minn., others push fast broadband to hinterland,” Brian Bakst, AP, November 30, 2013, http://www.twincities.com/localnews/ci_24635101/minnesota-others-push-fast-broadband-hinterland
- 6 http://www.shakopeenews.com/news/local_government/county-offers-fiber-plum-to-emerson/article_78090fb4-ce3b-530f-bc44-9738c8e07624.html
- 7 <http://www.mprnews.org/story/2011/03/24/ground-level-broadband-building-networks>
- 8 <http://www.mprnews.org/story/2011/03/24/ground-level-broadband-building-networks>
- 9 <http://www.mprnews.org/story/2012/03/26/ground-level-broadband-monticello>
- 10 <http://arstechnica.com/tech-policy/2012/03/predator-or-prey-charter-cuts-internet-prices-to-compete-with-city-owned-network/>

ADDITIONAL RESOURCES

ILSR’s MuniNetworks.org website has many resources for those curious about community owned networks.

We have many [fact sheets](#), including those focused on Financing Municipal Networks, Economic Development Impacts of Municipal Networks, and the basics of broadband and wireless Internet access.

We have a [weekly podcast](#) discussing all of these issues and a [variety of videos](#).

And don’t miss our most recent case study, **[Santa Monica City Net: An Incremental Approach to Building a Fiber Optic Network](#)**

Visit ilsr.org to learn more about our various programs.

