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Comments  
NBP Public Notice # 7  
Contribution of Federal, State, Tribal, and  
Local Government to Broadband

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**COMMENTS OF THE INSTITUTE FOR LOCAL SELF-RELIANCE**

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## **Introduction**

The Institute for Local Self-Reliance (ILSR) is a nonprofit organization dedicated to building sustainable, self-determining, strong and equitable communities. Part of the strategy for reaching that goal is to enable communities to extract the maximum value from their existing resources (human, capital and natural) through direct assistance and policy advocacy. ILSR has a program entitled “Telecommunications As Commons Initiative” that advocates for public (municipal, nonprofit or cooperative) ownership of broadband networks. Our focus on telecommunications is to create a system that maximizes the human potential of a community and acts as a vehicle for coherence and involvement and internal communication, a system in which the owner is more accessible to the customer and the community can democratically establish the rules for their information future. Of particular importance are rules regarding accessibility, affordability, transparency and equity.

ILSR’s comments are in response to question 2 of the NPB Public Notice # 7, regarding “Comment Sought on the Contribution of Federal, State, Tribal, and Local Government to Broadband.” Within the context of questions posed by the FCC, these comments will discuss the philosophy and results of local publicly owned broadband initiatives.

ILSR’s Telecommunications as Commons Initiative has collected much data on publicly owned broadband networks over the course of the past five years. We have come to the conclusion that communities derive more benefits from networks that are directly accountable to the people than those that first prioritize profits.

## **Understanding Publicly Owned Networks**

In an interview in 2004, the founder of McLeod USA noted “In Iowa, we know the municipal model works because we have 20 municipalities providing services at rates far below the incumbents.”<sup>1</sup> Local governments have a strong track record of building broadband networks, particularly in difficult rural environments. This is not a surprise as local governments consider building broadband networks only in areas where the community sees an unmet need – and cable and telephone companies have historically under-invested in rural areas due to lower returns than are available in more lucrative markets.

Despite the challenge of building networks in areas deemed unattractive for investment by the private sector, many communities have built impressive networks to offer broadband and sometimes both phone and television services. Though the balance of these comments focus on wired networks, ILSR would like to start by responding to a common misconception around so-called “Muni-Wireless.” Reports in both mainstream and tech media have pigeon-holed a variety of wireless networks using different business and ownership models into a phenomenon called “Muni-Wireless.” And the reports conclude that Muni-Wireless has failed.

This analysis is inaccurate and unhelpful. The biggest problems in “Muni-Wireless” came from private companies that oversold their technologies to communities and built faulty networks. Though some have used such examples as the problems in Philadelphia, Houston, or San Francisco to suggest publicly owned broadband is a bad idea, all of those networks were to be privately owned, suggesting those experiences do little to inform a discussion about genuine publicly owned networks. Moreover, the actual experiences of wireless broadband (successes and failures) may not be applicable to wired networks.

Before discussing several successes of wired publicly-owned broadband networks, it is important to note that the metrics for evaluating a publicly owned system differ from

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<sup>1</sup> “Fast Forward: Clark McLeod, OpportunityIowa” available from TelephonyOnline at [http://telephonyonline.com/mag/telecom\\_fast\\_forward\\_29/](http://telephonyonline.com/mag/telecom_fast_forward_29/)

those used to evaluate a privately owned network.

The companies that typically own cable and telephone networks are required to place shareholder interests above all, which is reflected in the need to produce profit or quick return on investment. Local governments, on the other hand, are tasked with maximizing the public benefit, something more difficult to measure than profit. Thus, understanding the benefits of publicly owned networks goes considerably beyond a conventional balance sheet.

Local governments invest in broadband networks for a variety of reasons, some of which are quantifiable: lowering costs for services or increasing the available speeds in a community. Some reasons are more difficult to put a dollar figure on: community savings from reduced rates, enhanced services from increasing broadband competition, economic development, or the benefits of local ownership. But a number of reasons are impractical to quantify: better educational opportunities from broadband, increased local media production, and fewer frustrations from improved customer service.

The idea that one could understand whether a publicly owned network is successful or not based on its free cash flow after three or five years is naïve because the benefits go significantly beyond the spreadsheet.

However, it is not difficult to list the benefits of publicly owned networks. A report from September of 2008 discussing municipally-owned fiber networks quickly captured a number of benefits that are fairly representative across many publicly owned networks:

*In terms of fiber-enabled cost savings, 120 businesses in Bristol [VA] reported an average of \$2,951 in savings per year, while, in Reedsburg [WI], 33 cited annual cost savings averaging \$20,682. Twenty Jackson [TN] businesses reported cost impacts due to fiber, with one large organization reporting a total of \$3 million in savings.<sup>2</sup>*

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<sup>2</sup> “Municipal & Utility Guidebook to Bringing Broadband Fiber Optics to Your Community” by David Chaffee and Mitchell Shapiro. Available at <http://www.pti.org/index.php/ptiee1/more/406/>

The communities that have built community-wide broadband networks report tremendous savings, resulting in lower pressure on the tax base as telecommunications bills have become manageable. For instance, schools have greatly benefited from faster speeds and lower prices. Reedsburg schools transitioned from a T-1 at \$650-\$750/month to 100Mbps for under \$500/month from the publicly owned network.<sup>3</sup> Vermont's Burlington Telecom has already saved the city millions in a few short years – they can now provision 100Mbps and 1Gbps connections at approximately \$1000/month per connection rather than going with DS3s (the fastest available connections otherwise available in Burlington) for around \$2500/month. The publicly owned network costs less while offering significantly higher capacity.

The broadband network in Bristol operated by the public power company Bristol Virginia Utilities also reports significant savings:

*“BVU's initial fiber deployment linked local government and school buildings. According to a study done at that time, this yielded annual savings of \$156,000 .. [S]ome connections between local schools are operating at data rates as high as 100 Mbps to 1Gbps.”<sup>4</sup>*

The network opened the door to new applications in the school that were not supported by the previous connections.

Aside from the municipal savings, businesses have reported Burlington Telecom's fiber service is more reliable than the incumbent telephone and cable companies and that the fast symmetrical connections have lured businesses into town because the asymmetrical cable and DSL networks were insufficient for their needs.

Publicly owned fiber networks actually offer some of the fastest and most affordable broadband speeds in the nation. Consider some of the offerings (monthly cost):

- Reedsburg, Wisconsin: 10 Mbps symmetrical for \$49.95

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<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

- Lafayette, LA: slowest offering is 10 Mbps symmetrical for \$28.95; 50 Mbps symmetrical for \$57.95; any broadband subscription gets you 100Mbps to others on the Lafayette network.
- Wilson, NC: 10 Mbps symmetrical for \$34.95; 20 Mbps symmetrical for \$54.95
- UTOPIA, UT: depending the service provider, from 15 Mbps symmetrical for \$39.95 to 50 Mbps symmetrical for \$59.95 to 100 Mbps symmetrical for \$147
- Loma Linda, CA: 5 Mbps symmetrical for \$29.95
- Monticello, MN: 20 Mbps symmetrical for \$34.95

These examples show there is little reason the U.S. has to fall behind other nations in high speeds and affordable access. By prioritizing community needs over private profit, as befits essential infrastructure, these communities offer some of the best broadband packages available in the United States. None of these rates are subsidized by tax dollars; publicly owned networks are held to a higher standard of accounting than their private counterparts because the network owners are directly accountable to their citizens.

With impressive speeds like those noted above, it is no wonder municipally owned networks have garnered impressive take rates. A recently updated report from the Fiber-to-the-Home Council noted,

*“Nationwide, the take rates for retail municipal systems after one to four years of operation averages 54 percent. This is much higher than larger incumbent service provider take rates, and is also well above the typical FTTH business plan.”<sup>5</sup>*

Municipally run networks have won a variety of awards for their outstanding performance, from Bristol Virginia Utilities’ Top Seven Intelligent Communities of 2009 award (the only U.S. city) for its triple-play fiber network to an award in 2008 for Excellence in Technology bestowed upon Oklahoma City for their operating the largest wireless mesh network in the world (used for city functions, not residential access).

Local businesses have reported much greater satisfaction from the local service that comes with local ownership. To the incumbent phone company in rural Minnesota, a

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<sup>5</sup> Available here: <http://www.baller.com/pdfs/MuniFiberNetsOct09.pdf>

small company named Fortune Transportation was just another customer. Fortune Transportation ordered connectivity from the phone company and then bought a telephone system for the business. When the phone company later discovered it could not provision the service, the company was going to move those jobs to another state where it could get the necessary connection. WindomNet, a publicly owned network just down the road, offered to run a line out to them to keep the jobs in the area and succeeded.

WindomNet has since even offered help in a situation where a local business served by the incumbent provider lost all its phone lines. The incumbent said it would be three days until a technician was able to help but WindomNet employees were able to offer assistance that day even though the business was not a customer. These stories are anything but rare. Community owned networks regularly go above and beyond what is necessary to put community first. Mike Basham of Greenlight, the publicly owned fiber network in Wilson, North Carolina has noted they offer the “strangle effect.” If something goes wrong with their network, you can find someone locally to strangle.

When hostile Utah legislators in a subcommittee were questioning a local businessman about the publicly owned UTOPIA (Utah Telecommunication Open Infrastructure Agency) regarding the risk of a publicly owned network failing to meet its debt obligations, he responded that his company had recently considered changing locations but realized they could not leave the UTOPIA footprint due to the tremendous cost savings.<sup>6</sup> He went on to note that it is far easier to talk to his Mayor than the CEO of Qwest when he has a problem.<sup>7</sup>

Finally, publicly owned networks reach beyond economic development and budget savings. They impact entertainment and local media. The network in Sallisaw, Oklahoma has seen many subscribers join because they make space on the network for local sports and even cultural events. Burlington Telecom’s network is engineered to

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<sup>6</sup> See <http://www.muninetworks.org/content/utopia-retains-businesses>

<sup>7</sup> <http://www.muninetworks.org/content/local-ownership-adds-accountability>



provide an almost unlimited number of channels, so it makes channels available for free for civic uses and will sell channels to local businesses or interested parties for a mere \$65/month.

Compare this dedication to meeting local media needs with the large cable companies that have refused to meet the PEG (Public access, educational, and government channels) requirements in their franchise agreements and are now championing state-wide franchising bills that allow them to reduce what support they give to those channels. Following passage of Wisconsin's statewide franchising law, Reedsburg's publicly owned network continued to support the local PEG channels even as Charter walked away.<sup>8</sup>

### **Short Case Studies**

Having offered a variety of anecdotes and examined the culture of publicly owned networks, ILSR will offer some short case studies in response to how initiatives came into fruition from start to finish. Though there are many interesting networks, each with its own unique story, we have attempted to provide a variety of models rather than the most common (which Chattanooga used below) of a public power utility expanding in telecommunications services.

#### ***Chattanooga, Tennessee***

On Tuesday, September 15, EPB, the public power utility serving Chattanooga and nearby communities in Tennessee, rolled out fully fiber-powered triple-play services to 17,000, a number expected to grow by July 2010, when services will be available to some 100,000 people and businesses. It will take three years before all 160,000 potential

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<sup>8</sup> "Municipal & Utility Guidebook to Bringing Broadband Fiber Optics to Your Community" by David Chaffee and Mitchell Shapiro. Available at <http://www.pti.org/index.php/ptiee1/more/406/>

subscribers are passed.<sup>9</sup>

Chattanooga has had a relatively rough time creating the network due to the litigious nature of its incumbents, who have filed 4 lawsuits to stop the project only to have each of them dismissed by the courts. (This is a predictable outcome, many of these companies file frivolous lawsuits to intimidate communities with lost time and legal fees - leading to a no-lose situation for the company.)

The Tennessee Cable and Telecommunications Association initiated the lawsuits in 2007 and Comcast chimed in a year later. As has been done in other communities, the private companies alleged the power utility was cross-subsidizing its triple-play telecom offering with revenues from the electric side. Aside from this just being a poor business practice, the companies say such cross-subsidization would be unfair to them even as major carriers routinely cross-subsidize from community to community - overcharging in non-competitive markets to make up for keeping prices low in competitive markets.

Nonetheless, public power companies and other public agencies have learned to keep meticulous books to show they are not cross-subsidizing.

EPB has long offered some telecom services. Starting nearly 10 years ago, the power utility stepped up to ensure businesses had access to the telephone and broadband networks they needed. Those services clearly scratched an itch as they had more than 2,300 customers before beginning to expand the network to everyone.

EPB's footprint includes over 168,000 electrical customers scattered over 600 sq. miles that reach into northern Georgia. As the fiber network expands to cover the full territory, it will quickly become the largest publicly owned fiber network in the country - making Chattanooga the envy of larger cities. A recent article in Business TN made just this point:

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<sup>9</sup> This look at Chattanooga is a slightly edited version of the longer article, available at: <http://www.muninetworks.org/content/chattanooga-launches-nations-largest-public-full-fiber-network>

*Josiah Roe of Medium, formerly Coptix, a Web graphic design company, cites the ability to upload and transfer large files with the "comprehensibly better product" as an advantage for his company. "When I go to Chicago or larger cities and they hear we have [FTTH], they're just amazed to see a city of our size doing something like that," Roe says. He adds that, "Chattanooga is very progressive and forward-thinking" in its fiber initiative.<sup>10</sup>*

One of the reasons publicly owned fiber networks are commonly built by public power companies is because power companies already need fiber to reliably transmit data in real-time to monitor many areas of the grid. This fiber network will be used extensively for electrical uses, which is why the electricity side of EPB is paying for \$160 million of the \$220 million expected expense. EPB has applied for \$111 million from a Department of Energy smart-grid stimulus grant.

Though many utilities are turning to wireless for smart-grid data transmittal, EPB fears its topology will interfere with long-range wireless solutions. Fiber is considerably more reliable, but the upfront costs are indeed higher. EPB is not actually running fiber to every home for smart-grid applications, just those who are taking telecommunications services. Those who do not take telecom services will have an electric meter wirelessly connect to a mesh network that uses a nearby fiber-connected home to send and receive usage data.

Some have claimed the electrical side of EPB should pay less for the fiber network but the Electric Power Research Institute (EPRI) has validated the EPB numbers.

Additionally, people in the smart-grid pilot project are already seeing benefits. From that article:

*EPB hopes to recoup its investment primarily from not having to continue to manually read its 160,000 meters, cutting the theft of power from altered older-design meters and generating extra revenues from new video and telecommunications services made possible by the fiber-optic network.*

Over the next 3 years, EPB expects to sign up at least 35% of its footprint for its telephone, Internet, or television services. Comcast has made now Chattanooga a priority

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<sup>10</sup> <http://businessstn.com/content/200909/optic-nerve>

for investment, offering its "up to" 50Mbps downstream cable network (often paired with a 5Mbps upstream connection).

Katie Espeseth, vice President of EPB Fiber Optics, explained why Chattanooga is not matching the common private company practice of starting at an "introductory" price that goes up after a few months:

*We're entering the market with a consistent and clear price — it is not a temporary, promotional price," Ms. Espeseth said. "Because of our fiber-optic infrastructure, our picture quality is clearer and more consistent and our 'Fi-speed' Internet service is consistent and more reliable.*

EPB is actively looking for local content to put on the television, including things like youth sports that they will put on video-on-demand. Note that the slowest broadband connection is 15Mbps/15Mbps - speeds that are faster than the best speeds in most communities around the country. EPB is offering services that will ensure any subscriber can use multiple modern applications simultaneously - an increasingly common need as households continue getting more bandwidth-hungry devices.

Espeseth has estimated 2,600 new jobs will be created in the greater Chattanooga area from the fiber network and resulting economic development. Another article puts a number on the projected economic development, expecting "almost \$850 million in value from both communications and smart grid services, including things like jobs and energy savings." <sup>11</sup>

### ***Monticello, Minnesota***

Monticello is a community of some 12,000 people located northwest of Minneapolis, and unlike many other communities that have built similar networks, Monticello has no public power utility. In 2006, the City began researching ways of improving broadband access in the community to spur economic development. Though they first approached the local incumbents, they were rebuffed. After developing a model where the City would potentially build the infrastructure and let the incumbent operate it, they realized

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<sup>11</sup> <http://earth2tech.com/2009/09/14/does-fiber-have-a-role-in-the-smart-grid-a-tennessee-utility-thinks-so/>

they would have to find a different path.

The City commissioned a feasibility study for a city-owned broadband network and surveyed citizens about interest. Over the next year, they studied their options from contracting with other companies to act as a single service provider on the network (including publicly owned Bristol Virginia Utilities) to creating an open access network.

In September of 2007, they had a referendum on whether the City should build the citywide fiber-optic network. Despite the fact that they had chosen to contract the offering services portion of the network to Hiawatha Broadband Communications, a private Minnesota-based overbuilder with experience running triple-play fiber networks, they still had to generate more than 65% ayes in a referendum due to Minnesota law restricting publicly owned networks. They secured support from 74% of the voters.

Nine months later, after having secured the financing, they were shocked at a lawsuit from the telephone incumbent, TDS. TDS had waited until the last possible moment to file its lawsuit, putting Monticello in a difficult position. Monticello had to place the revenue bond proceeds into escrow until the lawsuit was settled. If the bonds were not used by one year from the date of sale, they would have to be returned to the investors, and Monticello would have to start over.

Unfortunately, the Minnesota courts are as backlogged as any in the nation and this particular circuit was operating at less than half capacity due to the shortage of judges and clerks. After many months, the Judge agreed with the City and threw the case out. TDS waited as long as it could and filed an appeal, at this point, Monticello had lost an entire year because the lawsuit took away the summer months when construction is possible in Minnesota.

Though the story is more interesting than space allows, it was resolved literally days before the funds were going to have to be returned to the investors. Of the three courts that ruled on it (Minnesota District, Appeals, and Supreme Court), every one of them

ruled against TDS at the earliest opportunity, which is why ILSR frequently labeled it a frivolous lawsuit.

During the time when Monticello was unable to move forward due to the lawsuit, TDS had greatly increased its investments in the community. They built a fiber network themselves and called on the city to stop its plans. Though the city offered to share trenches with TDS in building both networks, TDS refused. TDS offered free broadband services to the city if they ceased building the network. The City seriously considered TDS' offer as they wanted the better speeds that came with the increased investment and the lawsuit created a lot of stress on both city employees and elected officials.

However, they ultimately decided that the speeds were only a portion of the reason so many in the community supported the network. After years of frustration with TDS services, the community wanted not just better speeds, but a better choice in providers. The community was also concerned that absent competition, TDS would increase the prices it was dropping in anticipation of the publicly owned network.

Monticello is now arguably the single best community in which to live in Minnesota from a broadband perspective.<sup>12</sup> The City-owned network, with services provided by Hiawatha Broadband Communications, offers a 20Mbps symmetrical connection for \$34.95 a month whereas TDS has just fired back with a 50/20 Mbps connection for \$49.95/month. All of this came after TDS had lamented numerous times that one of the dangers of municipal networks is that private providers like TDS would see no reason to continue investing there.

### ***Powell, Wyoming***

The city of Powell started talking about a fiber network in 1996 but went some 10 years

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<sup>12</sup> See Nate Anderson's "Want 50Mbps in your town? Threaten to Roll your Own." Available at: <http://arstechnica.com/tech-policy/news/2009/10/want-50mbps-internet-in-your-town-threaten-to-roll-out-your-own.ars>

without any real progress toward achieving it. In late winter 2006, the city finalized a unique deal with US MetroNets – paying the company \$125,000 to develop the business plan, arrange the financing, and construction of the network. This seed money would be repaid to the City once they acquired the necessary financing to build the network.

The plan was a 20 year \$5.5 million bond offering secured by the network. U.S. MetroNets would get a percentage of construction costs, estimated at \$400,000 with further potential bonuses. After 20 years, the city would own the network.

They eventually contracted with a local telephone cooperative to operate the network. Tri County Telephone Association was formed in 1953 to bring telephone to the Big Horn Basin of Wyoming. In 1994, TCT greatly increased its size by purchasing lines from US West (950 lines to over 6,000 lines).

TCT would have a set period (max 6 years) to offer the triple-play and then it will be an open network. They estimated that a 33% take rate at \$50/month average would be necessary. Incumbents claimed the network was unnecessarily duplicating existing services.

Six months after partnering with US MetroNets, the project found itself behind schedule due to problems raising the necessary funding from private investors. The City was always adamant it would not put public dollars into the project and this likely made it more difficult to find willing investors. Investors typically demand a commitment from the city to pay any revenue shortfall that may occur should the take rate not meet expectations.

More than a year after US MetroNets partnered with the City, they finished a deal to finance it. During the intervening time, lobbyists from the incumbent providers attempted to totally prohibit public ownership of telecom networks in the state but failed – instead Wyoming enacted a law requiring public hearings and a 90-day notice for other providers to allow them to match rates and service levels.

On Oct 16, 2007, the Powell City Council had a unanimous vote on a draft financial package. The City would get a portion of revenue from TCT and use it to pay the debt. For the first 6 years, TCT is responsible for making up shortfalls in debt payments. If, after 6 years, the revenue is not sufficient, the city would make quarterly payments up to \$131,000 to lease the network back from the NY firm. This would require a yearly appropriation, so each year they could decide if it were worth it or not.

The business plan expected a 33% take rate at end of fifth year in low end model but more likely over 50%. They project a minimum of 35%-40% to break even depending on final interest rate and expected a total build out time of 4-5 months.

At the end of 2007, the City Council had another unanimous vote, this one for \$6.5 million in revenue bonds for the network (\$4.9 to build, \$1.6 in financing costs). If the network is struggling in 2014, City Council will have to decide if it wants to subsidize the network. They completed the financing in early 2008.

TCT claims it is on track to hit 30% in 2-3 years. It is already crediting with bringing jobs into the area. Powellink has lowered competitor prices. The incumbent cable company is now offering a two year promotion with pricing at \$75/month for a standard triple play – only available to those in Powell.

### ***Burlington, Vermont***

In August, 2007, ILSR published a report looking at how Burlington Telecom started.<sup>13</sup> This is a shorter account and fills in details that have since changed as well as recent news.

Though Burlington (population 40,000) had discussed the need for a publicly owned cable network since the mid 80's, it took until the late 90's for the Burlington Electrical Department to develop a plan that would later dissolve following difficulties on the part

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<sup>13</sup> Available here: <http://www.newrules.org/information/publications/burlington-telecom-case-study>



of the company with which Burlington chose to work. The city had already approved the network via referendum and Burlington had secured approval from the state legislation to amend its charter to build the network.

Thus, in 2002, the Burlington City Council approved a different plan that would build a fiber-optic network to connect all the city-owned buildings and important assets (38 locations). This plan would create a new entity rather than being housed under Burlington Electric.

By mid-2003, they had completed that network and immediately began saving money, including some \$150,000/year from consolidating their telecommunications services. These savings reduce pressure on the budget, especially as telecom budgets had been swelling as modern municipalities increasingly need faster and more reliable connections. The network was financed using a tax-exempt municipal capital lease, an arrangement akin to a mortgage. The city borrowed \$2.6 million for 15 years at a 5.63% interest rate and would own the network once the debt was paid off. Until that point, the investors would technically own it, but Burlington would run it and have full decision-making authority.

Flush with their success, Burlington began plans to expand the network by first connecting commercial customers near existing network paths. Once the City secured an additional \$20 million from the original investors (again a 15-year schedule but this time at 5.17%), it began expanding to cover the entire city.

Though the network was slated to be entirely completed by late 2008, it has slowed the build-out for a variety of factors. Burlington has had some political difficulties that recently came to light and are likely a result of its unique structure. Whereas most city-owned broadband networks operate from within fairly independent (but publicly accountable) electrical utilities, Burlington Telecom fell under the oversight of a single department within the city, the Clerk-Treasurer.

Though the situation is complicated currently, the City Council feels it was misled on the state of the Burlington Telecom financials and is conducting an investigation into the Mayor and his Chief Administrative Officer. It seems that during an attempt to refinance Burlington Telecom to secure the funds necessary to complete the citywide build-out, the U.S. economy collapsed, leaving credit unavailable. The Mayor chose to loan money to BT from the City's reserves to ensure its continued operations but that violated the terms of the franchise.

BT has been held to a higher standard than the incumbent providers. Whereas no one would expect a private company to be restricted from loaning money to itself on a short-term basis, Burlington had greater restrictions. Nonetheless, it continues to fulfill a crucial community need. An interesting result of this situation is that citizens have come forth in public hearings to testify how important the city-owned network is to them (from both business and residential users).<sup>14</sup>

At this point, there is one clear lesson to be learned from the current confusion in Burlington: publicly owned networks should be subject to similar financial oversight as public power companies in order to ensure citizens and local elected officials are able to make informed decisions.

Burlington's network offers unparalleled local internet access, including symmetrical service where one actually gets the advertised speeds. Several Burlington citizens have commented on the much higher reliability of the Burlington network than the cable company. Further, Burlington Telecom offers far more in the way of community programming and even pays significantly more in taxes (Payment in Lieu of Taxes, actually) than either of its competitors.<sup>15</sup>

Though some have accused the City of using taxpayer money to subsidize the network (a false accusation, as City funds were loaned to BT on a short term basis and are accruing

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<sup>14</sup> Watch the coverage here: <http://www.cctv.org/watch-tv/programs/burlington-city-council-special-meeting-0>

<sup>15</sup> For more about BT's Community Media importance, see the comments of Lauren-Glenn Davitian - <http://fjallfoss.fcc.gov/ecfs2/document/view?id=7020246377>

interest) the truth is that BT subsidizes the taxpayers. Not only does the city pay significantly less than market-rates for its telecom services (easing the burden on taxpayers), BT's competitive presence keeps rates lower than they otherwise would be.

While Burlington Telecom has failed to meet its goal of citywide availability within three years of starting, only half of the missed households are clearly a result of anything BT can control. Some 7.5% of the community lives either in MDU's or other areas where incumbents have been able to lock out competition either with exclusive contracts or by denying access to critical areas in order to offer service. They have achieved a take rate of over 30% in the areas they offer service as well as over 45% in the areas they have been offering service for the longest period of time.

### **Middle Mile Short Case Studies**

ILSR has watched with interest as a number of public entities, most often states and counties, have applied for stimulus funds to improve middle mile access within their borders. Though ILSR agrees that the middle mile has investment needs, we continue to believe that the last mile represents the largest challenge for communities and that even with ubiquitous middle mile availability (at affordable rates), the private sector will continue to under-invest in many communities. Our research into Alberta's SuperNet seems especially relevant here.

#### ***Alberta, Canada***

Alberta has a significant area (215,000 sq miles – compare to Texas with 270,000) but only 3.4 million people. Of the population, half live in Edmonton or Calgary but some 20% live in smaller, often isolated communities.

Ten years ago, the forward-thinking people at the Alberta Science Research Authority realized that educational institutions in rural areas were especially underserved by broadband. After contemplating alternatives, they rejected so-called “stranded” networks

where they would build separate networks each for health care, education, etc.

Instead they issued an RFP in 2000 that included an appendix with 4700 locations listed in 429 communities (every last library, school, health care facility, government building, etc.). Fast forward nine years and the middle-mile problem has been eradicated in Alberta. Even the most remote communities, unreachable by fiber, are tied into the network via 155Mbps point-to-point wireless (some 87% of the sites are directly connected with fiber).

The network is a partnership between Bell Canada and the Government of Alberta (GOA). GOA invested USD\$145 million into the network and is paying another similar amount over the first ten years for the services it uses on the network.

Another company, Axia, provides wholesale access over the network, allowing service providers to buy wholesale bandwidth in any community for last-mile networks. Axia has a ten year contract for its role and is prohibited from offering retail services. Wholesale rates are the same for every provider to ensure fair competition. The cost/Mbit is determined by maintenance costs and planned future upgrade requirements in order to keep prices low.

The network has been tremendously successful for educational and government applications. Rural areas had very limited connectivity previously but are now able to afford very fast connections and frequently make use of tele-presence applications. Previous experiments with distance learning over the phone were a disaster. By incorporating extremely high quality video and specially designed white boards, distance learning created much better outcomes. Interestingly, the educational application goes far beyond high school classrooms to remote welding classes and other vocational programs.

Unfortunately, the goal of increasing last-mile access is more of a mixed bag. Though the number of high-speed last-mile connections has greatly increased, providers have

continued to cherry-pick both communities and within communities to offer services only to those areas that generate the highest returns.

Despite ubiquitous and affordable middle-mile connections, the last-mile remains too costly in low-density areas for the private sector. Additionally, as the public anchor tenants are able to use the SuperNet, last-mile providers are unable to subsidize their residential connections with revenues from larger institutions. The network offered middle mile access to populations making up 86% of Alberta by 2005, giving more than enough time for any lag between middle-mile availability and last-mile investments to be overcome.

Learning from Alberta's experiences, the Institute for Local Self-Reliance believes middle-mile access to be a piece of the puzzle, but not the largest impediment to solving the problem of ensuring all Americans have affordable access to high-speed broadband. Our rural areas, just as in Alberta, will need a solution more akin to the public power utility approach to electrification in order to ensure they are not left behind. Alberta hoped that by solving the middle-mile problem, its citizens would gain access to the fast and affordable broadband they need to participate in the modern economy. Unfortunately, the role of government must be greater to achieve this goal, particularly in rural areas.

### ***Scott County, Minnesota***

Scott County, a mostly rural county southwest of Minneapolis, was dissatisfied with its options and costs of existing broadband networks. They were averaging costs of \$58/Megabit across the schools and ever-increasing telecom needs suggested ever-increasing costs.

After mapping the existing publicly owned fiber, they found virtually no usable assets. The county decided to build a fiber-optic network that it would own in order to connect

all the county facilities, including libraries, 800MHz towers, public safety buildings, schools, and some additional assets. They would also lease a connection to the Minneapolis “511” Building where they could get a lower price on the connectivity they needed.

The project cost \$4 million but immediately started allowing the county to save by terminating its leased connections (which were significantly more expensive despite offering far lower speeds than the new connection). They partnered with a private company by allowing the partner to lay a conduit next to the county’s fiber in return for the partner paying for the maintenance costs of the paths (saving the County some \$150,000/year).

In addition, the County partnered with the State for the state to again cut costs while offering the state additional paths and routes to buildings for which it previously had to lease.

The County is connecting the fiber to a number of towers to feed the 800 MHz towers for public safety as well as working with nearby counties to offer redundancy in the event of a disaster.

After this project finished, the schools began paying some \$7/Megabit, allowing them to cut the telecom budget even as they increased their available bandwidth. The County is working with potential last mile providers by offering attractive middle mile rates but has yet to spur any increased last-mile investments. Scott County does not want to get into offering those retail services, so it continues to hope its middle mile investment will encourage others to invest in the needed networks.

## **Hurdles to Public Ownership**

Communities have a difficult time in improving their broadband choices. In some states, where they are prevented by state law from offering services (some states outlaw retail services and others prohibit everything or place barriers to any involvement), communities are left only with the power to beg companies for fast and affordable access to the infrastructure of the 21st century. This is entirely inappropriate, something President Franklin D. Roosevelt noted in a different context in what was called the Portland Speech:

*I therefore lay down the following principle: That where a community--a city or county or a district--is not satisfied with the service rendered or the rates charged by the private utility, it has the undeniable basic right, as one of its functions of Government, one of its functions of home rule, to set up, after a fair referendum to its voters has been had, its own governmentally owned and operated service.*

Several states deny communities the basic right to own and operate an infrastructure element that is now as important to communities as electricity was to them then. The federal government should recognize that every community must have the option of building a network should they find it necessary.

Some oppose this right, arguing paradoxically both that government involvement is unfair because it will run the private sector out of town through its government advantages or that government is so incompetent it will fail and could thereby risk taxpayer dollars. Though the arguments are mutually exclusive, they are frequently advanced by the same people and groups. Additionally, they ignore the reality that government itself must abide by law and is prohibited from doing many of the actions predicted by these nay-sayers.

Some come forward with a purely philosophically argument - that the public sector should not compete with the private sector. This argument is also faulty in that it ignores the many ways in which the public sector may be said to compete with the private sector. From municipal swimming pools, golf courses, marinas, and conference centers to libraries, hospitals, schools, and even the police departments that negatively impact the

market for private security guards, the truth is that many public services could be seen as competing with the private sector.

The key point is that the public sector becomes involved in these areas based on community needs. When broadband networks transitioned from a nicety to essential element of infrastructure that the private sector was not sufficiently providing, the public sector in many communities had to step up. Having spoken with many local government and public network officials, none have cited an excitement to compete directly with an incumbent service provider as a reason for starting down the many-year path of planning and building a publicly owned network.

In fact, many have noted how much they did not want to become involved in this area. Many communities have been sued and locked in years of legal battles to defend their right to offer the services locally that others would not. The threat of lawsuits prevents still more communities from engaging their own efforts, not wanting to roll the dice on a lawsuit from an incumbent with lawyers on staff. Communities have to hire lawyers to defend them, at significant cost. The costs from legal delays to offering services on a planned network are still greater – and the greatest irony comes when they are accused of not meeting aspects of their business plan after a lawsuit (that the community has won) set them back 6 months or more from starting to offer services.

Communities have utilized a wide range of models in building their networks. To use a popular term, every single one might be termed a public-private partnership. Just as in building other infrastructure, such as roads, local governments contract out much of the work. A local government may contract with an experienced service provider to handle all of the planning, operations, and maintenance. The point to public ownership is not for someone on the public payroll to run the network, but to ensure the community has a voice in important decisions from network non-discrimination principles to an open access model to ensuring everyone in the community has equal and affordable access.

Communities do not build networks on a lark. They recognize that a locally owned



network will offer a number of advantages (outlined above) and that encouraging competition will bring additional benefits. The high cost of building networks, even urban areas, is too great to naturally create a competitive market. As the Berkman Center Study, conducted on behalf of the FCC noted, nations with greater competition have seen much greater broadband outcomes than those who have seen less competition, particularly countries like the United States that depended upon a cable and telephone duopoly.

### **Open Access**

The rise of fiber-optic technology has created an even greater barrier to future competitive entry because one line can handle every conceivable telecommunications use. If competitors cannot gain access to the existing infrastructure, the chances of them being able to compete in a market are approaching nil. Public ownership offers a solution to this dilemma: because public ownership seeks to maximize social benefits rather than profits, it is more likely to consider an open access option that will allow many service providers to compete on the service level rather than the infrastructure level.

Private companies, rationally seeking to maximize profits, are loathe to open their wires to competitors. Local governments, seeking to encourage the benefits that come from open and robust competition, are more likely to open their wires. Burlington Telecom has already embraced this and other communities have suggested they are willing to do that once they have generated sufficient revenue to ensure they can meet debt obligations. This is ultimately the problem with an open access network, absent extremely high take rates, the costs of debt often outweigh the incoming revenue when others are providing the services. However, one can imagine scenarios to avoid this by either subsidizing the costs of networks that are open from the start or by allowing a single service provider to monopolize the network for a short term in order to generate the needed revenue.

## **Conclusion**

Publicly owned networks are widely supported in the communities that have invested in them. The proof is there in discussions with residents or logically in the fact that the community can democratically choose to sell the network should it desire. Communities must not be left to beg for essential infrastructure, they must have the option of choosing to solve their own problems. Hurdles that proscribe publicly owned networks, or restrict their services to wholesale-only business models only hurt the citizens these restrictions are ostensibly introduced to protect. In reality, such restrictions protect monopolistic service providers, not people.

Local governments across the United States, most often by tapping the public power entity under their control, have built some of the fastest and most affordable networks in the nation. If we are to be competitive in the world, all communities must have the option of duplicating those efforts.