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Municipally Owned Broadband Networks: A Critical Evaluation

(Revised Edition)

By Joseph L. Bast¹

Introduction

Two years ago, in 2002, I weighed in on the pros and cons of municipal ownership of broadband networks. I used as a case study a fiber-to-the-home (FTTH) plan that was the subject of a referendum in three suburban Chicago communities—Geneva, St. Charles, and Batavia, the so-called Tri-Cities. At the end of the 22-page analysis, I wrote:

This analysis finds the case for municipal ownership is even weaker than it was two years ago.

Generally speaking, municipal ownership of broadband networks is probably not in the best interests of residents and most businesses, even in communities not well served today by private providers. Access to broadband services in the Tri-Cities is more plentiful than advocates of municipalization claim or admit, suggesting the real issue is not availability but *price* and who should pay it.

I commended elected officials in the Tri-Cities “for moving cautiously so far” and discussing their options with companies in their area, studying other cities, and commissioning a study of the municipalization option. I warned, “they will need to greet the finished study with healthy skepticism, since the consultants have a financial interest in advocating municipalization, but the report should provide some valuable guidance nonetheless.”

¹ Joseph Bast is president of The Heartland Institute, a national nonprofit research organization based in Chicago. A brief biography appears on page 30. Neither the author nor The Heartland Institute has a financial interest in the outcome of this debate.

Despite what I thought was the moderate tone of my report, local officials were swift and harsh in their criticism of it.² As I predicted, the consultants produced an uncritical report calling for a taxpayer-financed broadband system. Rather than show the “healthy skepticism” I had recommended, local officials embraced the consultants’ report. But voters, not consultants and city bureaucrats or even mayors, had the last word on this subject. They rejected the broadband initiative at the polls by a vote of 60 percent to 40 percent on April 1, 2003.³

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This year, the advocates of municipal broadband are back again, flogging another consultant’s report and once again asking voters to approve the plan by referenda.⁴ This time, the plan relies on a different funding mechanism, called certificates of participation, which its advocates claim will immunize the area’s taxpayers from liability in the event of cost overruns or bankruptcy.

This analysis, revised and updated to reflect national and local changes since the original analysis, finds the case for municipal ownership is even weaker than it was two years ago. Broadband services that were scarce two years ago are now plentiful and reasonably priced. New data from communities that attempted to build and operate municipal broadband systems suggest taxpayers would be very much at risk, even under the new financing scheme. The Tri-Cities proposal continues to be a useful case study and precautionary lesson for other communities with similar plans.

Summary of findings

Advocates of fiber-to-the-home (FTTH) municipal broadband systems claim a long list of benefits would accrue to local businesses and residents, including “ubiquitous” access to higher speed and more reliable broadband services, lower prices, more efficient operation of municipal utilities, and a boost to local economic development efforts. However, this analysis finds little proof to support those claims and considerable evidence in support of the following conclusions:

² See Tona Kunz, “Municipal cable service knocked by think tank,” *Daily Herald*, November 2, 2002; Brenda Schory, “Report: Broadband Will Not Work,” *Kane County Chronicle*, October 31, 2002; Brenda Schory, “Geneva Officials Set Private Broadband Meeting,” *Kane County Chronicle*, November 17, 2002.

³ Brenda Schory, “Voters Reject Broadband, Broadband Goes Down in Flames,” *Kane County Chronicle*, April 2, 2003.

⁴ Approval of the referenda is required, but each city council must also take action to authorize the creation of the new utility. Oddly, voters in the city of Geneva face three referenda, none of which uses the words “broadband,” “fiber optic,” or “Internet.” Instead, they ask voters to authorize a “community antenna television system,” “a public utility for telephone service,” and/or “operate for hire a public telephone service.”

- # Broadband services sufficient to meet the needs of residents and business are now available to nearly every residence and business in the U.S., including previously under-served areas such as the Tri-Cities.
 - # The speed of broadband services is rising and the price is falling, revealing the presence of fierce competition, major new investments, and continuous technological change.
 - # There is no evidence showing municipal investments in broadband lead to faster economic growth or higher personal incomes.
 - # Very few cities attempt to build and own broadband telecommunications networks, and those that have taken the plunge report higher than expected costs and large operating losses borne by taxpayers.
 - # Municipal broadband networks are very risky ventures owing to the cost and time required to construct the systems, legal restrictions on subsidies from other utilities, inaccurate projections of the number of consumers, and other common errors.
- Generally speaking, municipal ownership of broadband networks is probably not in the best interests of residents and most businesses.
- # Certificates of participation offer an alternative form of financing for municipal FTTH networks that appears to reduce the risk faced by taxpayers, but this method of financing has problems and risks of its own.
 - # Generally speaking, municipal ownership of broadband networks is probably not in the best interests of residents and most businesses.

1. A municipal broadband proposal

In May 2002, city officials from the Tri-Cities agreed to pay \$97,500 to United Telesystems Inc. (UTI), a Georgia-based consulting firm, to study the feasibility of the municipalities constructing and managing their own broadband infrastructure system.⁵ As expected, the UTI report called for the Tri-Cities to capitalize, construct, and operate a fiber-to-the-home (“FTTH”) broadband network to provide the following services:

- # Broadband Video Services (Cable Television)
- # High Speed Broadband Internet Access
- # Competitive Local Exchange Carrier Telephone Service
- # Long Distance Telephone Service

⁵ Tona Kunz, “Tri-Cities to Study Plan to Create Its Own Cable Company,” *Daily Herald*, May 7, 2002.

- # Local and Wide Area Telecommunications Networking
- # Fiber Optic Transport
- # Utility Management⁶

In Batavia, for example, UTI called for running 117 miles of cable past 10,098 potential residential and business customers and predicted 5,258 would become actual customers. UTI predicted most potential residential customers would sign up for TV (34 percent), while 13.1 percent would sign up for high-speed data and 7.5 percent for telephone service. Seventeen-and-a-half percent of potential commercial customers would sign up for high-speed data services and 11.3 percent for telephone service. UTI predicted 41.5 percent of potential residential consumers and 23.3 percent of commercial units would subscribe to at least one service.

Building the new utility would cost \$62 million. The “total projected capital per customer service unit” for Batavia would be \$3,539.

Also according to the UTI proposal, building the new utility would cost between \$57 million and \$62 million. The “total projected capital per customer service unit” for Batavia would be \$3,539. The operating cash flow statement for Batavia projected positive EBITA (earnings before interest,

taxes, depreciation, and amortization) starting in the second year and continuing through the tenth year. Total fund equity (total assets minus liabilities), however, would be negative for the entire 10-year period.

Since the last referendum was defeated in April 2003, the organization campaigning for municipalization, Fiber for Our Future,⁷ has revised the plan to address what seemed to be referendum opponents’ strongest argument, that local taxpayers would be at risk should the utility prove unable to compete with private broadband service providers.

While the UTI proposal appears to remain the plan under consideration, a new consultant, Aggregate Networks LLC, was asked to come up with an alternative financing vehicle. Aggregate Networks is a small business located in Lisle, Illinois that advises private and public entities and brokers financing for broadband networks and initiatives. Instead of relying on general obligation bonds, Aggregate Networks says the plan could be financed privately by certificates of participation,⁸ an unsecured debt instrument in which the lender typically retains title to the asset while the lease is paid down by the municipality on an agreed-upon schedule. The asset itself serves as collateral.

⁶ United Telesystems, Inc., “Broadband Network Initiative,” September 20, 2002.

⁷ See www.tricitiesbroadband.com for various position statements posted by Fiber for Our Future.

⁸ Rick Kaufmann, cofounder of Aggregate Networks, remarks on July 7, 2004 at a briefing sponsored by Fiber for Our Future held at the Batavia City Hall. His recorded presentation is available at www.tricitiesbroadband.com.

2. Why consider municipal ownership?

According to the Web site of The Merton Group, a subsidiary of Merton Capital, a corporation that has arranged financing for FTTH networks in several communities in the United States, municipalities “should consider building and operating their own broadband infrastructure because broadband access to homes has not been met [sic] in suburban/rural America and is not likely to be met in the near future by incumbents primarily due to the following reasons:

- # “The current economic environment and incumbent health, especially as regards to telecom, makes such deployment highly unlikely in the near future.
- # “Regulatory and legal delays caused by the 1996 Telecom act and initiated by the RBOCs have resulted in institutional stalemates and excessive cost factors to make a corporate environment the most inefficient path to broadband deployment.”⁹

The same Web site then goes on to present the alleged benefits to communities that build and operate municipal FTTH networks:

- # “*Ubiquitous Coverage:* The current business economic climate will not permit incumbents to establish and operate fiber-to-the-home type broadband networks, especially in sparsely populated areas. A mission-driven initiative by a town to bring broadband to its citizens appears to be the only solution to the quandary.

Advocates of municipal broadband networks claim a long list of benefits accrue to local businesses and residents.

- # “*Efficiency:* A town-private enterprise partnership may be able to leverage Rights of Way and existing fiber strands installed by a municipally owned power utility, as well as corresponding telecommunications systems and facilities like backup power equipment, network monitoring systems, remote terminals and associated real estate.
- # “*Enhanced Services:* Through unbundling of its broadband network to service providers, the town could spur a diversity of value-added products including Voice over IP, flexible bandwidth, digital cable, video on demand, streaming media, etc.
- # “*Economic Development:* A broadband network could act as a magnet to businesses. A common concern for both new technology as well as traditional businesses is the presence of a reliable high-speed communications system.

⁹ <http://mertongroup.com/faqmbn.html>

- # “*A Community Asset*: A local pervasive broadband system operating profitably could improve the tax base and be a real asset to the town. It could also favorably change the property taxes in the area as well as improve the credit standing of the town so that cost of borrowing is reduced.
- # “*Competition*: It is a common fact that a town, by operating its own broadband network, can favorably influence the pricing as well as quality of communications service provided by private operators to its citizens.
- # “*Lower Life Cycle Costs*: By installing an open-access fiber broadband system that is marginally over-engineered, the need for future upgrades and installations can be minimized. In addition, street-diggings can be avoided as well since fiber cables have a life span of 20 years.
- # “*Improved Government IT Integration and E-Government*: Government data systems could be better integrated and business/technical processes standardized. E-government services such as tax collection, payroll, utility services and billing could be offered online in a broadband environment.
- # “*Security*: The need for an integrated high-speed communications infrastructure at both a national and a local level has taken on new meaning after September 11th, 2001. No local government can ignore the importance of having a reliable broadband communications network connecting hospitals, schools, businesses and broadcast companies to provide notification and rapid response in the event of emergencies.”

“The number one reason to vote yes,” according to Annie Collins, “is for economic development.”

Annie Collins, chairwoman of Fiber for Our Future, echoed this rationale in comments to the Batavia Chamber of Commerce in September 2004, saying the new network would offer such possibilities as telemedicine and remote meter reading by the

cities’ electric utilities. “The number one reason to vote yes,” according to Collins, “is for economic development. Economic development comes from having an infrastructure in place that allows local businesses to excel and encourages new businesses to locate in the Tri-Cities.”¹⁰

Terrence McCarty and Ravi Bhagavan, two principals with The Merton Group, attempted to make the case for municipal broadband in a 2002 policy paper.¹¹ They claimed, in the conclusion of their essay, that “it is clear from this analysis that a municipal broadband network is very

¹⁰ Jan Ramming, “Chamber Endorses Municipal Broadband,” *The Sun [Batavia]*, September 29, 2004.

¹¹ Terrence P. McGarty and Ravi Bhagavan, “Municipal Broadband Networks: A Revised Paradigm of Ownership,” The Merton Group, 2002.
<http://www.mertongroup.com/Municipal%20Broadband%20Networks.pdf>

viable. In fact, it may be the only way certain areas will be able to get such broadband facilities. If a town views the existence to broadband [sic] as both a social imperative as well as an essential element to retain and attract businesses, then the ability of the town to implement this service will be critical.’¹²

The Merton Group paper does not, in fact, support any of those conclusions. The authors, for example, make no attempt to document the link between broadband access and economic development, present no data on the success or failure of communities that have attempted municipalization, and do not discuss the cost and risks associated with municipalization.

Most of The Merton Group paper consists of attacks on the motives and litigation tactics of the Baby Bells, and it ends with a superficial overview of the steps local officials should take when considering municipalization. In any case, as will be reported below, developments of the past two years have proven them to be wrong.

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3. Access, quality, and price of broadband services

How ubiquitous is broadband currently, and how do its quality and price compare to that promised by the advocates of FTTH networks? These questions address three of the nine alleged benefits claimed by The Merton Group.

Ubiquity of broadband access

In 2001, a survey of residents in the Tri-Cities showed 79.3 percent had cable service and 77.4 percent had Internet access, but of those with Internet access, 95.2 percent relied on dial-up modems, which by definition is not high-speed access. Digital Subscriber Line (DSL)¹³ was available only within 3.3 miles of SBC Ameritech’s switching station in Geneva.¹⁴ AT&T-Comcast’s cable network was not upgraded to accommodate cable modems.¹⁵

¹² Ibid., p. 33.

¹³ Digital Subscriber Line (DSL) provides high-speed digital modem technology via a conventional telephone line using signal frequencies above those used by voice or fax, so the DSL signal does not interfere with telephone conversations or faxes.

¹⁴ Eric Schelkopf, “City explores cable needs,” *Kane County Chronicle*, August 21, 2001.

¹⁵ A cable modem is designed to operate over cable TV lines. Because the coaxial cable used by cable TV provides much greater bandwidth than telephone lines, cable modems are much faster than dial-up modems.

Today, according to SBC and Comcast, virtually 100 percent of the region can sign up for DSL and access the Internet via cable modems. In addition, T-1 service¹⁶ is available to businesses throughout the Tri-Cities over existing telephone lines and wireless service is available from several dealers, all at significantly lower prices than were being charged just two years ago. Direct Broadcast Satellite (DBS) service is also available throughout the Tri-Cities from DirecTV and EchoStar. Satellite service has emerged as a serious competitor to cable in recent years, with DirecTV and EchoStar now having some 21.1 million subscribers.

Cable companies have spent billions of dollars in the past two years upgrading their systems to provide cable modem service, including approximately \$20 million by Comcast just in the Tri-Cities area.

Another form of wireless broadband service, called MDS (multipoint distribution service), or wireless cable, involves using antennas mounted on water towers or high buildings to deliver high-speed (up to 1.5 million bits per second, or Mbps) Internet access to users. In 2002, South Elgin, for example, contracted with St. Charles-based MCC Technology/Data Moving Company to place antennas on four municipally owned

water towers, giving virtually the entire village access to broadband.

The latest entry in wireless broadband is WiMax. WiMax is similar to Wi-Fi, which coffee shops and hotels use to create “hot spots” for wireless Internet access, except while Wi-Fi serves only a 300-foot radius, WiMax can reach up to 30 miles. AT&T, MCI, Covad Communications, EarthLink, BellSouth, and Qwest Communications all are apparently considering getting into the WiMax business. According to a recent news story, “The first version of WiMax, expected next year, would beam signals to rooftop antennas. The second phase, slated for 2006, would let customers mount antennas indoors, cutting installation costs. The third phase, in 2007, would put chips in laptops and handhelds, allowing connections anywhere reached by an antenna.”¹⁷ Intel apparently plans to have WiMax chips in most laptops in three years.

Broadband is more widely available in 2004 than in 2002 for several reasons. More bandwidth-hungry content such as on-line movies, Web-cams, and video conferencing is now available to consumers who sign up for broadband, fueling demand for the services. A new technology called voice over Internet Protocol—VoIP—has emerged that allows phone calls to be made over the Internet, giving competitors of telephone companies a new platform from which to offer competitive service.¹⁸

¹⁶ A T-1 line is a dedicated phone connection consisting of 24 individual 64 Kbps channels, each of which can be configured to carry voice or data traffic. Telephone companies typically allow customers to lease a fraction of the line, known as *fractional T-1* access.

¹⁷ Paul Davidson, “Inventive Wireless Providers Go Rural,” *USA Today*, July 14, 2004.

¹⁸ Joseph L. Bast, “VoIP and the End of Monopoly,” *BYTE.com*, April 19, 2004; “Study Predicts VoIP Sector Will Grow 100-fold by 2008,” *Telecommunications Report*, August 31, 2004.

A third and especially important reason for the explosion of broadband services is public policy. Prior to 2002, AT&T and other major cable companies were hesitant to make new investments in expanding cable modem service due to the threat that regulators would require them to share their facilities with competitors. But in March of that year, the FCC ruled cable modems are an “information service” rather than a form of “telecommunications” or “video,” and therefore cable companies are exempt from line-sharing requirements. Since then, cable companies have spent billions of dollars upgrading their systems to provide cable modem service, including approximately \$20 million by Comcast just in the Tri-Cities area, according to the company.¹⁹

SBC Ameritech and other Regional Bell Operating Companies (the so-called “Baby Bells”) have been similarly hesitant about investing in expanding DSL and fiber-based broadband services until regulators send a clear signal that they, too, will not be required to share new facilities with competitors. Such regulations currently require phone companies to sell access to their infrastructures using a formula called TELRIC, for “total element long-run incremental costs.”

Prior to 2002, AT&T and other major cable companies were hesitant to make new investments in expanding cable modem service due to the threat that regulators would require them to share their facilities with competitors.

In May 2002 and again in March 2004, the U.S. Court of Appeals for the District of Columbia struck down FCC rules regarding the terms and prices under which Baby Bells must share their lines with competitors. In June 2004 the Bush administration said it would not seek to have the court’s ruling overturned, and on October 14 the FCC issued rules saying the Baby Bells do not have to share new “fiber-to-the-curb (FTTC) loops, where fiber is extended within 500 feet of a customer’s premises.” Since then, SBC and other telephone companies have announced major new investment initiatives in fiber, DSL, and other broadband platforms,²⁰ while companies such as AT&T that had previously relied on the regulations to gain access to the Baby Bell’s infrastructure have announced plans to shift their business plans to wireless and Internet-based telephony.²¹

¹⁹ Leigh Ann Hughes, Comcast, personal communication, October 13, 2004.

²⁰ “SBC Communications Announces Advances in Initiative to Develop IP-Based Residential Network for Integrated Video, Internet, VoIP Services,” news release, SBC Communications Inc., June 22, 2004; Christopher Rhoads, “Bringing Fiber Home,” *The Wall Street Journal*, August 19, 2004; “SBC to Rapidly Accelerate Fiber Network Deployment in Wake of Positive FCC Broadband Rulings,” news release, SBC Communications Inc., October 14, 2004.

²¹ Ellen Simon, “AT&T Pins Hopes on Technology for Business,” Associated Press, August 1, 2004; Almar Latour, “AT&T, Cable Providers Join Forces,” *The Wall Street Journal*, August 19, 2004.

Speed and quality of FTTH alternatives

While the spread of broadband services in the past 24 months was impressive, advocates of municipalization say current offerings are still not fast enough or good enough. A FTTH network, according to a FAQ on the Geneva Web site, “transmits data at a speed up to 100 Mbps, two times faster than the fastest wireless, 50 times faster than a cable modem, and almost 75 times faster than DSL.”²² WiMax, the same document points out, currently cannot offer local (analog) television stations, offers only one or two digital cable channels at a time, and “is not impervious to eavesdropping or interference from other devices, and performance is affected by distance, additional subscribers and line of sight.”

Those claims overlook the dramatic increase in speed of FTTH alternatives compared to two years ago.

Those claims are wrong for several reasons. First, they overlook the dramatic increase in the speed of FTTH alternatives compared to two years ago. Most of the alternatives are now sufficient to meet the demands of most of the residential and

business markets, with individual consumers choosing the right service provider based on their needs and the strengths, weaknesses, and prices offered by the competing providers.

In 2002, DSL allowed downloads at speeds up to 768,000 bits-per-second and uploads at speeds of 128,000 bits-per-second. Today, DSL can reach 3 to 6 Mbps largely in support of video applications. ADSL 2+, an enhancement to the standard, can accommodate up to 15 Mbps and will begin deployment in 2005.²³ These speeds can handle more data-intensive digital applications including video and the large data downloads (e.g., for software upgrades) that telecommuting requires.

Cable modems provide data distribution to residences of between 500 Kbps and 4 Mbps and commercial cable modem services can go even higher.²⁴ Wireless broadband can reach 54 Mbps, depending on several factors.²⁵ WiMax will offer speeds of between 17 Mbps and 75 Mbps, depending on distance from the tower and other factors.²⁶ All of these broadband platforms are reporting advances in speed due to technological improvements and the deployment of new lines and more substations and transmitters.

All of these FTTH alternatives can deliver high-speed Internet services and telephony, which require downstream speeds of about 1.5 Mbps, though some, such as wireless email, have

²² <http://www.geneva.il.us/bb/FAQ.htm>

²³ Steve Titch, personal correspondence.

²⁴ *Ibid.*

²⁵ Geneva's Web site, *supra* note 22.

²⁶ “WiMax: How Far? How Fast?” *Unstrung*, July 8, 2004, citing numbers from Intel Corp.

functionality limits that are expected to be addressed in the near future. The size of the broadband pipeline beyond 1.5 Mbps is important, but only because it is required for consumer cable TV, which is “where the money is” in broadband these days. Recall that the UTI report predicted 34 percent of potential residential customers would sign up for TV while only 13.1 percent would sign up for high-speed data and 7.5 percent for telephone service. Most of the revenue for the FTTH utility would come from cable TV subscribers, not Internet users.

This is why cable companies have a distinct advantage in the current marketplace—they can devote just 10 percent of their cables to Internet services and the rest to TV—and why telephone companies are negotiating partnerships and marketing deals with satellite TV companies (e.g., SBC and EchoStar, BellSouth and Verizon with DirecTV) and investing billions in fiber-coaxial hybrid networks²⁷ and increasing the capacity of their DSL services. WiMax, right now at least, looks like a weak competitor in the telecommunications world because of its limited capacity to broadcast television, but it could become the “killer app” in providing low-cost Internet access and Internet telephone service.

A FTTH platform can provide TV, telephony, and Internet services through a single pipe. But as the many competing providers of various broadband services described above make apparent, this capacity is not necessary for a business plan to succeed. The absence of competitors offering FTTH demonstrates just the opposite fact, that a FTTH plan is *not* currently competitive because of its high capital and maintenance costs.

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It is not meaningful to say, as one panelist did at a July 7 rally by municipal broadband advocates in the Tri-Cities, that “DSL is an intermediate technology, everyone knows this.”²⁸ *All broadband technologies are “intermediate” technologies*, in the sense that they are rapidly evolving and likely to be displaced sometime in the future. This applies to fiber-optic networks no less than to DSL. Indeed, because DSL is so much less expensive to install and has improved in speed so rapidly in just the past two years, the case can be made that fiber optic is more vulnerable than DSL to competition from wireless and other emerging broadband platforms.

Consumers currently receive telecommunications services from separate providers using competing platforms. This is partly a legacy of regulatory policies that treat service providers differently based on the technology they use, but it is also the result of marketplace realities. Consumer needs and willingness to pay vary, and investors and entrepreneurs apparently believe

²⁷ Almar Latour, Andy Pasztor, and Peter Grant, “SBC, EchoStar Plot Online Movie Venture,” *The Wall Street Journal*, August 19, 2004; SBC Communications, *supra* note 20.

²⁸ Jim Baller, principal with Baller, Herbst Law Group, speaking at “Why Municipal Broadband is Good for the Tri-Cities,” July 7, 2004, hosted by Fiber for Our Future at the Batavia Town Hall. The presentation was recorded and is available at www.tricitybroadband.com.

most consumers today are unwilling to pay a high enough price to recover the cost of financing, installing, and maintaining the FTTH platform.

Virtually every home now has a land-wire telephone line and a cable connection, and most also have one or more wireless telephones and handheld devices. Nearly 80 percent of people living in the U.S. have a choice of five or more wireless companies competing for their business.²⁹ Many now also have a satellite dish for digital TV or high-speed Internet access.

How many families or business owners would be willing to pay to have *yet another line* run to their premises to offer services that differ little from what they are already getting? And what is the “social benefit” of having local governments provide that additional line?

Price of FTTH alternatives

Advocates of municipal broadband networks claim the existence of a government-run utility will force private companies to improve their services and lower their prices. But this assumes a lack of competition currently allows prices to be higher than necessary, and it further assumes the government-run utility would be able to set its own prices low enough to be competitive.

The UTI proposal projects monthly rates for cable TV, telephone, etc. based on estimates of market penetration, cost of content, maintenance expenses, cost of retiring debt, and apparently the rates charged by private competitors. The projected rates are necessarily speculative and, as will be shown below, are probably too low to make the utility financially self-supporting. This is especially worrisome because the price of FTTH alternatives is low and falling fast.

As this was written (October 11, 2004), Comcast’s Web site was offering cable modem service for the “first 6 months for \$19.99/month, FREE Modem, \$50 Cash Back Rebate, No Contract!”

SBC now offers DSL “Express” service with downstream speeds of 384 Kbps - 1.5 Mbps and upstream speed of 128 Kbps for \$26.95/month. “Pro” service has downstream speeds of 1.5 Mbps - 3.0 Mbps and upstream speed of 384 Kbps and costs \$36.99/month. For a static IP address (necessary for VoIP), add \$38.00/month to each price.³⁰

As this was written (October 11, 2004), Comcast’s Web site was offering cable modem service for the “first 6 months for \$19.99/month, FREE Modem, \$50 Cash Back Rebate, No Contract!” Maximum downstream speed is 3.0 Mbps. The standard non-sale price in the Tri-Cities appears to be \$42.95 per month.

²⁹ Sonia Arrison, “Something Happened on the Way to Wireless Broadband,” *TechNewsWorld*, May 21, 2004.

³⁰ http://www05.sbc.com/DSL_new/content/1,,18,00.html?SRC=http%3A%2F%2Fsw51

SBC offers T-1 line service supporting data rates of 1.544 Mbps in Illinois for between \$112.50 and \$291.00 per month, depending on area and length of contract. If the T-1 crosses wire center boundaries, a channel mileage charge of between \$13.84 and \$25.00 per month per mile and a channel mileage termination charge of between \$24.80 and \$82.00 apply.³¹ Woodstock-based Other World Computing advertises T-1 for “as low as \$399/month.”³² In the 2002 edition of this report, the advertised price for T-1 was \$700/month.

DirecWay, part of the DirecTV Group, offers satellite broadband service in the Tri-Cities area with downstream speed of 500 Kbps and upload speed of 75 Kbps for a \$49.99 set-up fee and then \$99/month (Home Plan) or \$129/month (Professional Plan, Static IP) for 15 months. After 15 months you own the equipment and the cost of service falls to \$59/month (Home Plan) or \$89/month (Professional Plan). DirecWay also has a commercial plan with downstream speed averaging 1 Mbps and upload speed of 100 Kbps for \$99/month (Static IP, 5 email boxes) or \$129/month (Static IP, 10 email boxes).³³

Woodstock-based Other World Computing offers a satellite dish, installation, receiver card for a computer, five email accounts, and technical support for high-speed Internet access for between \$29.95 and \$149.95 a month.³⁴ Back in 2002, when MCC Technology/Data Moving Company was wiring South Elgin for MDS, it said rates were expected to range from \$69.95 to \$149/month. In October 2004, according to the company’s Web site, actual rates range from \$39.99 to \$99.99.³⁵

As these prices suggest, competition and falling prices, not monopoly, are the rule in the broadband industry in the Tri-Cities.

When WiMax comes to the Tri-Cities, it too is likely to be inexpensive. Clearwire, a business recently acquired by cellular phone pioneer and billionaire Craig McCaw, expects to offer a “WiMax-like service” in as many as 40 cities in 2005. McCaw has said he expects to charge \$25 a month for broadband and \$40 to \$50 for a package that includes unlimited telephone service.³⁶

As these prices suggest, competition and falling prices, not monopoly, are the rule in the broadband industry in the Tri-Cities. The evidence is clear that broadband prices in the Tri-Cities area are modest and falling.

³¹ DSI Service prices as reported in SBC Tariff issued June 6, 2003, Ill. C.C. No. 19, Part 15, Section 3.

³² <http://www.owc.net/broadband.html>

³³ <http://www.direcway.bz/pages/11/index.htm>

³⁴ S.A. Mawhorr, “Satellite Dish Speeds Up Internet Connection,” *Daily Herald*, August 26, 2002.

³⁵ http://www.datamoco.com/b_pricing.htm

³⁶ Paul Davidson, *supra* note 17.

The same is true nationwide and has been true since the beginning of the industry. According to an FCC rulemaking in 2001, “The record before us, which shows a continuing increase in consumer broadband choices within and among the various delivery technologies—xDSL, cable modems, satellite, fixed wireless, and mobile wireless—suggests that no group of firms or technology will likely be able to dominate the provision of broadband services.”³⁷ The FCC, so often wrong in the way it has chosen to interpret the 1996 Telecom Act and regulate the telecommunications industry, was right that time.

Conclusion

Not all of the broadband platforms described above are as fast or reliable as the fiber-to-the-home network envisioned by advocates of a municipally owned broadband network, and some may cost more than a typical small business owner wants to spend. But they are widely available now to residents and businesses in the Tri-Cities at affordable prices, often for much less than they cost two years ago. More choices and even lower prices lay ahead as Comcast, SBC, and their competitors expand their offerings and technology continues to evolve.

Advocates of municipal broadband say being without a state-of-the-art broadband platform places the economies of small cities and rural communities at great risk.

Why, then, should the city invest now in an expensive FTTH infrastructure? One can guess that the purpose is to subsidize a small number of community residents and businesses who want the highest quality broadband services but aren’t willing to pay the full price for them. As the discussion below shows, this indeed is the only plausible

justification for taking on the expense and risk involved in building a municipally owned broadband network.

4. Broadband and economic development

Advocates of municipal broadband say being without a state-of-the-art broadband platform places the economies of small cities and rural communities at great risk. Access to broadband is an important consideration to high-tech businesses choosing to relocate or expand, they say, and to high-tech workers looking to telecommute.

In 2002, Peter Collins, Geneva’s information systems supervisor, wrote in a letter to the editor of a local newspaper, “The Kane County Economic Development Board commissioned a

³⁷ Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission’s Rules to Establish Rules and Policies for Local Multipoint Distribution Service and Fixed Satellite Services, 15 FCC Rcd 11,857, at ¶ 19 (2001), cited by testimony of Thomas Tauke, senior vice president, Verizon Communications, on the Internet Freedom and Broadband Deployment Act of 2001 before the House Energy and Commerce Committee, April 25, 2001. <http://newscenter.verizon.com/policy/broadband/>

study to assess telecommunications assets throughout the county. That study ... to no one's surprise, found a lack of affordable telecommunications assets and in fact encouraged what the Tri-Cities are trying to accomplish."³⁸ The claim that a municipal FTTH network would be a boon for economic development efforts remains at the center of Fiber for Our Future's campaign.

What evidence do the advocates present to support their claim? A report that appears on Batavia's Web site, edited by John Garvey for Convergence Research, Inc., says:

As medium and smaller sized municipalities struggle to compete with large cities, and as metropolitan suburbs compete with the city core, access to broadband is increasingly necessary to retain current businesses and attract new start-ups. Lack of high-speed Internet access—a reality and a dilemma in rural communities and in outlying suburban areas—contributes to the difficulty municipalities have in recruiting engineering firms, software houses and other businesses that rely on broadband access.³⁹

Typical of other research papers making similar claims, Garvey's report presents no data or proof of a link between broadband and economic growth. Moreover, there is a conflict of interest that is also commonplace in the pro-municipalization literature:

Convergence Research, Inc. is a consulting firm that specializes in advocating

municipalization and makes money by acting "as the primary operator offering reliable cable and telephone communication services to residents over this publicly owned network."⁴⁰ The for-profit firm, which operates out of a post office box in Geneva, apparently has produced just one publication, the "white paper" advocating municipalization.

Typical of other research papers making similar claims, Garvey's report presents no data or proof of a link between broadband and economic growth.

Advice on economic development from consulting firms, whether from Garvey's firm or the one used by the Kane County Economic Development Board, should be steeply discounted. Virtually all such firms tell their clients what they want to hear: That they can become high-growth areas for high-tech companies by investing, or investing more, in subsidies to new businesses. Today it's telecommunications infrastructure; yesterday it was workforce training and free land.

A decade ago, SRI International made millions of dollars by convincing scores, perhaps hundreds, of communities that they could become "the next Silicon Valley" by dangleing

³⁸ Peter Collins, "Underserved in Internet," letter to the editor, *The Kane County Chronicle*, June 29, 2002.

³⁹ John Garvey, "Municipal Broadband Networks: Unleashing the Power of the Internet," Convergence Research, Inc., March 2002, p. 4.

⁴⁰ Convergence Research, Inc.'s Web site. <http://www.c-r-inc.com/>

subsidies in front of corporate CEOs. Today, McKinsey & Company is doing the same thing, producing in 2001 a report for the City of Chicago titled “A New Economy Growth Strategy for Chicagoland.”

Econometric research consistently finds subsidies to corporations—whether in the form of cheap access to broadband, skilled labor, or land—are an unreliable and often counterproductive strategy for economic development.

In fact, econometric research consistently finds subsidies to corporations—whether in the form of cheap access to land, sewers, or broadband—are an unreliable and often counterproductive strategy for economic development. Cities and states that make these expenditures do not create jobs or increase personal income at higher rates than cities and states that don’t.⁴¹ Edwin Mills, professor emeritus of

real estate at Northwestern University and one of the country’s leading urban economists, recently wrote about Chicago’s aspirations to attract high-tech firms:

By any reasonable definition, high-technology research, development, and manufacturing are the most footloose of industrial sectors. By and large, they locate where their highly educated and high-paid employees want to live. Mostly that is not adjacent to inner-city universities—a fact many local governments have learned at some cost to them. High-tech activities tend to locate in distant suburbs of metropolitan areas with fine universities (Route 128, Silicon Valley, Research Triangle Park).

Almost no high-tech concentrations have been mainly the result of government planning. (Research Triangle Park is a partial exception.) More often, governments have jumped on the wagon after the band has been formed and most employment growth has finished.⁴²

Because the vast majority of residents of most communities are now well-served by private broadband providers, a municipal broadband network would benefit only a small number of high-end users of broadband services. It is hardly surprising that these potential beneficiaries would organize and lobby for such a subsidy. But this is no reason why voters and taxpayers should support their scheme. The expected private benefits of a few users do not justify the cost of connecting every business and household in the community with expensive fiber-optic lines.

⁴¹ Samuel R. Staley and Michael LaFaive, “State Economic Development: Feeding Sparrows Through A Horse,” *ALEC Policy Forum*, American Legislative Exchange Council, September 1, 2002; Amy K. Frantz, “Markets, Not Government, Should Determine Economic Winners,” *Institute Brief*, Public Interest Institute at Iowa Wesleyan College, November 1, 2002; Peter S. Fisher and Alan H. Peters, “Tax and Spending Incentives and Enterprise Zones,” *New England Economic Review*, Federal Reserve Bank of Boston, March/April 1997; Timothy J. Bartik, *Who Benefits from State and Local Economic Development Policies?* (Kalamazoo, MI: W.E. Upjohn Institute, 1991).

⁴² Edwin S. Mills, “Dreams, Plans & Reality: A Critique of Chicago Metropolis 2020,” *Heartland Policy Study* No. 97, February 2002.

5. Public versus private provision: efficiency considerations

Another claim commonly made by advocates of municipalization is that public utilities operate more efficiently than private companies. Kathryn Grondin, a writer for the *Daily Herald*, believes a municipally owned broadband network would benefit consumers because “without shareholders to satisfy, savings can go to the customer.”⁴³ James Volk, speaking for members of his pro-municipalization group, told a reporter, “We are looking at it as a business and will make business decisions on whether we go forward.”⁴⁴

Would a municipally owned broadband network really be more efficient than any of the competing private broadband services in existence now or coming on the scene? More broadly, can elected officials and public employees run a government enterprise as efficiently as a business? Answers to this question often are motivated by ideology (conservatives tend to say no, liberals tend to say yes) or based on a few favorite anecdotes. What do the data say?

A comprehensive survey of more than 100 independent studies of privatizations in a wide variety of fields ... found cost reductions of between 20 and 50 percent.

Research on the costs and quality of public services produced via municipal ownership versus private provision is extensive and conclusive.⁴⁵ Activities and services that have moved from public to private provision since 1980 include such sophisticated enterprises as multi-billion-dollar insurance funds, airports, hospitals, ports and harbors, prisons, railroads, and water works. They also include parks, golf courses, sports stadiums and arenas, police and fire services, and building maintenance. Often the switch is attributable to complaints of high costs and poor service, making continued reliance on the public sector a liability for elected officials.

The research shows *privatization*, not municipalization, delivers significant cost savings,

⁴³ Kathryn Grondin, “St. Charles to Survey Businesses on Need for Fiber Optic Network,” *Daily Herald*, October 14, 2000.

⁴⁴ Tona Kunz, “Why Officials From Tri-Cities Visited a Small Town in Iowa,” *Daily Herald*, January 17, 2002.

⁴⁵ Geoffrey Segal, editor, *Annual Privatization Report 2004*, 18th Edition (Los Angeles, CA: Reason Foundation, 2004), <http://www.rppi.org/apr2004/anpr2004.pdf>; William D. Eggers and John O’Leary, *Revolution at the Roots: Making Our Government Smaller, Better, and Closer to Home* (New York, NY: Free Press, 1995); General Accounting Office, *Privatization: Lessons Learned by State and Local Governments* (Washington, DC: U.S. General Accounting Office, 1997); Robert Poole, *Cutting Back City Hall* (New York, NY: Universe Books, 1980); Carl F. Valente and Lydia D. Manchester, *Rethinking Local Services: Examining Alternative Delivery Approaches*, Management Information Service Special Report No. 12 (Washington, DC: International City Management Association, 1994); Charles Wolf Jr., *Markets or Governments: Choosing Between Imperfect Alternatives* (Cambridge, MA: The MIT Press, 1988); E.S. Savas, *Privatizing the Public Sector* (Chatham, NJ: Chatham House Publishers, Inc., 1982); E.S. Savas, *Privatization and Public-Private Partnerships* (New York, NY: Chatham House Publishers, 2000).

greater accountability and responsiveness to consumers or elected officials, and a level of quality equivalent or superior to public-sector delivery. A comprehensive survey of more than 100 independent studies of privatizations in a wide variety of fields, conducted by John Hilke for the Reason Foundation, found cost reductions of between 20 and 50 percent.⁴⁶ Other surveys have documented average savings in the same range.⁴⁷

E.S. Savas, Barbara Stevens, and other experts identify less bureaucracy and higher worker productivity attributable to better supervision, less paid time off, and superior equipment as the reasons why private-sector firms are typically able to produce higher-quality goods and services at a lower cost than government agencies.⁴⁸ Those factors are more common in the private sector because firms must compete to produce higher quality and lower costs or they lose business to more efficient competitors. Because they do not need to compete to survive, government agencies can remain indifferent to these considerations.

By this reasoning, towns should begin manufacturing cars and trucks because they own roads, or perhaps own and operate restaurants and bars because they own sidewalks.

Unlike most cities, the Tri-Cities own and operate their own electric utilities. This means they have personnel and assets that could be used to reduce the cost and risk associated with building and maintaining a municipally owned broadband system. Peter Collins summarized the possibilities in 2002:

The tri-cities, unlike most communities, own their electric utilities. The rights-of-way and the poles are owned and maintained by the cities themselves. We can build and run our own facilities much easier than towns without such an infrastructure. And if you're building facilities to serve Internet and data services to residents and businesses, you might as well offer cable and telephone services also. It's an economy of scale.⁴⁹

By this reasoning, towns should begin manufacturing cars and trucks because they own roads, or perhaps own and operate restaurants and bars because they own sidewalks. This "comparative advantage" comes only from denying equal access to these public goods to private competitors who should be assumed to be better equipped to manufacture a good or provide a service than is

⁴⁶ John Hilke, *Cost Savings from Privatization: A Compilation of Study Findings* (Los Angeles, CA: Reason Foundation, 1993).

⁴⁷ James T. Bennett and Manuel H. Johnson, *Better Government at Half the Price* (Ottawa, IL: Caroline House Publishers, Inc., 1981); T.E. Borcharding, ed., *Budgets and Bureaucrats: The Sources of Government Growth* (Durham, NC: Duke University Press, 1977); E.S. Savas, *Privatization and Public-Private Partnerships*, supra note 45, Chapter 6.

⁴⁸ E.S. Savas, supra note 45; Barbara Stevens, *Delivering Municipal Services Efficiently: A Comparison of Municipal and Private Service Delivery* (New York, NY: Ecodata, Inc., 1984), pp. 15ff.

⁴⁹ Peter Collins, supra note 38.

the municipality. Giving government-owned utilities tax and regulatory advantages over private companies distorts the marketplace and discourages private companies from investing in the region. As Jeffrey Eisenach, in a 2001 report on government-owned telecommunications utilities, observes:

As a result of this basket of subsidies and other advantages, most of them hidden from view and difficult or impossible to quantify, the one thing public utilities never do is provide an accurate gauge of the true costs of providing any service. Instead, because these hidden subsidies permit public utilities to undercut the prices charged by private competitors, they distort the marketplace, deter entry by real competitors, and thus prevent the marketplace from setting cost-based prices.⁵⁰

Tri-Cities officials seem uncertain about whether the new utility would have to comply with the same rules as apply to private cable and telephone companies. A 2003 memorandum on one of the community's Web sites says "the new utility would probably be subject to franchise fees and taxes like the incumbents."⁵¹ But how can city officials present detailed price estimates for cable TV, telephone, and broadband services—as they do on their Web sites—without knowing if the utility would have to pay these fees and taxes?

Tri-Cities officials seem uncertain about whether the new utility would have to comply with the same rules as apply to private cable and telephone companies.

The claim that municipalization is more efficient than relying on private companies fails on empirical grounds. In the next section we will review the experiences of other cities that have attempted to get into the cable and broadband businesses.

6. Experiences of other cities

Offering telephone, cable, and Internet services is far more complex and difficult than collecting trash or cleaning parks. Telephone service requires switching equipment, secure facilities, backup power generation, and a trained staff of customer service agents. Customers don't simply sign up on their own: Advertising campaigns must be managed, billing systems and debt collection procedures put in place, and prices set and revised competitively. Not surprisingly, then, few communities attempt to do it: Of some 55,000 towns and municipalities in the U.S., about 200

⁵⁰ Jeffrey Eisenach, "Does Government Belong in the Telecom Business?" *Progress on Point*, The Progress and Freedom Foundation, January 2001, p. 15.

⁵¹ From "Further questions regarding the feasibility study and project and answers from the broadband Consultant (1-9-03)," in a memorandum by Bill McGrath, city manager, to Jim Volk, telecommunications chair, posted on the City of Batavia Web site on January 9, 2003.

operate municipal broadband networks, for a penetration rate of about 0.5 percent.⁵²

Even cable by itself is surprisingly difficult to provide. Small cable firms—many of them many times larger than what the Tri-Cities is envisioning—have gone out of business because they couldn't negotiate terms with content providers as favorable as those given to such giants as Comcast. Marketing, maintenance, and service calls are all labor-intensive and expensive.

Eisenach provides the following summary of research by Ronald Rizzuto and Michael Wirth at the University of Denver on municipal cable systems in four small cities:

The study concluded that the first three systems “have been poor investments from a pure business perspective” and the fourth (Cedar Falls), though too new for a conclusive evaluation, “has a large financial deficit to overcome in order to become profitable.” Indeed, the study concluded that the three systems that had been in operation long enough to permit a conclusion had cumulative losses of \$6.6 million and that “the Glasgow and Paragould investments will never reach payback, and it will take Negaunee 23 years to pay back its initial investment.”⁵³

Building and operating a broadband infrastructure is much more expensive and risky than managing a cable system.

Rizzuto and Wirth, according to Eisenach, found “Glasgow’s cable system loses money even after the benefits of lower cable rates for Glasgow residents are taken into account,” and they refer to the consumer benefits of lower cable rates as “an illusion because, as noted earlier, the municipal cable system is not self-sustaining.”⁵⁴

Building and operating a broadband infrastructure is much more expensive and risky than managing a cable system. Spencer, Iowa, population 11,000, spent \$17 million to create its fiber-optic network and run coaxial cable to 4,500 homes. This is \$1,545 per resident and \$3,777 per household,⁵⁵ close to the construction cost estimate of \$3,539 per customer that appeared in the UTI report for the Tri-Cities. Communities in Utah, Wisconsin, and Washington have

⁵²McGarty and Bhagavan, *supra* note 11, p. 3.

⁵³ Jeffrey Eisenach, *supra* note 50; pp. 12-13. The original study is Ronald J. Rizzuto and Michael O. Wirth, *Costs, Benefits, and Long-Term Sustainability of Municipal Cable Television Overbuilds* (Denver, CO: GSA Press, 1998).

⁵⁴ *Ibid.*, p. 14.

⁵⁵ Spencer’s municipal utility had reserve funds sufficient to loan the new entity \$8 million and to spend \$8 million itself on the fiber network, which it owns. The new entity leases the fiber from the utility. James Volk and Randy Recklaus, “Re: Tri-City Broadband - Spencer Iowa Site Visit,” memorandum on the Batavia Web site dated January 22, 2001.

collectively built or are about to build FTTH networks.⁵⁶ Other communities are considering municipal WiMax networks.⁵⁷

Spencer expected (and still expects) to “break even” on its investment by charging residents and businesses for telecommunications services, but many communities that have taken the plunge have not. Most operate at a loss, forcing ratepayers for other utilities or local taxpayers to pay more to pick up the losses. For example:

Iowa Communications Network “consistently requires large subsidies to continue in business. For the fiscal year ending in June 1999, for example, the system lost \$24.5 million on an operating budget of \$53.3 million. Even after subsidies of over \$23 million, it sustained a net loss of over \$5.8 million.”⁵⁸

California’s CALNET system, designed to connect state agencies and other public entities, was some \$20 million in debt when it was privatized in 1998.⁵⁹

Marietta, Georgia lost more than \$35 million operating “FiberNet,” a 210-mile fiber-optic system with some 200 paying customers that it launched in 1996. It finally sold the system to American Fiber Systems in September 2004 for about \$8 million, “a fraction of what FiberNet has cost the city in losses.”⁶⁰ Marietta Mayor Bill Dunaway told the *Atlanta Journal-Constitution* the town could no longer afford to make equipment upgrades to keep the network competitive. “That’s why we should not be in this business—you have to keep reinvesting. It’s negative cash flow once you consider reinvestment of capital.”⁶¹

“That’s why we should not be in this business—you have to keep reinvesting. It’s negative cash flow once you consider reinvestment of capital.”

— Bill Dunaway, Mayor
Marietta, Georgia

Lebanon, Ohio originally projected its cost at \$5 million and ended up spending \$9 million. In May 2001, the city increased electric rates to cover broadband losses and authorized

⁵⁶ John Wohlstetter, “Municipal Networks: Raising Taxes Beats Raising Rates,” Competitive Enterprise Institute, January 14, 2004.

⁵⁷ David Caruso, “Philly Considers Wireless Internet for All,” Associated Press, September 1, 2004.

⁵⁸ Jeffrey Eisenach, *supra* note 50, p. 14.

⁵⁹ *Ibid.*

⁶⁰ Robin Yamakawa, “Price Holds at \$11.2M for Company,” *Marietta Daily Journal*, September 1, 2004.

⁶¹ Brenden Sager, “Marietta to Lose Millions in Sale of Web Service,” *Atlanta Journal-Constitution*, July 29, 2004.

\$14.8 million in mortgage revenue bonds to cover operating losses.⁶² Lebanon then passed a law requiring all new homes and offices to connect to the municipal broadband network and requiring competitors to purchase broadband capacity from the municipality and pay the city \$1,250 to \$2,000 for every customer they sign up.⁶³ The town is now being sued by Time-Warner and developers.

The *Tacoma, Washington* Power Utility launched its Click! Network in 1997. By 2000 it had lost \$15.7 million. Projections of cost, time to construct, number of customers, earnings, and net profit were all overly optimistic.

The *Tacoma, Washington* Power Utility launched its Click! Network in 1997. By 2000 it had lost \$15.7 million. “Combined with the \$86.5 million in capital expenses already dedicated, the system has spent a total of \$105 million since its inception. As a public entity, TPU must cover its losses with revenue from ratepaying electricity customers. So far TPU’s cable system losses have added about \$709 in new costs for each of the utility’s 148,000

power customers.”⁶⁴ Projections of cost, time to construct, number of customers, earnings, and net profit were all overly optimistic. “At present it does not appear that the Click! Network can become profitable within the foreseeable future.”⁶⁵

In an October 2001 report published by the Beacon Hill Institute at Suffolk University, economist David Tuerck and colleagues present case studies of “five communities that have had a disappointing experience with the cable/Internet business,” including Tacoma, Washington and Lebanon, Ohio, mentioned above.⁶⁶ The following excerpt from the executive summary of their report presents their findings:

“*Tacoma, Washington* has failed to break even after building its Click! Network. Costs have exceeded expectations, and the city has had to increase electric rates in order to cover its cable/Internet losses.

“*Paragould, Arkansas* is losing money and may have to increase property taxes in order to pay off bonds floated to shore up its faltering cable business.

⁶² David Tuerck et al., “Cashing in on Cable: Warning Flags for Local Government,” *BHI Policy Study*, Beacon Hill Institute at Suffolk University, October 2001.

⁶³ Ben Charny, “Time Warner Broadband Suit Advances,” CNET News.com, September 2, 2004.

⁶⁴ Paul Guppy, “When Government Enters the Telecommunications Market,” *Policy Brief*, Washington Institute Foundation, June 2001.

⁶⁵ *Ibid.*

⁶⁶ David Tuerck et al., *supra* note 62.

- # “*Ashland, Oregon* attempted to diversify and expand its electric department’s customer base by entering the cable/Internet business. It has had trouble attracting customers, however, because of unanticipated price competition from the incumbent, private-sector cable provider.
- # “*Lebanon, Ohio* built its own cable system to provide residents with lower rates. Now, sinking into debt and suffering financial losses, Lebanon has raised its own rates and finds itself up against stiff competition from the incumbent provider.
- # “*Scottsboro, Alabama* also went into the cable business to offer lower rates. Then, when it experienced unexpected price competition, it went to court to prevent its competitor from cutting *its* rates.”

In March 2004, Tuerck and the Beacon Hill Institute revisited the issue in another report.⁶⁷ This time they found a proposed municipal broadband network for Concord, Massachusetts stood a 60 percent probability of losing money, with an expected loss of some \$542,000. The authors also updated their reports on other cities, presenting as “cautionary tales” the experiences of Tacoma, Washington; Ashland, Oregon; Lebanon, Ohio; and Braintree, Massachusetts. All were having difficulty facing new competition from private broadband providers.

The point should be clear: Experiences in other cities reveal that municipal broadband utilities often fail.

Besides all of the examples cited above, newspaper articles easily found on the Internet report similar financial troubles facing municipal broadband and cable networks in many other towns and cities, including such places as Forsyth, Georgia; Glasgow, Kentucky; Morganton, North Carolina; Negaunee, Michigan; and Trion, Georgia. The point should be clear: Experiences in other cities reveal that municipal broadband utilities often fail.

7. Why municipal broadband is so risky

Why have so many municipalities experienced financial problems with their municipal broadband networks, forcing them to raise prices, cross-subsidize their consumers, suspend expansion plans, or even sell the networks at huge losses to private companies? The obvious answer is that telecommunications is a risky business. Adopting a financing scheme that relies on private investors, while a proper move, is probably insufficient to genuinely protect taxpayers and ratepayers.

⁶⁷ David Tuerck and John Barrett, “Municipal Broadband in Concord: An In-Depth Analysis,” *BHI Policy Study*, Beacon Hill Institute at Suffolk University, March 2004.

Risk factors

The frequent failure of municipal broadband utilities must partly be due to the fact that operating an integrated telecommunications business is not one of the “core competencies” of elected officials or the administrators they hire. But there are other reasons as well. Seven risk factors are most clearly evident:

Many communities that experienced financial losses from their municipal broadband systems did so because construction costs were higher than original estimates.

Cost of construction: FTTH is the most expensive way to deliver broadband service, which immediately makes it the most vulnerable platform in the fiercely competitive broadband industry. Other competitors either spend very little on infrastructure or already have it in place and paid for, making it a “sunk cost,”

whereas the FTTH utility must charge prices high enough to include debt repayment. Many communities that experienced financial losses from their municipal broadband systems did so because construction costs were higher than original estimates.

Time to construct: It takes between one and two years to build a FTTH network, during which time the utility is spending money but not earning revenues. United Telesystems Inc. apparently told Tri-Cities officials, “We have seen clients get their systems launched within 7 to 8 months from when they have closed on their bond issues, however, it typically takes 10 to 12 months.”⁶⁸ But during the July 7 rally, Aggregate Networks’ cofounder and principal Rick Kaufmann twice referred to “two years” of construction with “no revenue” coming in to the utility. This was one reason, he said, why investors view municipal broadband networks as start-up ventures and so demand higher interest rates.

Legal restrictions on subsidization: The municipal entity cannot be subsidized without triggering legal challenges under Section 253 of the 1996 Telecommunications Act.⁶⁹ Cities that have tried to subsidize their municipal broadband networks by raising rates for other utilities or forcing residents and businesses to use the municipal service have been taken to court. If the municipal utility begins to lose money and cannot make its loan payments, the only legal route is sale of the assets to a private firm, either prior to or following bankruptcy. Taxpayers and ratepayers in towns and cities across the country have lost millions of dollars when this has occurred.

⁶⁸ From “Further questions regarding the feasibility study and project and answers from the broadband Consultant (1-9-03),” supra note 51.

⁶⁹ 47 U.S.C. §253(a). “In General—No State or local statute or regulation or other State or local legal requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service.”

Questionable penetration rates: Many municipalities that suffered losses from their broadband ventures received from their consultants inflated estimates of the number of potential customers who would sign up for services. There are obvious incentives for consultants to inflate those numbers while simultaneously under-estimating construction cost and time. A good example is the telephone survey supposedly showing latent demand for broadband services in the Tri-Cities. “A total of 300 completed calls (100 for each cities) were randomly made to residents of Batavia, Geneva, and St. Charles and 50 to businesses. Of the business calls, one city had 16 completed business calls and the other two had 17.”⁷⁰ On its face this is too small a sample to determine if there is sufficient consumer support for a service costing \$57 million - \$62 million just to launch.

As mentioned earlier, consumers currently use the bulk of bandwidth for cable TV, not for faster Internet access. FTTH may make 100 Mbps available for interactive video, high-speed computing, or voice over Internet Protocol (VoIP) applications, and a few businesses may

use the network this way, but the vast majority of potential customers would be satisfied with standard Internet access at 1.5 Mbps and the rest of the bandwidth devoted to consumer cable TV. If they already receive cable TV from another source, then getting Internet access from the cable company, telephone company, or a wireless company will probably be cheaper and no less convenient than switching to the FTTH network. This makes the high penetration rates predicted by the Tri-Cities’ consultants highly unlikely.

Aggregate Networks LLC and consulting firms like it, however, have few contacts and little expertise in arranging for content.

Finding content consumers will pay for: Focusing on how many bits per second a technology can deliver is misleading because bandwidth is only one part of a successful business plan. More important is the ability to create, market, and deliver the applications consumers want. Big cable and telephone companies are able to negotiate deals with well-known content providers—for example, DirecTV has an exclusive pay-per-view “Sunday Ticket” deal with the NFL, and AT&T has partnered with Comcast, Cox, and Time Warner to deliver VoIP service. Aggregate Networks LLC and consulting firms like it have few contacts and little expertise in arranging for content.

Technological change: New technologies such as WiMax and VoIP present a fundamental challenge to all business plans in the telecommunications sector, whether private or public. Businesses must be prepared to sell or abandon facilities and operations that have become obsolete, and the quicker they can make the decision and act on it, the better off their investors and consumers will be. Municipalities are unlikely to be able to act as quickly as private firms, creating the specter of taxpayers or ratepayers being forced to subsidize obsolete services for several years after superior alternatives become available.

⁷⁰ From “Further questions regarding the feasibility study and project and answers from the broadband Consultant (1-9-03),” supra note 51.

An example of an emerging technology not already mentioned in this report is broadband over power line (BPL), which allows Internet access over household electricity lines.⁷¹ Such technology would allow Internet service providers to reach every house and business using the existing power grid. Even if BPL is capable of operating only at relatively slow speeds, as may be the case, it could still provide the remote metering function advocates of FTTH claim as one of its benefits.⁷² On October 14, the FCC approved rules expected to boost the spread of BPL nationwide.⁷³

Many of the consulting firms in this business are start-ups with few clients and assets of their own. It is unlikely they will still be around to take the blame when a municipal broadband utility begins to cost taxpayers and ratepayers money.

Financial viability of partners: Municipal broadband networks rely heavily on consultants and contractors, making the financial viability of these partners crucial to the success of the business plans. But how viable are those partners? RCN, a major builder of municipal cable networks, announced plans to file for Chapter 11 in February 2004. According to David Tuerck, "Other firms have suffered bankruptcies, buildout freezes

and abandonments. These include Western Integrated Networks/WINFirst (bankrupt), Altrio (frozen), American Broadband (abandoned), Utilicom (frozen), and SNETAmericast (abandoned)."⁷⁴ Many of the consulting firms in this business are start-ups with few clients and assets of their own. It is unlikely they will still be around to take the blame when a municipal broadband utility begins to cost taxpayers and ratepayers money.

Certificates of Participation

Voters in the Tri-Cities rejected the municipal broadband initiative in 2003 in part because they believed their tax dollars were put at risk. Does the new plan, which relies on certificates of participation rather than general revenue bonds, deserve a second look from voters?

⁷¹ David LaGesse, "Piggybacking on power lines," *U.S. News & World Report*, August 12, 2002, p. 51; Judith B. Warrick, "Are You Ready for the Revolution?" *Global Electricity Strategy*, Morgan Stanley Dean Witter, April 12, 2001.

⁷² "We expect that [BPL] will be mainly used at home controlling and remote metering because it has the low speed of 1 Mbps or less and it will be rarely used at the field needing the high speed data transmission. However, if the limit on the power line frequency usage is solved, the high speed data communication will be possible. So it has the brightest promise than [*sic*] any other home networking technologies." Samsung Technical Support, on Samsung's Web site accessed on October 12, 2004. <http://www.samsung.com/HomeNetwork/SupportServices/Technicalinfo/wired/PLC.htm>

⁷³ Ben Charny and Jim Hu, "FCC Eases High-Speed Network Rules," CNET News.com, October 14, 2004.

⁷⁴ David Tuerck and John Barrett, *supra* note 67.

According to Annie Collins, the new financing arrangement means “this will be no risk at all for the taxpayer.”⁷⁵ The Fiber for Our Future Web site proclaims, “ZERO IMPACT ON YOUR TAXES—GUARANTEED!” [all caps in original]⁷⁶ It says “this year’s referendum question will again ask for you to grant authority to the TriCities to build and operate a municipal fiber optic broadband utility in a manner which carries ZERO TAX RISK. [all caps in original] There are several possible financing methods available to the TriCities. While these methods may require a longer repayment period or a higher interest rate than last year’s proposal, the utility will remain **100 percent independent of your tax dollars.**” [bold face in original]

But Aggregate Networks hardly has the track record that should inspire such confidence. It is reportedly involved in just two other municipal FTTH projects—Truckee Donner Public Utility District in California and Crawfordsville Electric Light & Power in Indianapolis—and it has yet to announce a financing package for either of its clients. Indeed, it appears no broadband network in the U.S. has ever been financed by certificates of participation, probably because investors view such projects as being too risky. In a market where broadband services are already ubiquitous and inexpensive, they are almost certainly correct.

Aggregate Networks has yet to announce a financing package for either of its two FTTH municipal clients.

The use of certificates of participation may offer some protection to taxpayers that using revenue bonds does not, but there is a price to pay for that protection. Generally in such cases, ownership of the asset is held by the lender while the client—in this case the local governments—pays down the loan. This means the network will not be “community owned,” but only leased by local governments from Aggregate Networks’ investors. Those investors, in turn, are free to sell the network to other investors. In fact, Aggregate Networks’ Rick Kaufmann, speaking at the July 7 rally in Batavia, said “we will sell it to Comcast if it doesn’t work.”

Historically, certificates of participation emerged as a way for local governments to avoid caps and restrictions on their ability to raise taxes and issue revenue bonds. They are most effective where the economic value of the asset involved is readily assessed and likely to be stable. Municipal broadband networks do not fit this definition. The value of an expensive FTTH system is not determined by the cost of building it, but the ability of entrepreneurs to use it as part of a successful business plan. There is simply no precedent for that being done. Consequently, it is highly unlikely that Aggregate Networks or any other consulting firm will be able to arrange this kind of financing for municipal broadband utilities.

Finally, it would be misleading to imply that arranging for private financing of the *construction* of the FTTH network means taxpayers and ratepayers won’t later find themselves “on the hook” to pay for operating costs and upgrades to the system. One of the lessons from

⁷⁵ Jan Ramming, *supra* note 10.

⁷⁶ www.tricitybroadband.com, October 10, 2004.

other cities that have tried to make municipal broadband networks work but failed is that operating costs per customer are often higher than expected, resulting in the need for annual subsidies. There is nothing in the Tri-Cities referenda that would protect taxpayers and ratepayers from having to pay more to keep the utility operating in the years ahead.

Conclusion

Two years ago, in the first edition of this report, I wrote:

A municipal broadband network may start service by charging “competitive” or even below-market fees, but once full-spectrum (DSL, cable, and wireless) competition arrives, prices for access will fall to the cities’ operating costs or less, leaving them unable to pay off the bonds issued to cover the up-front investment in fiber. Businesses and residents cannot be treated as captive customers and charged more than what competitors would charge, first because of the existence of technological alternatives to the fiber-optic network and second because municipalities are barred from subsidizing their public telecommunications enterprises. Bankruptcy is a likely scenario.

Municipal broadband utilities clearly place taxpayers and ratepayers at substantial risk, regardless of how their construction is financed.

Developments since October 2002 have largely supported this analysis. Private competitors have returned to the field following deregulation of cable and telephone companies. Prices for broadband services are being driven downward by strong competition. As unlikely as it was in

2002 that a broadband utility could have put together a viable business plan, it is even less likely today. Municipal broadband utilities clearly place taxpayers and ratepayers at substantial risk, regardless of how their construction is financed.

Conclusion

Generally speaking, municipal ownership of broadband networks is probably not in the best interests of residents and most businesses, even in communities not well served today by private providers. Access to broadband services is more plentiful than advocates of municipalization claim or admit, suggesting the real issue is not availability but *price* and who should pay it.

The chief advantages of a municipal broadband network are that it would speed up access to high-quality broadband services by six months or a year and subsidize this access for the small number of businesses and individuals who most want it. It is unlikely that more than a small number of residents would benefit from this speed-up, that their benefits would justify the steep cost, or that it is fair to force other residents and businesses to subsidize them. It is fanciful to imagine that municipal broadband is a cost-effective way to promote economic development.

Very few other cities attempt to build and own broadband networks precisely because the costs and financial risks are too great. Cities that have taken the leap simply illustrate the riskiness of the venture, costing their taxpayers and ratepayers millions of dollars in subsidies with no end in sight.

It is no secret or surprise that public provision of services tends to be less efficient in the long run than private provision. Telecommunications services—complex, ever-changing, and intensely competitive—are unlikely to be an exception to this rule. Claims that consumers would benefit because governments don't make profits, or that public officials can run government agencies "like businesses," simply aren't plausible in light of the record.

Building and operating a FTTH network would be expensive and risky. Because of large economies of scale, the telecommunications industry is dominated by national and global companies. The Tri-Cities would be competing with giants such as Comcast and DirecTV and technologies that require less up-front investment than fiber optic. Comcast, SBC, and other competitors could easily cut their prices and thereby reduce the municipal entity's revenues. Bankruptcy of the municipal entity in a few years is a real possibility.

Threatening to build a municipal broadband network may have been a good strategy two years ago to prompt AT&T and SBC to make good on past promises. Following through with municipalization, however, is probably not in the best interests of Tri-Cities residents or the business community.

City officials would have to be prepared to quickly sell the network—at a loss—once competition emerges. It appears to be inevitable that such competition will emerge, thanks in part to the removal of regulatory barriers by the FCC and the courts.

Threatening to build a municipal broadband network may have been a good strategy two years ago, to prompt the incumbent cable and telephone companies to make good on past promises. Following through with municipalization, however, is probably not in the best interests of Tri-Cities residents or the business community.

About the Author

Joseph L. Bast is president and CEO of The Heartland Institute, a national nonprofit research center founded in 1984 and located in Chicago, Illinois. He is the coauthor of seven books, including *Why We Spend Too Much on Health Care* (1992), *Eco-Sanity: A Common-Sense Guide to Environmentalism* (1994), and *Education & Capitalism* (2003). His writing has appeared in *The Wall Street Journal*, *Investor's Business Daily*, *USA Today*, *Human Events*, and many of the country's largest-circulation newspapers.

Mr. Bast was the founding publisher of *IT Update*, a monthly newsletter on information technology and telecommunications regulation issues, and four monthly newspapers: *School Reform News*, *Environment & Climate News*, *Health Care News*, and *Budget & Tax News*. He has been recognized frequently for his contributions to public policy research and debate, including being named one of "The 88 to Watch in 1988" by the *Chicago Tribune*; recipient of the 1994 Roe Award from State Policy Network and of the 1996 Sir Antony Fisher International Memorial Award; and elected a member of the Philadelphia Society in 2002. He and his wife, Diane, reside in Palatine, a suburb of Chicago.

About The Heartland Institute

The Heartland Institute is an independent national nonprofit organization based in Chicago. Founded in 1984, it originally focused on Illinois issues. Over the years, Heartland evolved into a regional and now a national organization providing information to the nation's 8,300 state and national elected officials. It has a full-time staff of 13 and a 2004 budget of about \$2.1 million.

Heartland operates *PolicyBot*, a Web-based clearinghouse for the work of some 350 think tanks and advocacy groups. Approximately 13,700 documents are available from the service for free. Heartland publishes four monthly newspapers and a monthly newsletter on telecommunications policy, as well as occasional books, policy studies, and shorter essays. Some 425 elected officials serve on Heartland's Legislative Advisory Board, and 100 academics and economists serve on a Policy Advisory Board.

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‘Not In The Public Interest – The Myth of Municipal Wi-Fi Networks’

**Why Municipal Schemes to Provide Wi-Fi Broadband Service
With Public Funds Are Ill-Advised**



February 2005



‘NOT IN THE PUBLIC INTEREST - THE MYTH OF MUNICIPAL Wi-Fi NETWORKS’

WHY MUNICIPAL SCHEMES TO PROVIDE WI-FI BROADBAND
SERVICES WITH PUBLIC FUNDS ARE ILL-ADVISED

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TABLE OF CONTENTS

Author Biographies.	ii
Executive Summary.	iv
Background.	x
<i>The Myth of Municipal Wireless Networks.</i>	<i>1</i>
David P. McClure, President and CEO, U.S. Internet Industry Association	
<i>Whose Internet Does Municipal Wireless Subsidize?.</i>	<i>6</i>
Steven Titch, Senior Fellow IT and Telecom Policy, The Heartland Institute	
<i>The Viability of Municipal Wi-Fi Networks.</i>	<i>12</i>
Braden Cox, Technology Counsel, Competitive Enterprise Institute	
<i>Municipal Networks: The Wrong Solution.</i>	<i>16</i>
Tom Giovanetti, President, Institute for Policy Innovation	
<i>The Competitive Effects of Municipal Provision of Wireless Broadband.</i>	<i>20</i>
David G. Tuerck, Executive Director, The Beacon Hill Institute at Suffolk University	
<i>Municipal Wi-Fi Networks: Economic Viability and Economic Impact.</i>	<i>25</i>
Dr. Ron Rizzuto, Professor, University of Denver	

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Tom Giovanetti is president of the Institute for Policy Innovation (IPI), a non-profit, non-partisan public policy "think tank" in Lewisville, Texas. IPI is known for its economic analysis of pending and proposed changes in tax policy, with its emphasis on free markets, limited government, supply-side economics and dynamic scoring. IPI focuses on issues of taxation, technology, education reform, and government regulation. Before joining IPI in 1993, Mr. Giovanetti was Director of Marketing for a small manufacturing company in Dallas. His experience in the private sector offers a real-world perspective on government policies and the effect these policies have on business.

David P. McClure is president and Chief Executive Officer of the U.S. Internet Industry Association (USIIA), the primary U.S. trade association for Internet commerce, content, and connectivity. A technologist by education and experience, Mr. McClure has held positions in the Internet, computing, aerospace, and environmental services industries. He has served on the staff of the Aviation and Space Writers Association (AWA) and the Software Publishers Association (SPA). He has served at the helm of the USIIA since it was founded in 1994. He is also a member of the American Society of Association Executives and its Technology Section Council. Mr. McClure has written and lectured extensively on management and technology issues and is considered an authority on technology applications for business.

Steven Titch is a Senior Fellow of The Heartland Institute and managing editor of InfoTech & Telecom News (IT&T News), formerly IT Update. He is recognized internationally as a top telecommunications journalist and analyst. His articles have appeared in Total Telecom, America's Network and Telephony. Mr. Titch has served as director of editorial projects for Data Communications magazine, where he directed content development for supplemental publications and special projects. He also has held the positions of editorial director of Telephony, editor of Global Telephony magazine, Midwest bureau chief of Communications Week, associate editor-communications at Electronic News, and founding editor of Cellular Business (now Wireless Review). Mr. Titch graduated cum laude from Syracuse University with a dual degree in journalism and English.

Ron Rizzuto is Professor of Finance in the Daniels College of Business at the University of Denver. Rizzuto has extensive consulting experience in cable telecommunications in evaluating the financial viability of new technologies (video, voice, and data), and in the economics of telecommunications overbuilds. Dr. Rizzuto holds a B.S. in finance from the University of Colorado and an M.B.A. and Ph.D. in finance and economics from New York University.

David G. Tuerck serves as Executive Director of the Beacon Hill Institute, and is professor and chairman of the Suffolk University Department of Economics. Prior to joining Suffolk University in 1982, he was a director in the Economic Analysis Group at Coopers & Lybrand, Washington, D.C. Prior to that, he served as director of the Center for Research and Advertising at the American

Enterprise Institute. Dr. Tuerck holds a doctorate in economics from the University of Virginia. His dissertation director was James M. Buchanan, Nobel Laureate in Economics.

EXECUTIVE SUMMARY

Many American cities and towns are now considering municipal deployment of Wireless Fidelity, or Wi-Fi. This technology enables broadband Internet access via unlicensed spectrum. Chicago, Las Vegas, Philadelphia and San Francisco are just a few of the major metropolitan areas that are embarking on this path. They propose to spend public funds to deploy the necessary equipment to provide Wi-Fi service throughout their cities. Some projects are designed to incorporate public-private partnerships with commercial service providers, while others appear to be the sole effort and financial responsibility of the local government.

News of these municipal efforts has appeared in the *Wall Street Journal*, *New York Times*, and the *Washington Post*, along with a host of trade publications and local newspapers. Much of this coverage of these projects has focused on the goal of these networks to help bridge the Digital Divide through supposedly inexpensive and easily accessible technologies.

While there has been widespread coverage of the ‘story’ of municipal Wi-Fi, there has been surprisingly little in-depth analysis undertaken to ascertain if municipal Wi-Fi networks are in fact as efficient and sustainable endeavors as their boosters predict, and whether the advent of municipal Wi-Fi will indeed achieve the considerable goals set forth by the respective city officials.

Given the paucity of investigative research on the topic of municipal Wi-Fi, the New Millennium Research Council (NMRC) invited six notable scholars and telecommunications policy experts to examine the practicality and impact of municipal governments turning Wi-Fi networks into public utilities. As cities debate whether to spend millions in taxpayer funds on Wi-Fi networks, this NMRC report provides policymakers with a much needed critique of key issues that to date have not been part of the public discourse.

The contributing experts identify several key concerns regarding these city-funded networks, including: (i) cost overruns that are unanticipated by the city and place the burden on taxpayers; (ii) the negative impact on broadband competition caused by municipal entry; and, (iii) questionable assertions regarding the ‘build it and they will come’ claim, since economic development is not perceived as a guaranteed result of municipal Wi-Fi deployment.

The authors conclude that it is vital for city leaders and citizens to carefully evaluate the inputs and outcomes of municipal Wi-Fi projects, because beneath the positive media coverage and glowing press pronouncements are troubling signs that these publicly held networks can result in less than anticipated outcomes.

Key Issues for Evaluating Municipal Wi-Fi

When attempting to assess the benefits and drawbacks associated with municipal ownership of Wi-Fi networks, a number of critical first order questions need be asked and answered. The NMRC grouped a range of these questions under three umbrella headings: (1) viability and cost of municipal Wi-Fi, (2) competition in the broadband market, and (3) economic implications for a given city.

1) Viability and Cost of Municipal Wi-Fi

- What are the medium and long term implications of municipal Wi-Fi projects committing a city and its taxpayers to one technology?
- How will new and future technologies be integrated into these networks? What are the practical and economic consequences?

- Are there estimated costs per customer? Is 'free' service realistic and for how long?
- What actions must a city take to ensure that disadvantaged citizens (those without the necessary equipment - computer, wireless network card, etc. - or skill base) can effectively access the Internet or use broadband applications?
- Will a city need to devote additional funding to this project when technical upgrades are required?
- What is the taxpayer burden if the costs to deploy and maintain the network exceed city projections?

As with any new government project at the local, state, or federal levels, it is important to assess the costs to taxpayers and the chances for success. Many of the cities planning or recently deploying municipal Wi-Fi networks pronounce that the networks will 'only' cost, on average, several millions of dollars. To quote the late Senator Everett Dirksen, "A million here and a million there, pretty soon you're talking about real money."¹ Is it prudent for cities to spend "real taxpayer money" on Wi-Fi to the detriment of other public services?

In his article, **David P. McClure**, president of the U.S. Internet Industry Association (USIIA) explains the numerous expenses that cities will face to operate a Wi-Fi network, expenses not often discussed in the media. "Municipal broadband networks are most frequently described in terms of the cost to build the network, and a cost to operate the networks if all economic conditions come to pass. But such accounting overlooks major elements of the cost of operations as well as the hidden cost of lost opportunities. For example, the projected budgets seldom cover the administrative costs of billing and contracts; the costs of a fully staffed Network Operations Center with redundant backup and power; the cost of compliance with the myriad of state and federal laws visited upon broadband networks; or the cost of maintenance and replacement."

Braden Cox, Technology Counsel at the Competitive Enterprise Institute (CEI), believes cities are focusing solely on the start-up costs of Wi-Fi networks and ignoring the long term financial commitments. "Indeed, it is the low initial costs that are attractive to municipalities. The real costs may well accrue with ongoing maintenance, upgrades, and for billing and collection of payment from users in those localities that charge a fee for access."

A rationale offered by cities for these projects is that the Wi-Fi networks will not only provide access to the underserved, but also will create cost savings for the city. Many plan to use Wi-Fi instead of traditional commercial providers for Internet access in city facilities. But **Dr. Ron Rizzuto**, Professor of Finance at the University of Denver, believes it will be difficult for cities to realize these savings, and suggests that ultimately the municipalities will have to resort to using taxpayer funds to sustain the network. He notes, "Those cities that provide free wireless broadband to citizens will have to generate sufficient cost savings to offset the annual operating costs of the Wi-Fi network in order to avoid permanent taxpayer subsidies. This may be difficult to accomplish since many of these benefits [from Wi-Fi networks] will be productivity improvements rather than cost savings. For example, a Wi-Fi system that makes building floor plans available to building inspectors in the field will increase productivity but will not necessarily generate 'savings' that can be used to finance the Wi-Fi system."

Tom Giovanetti, president of the Institute for Policy Innovation (IPI), echoes these comments and notes that governments have already found a mechanism for cost savings – the private sector. "Governments have found tremendous cost savings by contracting out traditional government functions as jail management, landscaping maintenance, even emergency services, to private

¹ http://www.senate.gov/artandhistory/history/minute/Senator_Everett_Mckinley_Dirksen_Dies.htm

companies. They have found that the best way to get needed services to the people is through market forces not through government command and control. The movement toward municipal networks, then, is counter to this experience and observation.”

2) Competition in the Broadband Market

- How does municipal government entry into the telecom market affect investment and innovation by commercial service providers?
- Will municipal government networks be subject to the same regulations as commercial service providers? How does this affect the 'level playing field'?
- Are there alternative means for cities to promote broadband access - demand aggregation, tax credits, access to rights of way, etc.?
- Are there 'lessons learned' from foreign experiences or related industries that suggest how well municipal governments turning Wi-Fi networks into public utilities have fared?

Telecommunications and broadband policies are often shaped with the goal of creating “competition” among providers. In today’s rapidly changing telecom industry, competition is a vastly difficult concept from years ago, with a myriad of different players (e.g., ILECs, CLECs, cable companies, and wireless providers) all possessing different notions of what true competition means.

The questions of “how is competition best attained, and how do we know when we are there?” are further complicated by the entry of a municipal provider. The contributing experts suggest that municipal entry into commercial markets is fraught with peril and uncertainty regarding ‘rules of the road’ (e.g., different rules to which a municipal entrant, competitor and also a regulator, is subject).

Steve Titch, Senior Fellow at the Heartland Institute, questions claims made by cities that competition is lacking and there are an insufficient numbers of providers, and because of this a city must deliver the service to its constituents. “While city officials often present the commercial side of the [broadband] business as concentrated in the hands a handful of large corporations, commercial Wi-Fi service providers actually run the gamut from nationwide telecom companies such as T-Mobile and SBC to specialists such as Boingo Wireless, Clearwire, Airpath, and iPass. There are also scores of independent entrepreneurial local operators such as FaceFive in Chicago supplying service to locally owned coffee shops, restaurants and bookstores.”

Braden Cox of CEI sees selective thinking among policymakers when considering the appropriateness of municipal entry into a market. “When foreign governments subsidize companies that sell their goods in American markets, a federal case is made about how it is ‘unfair’ competition. But, when a municipal government subsidizes an entry to compete against private sector companies, politicians attempt to categorize this as ‘free enterprise.’”

Local government operations in a market are very different than those of private companies, particular when it comes to risk and responsibility. **David Tuerck**, Executive Director of the Beacon Hill Institute stresses the point that government-owned entities do not conform to the competitive norms. “The introduction of government ownership in a competitive market, however, poses an enormous threat to this process that is not posed by the entry of a private provider. If a private provider gets into financial trouble because another provider offers a superior product or lower prices, the trouble is borne mainly by the stockholders and employees of the losing provider. If a government provider gets into the same trouble, however, it is the taxpayer or, in the case of municipal electric utilities, the ratepayer who is at risk.”

Since a government can set the rules it plays by, it doesn't face the same challenges as private providers. **Dr. Ron Rizzuto** of the University of Denver states, "If the city is allowed to price its services below cost and use its taxing authority to subsidize the municipal operation, the private sector will have no incentive to reinvest in its network. The absence of a 'level playing field' will eventually lead to a situation where the incumbent telecom players will exit the local market."

3) Economic Implications for a Given City

- What does the limited quantitative evidence of previous municipal telecommunications projects tell us about municipal Wi-Fi projects creating economic growth?
- Can/should cities set a goal for an economic return on their investment in the network?
- How will the municipal Wi-Fi network affect local small businesses that provide similar network services? Related industries?
- Will municipal Wi-Fi incentivize local companies to create jobs? Or attract out-of-state investment?

A frequently cited reason for municipal entry into the broadband market is the need for high-speed access to encourage economic development and jobs. Cities want to be considered cutting edge and "wired" as they believe this image will make them more desirable locations for new businesses and residents alike. In promoting Philadelphia's experiment, city Chief Information Officer Diane Neff said, "To be a twenty-first century city competing in a knowledge economy, you have to invest in technology."²

Is broadband access really the key to attracting new businesses, creating new jobs, and positioning a city as a technology leader? The contributing authors contend that while broadband is important in today's economy, it is far from the only criteria cities and individuals use to decide where they will locate and invest.

David Tuerck of the Beacon Hill Institute downplays the possibility of notable economic development resulting directly from broadband access alone. "One must caution against high-speed Internet access being seen as panacea for economic development. The BHI 2004 Metro Area and State Competitive Index utilizes more than 50 variables to measure competitiveness. Without a highly skilled work force, and the many other factors that contribute to a high per capita income, free, universal Internet access alone will not make a municipality more competitive."

While the news coverage touts the cities' vision of economic booms, **David McClure** of USIIA states there is no hard evidence that Wi-Fi leads to economic development. "Though it is often cited as a benefit, econometric data shows no specific link between broadband availability and economic development. This may be because any business in the United States that needs or wants broadband connectivity can already have it via existing telephony, cable, satellite, or wireless providers. But it is also related to the fact that connectivity alone does not create a significant impact on the core determinants of economic growth: an increase in employment or an increase in the personal incomes of residents."

Steven Titch of the Heartland Institute cautions that cities' fascination with large bandwidth availability misses the need for other components that contribute to a network's value. Companies aren't just looking for connectivity. "Municipal wireless planners who base their plans on inexpensive access to large amounts of bandwidth do so at their peril. Current business strategies

² "Philly CIO: Public Wi-Fi Needed to Close Digital Divide," Information Week, January 25, 2005. <http://informationweek.com/story/showArticle.jhtml?articleID=57703696>

now center on the integration of service, content, and applications. Networks are important as the glue to bring this all together, but they need close working relationships with other network providers, content, applications and software suppliers, and the ability to seize opportunities quickly. Operating a wireless network is not nearly as important as being able to use it to deliver value, applications integration, and differentiation.”

If municipalities by chance or design overcome these obstacles and build a network that is profitable (both in revenues from subscribers and growth in local businesses and the accompanying tax receipts), **Tom Giovanetti** of IPI questions what the local government will do with the money raised. “And where will the profits (if any) go from the municipal network? Will they go toward constant technology research and development, continually upgrading the network to make sure their customers have a competitive package of services? If history is any guide, the answer is no. The revenues instead will be diverted to other city obligations, making the city dependent on an outdated and crumbling network for revenue, and saddling the residents with an obsolete financial burden.”

Conclusions

The six contributing authors to this NMRC report conclude that municipal Wi-Fi networks present a number of serious problems that are being overlooked as cities rush into committing millions in taxpayer dollars to pay for network development and expansion. The authors agree that while the intentions of city officials and administrators are admirable, the roll-out of municipally held Wi-Fi networks will likely have a detrimental affect on city budgets and on competition in the telecommunications industry, and fail to produce the economic growth and jobs promised by municipal leaders.

While a number of authors agree that Wi-Fi has positive benefits, particularly for rural areas and perhaps with limited deployments in cities, all of the contributors believe city ownership of Wi-Fi networks is not the solution for bridging the Digital Divide or encouraging competition in the broadband market.

The most important concerns about municipal Wi-Fi cited by the authors include:

- **Wi-Fi networks will likely cost more than the cities anticipate, thus straining already tight budgets and negatively impact taxpayers.**
- **Public funds used for a Wi-Fi network are diverted away from other important areas, such as education, police and fire services, and public works, that are already being cut in many cities today.**
- **Wi-Fi technology could quickly become outdated, leaving the city and its residents with a less-than-optimal network that offers no opportunity to recover the city’s investment.**
- **There is no market failure in broadband, and entry by municipal Wi-Fi providers will not create greater competition – in fact, the Wi-Fi market is already very competitive, with service offerings from large and small providers alike.**
- **City-managed networks operate under different rules than private providers, offering the city regulatory and economic advantages.**
- **Municipal entry into the broadband market will likely reduce investment by current providers and threaten the business of small, local ISPs.**
- **There is no evidence that economic development will directly result from publicly funded citywide Wi-Fi deployment.**

- Previous municipal attempts to deploy broadband networks (mostly wireline) have failed, and even though Wi-Fi costs are potentially lower, the municipal ownership model is still flawed.

BACKGROUND

Wireless Fidelity, or Wi-Fi, is a technology that enables broadband Internet access via unlicensed spectrum in the 2.4 GHz and 5 GHz bands. Wi-Fi uses a transmitter base that is connected to a wired network and projects a signal in an approximately 300 foot radius. The technology can also be used to connect computers to each other or to a wireline network.

Wi-Fi is known by its engineering terms, 802.11a/b/g. These simply differentiate the service based on the spectrum where it operates and the speed capabilities, with 802.11a being the first, and slowest, wireless connection, and 802.11g being the most recent development. The Institute of Electrical and Electronics Engineers (IEEE) formally developed the 802.11 standard in 1997.

Users of Wi-Fi access the service through a wireless network card in a computer (typically the cards are added to laptops) or other device (such as a PDA). Wi-Fi can provide connection speeds of up to 54 megabytes per second (Mbps), sharing the bandwidth among users on the network. Wi-Fi connections allow users to access the Internet in the same manner as using DSL or cable modem service.

Locations such as airports, parks, coffee shops (most notably Starbucks), libraries, and office buildings have deployed Wi-Fi transmitters in what are known as “hotspots.” Some charge a fee, while in other locations the service is free to anyone with a device that can connect. Many universities have deployed wireless networks on their campuses. In October, 2004, analyst firm In-Stat/MDR reported that Wi-Fi hot spots worldwide would grow from 43,850 in 2003 to a projected 200,000 by 2008.³

³ “Hotspot Market’s Maintaining its Heat” In-Stat/MDR Press Release, October 12, 2004.
<http://www.instat.com/press.asp?ID=1103&sku=IN0401289MU>

The Myths of Municipal Wireless Networks

David P. McClure
President and Chief Executive Officer
The US Internet Industry Association

"I haven't seen a lot of what I would consider real successes yet [with municipal wireless]. I'm watching the hype. More and more cities are announcing they're going to do it, and I get concerned because I'm hearing more and more rhetoric that isn't consistent with the underlying technology."

-- Derek Kerton, founder of the wireless consulting firm The Kerton Group¹

More than two hundred cities across the United States are now in the process of considering, testing or building out municipal broadband networks, with the majority of these based on low-cost wireless Wi-Fi "mesh" networks. From Chaska, MN to Atlanta, GA local governments and media pundits are touting such networks as a means to bring broadband to markets that are presently underserved:

"For all their high-tech prowess, America's communications companies aren't exactly racing to offer people high-speed Internet access. . . But dozens of cities and towns across the country – from Chaska, MN, to Corpus Christi, TX – can't wait. If companies won't wire them up, they are doing it themselves."²

Proponents of the networks promise to deliver an extensive list of benefits:

"By making technology ubiquitous and seamless to the public, Wi-Fi brings important benefits to the community as a whole such as workforce development, educational enrichment, and bridging the digital divide," says Dr. Jabari Simama, Executive Director of the Atlanta Mayor's Office of Community Technology.³

While almost any effort that leads to the faster deployment of high-speed, reliable and secure Internet connectivity is laudable, the experience with municipal Wi-Fi networks to date has been long on hyperbole and short on quantifiable data.

There are substantive issues related to the creation of municipal networks – economic issues, technical and spectrum issues, political issues and philosophical issues related to the impact of a government's use of tax subsidies to disrupt competitive markets.

None of these issues, however, can be clearly and objectively addressed unless and until we are able to clear away the misperceptions, misstatements and myths of municipal networks.

Media Misrepresentations

Before undertaking any assessment of the validity of municipal networking efforts, it is essential to first cut through the fog of poorly written, anti-business media reports regarding the implementation of municipal networks.

¹ <http://www.cnn.com/2004/TECH/internet/10/18/wireless.city/>

² Christian Science Monitor, December 23, 2004, "Free Net Access From The Mayor?"

³ <http://www.atlantacommunitytech.com/wireless/COAAbilt2.htm>

Here's the spin: municipal Wi-Fi networking is a widespread, growing, David versus Goliath effort to bring broadband connectivity to communities poorly served – if at all – by existing broadband providers. Impatient and frightened of being left behind in the information economy, these communities can build and operate their own networks at rates much lower than those offered by companies whose goal is to make a profit. Consumers will get free Internet access and it will cost the cities almost nothing.

The reality is very different:

- The communities seeking Wi-Fi networks are largely metropolitan areas with excellent broadband availability. Cerritos, California lies in the heart of the Los Angeles metro area and is well served both by cable and DSL. Chaska, Minnesota is a suburb of Minneapolis/St. Paul, one of the “most wired” cities in America. Philadelphia and Atlanta are also among the cities listed among the “most wired” in America. Other “underserved” markets considering networks include Dayton, Ohio, and New York City.
- There is no shortage of broadband in these cities, or in most of the rest of the country. FCC data shows consistent and aggressive double-digit growth in broadband deployment nationwide with 94 percent of all zip codes and all 50 states reporting broadband availability in June of 2004.⁴ Costs are also falling, as cable and telephone companies begin to recover the more than \$100 billion they have invested in broadband infrastructure. Most major providers offer service for under \$30 per month, and some as low as \$19.95 per month.
- Proponents of municipal Wi-Fi networks have been unable to provide a coherent list of the benefits taxpayers will receive for their investment. Though some have attempted to define benefits in simple and vague terms, they can provide no quantifiable cost/benefit analysis. There is no proven business model for such networks, and cities are unable to show any realistic research data indicating how many people will use the service, whether they will pay for the service, or how the city will pay for the network if the plan doesn't pan out.

Benefits Analysis

The issue of cost-to-benefits analysis is important, because there is already substantial data available from other technology and municipal projects. While it may be difficult to impossible to specify the benefits that will accrue to residents from municipal networks, it is possible to determine some of the benefits that will not be realized:

- **Networks will not close the digital divide.** “Digital divide” has become a catch-all phrase to loosely define a state in which some persons are disadvantaged in their ability to access technology to the same extent as other persons. But it is important to realize that whatever divide may exist in any community is not simply a lack of free broadband services. A digital divide can take many forms – economic, physical (e.g., disabled access to technology), age-centric or even cultural. Likewise, the existence of such a divide can be related to any combination of factors, including ability to purchase a computer or other access device; relative computer literacy; lack of technical support; or even cultural resistance to education. Free access to high-speed internet services – already available in every school and library in the nation – has not closed these divisions.
- **Networks will not enhance the business development environment.** Though this is often cited as a benefit, econometric data shows no specific link between broadband

⁴ http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/hspd1204.pdf

availability and economic development. This may be because any business in the United States that needs or wants broadband connectivity can already have it via existing telephony, cable, satellite, or wireless providers. But it is also related to the fact that connectivity alone does not create a significant impact on the core determinants of economic growth: an increase in employment, or an increase in the personal incomes of residents.⁵

- **Networks will not increase tourism.** For many major metropolitan destinations, ubiquitous Wi-Fi is touted as a means to attract tourists and business travelers. But it is difficult to imagine how municipal networks could offer more than the broadband services already offered by most major hotel chains, airports and commercial hotspots, including McDonald's restaurants and coffee shops. It is also instructive to view the data on utilization of these existing services – even when offered for free, few people make use of them because they are insecure, inconvenient or unnecessary. There is no data showing that tourists prefer to travel to cities with wireless networks.
- **“Mixed Use” networks will not enable better municipal services.** This benefit is derived from the assumption that a public Wi-Fi network can also be used to benefit emergency services, utility services and other legitimate municipal services. But two key elements of the assumption are impossible to validate because they have never before been done: first, Wi-Fi technology has not been shown to be an effective method to provide uninterrupted service over a large area; and second, there is no evidence that consumer broadband applications and municipal applications can effectively and securely co-exist on a single network. Indeed, efforts to test municipal use of wireless networks have already encountered problems with interference from other devices utilizing the same frequency ranges, including mobile phones and microwave ovens.
- **Networks will not be economically self-sustaining.** Perhaps the most common benefit cited for municipal Wi-Fi networks is their low cost and economic sustainability. Cities are told that Wi-Fi networks cost little to set up or operate, and that revenues from business taxes, advertising or user subscriptions from out-of-town visitors will more than compensate for any operating costs. The assumption is that residents and the disadvantaged will benefit from a wonderful, ubiquitous and free broadband service paid for by someone else. Data to support this assumption, however, does not exist – there is little evidence that broadband networks can be operated without extensive, continued investment. And even less evidence that the victims of the scheme – those who are chosen to pay for the network in order to give it away to others – are willing to so easily part with their money.

It is within the realm of possibility that some tangible benefit may be found to municipal operation of a public Wi-Fi network. But since experience with such networks is virtually non-existent and with no data available to support existing benefits claims, any such claims should be labeled speculative at best and nonsensical at worst.

The Regulatory Response

While there may be no data to support a tangible benefit for taxpayers and ratepayers, there is ample evidence to support the perceived political benefits to those who promote and support the creation of such networks. There are likely a myriad of other agendas at work, including simple mayoral bragging rights:

⁵ Heartland Institute, “Municipally-Owned Broadband Networks: A Critical Evaluation,” 2004

"The other broadband providers might lose a few customers," says Brad Mayer, who manages Chaska's Wi-Fi network. Sprint, Qwest, independent broadband vendors and Time Warner Cable are among the town's vendors. "There's been a lot done with wireless, but less with Wi-Fi. We are our own guinea pig. I think it's going to be a great thing."⁶

"We also believe offering this type of exciting, pioneering service will go a long way toward helping Dayton attract that 'creative class' of people who will help fuel our community's future success."⁷

"Proponents say the system. . . will let Atlanta compete with cities traditionally viewed as more Wi-Fi friendly -- like San Francisco and Seattle -- attracting tech-savvy businesses, workers and tourists to the area who want to access the Internet and corporate intranets on the go."⁸

Consultants to these cities gain lucrative contracts to plan and build the networks – contracts which are often let without competitive bidding by existing broadband vendors in the community.

There is also evidence that such municipal projects can result in disaster. While Wi-Fi networks are a recent phenomenon, there has been extensive experience with municipal broadband networks via cable and fiber. And the record there is sobering:

- Iowa Communications Network requires massive subsidies just to stay in business
- California's CALNET system was nearly \$20 million in debt when it was sold in 1998.
- Lebanon, Ohio originally projected its fiber network would cost \$5 million to build. The build-out cost was actually \$9 million, and the city has been forced to raise an additional \$14.8 million to cover operating losses.
- Marietta, Georgia spent more than \$35 million operating its broadband network before selling it at a loss in 2004.

In order to prevent such disasters, and to remain consistent with federal regulatory and court rulings that bar municipalities from competing with private enterprises, state legislatures are toughening their consumer protection laws. Fifteen states, including Texas and Pennsylvania, now have laws to protect against misuse of public funds for such projects, and other states are considering model language on this issue.

The Community Response

Without delving into the complexities of the economic, technical, political and philosophical issues involved, municipalities could see plans for such projects blossom or collapse simply by insisting on the same rules that are used to evaluate and implement other services:

- **A quantifiable cost/benefits analysis.** Any project should be built on a firm foundation of facts and data that can show specific and tangible benefits that are not currently available from private enterprises. If the data cannot be validated, the benefits may never materialize, and taxpayers have a right to clearly understand that at the outset of the project.

⁶ Investor's Business Daily, June 10, 2004

⁷ Commissioner Joey Williams, quoted in City of Dayton news release, November 24, 2004.

⁸ MSNBC Online, <http://msnbc.msn.com/id/6705183/>

- **A full accounting for costs.** Municipal broadband networks are most frequently described in terms of the cost to build the network, and a cost to operate the networks if all economic conditions come to pass. But such accounting overlooks major elements of the cost of operations as well as the hidden cost of lost opportunities. For example, the projected budgets seldom cover the administrative costs of billing and contracts; the costs of a fully staffed Network Operations Center with redundant backup and power; the cost of compliance with the myriad of state and federal laws visited upon broadband networks; or the cost of maintenance and replacement. What's more, the creation of a municipal network means a loss of revenue for private companies, with the attendant loss of property taxes, business taxes, payroll taxes, income taxes, license fees, rights-of-way fees and franchise fees. These costs must be captured in order to present a realistic financial projection for the project.
- **A division of responsibility.** There are three functions involved with the creation of a new municipal project – proposal, assessment and implementation. These three functions must be independent of one another to assure that the people in charge of any function do not benefit by misunderstanding or misrepresenting their findings. Consulting firms who propose such projects should be barred from bidding on the implementation. Elected officials who assess the projection should be barred from letting the contract to the implementer. The implementer should subsequently not be involved in assessment of the value of the project once it is in operation.
- **Open, competitive bidding processes.** Municipalities generally have strong and effective contracting processes to ensure that all service bids are competitive with prevailing costs and to reduce the potential for improprieties. In technology projects, however, these processes are sometimes skirted for the sake of convenience or complexity and untried or emerging technologies are projects that most demand the intense scrutiny of a public, competitive bidding process.
- **Accountability.** Elected officials are often free to commit millions of dollars in public funds with little hope of any return on investment. This is because they are able to move to other offices before the project fails, or because voters have short-term memories of such failures. But in a project as costly as a municipal broadband network, with equal potential for spiraling costs and taxpayer abuse, accountability becomes critical. One safeguard is to build in accountability at the one and two-year marks. If at those points the project is not meeting minimal expectations for benefits and cost, project directors should be fired and elected officials held accountable for the failure of the project.

Whose Internet Does Municipal Wireless Subsidize?

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Everywhere throughout the country, it seems, municipalities large and small want to build public wireless networks.

Projects vary in scope. The most ambitious, including proposals in Philadelphia and San Francisco, aim to create an umbrella of broadband wireless coverage over an entire city. Other plans seek only to provide access in high-traffic areas, downtown plazas, convention centers and airports.

Most cities plan to use so-called Wireless Fidelity, or Wi-Fi, technology as their foundation. Wi-Fi became popular among enterprises and high-end users in the first few years of the current decade because it uses standardized “plug-and-play” technology, unlicensed spectrum and is relatively inexpensive to deploy. The first generation of Wi-Fi, known by its engineering specification of 802.11b, provided wireless connectivity at up to 11 megabits per second (Mb/s). The current commercial version, 802.11g, reaches speeds of up to 54 Mb/s. Wi-Fi base stations cover relatively small areas, generally a 100-foot radius around the antenna – the seating area of a coffee shop, the lobby of a hotel, or a portion of an airport lounge or concourse. Retail prices of integrated 802.11g base stations and routers range from \$60 to \$100, putting them within reach of consumers, and these items have become popular in homes where owners wish to network two or more PCs without running additional cable.

A new specification, called WiMAX, is currently under development. This would extend broadband wireless coverage over a larger area (companies such as Intel suggest three to five miles on average), and reach access speeds of 75 Mb/s.¹ In addition, many cities are experimenting with “mesh” network technology. In a mesh network, PCs, PDAs and other wireless client devices can communicate directly with each other rather than relay through an antenna and base station. This frees up system capacity and reduces interference.

As of January 2005, there were scores of municipal wireless proposals under review throughout the U.S., with a new one seemingly announced each day. A number of cities already have launched pilot projects or limited commercial deployments. They range from cities as large as Atlanta and Las Vegas to smaller cities such as Dayton, Ohio; Grand Haven, Michigan; and Hermosa Beach, California.

Given both the momentum and hype about broadband in general, questioning whether municipalities should be funding wireless systems is treated on a par with questioning whether they should provide police and fire protection. Boosters of municipal broadband say these systems are required if cities hope to remain competitive for highly educated and skilled high-tech workers of the future.²

Other cities take this argument further, suggesting broadband access is a right and that cities should provide it to all residents. “We will not stop until every San Franciscan has access to free wireless

¹ “WiMAX—Broadband Wireless Access Technology,” Intel Corp., <http://www.intel.com/netcomms/technologies/wimax/>

² Ryan Mahoney, “Municipal Wi-Fi: Atlanta Thinks Big,” Atlanta Business Chronicle, Dec. 15, 2004, as posted at www.reclaimthemediamedia.org. Mahoney writes that proponents say the Atlanta Wi-Fi system “will let Atlanta compete with cities traditionally viewed as more Wi-Fi friendly – attracting tech-savvy businesses, workers and tourists to the area who want to access the Internet and corporate intranets on the go.”

Internet service,” San Francisco Mayor Gavin Newsom said in his state of the city address in October 2004. “These technologies will connect our residents to the skills and jobs of the new economy. No San Franciscan should be without a computer and broadband connection.”³

Yet in most of these locations, government-funded systems are being set up alongside privately owned commercial systems already in place. While city officials often present the commercial side of the business as concentrated in the hands a handful of large corporations, commercial Wi-Fi service providers actually run the gamut from nationwide telecom companies such as T-Mobile and SBC to specialists such as Boingo Wireless, Clearwire, Airpath, and iPass. There are also scores of independent entrepreneurial local operators, such as FaceFive in Chicago, supplying service to locally owned coffee shops, restaurants and bookstores.

It is clear that individual and community benefits can be derived from greater broadband availability and penetration. Yet, even as municipalities embrace the trend, there remain legitimate questions about whether these wireless plans are well thought out and represent taxpayer money well spent, especially given the growth and diversity of Wi-Fi services and prices.

For example, in Philadelphia, where the city is set to spend \$10 million providing citywide wireless access, already 93 Wi-Fi hotspot locations exist, according to www.jiwire.com, considered one of the most definitive on-line hotspot directories. This includes five locations providing free access.⁴ Boingo Wireless serves many other locations at an economical \$21.95 a month.⁵ This compares to T-Mobile’s monthly Wi-Fi subscription rate of \$39.99 and wireline DSL and cable modem prices that, with taxes and surcharges, can reach \$50 a month.

In Atlanta, Jiwire.com lists 243 hotspot locations, with 54 of them (about 20 percent) providing free access. In San Francisco, Jiwire.com lists 396 hotspot locations, with 42 (or slightly more than 10 percent) free.

Among the smaller cities, Jiwire’s directory shows Dayton, Ohio, with nine hotspots, two free. Grand Haven, Michigan, has two hot spots, one free. Hermosa Beach, California has six locations. None are free, but each location already is served by at least two providers.

Wireless broadband and telecom service evolution

The growth of wireless broadband is in itself part of a larger evolution of telecommunications, networks, services, applications and content delivery. In the commercial sector, business models are still being hashed out. Technologies such as WiMAX and mesh networking, on which many cities are pinning hopes, have yet to be tested in large urban environments.

As cities begin to channel public monies into Wi-Fi and WiMAX experiments, they too become involved in market experimentation. When viewed from this perspective, the question arises whether cities that take on the cost of wireless networks are shouldering the risk that rightfully belongs to the shareholders of service providers. Even when cities take on a role as “wholesale” network provider, and promise to offer public bandwidth to any commercial service provider who wishes it, the municipality is taking a chance on a business model that is still nascent. The private service provider

³ Gavin Newsom, Mayor, San Francisco, State of the City Address, Oct. 21, 2004, as per text posted at <http://www.ci.sf.ca.us/site/uploadedfiles/mayor/speeches/SoCFinal.pdf>.

⁴ Philadelphia, Pennsylvania, Hotspot Directory, www.jiwire.com.

⁵ www.boingo.com/sales/jiwire

escapes the need to invest and its shareholders are off the hook if the wholesale-retail model fails to pan out. Instead, the city's taxpayers are stuck with the bill.

The question is all the more relevant because today's Wi-Fi users are largely high-end professionals and high-income consumers, a lucrative group with a high degree of disposable income. Public Wi-Fi offers the greatest benefits to users with portable laptop or notebook PCs. It is hard to justify why municipalities should be subsidizing service to this group when private enterprise already is competing vigorously for their dollars.

Despite suggestions by leaders such as the mayor of San Francisco that public wireless translates into broadband connectivity for low-income residents, the early deployments are not playing out that way.

In Atlanta and Las Vegas, for example, low-cost or free public Wi-Fi has been deployed at city airports and in limited downtown areas. In both cases, private companies were given exclusive network franchises and, as an initial move, they built in the most lucrative areas of the city, where plenty of commercial Wi-Fi hotspots are already in place. City Wi-Fi contractors in smaller cities so far have followed the same pattern.

Who will represent the biggest group of users?

Wi-Fi derives most of its value from the way it extends corporate connectivity and applications. The first Wi-Fi systems were ad hoc additions to corporate local area networks. Corporate IT departments added hotspots in offices and around corporate parks in lieu of running expensive cable. Wi-Fi also afforded easier portability as employees could tote laptops around a building or campus and still have immediate access to their email and any work on the corporate server. However, the growth of hotspots in public places extends the reach of corporate networks and provides broadband access only for individuals and students who could afford a laptop or PDA.

There is a public Wi-Fi disconnect between the stated social goal of providing universal broadband access to all communities, particularly the underserved, and the reality that Wi-Fi users, by and large, are well-to-do professionals or their college-aged children. This discrepancy was well illustrated in a recent speech to the Wireless Communications Association by Diane Neff, Philadelphia's municipal chief information officer, regarding the prospective users of that city's municipal system.

As reported in *Communications Daily*, Neff at first described the broadband plan as being a larger program for the underprivileged which he said had been left behind by the private sector.

Broadband must be combined with low-cost computers, training and content to benefit the underserved, and "the private sector hasn't stepped up to this," Neff said. She said she's been pressing computer makers to help offer \$200 desktops and \$500 notebook computers because entry-level buyers tend to upgrade within 18 months; residents who can't buy will be offered leases on the order of \$10 monthly, Neff said. After getting established in the first two years, the program will hopefully subsidize 25,000 computer installations.⁶

In apparent contradiction to these statements, Neff later indicated that the wireless system would be aimed at business travelers and suburban commuters.

⁶ Communications Daily via NewsEdge Corp., "Philly Set to Unveil City-Wide Wi-Fi," as posted Jan. 14, 2005, at *America's Network* web site, <http://www.americasnetwork.com/americasnetwork/article/articleDetail.jsp?id=143170>

Business visitors told the city they were tired of paying separate Wi-Fi fees to businesses and would gladly pay by the day for access all over town. Philadelphia will offer them daily and weekly rates, Neff said...Train commuters have expressed interest in access on trains and in depots and the city is discussing that with the transportation authority, she said.⁷

Given that these same users have the means to access Wi-Fi in Philadelphia today, albeit at market prices, a Philadelphia taxpayer would have trouble discerning from Neff's remarks who the real beneficiaries of the city's \$10 million outlay are. Although the city talks much about its network reaching the underserved, it freely admits that most would need financial help procuring the basic PC and laptop resources to take advantage of the system. At the same time, the city brags that the service would offer substantial telecom discounts to the country's largest corporations as well as provide a similar tax-funded discount to professionals who live in - and pay taxes to - outlying towns (in Philadelphia's case, these would include areas of New Jersey and Delaware which are completely out of state).

Similar patterns emerge in other cities. Mayors and councilman tout the benefits of broadband, or stoke fears about being left out of the digital age. Plans are drawn up and a contract assigned, usually to a private operator. The first areas served by these plans are the same spots where commercial service providers are already established such as downtown, convention centers and airports. Few, if any, municipal projects have extended beyond areas where there are high concentrations of tourists and professionals. The city contractor gets one key advantage – it can charge below market prices because of taxpayer subsidies. It is not the low-income users who get the break; however, it's corporations, out-of-towners and middle- and high-income professionals.

Limited Municipal Broadband

In spite of the existing drawbacks, there exists an opportunity for municipal systems to indeed meet goals of increasing broadband access and, at the same time, remaining accountable to taxpayers.

If local cafés can provide free wireless access, rolling it into their cost of doing business, there's no reason to believe city agencies can't follow the same concept. First, it's far easier than raising millions in funding for a five to ten-year network project where payback is contingent on annual revenue growth and subscriber uptake. Even as the city of Chicago debates a major wireless network initiative, its library system is setting up hot spots in all its branches, funded and paid for out of the city's IT budget. Moreover, wireless access expands the library's current mission to provide free Internet service to the community, for which it also provides free use of PCs and wired broadband connections. Those with laptops and PDAs can use them anywhere in the building. The indirect benefit of wireless access is that it frees up more of the library's wired computers for those without the hardware resources.

When the plan was announced, Chicago Public Library Commissioner Mary Dempsey said:

No other city provides free Wi-Fi on this scale. This partnership with the Department of Business and Information Systems (BIS) purchasing the equipment and the Chicago Public Library installing and maintaining it is a great example of how city agencies can work together and the citizens of Chicago reap the benefits.⁸

⁷ *ibid.*

⁸ "Chicago Public Library Announces Major Technology Initiatives," Chicago Public Library Press Release, Dec. 4, 2004, as posted at <http://www.chipublib.org/003cpl/computer/splash/splash.html>

For a fraction of the cost of the Philadelphia, Atlanta and Las Vegas systems, and without the legal and legislative budget hassles, in the next few months the city of Chicago will make wireless broadband available in some 79 diverse neighborhoods where the library has branches.

When planned correctly, municipalities can encourage wireless growth without embarking on huge and risky projects of dubious benefit to the general population.

Overbuilt but Uncompetitive

All this is occurring as the telecommunications industry is at key point. Before committing to large-scale, duplicative network build-outs, cities must be aware that “convergence,” the long-talked-about merger of telephones, personal computers, content, entertainment and portability, is beginning to happen.

Milestones on this road include the growing popularity and utility of the Voice over the Internet Protocol (VoIP), the introduction of digital video recorders such as TiVo that can connect to PCs, and the introduction of cell phones that can display full-motion video.

Wireless networks must be viewed in the context of this new consumer IT value chain. Unfortunately, there remains a tendency to treat wireless networks as stand-alone – discrete and apart from other types of broadband networks such as fiber optic systems, hybrid fiber/coax and fiber/copper networks that serve residences and businesses. Even “third-generation” cellular is regarded as something apart.

This point of view persists as a holdover from a regulatory regime that compartmentalizes network operators by the technology they use, i.e., copper, coaxial cable and wireless, not the services they provide, but that no longer fits market reality.

From a commercial standpoint, access technology and bandwidth no longer matter much. Service providers are attempting to integrate services and applications with a goal of eliminating barriers between wireline, wireless, narrowband and broadband platforms. Rather than treat wireless as a separate network and service, commercial service providers are doing their best to create business models that makes wireless an *extension* of the broadband service users enjoy at home and enterprises rely on at the corporate campus.

As numerous municipal broadband projects involving fiber optic build-outs over the last five years have shown, government telecom initiatives, instead of filling a need, often end up duplicative, expensive and falling short of their intended goals. This is because they focus on the bandwidth pipeline, not content, applications and personal IT management. This was a mistake service providers themselves made five years ago and was among the reasons for the telecom “bust” in 2001.

Municipal wireless network planners who base their projections on inexpensive access to large amounts of bandwidth do so at their peril. Current business strategies now center on the integration of service, content, and applications. Networks are important as the glue to bring this all together, but they need close working relationships with other network providers, content, applications and software suppliers, and the ability to seize opportunities quickly. Operating a wireless network is not nearly as important as being able to use it to deliver value, applications integration and differentiation. Today, Virgin and ESPN want to lend their brand names to wireless service because they see inherent value in the technology’s ability to deliver music and sports clips. From the plans and proposals so far that have been reported, it is clear that cities fail to understand this key concept. Without a unique value proposition that involves content or applications integration, large-scale wireless networks will not be competitive, even if they are the lowest-cost provider.

Conclusion

We cannot fault municipal wireless networks if we judge them by their intentions. The goal of low cost, or free, Internet access, untethered to boot, is difficult to challenge. But as municipal wireless projects go into service they do not appear to be aimed at meeting this social goal. Municipal wireless plans are rolling out in areas already served by two or three commercial Wi-Fi service providers, some of whom already offer broadband access at no charge.

In addition to the example private enterprise offers in terms of delivering affordable, efficient coverage, city agencies and departments have begun to use existing resources to extend Internet access to those without the means to afford PCs and related network equipment.

Further, the industry itself is evolving to the point where it is highly questionable whether the stand-alone wireless networks that offer no other value proposition will be competitively viable and economically sustainable in the next few years.

While weighing the benefits of broadband, city planners need to be cognizant of the goals, the risks, and the ultimate accountability the system will have to the taxpayers who will fund it. The proposals we see today leave a lot of these critical questions unanswered.

The Viability of Municipal Wi-Fi Networks

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Ownership of broadband networks by municipalities, like many other government initiatives, is framed in terms of best intentions. Proponents of municipal broadband ventures assert that a high-speed network will be a means of energizing decrepit downtown areas, breaking poverty cycles, increasing tourism, and earning a reputation as a tech-friendly city. Advocates seem to possess a euphoric “build it and they will come” mentality, hoping that fast and convenient internet access will attract businesses and workers that stimulate the tax base, and keep young tech-savvy professionals from moving elsewhere.

Local government spending projects that attempt to create a better living environment and business climate are not new and can be desirable. But is broadband infrastructure the equivalent of a performance hall, art museum or public utility?

Today’s municipal broadband considerations differ from yesterday’s need for electricity co-ops. Often, the stated rationale for a municipal broadband project is to do battle against existing broadband providers. Such cities as Lafayette, Louisiana, Philadelphia, Pennsylvania and San Francisco, California intend to invest in infrastructure that would directly compete with existing cable, satellite and telephone companies.

City officials allege that current Internet access costs are too high and that the communications market would benefit from more competition. Framed in terms of a “citizen revolt,” local officials lure their constituents with the promise of fast broadband at costs that undercut market prices.

The latest craze for local governments is the installation of wireless access points to blanket cities with wireless “clouds.” Wi-Fi, the wireless standard for short-range access to networks, is a good technology, but not a great one. Lacking forward-correction, connections fail while traveling in a bus or car. It is also highly susceptible to environmental interference and other access points, and throughput speeds degrade as more users connect.

With all the hype, it’s easy to overlook some basic questions that deserve to be answered. Does Wi-Fi possess the characteristics of a public utility that warrants governmental involvement in the marketplace? As a market participant, can the public sector compete fairly against the private sector? Finally, can a government that operates a network that transmits disparate forms of content respect free speech rights guaranteed by the First Amendment?

Government’s Role in the Technology Market – Is Wi-Fi a Public Utility?

One of the oft-heard arguments of municipal broadband proponents is that like electricity, roads, sewers, and water, broadband is just another utility that government should provide to its citizens. These arguments raise “natural monopoly” and “public good” issues.

Economic justifications for public provisioning and regulation of utilities is based on a “natural monopoly” rationale – one firm can supply the entire output demanded at a lower total cost in resources than could multiple competing firms. Natural monopoly arguments arise from the special characteristics of a particular industry under the current state of technology, although many economists would state that instances of natural monopolies are, in practice, extremely rare.

Richard Posner, in his law and economics treatise *Economic Analysis of Law*, presents three characteristics of a natural monopoly that warrant governmental involvement – monopoly pricing, inefficient entry, and difficulty of efficiently pricing the product due to high fixed costs and low per unit costs.

These natural monopoly characteristics simply are not present with Wi-Fi. Entry is easy, though in some areas a provider might need right of way access permissions from the municipality for mounting access points on telephone poles or street light fixtures. Furthermore, Wi-Fi services are characterized by low, not high, fixed startup costs. Indeed, it is the low initial costs that are attractive to municipalities. The real costs may well accrue with ongoing maintenance, upgrades, and for billing and collection of payment from users in those localities that charge a fee for access.

Furthermore, is Wi-Fi a public good? Economists define “public goods” as a class of goods that (1) cannot be withheld from one consumer without withholding from all consumers (nonexcludable), and (2) costs little or nothing for an extra individual to enjoy (nonrivalrous). Essentially, according to traditional economic analysis, if the only way that the good would be produced would be from government, then it is a public good.

Wi-Fi is not a public good. Wi-Fi service providers can exclude non-paying users from paying customers. Companies such as T-Mobile and Wayport have built business models around monthly subscription rates that allow access only for registered users. Like many network industries, the costs of adding an extra Wi-Fi customer are small compared to the overall cost of operating the network. However, this does not mean that the provision of Wi-Fi is a public good, any more than airline service is not a public good.

The reality is that many stand-alone providers of Wi-Fi service have not been able to make a profit selling access directly to consumers. Consumers have come to expect Wi-Fi service to be bundled with other goods – hotel rooms and cafes, for example. Businesses have responded by offering Wi-Fi access at no separate charge to compete for customers.

Municipality as Market Participant

As there has been no “market failure” in the market for Wi-Fi services, localities are extending beyond the traditional justification for a large governmental presence. What happens to the marketplace when government acts not as regulator, but as competitor? Or when a monopoly electricity co-op that benefits from guaranteed rates of return enters the broadband market, is it synergy or unfair cross-subsidization?

The city of North Kansas City, Missouri, is one of many examples of actual or proposed municipal entry into the market for communications services. The city has already installed connections between municipal buildings. The city wants to extend this network to provide its own telecommunications services to residents and businesses. This expansion reflects the desire possessed by many government agencies to broaden their services and generate more revenue. Government agencies may be under-funded to meet their public responsibilities. And it is a natural aspiration of motivated persons to want to grow the “business” – be it a government entity or private company.

But, governments compete unfairly with private enterprise in the following ways:

- Taxes. Private sector companies incur costs that governments do not in the form of income taxes, franchise fees, sales taxes and taxes on real estate and personal property;

- Cost of Capital. Governments' cost of capital is less than private firms, risking public funds while private enterprise raises and risks its own funds. Municipalities may also receive federal government underwriting, subsidization or grants;
- Rights of Way. Governments enjoy free right-of-way access;
- Insurance. Government agencies do not need the same level of liability insurance as they are usually accorded protection from lawsuits by sovereign immunity;
- Accountability. Government accounting standards are lax, accountability is limited, and municipal utilities' pricing is artificially low because they often fail to account for long-term costs such as infrastructure maintenance; and
- Profit. Governments do not need to make a profit and thus do not face the same kind of competitive pressures that affect private enterprise.

Proponents of municipal broadband do not address the above issues. Instead, they attempt to dismiss the claim of unfair competition by focusing on the subsidies that the private sector receives. Many state governments have created tax incentives for telecom companies to expand their broadband networks. Other than highlighting the duplicative, wasteful efforts involved in the use of taxpayer money to subsidize a government entity to compete against a subsidized private company, this rebuttal does not address the inherent incentive structure differences that exist between the public and private sector.

When a private-sector company is failing, it is forced to respond to changing market conditions to become more efficient and responsive to consumers. New products and services are born and efficiency and innovation occurs. Quite the reverse happens in government. The mindset in government is one of reluctance. When a service is not paying for itself, bureaucrats seek additional tax dollars to prop up their operations. Governments, unlike companies, are not able to fail, and thus there is no competitive "check" on mismanagement or waste.

Therefore, private firms must act in the best interests of the community or, at the margin, they lose business to rivals that are more savvy. In this way profits tend to be aligned with serving the community's interest, even if it is the result of the firm's own self-interest.

When foreign governments subsidize companies that sell their goods in American markets, a federal case is made about how it is "unfair" competition. But when a municipal government subsidizes an entity to compete against private sector companies, politicians attempt to categorize this as "free enterprise."

First Amendment Considerations

Municipal ownership of networks has free speech implications. Governmental control over infrastructure might act as the entry point for regulating the content that flows over it. This is already happening at public libraries.

The Children's Internet Protection Act (CIPA) ties receipt of federal universal service "E-rate" discounts to the filtering of Internet content. A recent survey published in Library Journal's Annual Budget Report found that 65% of public libraries filter at least some Internet terminals. CIPA may also extend to wireless access within libraries requiring the filtering of patrons' laptops using internet connections funded by E-rate. Some municipalities, such as Allegany County, Maryland, have stated that they plan to receive E-rate funding to cover the costs of building out its municipal network.

Broadcast television also serves as an apt analogy for the potential for government censorship of Wi-Fi content. The problems with government involvement in providing or regulating goods have been

well-documented by the public choice literature. Wireless Internet access may run into the same sort of indecency regulation that affects broadcast television. Both use the “public’s airwaves” – a phrase that permeates our communications law even though its scarcity rationale has been rendered obsolete by technological advancements. Will local governments provide credible commitments for not blocking and filtering content, even in the presence of determined parent or religious groups active in the community?

Conclusion

Wi-Fi service does not possess the characteristics of a public utility that warrant government involvement. Still, many governments have considered the provisioning of Wi-Fi, if not a public good, then a public necessity. But as a market participant, the public-sector does not compete fairly against the private sector. Public sector competitors have a form of “home field advantage” that discourages entry from private firms. In addition, a government-owned network may have issues respecting First Amendment free speech rights.

Governments can take steps to ensure that the private sector performs as desired. Municipalities should focus on ways to make it easier for private companies to provide service. State legislatures should ensure that they make right-of-way access available on terms that are fair, administratively efficient, nondiscriminatory, and pro-competitive. Federal telecommunications law requires reform and spectrum needs to be better managed.

Removing restrictive regulations would provide a boost to the widespread deployment of broadband service and allow for the natural order of things, i.e., governments in the business of governing and private sector firms in the business of competing.

Municipal Networks: The Wrong Solution

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We are in the first stages of the broadband revolution. The result will be new jobs in communications, and in all the other related industries, from hardware manufacturers to trenching companies. Distance learning and telemedicine will revolutionize the way those services are delivered. Imagine if a leading expert at the Mayo Clinic could examine your x-ray or test results just as easily as your local practitioner. Imagine if thousands of students all around the country could take classes not just from the local teacher, but from the finest teachers in the land. Imagine if you could participate in a business meeting from your living room, with high-quality video and in surround-sound. How much would it enhance the quality of your life to not spend all that time in airports and in hotels, but to be able to seamlessly segue from the meeting back to your workplace, or back to your children?

But revolutions are risky, and the broadband revolution is no exception. Depending on the particular area, the successful broadband technology might be fiber to the premises (fttp), fiber to the neighborhood, broadband over existing copper lines, wireless broadband, or broadband over power line. Figuring out which technology will succeed in which market area is tricky enough, and obviously, not every guess will be correct.

Billions will be spent rolling out various technologies and various bundles of services to different markets, and not every idea will be successful. Not every network will be successful, and not every business model will be successful. Because of the great risks and potential rewards, giant telecom and cable companies are leveraging their technological expertise and investment capital into implementing their competing broadband visions. But there will be losers in this competition, and it is very likely that companies that comprise the S&P 500 today may have their assets sold at fire-sale prices in a few years, as the losers in the broadband business become apparent.

But into this swirling vortex of enormous risk marches a new breed of competition - an intrepid band of county councilmen, city administrators, and mayors pro tem, who are convinced that they can navigate the risky rapids and eddies of broadband rollout better than can expert technology companies. Elected from previous careers as doctors, lawyers, and newspaper editors, they're convinced that their neighbors should be bearing the enormous financial risks associated with the broadband revolution, rather than allowing willing investors and companies to voluntarily put their own capital at risk to build broadband networks.

These municipal leaders are doing an enormous disservice to their constituents. They are putting them at risk, as well as the credit ratings of their cities and counties, and they are doing so needlessly.

Municipal Networks Don't Solve the Broadband Problem

There are a number of important arguments to be made against municipal networks. For some, it is sufficient to point out that "government owning the means of production" is a hallmark of communism, not of market capitalism. But for the less-ideological and more pragmatic among us, let's outline the major arguments against municipal networks.

There is no compelling need for municipal networks. No doubt much of the wind behind the sails of municipal networks is frustration with the slow pace of broadband rollout. But networks companies are not to blame for the delay - the blame lies squarely on the shoulders of policy makers

at all levels, including the FCC and many state utility commissions, who have created unacceptable uncertainty for network companies through their dithering on tax and regulatory policy. Companies have properly held off assuming the enormous risk and investment associated with building new broadband networks until they could be assured that they would at least have a fighting chance to own and profit from their investment.

And such assurance has been very slow in coming. In fact, it was not until late in 2004 that companies were assured by the FCC that they would be permitted to own and profit from the networks they build.

The result from cable and telecom companies was immediate. Verizon announced a massive fiber-to-the-home investment, which has already brought unbelievable bandwidth to homes in rural Keller, Texas. SBC announced that it would rapidly accelerate its \$5 billion fiber rollout. And cable operators like Comcast, Cox and Time Warner have accelerated their plans to enable their systems for high-speed data and other enhanced services.

Broadband has been held back by bad policy at the state and federal level, but it is coming now. With companies newly-ready to make massive investments in new broadband networks, there is no compelling need for municipalities to assume the costs and risks associated with getting into the telecom business.

Many residents will never be broadband customers. Broadband is not a need—it is a want—for consumers. It is an economic good, and an engine of economic growth, but it is not a necessity for a significant portion of residents. When municipalities present business cases for their shiny new municipal networks, they almost always assume adoption rates that far exceed reality. Many of their constituents have no need for broadband and will not subscribe.

Government Broadband Networks Hurt Competition

It is an illegitimate function of government to provide goods and services that the market is willing and able to provide. Governments should be in the business of delivering only those products and services that are necessities for almost all of their residents, and which markets won't or can't deliver. In fact, the trend across the nation (and across the world) is to privatize government services. Governments have found tremendous cost savings by contracting out traditional government functions such as jail management, landscaping maintenance, even emergency services, to private companies. They have found that the best way to get needed services to the people is through market forces, not through government command and control. The movement toward municipal networks, then, is counter to this experience and observation.

Government ownership of networks will shut out, rather than provide, competition. Governments simply do not compete fairly with private companies, but rather give themselves all sorts of advantages. Private network companies, for instance, have to negotiate and purchase rights-of-way for buried fiber and for microwave towers, but government can simply cede to itself access and construct its lines.

Governments can raise capital for their building projects through preferential rates in the bond market. This is obviously an advantage that private companies don't have, but municipal bonds have to be backed by taxpayer commitments, unlike the voluntary investment capital of private companies.

Government networks won't have to negotiate the kinds of extortive franchise agreements that municipalities require of cable and telecom companies. While this may be sold to voters as a cost-saving, it is important to point out that franchise fees represent a voluntary source of new revenue

from a private company to a city, whereas with a municipal network, residents will be compelled to themselves pay the expenses of maintaining the network, without any net new revenue to the city.

What do you think will happen if a private network company comes into a market and can compete with the government-owned network at a much-lower price? Do you think that a local government that has come to depend on the subscriber revenue from its municipal network will “play fair”? Do you think it will encourage the new value competitor? Of course not - it will favor itself and hinder the value competitor as much as possible. The result is that constituents who live in the area served by the municipal network will pay higher costs for network access, not the lower prices offered by a potential competitor.

Possibly the municipality will engage in predatory pricing, offering consumers below-cost access rates just to keep out competition. But the money has to come from somewhere to underwrite these subsidies, and it will come from taxpayers who don't even subscribe to the broadband service.

And where will the profits (if any) go from the municipal network? Will they go toward constant technological research and development, continually upgrading the network to make sure customers have a competitive package of services? If history is any guide, the answer is no. The revenues instead will be diverted to other city obligations, making the city dependent on an outdated and crumbling network for revenue, and saddling the residents with the financial burden of obsolete infrastructure. It will look much more like a failed Soviet-era five year plan, rather than the kind of dynamic product and service offerings delivered by the market.

Municipal Networks Have Historically Failed

Municipal networks have a poor financial track record. Marietta, Georgia has had to sell its municipal network at a substantial loss. The city spent \$34 million of its taxpayers' dollars on the network but sold it for \$11 million—a loss of \$23 million taxpayer dollars. In Ashland, Oregon, millions of dollars in cost overruns have forced the city to borrow from other city funds in order to cover the overruns. And the Iowa Communications Network may face the same fate, as the organization is struggling to find a buyer that will pay anything near what the state-built system is “worth.”

Some cities have gotten the message. Salt Lake City officials last spring announced that they would not back Utah's Utopia broadband project, and in October of 2004 voters in the Geneva, Batavia, and St. Charles, Illinois area wisely voted down for the second time a municipal broadband network that officials were trying to force down their throats.

But elsewhere, as in Lafayette, Louisiana, voters are often not given the opportunity to vote on proposals for municipal networks, despite the fact that they will likely be on the hook for financial losses for those networks.

What about government control of content? While it may seem far-fetched, imagine if you will that a resident of a particular municipality discovers corruption in city government, and sets up a website or blog to expose it. What happens when the government is the ISP? How long do you think that website will remain up?

How many newspapers of general circulation in the U.S. are owned and operated by governments? The answer is zero. Likewise, how many radio or television stations in the U.S. are owned by governments? The answer, again, is zero. This is for a very good reason. Once government controls the distribution of broadband services, control of content is a potential likely successor.

Conclusions

What is the real reason for municipal networks? Ultimately, after examining all of the negative aspects of municipal networks, one is forced to conclude that what is really driving municipalities toward offering municipal networks is that they view such networks as a new source of revenue for their unlimited spending appetites. In their imaginations, once built, the network will provide them with a new stream of cash with which they can build new administrative buildings and new vehicles, all the while playing at big business with the tax dollars of their constituents. That is illusory.

But what they are really doing is violating whatever oath or commitment or fiduciary obligation they took when assuming public office, because they are putting their constituents at risk, unnecessarily. It is a violation of government best practices to put taxpayers at risk when private companies are already willing to supply the goods or services with the voluntary capital of their investors.

If local officials want to become broadband entrepreneurs, they should resign their elected offices and start a network company. Then they can assume the financial risks themselves with voluntary investors, rather than playing at broadband with taxpayers as their underwriters.

The Competitive Effects of Municipal Provision of Wireless Broadband

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Currently over 600 municipalities across the country offer some form of broadband; either cable, Internet or telephony or a combination of the three. As the Beacon Hill Institute (BHI) has explained in *Municipal Broadband in Concord: an In-Depth Analysis*, the defenders of municipal cable often point to municipal electric service as an example of a successful public enterprise.¹ In reality, however, municipal cable providers often encounter fierce competition and higher-than-expected construction costs, causing their financial performance to fall short of expectations.

Now wireless Internet technology, known as Wi-Fi, is drawing the attention of municipal leaders. Wi-Fi technology consists of a transmitter sending low-frequency Internet access signals that cover an area of up to 300 square-feet and offers faster access speeds than conventional broadband. Wi-Fi is deployed as either a single coverage area known as a “hotspot” – a coffee shop, building or park – or as an aggregation of cooperating “hotspots,” known as Wi-Fi zones, that share a single management system and cover a larger area. Users access the Internet through a computer (often laptops, equipped with a wireless Internet access card), and are thus freed from the need for cables and wall outlets. Wi-Fi offers new or third-party Internet service providers (ISPs) the advantage of a cheaper infrastructure to build and maintain than existing technologies.

There are drawbacks to Wi-Fi. They include the limited broadcast range of a single transmitter; the difficulty a signal can encounter penetrating certain building materials, requiring additional equipment; and interference experienced by users from other low frequency devices such as television remote controls.

Some municipalities have already set up “hotspots” in parks, train stations and business districts in their towns. More ambitious municipal leaders aim to offer wireless Internet service to every resident, by turning their entire towns into Wi-Fi zones.

The cost per resident appears to vary widely from town to town. For example, the proposed 135 square-mile Wi-Fi network that could serve Philadelphia’s 1.5 million citizens would cost \$10.5 million to construct.² Under the provisions of legislation passed last year, the city recently struck an agreement with Verizon to proceed with its network. Conversely, Lebanon, Ohio a town of about 17,000 people, spent \$8.5 million to build their broadband cable television and Internet network using a traditional fiber-coax infrastructure. At the same time, low construction costs allow municipalities to offer Wi-Fi Internet access at a lower cost per resident. The town of Chaska, Minnesota charges \$15.95 per month and Hermosa Beach, California offers free service in limited areas.³

New advances in wireless Internet technology promise further penetration of the broadband market and an increase in the appeal of wireless Internet provision by municipalities. The impending introduction of commercially available Worldwide Interoperability for Microwave Access Fidelity (Wi-Max) will extend the range of wireless Internet networks and eliminate some of the

¹ John Barrett and David G. Tuerck, “Municipal Broadband in Concord: An In-Depth Analysis,” The Beacon Hill Institute, March 2004, available at www.beaconhill.org.

² Bob Tedeshi, “What Would Benjamin Franklin Say? Philadelphia plans free Wi-Fi Internet access for computer users,” *The New York Times*, 27 September 2004, sec C, p. 8.

³ *Ibid*, p. 8.

shortcomings of Wi-Fi. A single Wi-Max transmitter will send broadband Internet signals up to 30 miles and penetrate buildings, with no need for additional rooftop equipment.

By changing the economic fundamentals of providing Internet access, Wi-Fi has intensified the debate over municipal provision of Internet access. Many of the same issues pertaining to municipal broadband are pertinent to the debate over municipal Wi-Fi. The arguments for and against Wi-Fi are as given below.

Proponents of municipally owned Wi-Fi networks argue that:

- the services offered by private providers is poor, expensive or nonexistent, especially in rural areas;
- Wi-Fi offers an opportunity to diversify the revenue stream for municipal electric departments;
- municipalities can provide Wi-Fi service more cheaply than private providers;
- Wi-Fi provides an economic development tool that can keep and attract businesses and bridge the “digital divide” between the poor and more affluent;
- like roads, Internet access has become essential infrastructure.

Opponents counter that:

- taxpayers should not be forced to finance risky projects that benefit only a fraction of the population;
- municipalities enjoy unfair competitive advantages resulting from their ability to raise low-interest, tax-free and government-backed capital; from their exemption from income taxes; from their control over rights-of-way; and from the fact they charge franchise fees to incumbent providers;
- municipalities have a conflict of interest as they become both competitor and regulator;
- public provision is not economically efficient, and distorts the market and competition;
- telecommunications is an industry rife with technical change and competition, posing risks that municipalities are not equipped to withstand. The unexpected need for upgrades, market penetration and price competition from private providers and the threat of new technologies puts the taxpayer or municipal ratepayer at risk.

The following pages consider the affects that municipal ownership of Wi-Fi networks would have on competition and investment in the broadband industry and the implications of municipal Wi-Fi for the local economy.

The broadband industry can be separated into two markets: metropolitan areas and rural America. In metropolitan areas, broadband competition is healthy and robust. The residential market includes several large national or regional competitors including incumbent local exchange phone companies, cable companies and national ISPs. The business market includes national telecommunications players like Sprint, MCI, and AT&T.

These providers have been engaging in fierce competition that has steadily driven down high-speed Internet prices. See Table 1. In most urban areas customers can choose from similar options.

Table 1: Selected High-Speed Internet Providers and Rates for Urban Residential Service⁴

Company	Method of Delivery	Monthly Rate
Verizon Communications	DSL over phone lines	\$29.99
Comcast Corporation	Over cable TV lines	\$42.99
EarthLink	DSL over phone lines	\$39.99
SBC Communications/Yahoo	DSL over phone lines	\$26.99

The competitive landscape changes when the market shifts to the outlying suburbs and particularly in the rural regions of the country. The further one moves away from major metropolitan areas the less available high-speed Internet access becomes. The 2003 Census Population Survey supplement found that, in rural areas, the subscriber base for both cable modems (14.3 percent) and DSL (9.2 percent) was lower than the national averages, (20.6 percent and 15.2 percent, respectively).⁵

Low population density and the long distances between potential customers in rural areas make the provision of high speed Internet access through traditional infrastructures less profitable, more technologically challenging and more cost-prohibitive to ISPs. As a result, phone and cable companies have been slow to extend coverage to these areas. These markets are generally served by smaller and costlier private Wireless Internet Service Providers (WISPs) that use satellite and modified Wi-Fi technologies. (See Table 2.)

Table 2: Selected WISP Providers and Rates for Rural Residential Service⁶

Company	Method of Delivery	Monthly Rate	Equipment
SkyNet Access	Wireless	\$59-\$79	\$249
RoadStar	Wireless	\$59-\$99	\$250
Prairie iNET	Wireless	\$50-\$70	\$149-\$499
AMA.TechTel	DSL-Wireless	\$39-\$40	None

Companies like SkyNet Access and Roadstar in Virginia, Prairie iNet in Iowa and AMA.TechTel in Texas fill the void left by the major phone and cable companies. These companies often offer slower connection speeds than DSL and cable but their prices for equipment and service are substantially higher than those paid by urban customers. Rural customers also need to be within the WISPs' service area and have a clear line of site to a broadcast tower.

The rollout of commercially available Wi-Max products will help WISPs overcome the technological challenge of providing the "last mile" of service connections to their clients. Furthermore, by reducing the number of towers required to provide service within a specific geographical area, Wi-Max promises to increase the coverage area, to reduce costs and, in turn, prices paid by rural customers. Wi-Max also provides additional opportunities for municipal governments to enter the wireless Internet business.

Both markets, rural and urban, have some commonalities. The entry of new competitors in any market exerts a positive influence on economic activity. New competitors can increase efficiency, lead to the introduction of better products and services and spur existing competitors to invest and innovate and to reduce prices paid by consumers.

⁴The monthly rates were obtained from the company websites, accessed January 10, 2005.

⁵ U.S. Department of Commerce, National Telecommunications and Information Administration, *A Nation Online: Entering the Broadband Age*, Washington D.C., October 2004, p. 12.

⁶ James H. Johnston and J.H. Snider, "Breaking the Chains: Unlicensed Spectrum as a Last-Mile Broadband Solution," New America Foundation, June 2003, p. 4-10. The monthly rates and equipment fees were obtained from each company website or by phone, accessed January 10, 2005.

The introduction of government ownership in a competitive market, however, poses an enormous threat to this process that is not posed by the entry of a private provider. If a private provider gets into financial trouble because another provider offers a superior product or lower prices, the pain is borne mainly by the stockholders and employees of the losing provider. If a government provider gets into the same trouble, however, it is the taxpayer or, in the case of municipal electric utilities, the ratepayer who is at risk.

No municipal government wants to raise taxes or electric rates to bail out a failed telecommunications enterprise. It is more likely, instead, to use its powers to stifle competition and investment by its private counterparts, all under the guise of protecting its customers from “unfair competition.”⁷

Investors view government or quasi-government owned agencies as risk-free investments, because governments possess the power of taxation, greatly reducing the risk of default. Municipal providers see it as an advantage that they can raise money by selling virtually risk-free, tax-free bonds. This lower cost of capital allows a municipality to raise funds at a lower cost than any private competitor. But a municipality will not find it easy to liquidate its investment when the same competitor manages to cut into market share.

Municipal ISPs are free from the need to earn profits for shareholders. Some are even considering the option of offering their broadband service for free, claiming broadband service as an infrastructure. This sentiment is echoed by Bradley Mayer, the information systems manager for Chaska, Minnesota, “We’re not in it to make money....We operate at a much lower cost because we’re not a profit center.”⁸ By removing profit from their operating goals, municipal ISPs reduce the required return on their investment to that of providing just enough revenue to fund the building and maintenance of their network and service their debt. Municipal providers are exempt from property and corporate income taxes, pole fees, right-of-way obstacles and franchise fees that private providers encounter.

Yet, the municipality avoids accountability to shareholders and enjoys other competitive advantages by shifting responsibility to taxpayers and ratepayers who, unlike shareholders, do not have the option of selling their shares once the municipal enterprise gets into trouble. This principle applies to municipal Wi-Fi as much as it does to municipal cable. Government providers, once confronted with competition or technological obsolescence, have every incentive to squelch the very competition they profess to offer and to put in its place a government monopoly that tolerates no competition.

The ISP industry, barely over ten years old, has been characterized by almost constant innovation. Initially Internet service was provided through the glacial dial-up access, then by DSL and cable; and now it is moving toward the speedy and convenient technologies of Wi-Fi and Wi-Max. Each innovation has been pushed forward by the demands of customers and the competition between the ISPs to satisfy those demands. However, a government that uses its powers to drive private providers from the market only to impose its own monopoly power would remove the incentive for future advances, threatening the technological progress that has made the industry possible.

⁷ Robert Knox, “Comcast prices unfair, utility says,” *Boston Globe*, 9 January 2005; Internet, available at http://www.boston.com/news/local/articles/2005/01/09/comcast_prices_unfair_utility_says/; accessed 10 January 2005. This article explains how a municipal utility serving Braintree, Massachusetts accused a private provider, Comcast, of “unfair competition.” The municipal cable appealed to the state attorney general to intervene against Comcast’s attempts to recapture market share by cutting prices.

⁸ Amy Cox, “Cities find Wi-Fi future- More municipalities offering the service,” *Cnn.com*; Internet; available at www.pti.org/elib/publish/printer_2235.asp; accessed 23 December 2004.

Proponents of municipal owned Wi-Fi networks often cite the need to increase the competitiveness of their region, especially in small and medium sized towns. According to John Garvey of Convergence Research, “As medium and smaller sized municipalities struggle to compete with larger cities, and as metropolitan suburbs compete with the city core, access to broadband is increasingly necessary to retain current businesses and attract start-ups.”⁹

Recognizing broadband’s role in economic development, BHI includes Internet access as a component of its 2004 Metro Area and State Competitive Index.¹⁰ The index includes variables that represent policies and conditions that ensure and sustain a high level of per-capita income and its continued growth. A statistical analysis finds a high level of correlation between a state’s per-capita income and the number of high-speed Internet lines per 1,000 residents.¹¹

One must caution against high-speed Internet access being seen as panacea for economic development. The BHI 2004 Metro Area and State Competitive Index utilizes more than 50 variables to measure competitiveness. Without a highly skilled work force, and the many other factors that contribute to a high per capita income, free, universal Internet access alone will not make a municipality more competitive.

Municipal Wi-Fi brings benefits as well as costs. Households and businesses would benefit from lower access fees, and the economy would benefit from expanded business hiring, investment, and profitability. On the other hand, municipalities would encounter the same risks posed by broadband, namely, the threat that yet another new technology and the resulting competition from private sector providers would put the municipal investment, and with it, local taxpayers and ratepayers at risk. As a result, policy makers should proceed cautiously, carefully weighing the positive and negative consequences of municipal provision of Wi-Fi networks, before rushing to build their own network.

⁹ John Garvey, “Municipal Broadband Networks: Unleashing the Power of the Internet,” Convergence Research, Inc., March 2002, p.4, quoted in Joseph L. Bast, “Municipally Owned Broadband Networks: A Critical Evaluation,” The Heartland Institute, November 2002, p.8.

¹⁰ Jonathan Haughton and Cagdas Sirin; “The Metro Area and State Competitiveness Report 2004,” The Beacon Hill Institute, 2004, available at www.beaconhill.org.

¹¹ However, this correlation may pick up the affect of another relationship such as the prevalence of both high per-capita income and high-speed Internet lines in densely populated states.

Municipal Wi-Fi Networks: Economic Viability and Economic Impact

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In this paper, I will address three key questions regarding municipal Wi-Fi systems. The questions that I address are as follows:

1. Are these systems economically viable in the near term and over the long term?
2. What impact are these networks likely to have on the competitive telecom landscape?
3. What are the possible economic implications of municipal Wi-Fi systems for the local economy?

Economic Viability of Municipal Wi-Fi Networks

Over the past seven years, I have studied the economics of numerous municipal wireline telecom systems.¹ My research has clearly shown that municipal wireline networks operate below breakeven, and have had to be subsidized by the city's other utilities (i.e., electric, gas, water, and sewer) in order to continue to operate.

My first blush review of the economics of Wi-Fi systems leads me to conclude that municipalities might have a better chance of breaking even on their Wi-Fi networks than on their municipal wireline networks. The reasons that favor this conclusion are: 1) capital costs for the near term Wi-Fi networks are low, 2) annual operating costs are projected to be modest, and 3) municipalities have two revenue streams from Wi-Fi. These include incremental revenues from selling services as well as cost recovery/productivity enhancements from the network (i.e., public safety improvements, remote data base access, video surveillance, and automatic meter reading). The arguments to the contrary are: 1) the capital costs for the entire project seem to be understated or simply not considered, and 2) the revenue sources necessary to cover the costs of Wi-Fi projects are not well understood.

Since all of the municipal Wi-Fi networks in the United States are new ventures (i.e., less than two years old), there was not much actual financial history to review. However, I did review the cost structure and potential revenue streams of several systems.² Based on this review, I discovered the following:

- The capital cost to construct an 802.11 Wi-Fi network that operates in the unlicensed spectrum (i.e., mostly 2.4 GHz) is quite low relative to the cost of a wireline network. The city of Philadelphia is projecting a cost per square mile of between \$74,000 and \$89,000. The total capital deployment costs for Philadelphia are estimated to range between \$10 and \$12 million. The cost per passing for a Wi-Fi network is between \$13 and \$16. (Note that the cost to build a wireline network would cost approximately \$1,000 per passing). These capital costs for Philadelphia are, in all likelihood, understated because: 1) they do not include the upgrade costs that are discussed below, 2) municipal telecom projects have, historically, cost more than they were projected to cost, and 3) these costs do not include such costs as computers, wireless network cards, computer training for those individuals

¹ My original research was reported in Ronald J. Rizzuto and Michael O. Wirth, Costs, Benefits, and Long-Term Sustainability of Municipal Cable Television Overbuilds, GSA Press, 1998.

² Esme Vos, "First Anniversary Report", www.Muniwireless.com, June 2004; Ed Sutherland, "Is Government Your Next Broadband Provider", www.pti.org, December 14, 2004.

who do not have the necessary tools to take advantage of these ‘free’ wireless broadband services.

- The cost to build a smaller network appears to be somewhat less. The Cerritos, California network is reported to have cost \$70,000 per square mile and the Grand Haven, Michigan network is reported to have cost \$40,000 per square mile.⁹
- The annual operating cost for these Wi-Fi networks appears to average approximately 10% of the initial capital cost. In the case of Philadelphia, these costs are estimated to be \$1.5 million (i.e., 12.5% to 15% of the capital cost).
- Chaska, Minnesota derives benefits from its Wi-Fi network by selling residential wireless broadband for \$15.99 per month. In addition, the Wi-Fi network provides police officers, building inspectors, and public works employees with remote access to information that heretofore was only available at city offices. In Corpus Christi, Texas, the city uses its Wi-Fi system for automated gas and water meter reading.¹⁰
- Over the long term, municipalities will need to upgrade their wireless networks. Cities will need to replace and upgrade their existing Wi-Fi equipment. Some engineers estimate that every 3-5 years, a city will need to replace approximately 60% of the Wi-Fi equipment. Some cities may decide to upgrade to Wi-Max or 802.16 over the next several years. Wi-Max will operate in both the licensed and unlicensed bands, and will enhance the quality of service. In my research, I did not find any estimates as to the potential costs to upgrade to Wi-Max.

Whether municipal Wi-Fi networks are economically viable depends on how municipalities choose to operate them. Those cities that provide free wireless broadband to its citizens will have to generate sufficient cost savings to offset the annual operating costs of the Wi-Fi network in order to avoid permanent taxpayer subsidies.

This may be difficult to accomplish since many of these benefits will be productivity improvements rather than cost savings. For example, a Wi-Fi system that makes building floor plans available to building inspectors while in the field will increase productivity but will not necessarily generate ‘savings’ that can be used to finance the Wi-Fi system.

If the city provides free wireless broadband service and the cost savings are not sufficient to pay the costs for the system, then taxpayers will have to pay this cost. Alternatively, if the city charges for wireless broadband services, then the question becomes whether there is a level playing field when the city competes with the private sector.

Impact of Municipal Wi-Fi Networks on the Competitive Landscape

Municipal Wi-Fi systems will end up competing with the wireline incumbents for broadband data customers. In some respects, these Wi-Fi systems look like the new incarnation of telecom overbuilds. In Chaska, Minnesota, the city’s Wi-Fi network offers residential wireless broadband service in competition with the incumbent cable and telephone provider’s cable modem and DSL services. In Grand Haven, Michigan, Ottawa Wireless offers a 256 kilobits-per-second (kbps) broadband wireless service for \$19.95. In contrast, wired broadband sells for \$35 to \$50 per month⁵ but provides higher download speeds. DSL offers 800 kbps while the cable modem service provides up to 3Mbps.

³ *Ibid.*

⁴ “Chaska, Minnesota, Selects Tropos Networks for City-Wide Broadband Wi-Fi Network”, www.tropos.com, May 26, 2004. “Corpus Christi, Texas, To Deploy Tropos Networks Metro-Scale Wi-Fi To Increase Productivity, Lower Costs”, www.tropos.com, July 28, 2004.

⁵ Linda Haugsted, “Wi-Fi Overbuild Grows in Mich.”, *Multichannel News*, August 16, 2004.

Likewise, the proposed Wi-Fi network in Philadelphia has some of the same competitive characteristics. The plan in Philadelphia envisions that the city would provide wireless broadband services either for free, or at costs substantially lower than the monthly fees for broadband delivered over telephone or cable TV lines.

Given this new battleground for overbuilds, it is important that state legislators create a level playing field for the private sector to compete with the city. There is a great deal of legislative experience with wireline overbuilds that can be utilized to ensure a level playing field. Three key requirements in this regard are: 1) safeguards against the city using its taxing authority to subsidize the Wi-Fi operation, 2) restrictions on the city so that it will not price its wireless broadband service below cost, and 3) guidelines for preventing conflicts of interests when the city is both a regulator and a competitor in the telecom business.

If the city is allowed to price its services below cost and use its taxing authority to subsidize the municipal operation, the private sector will have no incentive to reinvest in its network. This absence of a 'level playing field' will eventually lead to a situation where the incumbent telecom players will exit the local market.

Municipal Wi-Fi networks are very likely to have a negative impact on the dial-up ISPs in the local market. If consumers can get a 256 kbps wireless broadband service for \$19.95, or for free, they are likely to abandon their \$20, 56kbps dial-up service.

Possible Economic Impacts on the Local Economy

There seems to be a great deal of hype around the notion that metro-wide Wi-Fi networks will stimulate economic development in the local community. This same sort of hype has accompanied the justification of municipal wireline networks.

In the wireline arena, there is no rigorous analysis that demonstrates a linkage between the municipal network and the economic growth of the community. There are some anecdotal reports such as Cedar Falls, Iowa's⁶ that claims that the city's municipal network accounts for its economic success, whereas, Waterloo, Iowa has not prospered because it failed to make an investment in a municipal wireline network. Such studies fail to control for a host of other factors that might explain differences in economic growth.

Likewise, the Wi-Fi literature linking municipal investment with economic growth is largely anecdotal and speculative.

Conclusion

Municipal Wi-Fi networks are more complicated to analyze as compared to municipal wireline overbuilds. The analysis is more complex because:

- the breakeven point for Wi-Fi systems is significantly lower than that of wireline networks because of the substantially lower capital and operating costs,
- the municipality has two revenue streams, incremental revenue and cost recovery, whereas with wireline systems there is only the possibility of incremental revenue,
- and it is not clear whether municipalities will be able to operate these networks without tax payer subsidies. The near term and long terms costs of the networks do not appear to have

⁶ Doris Kelly, "A Study of the Economic Benefits of Cedar Falls, Iowa's Municipal Telecommunication Network," October 2, 2003.

been clearly determined before a city has initiated such a project. In addition, it is not clear that the cost recovery/productivity enhancements of the city will be sufficient to offset the costs of operating the Wi-Fi network.

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M E M O R A N D U M

TO: LSI Seminar Participants

FROM: Jeremy H. Stern, Esq.
William F. Bly, Esq.
Genevieve D. Sapir, Esq.

DATE: November 21, 2003

RE: **MuniToons: The Folly of Municipal Ownership of Broadband Facilities**

I. Background on Municipal Ownership of Cable and Telecommunications Systems

The roots of municipal ownership of cable systems trace back to the early days of the cable industry, when cable pioneers began laying down cable and charging a fee for television service that was otherwise provided for free from over-the-air broadcasters. In that era, when satellite service had not yet been introduced, and "CATV" was just a fledgling industry, municipal ownership provided a means for delivering television signals to largely rural areas that had poor broadcast reception and insufficient subscriber density to attract investment from private cable companies.¹ Municipal ownership thus provided a means for delivering television service to homes that otherwise would have virtually no service at all.

Over the last twenty years, however, the industry has changed dramatically, with CATV evolving from a mere antenna service in rural America to a source of new networks and original programming available to rural and urban customers. The changes in the last decade alone have

¹ A survey conducted by the National Civic Review reported that in 1981 twenty-eight municipally owned cable systems were in operation. Of these twenty-eight communities, seventeen had fewer than 2,500 residents and twelve had fewer than 1,000 residents. Carl R. Ramey, *The Cable Act and Municipal Ownership: A Growing First Amendment Confrontation*, 46 Fed. Comm. L.J. 147, 156 (1993) (citing David W. MacKenna, *The Cabling of America: What About Municipal Ownership?*, Nat'l Civic Rev. 307, 310 (1981)). A review of the 2002 Cable Factbook and the 2002 American Public Power Association Directory found 32 municipal electric divisions offering cable service.

Memorandum To: LSI Seminar Participants

November 21, 2003

Page 2

been even more stunning, with the launch of Direct-To-Home satellite service—one of the most highly successful consumer product launches ever, and with the creation of "broadband" cable providing advanced digital services, such as digital television, high-speed Internet service, and telephony. In the midst of this transformation, Congress passed the Telecommunications Act of 1996, which opened the door to competition in the telecommunications industry, and added fuel to the boom and bust cycle of the 1990s and early part of this century.

During the heyday of the Post-1996 Act boom cycle, municipalities began articulating new arguments for entering the telecommunications industry, and indeed many large urban municipalities entered the market.² They saw a new “gold rush” in telecommunications and wanted in on the action. Thus, many began to view municipal ownership as a potentially valuable source of additional revenue and a logical extension of municipal ownership of traditional utilities, such as water, gas and electric. They also believed that they could speed the delivery of new services to their residents by deploying necessary infrastructure themselves, rather than waiting for industry to do it for them, and inject new competition into the industry.³

Is there any basis for these new arguments for municipal ownership? Are they based on fact, or mere folly? As set forth below, the evidence from case studies of municipal ownership suggests the latter. Moreover, municipal ownership of cable facilities as a means for providing competition in the cable television industry raises serious fairness and First Amendment concerns. Is it fair for an industry regulator to compete against the entities it regulates? Is ownership by the government of an increasingly important vehicle for delivering media content

² “In recent years, larger communities have gotten into the act, with municipal cable systems now in operation or under development in larger cities, including Gainesville, Florida and Tacoma, Washington, and in suburban/exurban locations like Braintree, Massachusetts and Newnan, Georgia. Jeffrey A. Eisenach, Ph.D, *Does Government Belong in the Telecom Business?*, page 7, Progress on Point, Release 8.1 (Progress and Freedom Foundation January 2001) (“Eisenach Report”). Municipal utilities are also beginning to provide telecommunications services, such as fiber leasing, local dial tone and long distance telephone service. As of 2000, 58 municipal utilities are leasing fiber, 18 are providing local telephone service, 10 are offering long distance service, 61 are offering ISP services, and 32 are providing high-speed data service. *Id.* Most recently, the State of Connecticut granted the State’s first municipal cable overbuilder a franchise to compete with the private incumbent operator. *See Docket No. 02-02-18, Application of Groton Utilities*, Decision (Ct. D.P.U.C. Oct. 22, 2003).

³ One study published in 1997 and updated in 1998 provided the following three reasons for municipal entry into the market: (1) fill in for a lack of quality service at an acceptable rate from the incumbent provider; (2) provide an economic benefit to the community by generating revenue to fund other services, and/or providing an incentive for new business development; and (3) provide a new source of revenue for the utility company. *Municipal Overbuilds: What Can You Do About Them*, CATA Brief, 1997-8, page 2 (November 1997, Revised as of October 21, 1998) (“CATA Brief”). Another study conducted by two professors at the University of Denver provided the following rationales for municipal entry into the telecommunications industry: (1) provide telecommunications infrastructure to enhance the municipalities electric power utility through demand side management; (2) provide additional revenue streams to replace revenues lost through the deregulation of the electric utility industry; (3) ensure that the community receives advanced telecommunication services; and (4) inject competition in the local telecommunications industries. Ronald J. Rizzuto and Michael O. Wirth, *Costs, Benefits, and Long-Term Sustainability of Municipal Cable Television Overbuilds*, page 1 (GSA Press, Denver, CO 1998) (“Denver Report”).

Memorandum To: LSI Seminar Participants

November 21, 2003

Page 3

consistent with the parameters and intent of the First Amendment? The answer to both of these questions is no.

II. Can Municipalities Really Do More For Less? The Truth About the Alleged Benefits of Municipal Ownership.

Those that argue in favor of municipal ownership of broadband facilities tend to view those systems as a logical extension of other municipally-owned utilities, such as gas, electric or water,⁴ or as a source of new general fund revenues.⁵ They also view telecommunications infrastructure in the same manner as traditional infrastructure such as roads and highways.⁶ In so doing, these advocates often overlook many of the unique aspects of the business of providing broadband services and fail to recognize the significant disadvantages to municipal ownership of broadband systems. For example, providing cable television services does not merely involve stringing up a cable plant and turning on a switch and billing customers. The operator must determine what content to provide on its system (a task for which government is ill-suited) and then must negotiate sophisticated retransmission consent agreements with content providers in order to obtain content for the system. Large cable operators are able to promise content providers a large subscriber base, and thus have the ability to obtain more favorable carriage terms than municipally-owned systems. Moreover, large cable operators benefit significantly from economies of scale that allow them to spread administrative and operating costs over a larger revenue base.

In addition, municipalities that take customers away from the incumbent cable operators lose franchise fees (five percent of gross revenue) that the incumbent provides the City. And if the municipality ends up buying out the incumbent, which has happened in some locations,⁷ the municipality loses significant public benefits provided by the incumbent, such as grants for Public, Educational and Governmental Access, I-Nets, and taxes. Furthermore, from a state tax perspective, municipal ownership has the effect of robbing Peter to pay Paul. Municipalization of telecommunications facilities removes private sector assets from the tax base, thereby impacting state funds available to county governments and school districts. Ultimately, the taxpayers are harmed by this.

⁴ See, e.g., Carlson, Steven C., "A Historical Economic, and Legal Analysis of Municipal Ownership of the Information Highway," 25 Rutgers Computer & Tech. L.J. 1 (1999).

⁵ *Municipalization and Subsidized Utility Competition—The Taxpayers Perspective*, Cal-Tax Digest (California Taxpayer's Association, April 1997) ("Cal-Tax Report").

⁶ *Id.*

⁷ See, e.g., Rizzuto, Ronald J., *Municipal Telecommunication Overbuilds: The Track Record and New Incarnations*, page 8 (University of Denver February 28, 2002) ("Denver Report Update").

Memorandum To: LSI Seminar Participants

November 21, 2003

Page 4

Even in situations where the municipality charges lower rates than the incumbent, these “savings” come at the expense of the financial health of the municipal utility or taxpayers, who must shoulder the burden of filling the gap between costs and revenues. It should come as no surprise then, that the following studies of municipally-owned broadband facilities show that in most circumstances municipal ownership is a poor public policy and economic choice.

- **Denver Report**

In 1998 two professors from the University of Denver completed a case study of four municipally-owned cable systems.⁸ This report concluded that municipal ownership of cable systems was generally not a good business decision. First, it concluded that none of the four systems that were analyzed were sustainable over the long run because each currently has, and has had, cash flow gaps. In order to be sustainable each would have to either commit permanent subsidies for their cable operation or increase cash flow by increasing rates or subscribership, or by finding a new revenue stream.⁹ Second, the study found that all but one of the systems (Cedar Falls, Iowa) would have to upgrade its system to remain competitive with DBS in their core video business.¹⁰ Third, the study found that the systems studied appeared to create rate savings for their customers, but that these savings were, in reality, an illusion:

They are an illusion because, as noted earlier, the municipal cable system is not financially self-sustaining. These municipal power companies have had to subsidize operating expenses and capital expenditures, provide interest-free loans and levy taxes in order to keep cable rates low. If municipal power companies eliminated the subsidies by raising cable rates, the cable rate savings would be reduced substantially, particularly in Glasgow, Paragould and Cedar Falls.

In Negaunee, the elimination of subsidies would have only a small impact on cable rate savings. The hidden cost in Negaunee is deferred technological reinvestment. Instead of reinvesting to modernize the plant, Negaunee has kept cable rates low. As a consequence, Negaunee has only a 35-channel analog system with two premium channels. There is no pay-per-view, digital video or data/Internet access capability.¹¹

⁸ Denver Report, *supra*, at note 3.

⁹ Denver Report at 4.

¹⁰ *Id.*

¹¹ *Id.* at 5.

Memorandum To: LSI Seminar Participants

November 21, 2003

Page 5

- **Updated Denver Report**

Dr. Rizzuto, one of the authors of the Denver Report, provided an update in a PowerPoint presentation he submitted at the Great Lakes Cable Expo in Indianapolis on February 28, 2002.¹² Dr. Rizzuto divided his analysis into two categories: (1) Traditional Municipal Cable Telecommunications Overbuilds;¹³ and (2) New Types of Telecommunications Overbuilds.¹⁴ With regard to the first category, Dr. Rizzuto concluded, among other things, that municipally-owned telecommunications systems have generated “cable rate savings,” but that the rate savings are not sustainable and, as he concluded in his earlier report, in fact an “illusion”:

Municipal power companies are willing to incur on-going negative cash flow, escalating debt levels, and increasing community taxes, additional subsidies and/or reduced reinvestment in telecommunication technology in order to maintain the illusion of large cable rate savings.

Dr. Rizzuto further concluded that in situations where the municipality prices its services very low, the incumbent cable operator often ends up selling out to the municipality,¹⁵ and that in moderate pricing situations the municipality generally does not generate enough revenue to maintain a state-of-the-art system.

The new telecommunication overbuilds that Dr. Rizzuto analyzed had not been in operation long enough for Dr. Rizzuto to reach definitive conclusions about their profitability; however, Dr. Rizzuto was able to provide some general comments. First, Dr. Rizzuto commented that a “data only” model is not likely to be viable as a stand-alone business. Second, Dr. Rizzuto commented a municipal system providing multiple revenue systems “looks like a commercial overbuilder strategy” and that this strategy “is still a work in progress.” Finally, Dr. Rizzuto questioned whether a municipality will have the proper discipline to manage the business, e.g., to make business decisions rather than political decisions.

¹² Denver Report Update, *supra*, footnote 6.

¹³ This category included four types of systems: (1) video only (low pricing), (2) video and data (low pricing), (3) video only (moderate pricing), and (4) video and data (moderate pricing). Denver Report Update, *supra*, page 3.

¹⁴ This category included a case studies of three new systems: (1) Braintree, Massachusetts (data first, then video); (2) Glenwood Springs, Colorado (data only); (3) Coldwater, Michigan (video, data, voice and dial-up). Denver Report Update, *supra*, page 18.

¹⁵ Denver Report Update, page 16.

- **CATA Brief**

A study prepared by the Cable Telecommunications Association also analyzed several municipally-owned telecommunications systems and similarly concluded that none had been successful.

No city has successfully operated its own system for more than five years without increased taxes or financial contributions from public funds. When municipal systems incur unanticipated expenses or fail to meet revenue expectations, the city has to make up the difference. Most often, this is accomplished by raising local taxes, issuing bonds obligating city revenues or, if the service is provided by a local utility, such as the power company, authorizing it to charge higher rates for its service in order to cover the cost of the cable service. The result is a “cable television tax” that is paid by everyone in the community whether they are customers of the municipal system, customers of the incumbent or competitive cable system, or aren’t cable customers at all.¹⁶

Along these lines, the CATA brief further quoted Barry Orton, a professor at the University of Wisconsin-Madison, and consultant for many municipalities as stating, “Most cities, when push comes to shove, find (municipal ownership) is too much work and it’s too much money.”¹⁷ Another municipal consultant, Al Powers of Carlisle, Iowa “warns cities to be aware of the risks of large, up-front costs, with no guarantee of recovery, before embarking on municipal ownership in competition with an incumbent operator.”¹⁸

- **California Tax Payers Association Study**

Regarding the City of Milpitas, California’s foray into a publicly-owned communications network, the California Tax Payers Association (“Cal-Tax”) questioned the financial viability of such a project. In particular, it cited a study conducted by Media Connections Group, a private consulting firm engaged by the City of Milpitas, which stated that the municipal communications network envisioned by the City “could not be operated successfully in a competitive

¹⁶ CATA Brief, *supra*, at 3.

¹⁷ *Id.*

¹⁸ *Id.*

Memorandum To: LSI Seminar Participants

November 21, 2003

Page 7

environment by a commercial partner (of the City's) unless very aggressive penetration levels are assumed for core telephone and/or cable services.”¹⁹

The Cal-Tax Report noted that lower costs of municipal power derive from subsidies, not more efficient operations. The subsidies provided to government-owned electric utilities include: (1) exemption from federal and state income taxes; (2) exemption from other taxes (included property, gross receipts and excise taxes); (3) the ability to secure tax-exempt debt structures; (4) access to low-interest government loans and loan guarantees; and (5) preferential access to low-price federal power.²⁰ Indeed, one study estimated that removal of the tax and interest subsidies would increase municipal power rates by 16 to 17 percent.²¹ Tax payers are ultimately harmed because these subsidies cost money—their money.

- **CALNET**

CALNET was a state-owned telecommunications system designed by the State of California to connect state agencies and other public entities with modern telecommunications services while saving taxpayers money.²² The State of California lost so much money on CALNET, however, that it privatized the system in 1998.²³ In 1997, Lee Kerscher, California's deputy director for telecommunications and networks stated to a reporter, “We've had continued financial losses associated with Calnet. Suffice it to say the legislature when establishing Calnet expected to achieve significant savings and those savings have not occurred.”²⁴ The CTPA reported the following conclusions reached by a December 1996 strategic plan prepared by the California Department of Information Technology, which recommended divesting the state-owned system, CALNET: (1) “Owning and operating telecommunications networks are neither core competencies nor core responsibilities of the state”; (2) “State-owned network infrastructures have proven costly and cannot keep pace with the rapid developments in telecommunications technology”; and (3) “The inability of CALNET to meet, at competitive cost, the service requirements of...state agencies.”²⁵

- **Tri-Cities Referendum Initiative**

¹⁹ Cal-Tax Report, *supra*, page 13.

²⁰ Cal-Tax Report, pages 5-6.

²¹ *Id.* (citing a 1994 study done by Putnam, Meyers & Bartlett, Inc., for the Edison Electric Institute).

²² Eisenach Report, page 14.

²³ *Id.*

²⁴ Eisenach Report, page 14 (citing Arielle Emmett, “John Thomas Flynn's California Network Nightmare,” civic.com (April 1997) at www.fcw.com/civic/articles/1997/CIVIC_040197_21.asp.)

²⁵ Cal-Tax Report at 14.

Memorandum To: LSI Seminar Participants

November 21, 2003

Page 8

In some communities, residents are recognizing the dangers associated with municipal ownership and soundly rejecting their elected officials' attempts to engage in this type of folly. Earlier this year, the governing officials in three suburban-Chicago area communities banded together to promote what has been billed as "an ambitious, multimillion dollar plan" to construct a municipally run broadband system providing cable television, telephone and Internet services. The mayors of the Kane County cities of Batavia, Geneva and St. Charles endorsed this project in the hopes that it would provide a less expensive and more responsive telecommunications option. The local residents, however, were not quite as eager to put their tax dollars at risk. In April 2003, these cities asked the voters whether they favored the municipal broadband system estimated to cost the communities \$62 million and which would be backed by tax dollars. Approximately sixty percent of the voters on this referendum rejected the cities' planned network.²⁶

III. The Regulator as Competitor—Is This Fair?

Aside from questions regarding the financial viability of municipal ownership, there are serious questions regarding the fairness of having a municipality, which has regulatory authority over broadband systems, compete with the entities it regulates. These concerns become even greater considering that many municipalities have offered artificially low rates at the expense of the taxpayers and the financial health of the municipal utilities, and that in those situations the incumbent cable operator has often sold out to the municipality.²⁷

A. Overview of Municipal Regulatory Authority

A municipality has extensive regulatory authority over a cable television system.²⁸ For example, a municipality is entitled to require a cable operator to enter into a franchise agreement that specifies the terms and conditions under which the cable operator may access the public rights-of-way.²⁹ Franchise agreements may require the cable operator, among other things, to pay franchise fees in an amount up to 5% of gross revenues; dedicate channels on their system for public, educational and governmental ("PEG") access; make payments for PEG facilities and equipment; operate PEG studios; wire and serve public buildings and schools; post performance bonds; obtain insurance; provide detailed reports of its operations, and comply with customer service obligations. Cable operators may be fined for failing to comply with certain provisions of a franchise agreement, and serious breaches may be grounds for termination of the franchise, thereby terminating the operators right to own and operate the system. Cable operators also may

²⁶ "Broadband Plans Heads To A Defeat," Chicago Tribune, Apr. 2, 2003; "Broadband Idea Fails To Catch On," Daily Herald, Apr. 2, 2003; "Voters Reject Broadband," Kane County Herald, Apr. 2, 2003.

²⁷ Denver Report Update, pages 14-16.

²⁸ See Communications Act of 1934, as amended, 47 U.S.C. §§ 541-549.

²⁹ *Id.* at § 541.

Memorandum To: LSI Seminar Participants

November 21, 2003

Page 9

be required to receive permission from a franchising authority to transfer the franchise—for example, upon a sale or merger—and must periodically renew their franchises.

A municipality has significantly less regulatory authority over non-cable telecommunications services; however, the municipality still has authority to require permits for use of the rights-of-way, and may own the poles that are leased to the cable companies. Moreover, municipalities frequently argue that they have authority to regulate customer service for non-cable services, and in recent years it has been commonplace for local regulators to exceed their authority over telecommunications companies, by attempting to impose franchise-like requirements on telecommunications companies that seek use of the public rights-of-way.³⁰

B. Anti-Competitive Implications of Municipal Ownership

A municipality's entry into the cable television market presents special constitutional problems. In particular, the municipality's dual role as regulatory authority and chief competitor inherently raises questions implicating the cable operator's constitutional right to due process. This is because a cable operator's franchise may not be revoked, or not renewed, without affording the cable operator due process.³¹ To the extent that a municipality operates a competitive system in a manner that disadvantages the incumbent and either drives the incumbent out of business or to sell its system to the municipality, a due process violation may exist. Therefore, the specter of anti-competitive animus necessarily clouds any decision or policy the regulator makes that benefits the municipally owned system and/or disadvantages the existing operator.

³⁰ One such situation was litigated in *City of Auburn v. Qwest Corp.*, 247 F.3d 966, *superceded on rehearing*, 260 F.3d 1160 (9th Cir. 2001), *cert. denied City of Tacoma v. Qwest Corp.*, 2002 U.S. LEXIS 232, 122 S. Ct. 809 (2002). In that case, Qwest challenged the requirements contained in telecommunications ordinances adopted by several Washington municipalities, including the Cities of Auburn, Olympia, and Tacoma, on the grounds that they violated state and federal limitations on municipal franchising of telecommunications providers. In the ordinances, which are typical of those advanced by municipal consultants nationwide, the municipalities sought to require telecommunications providers to: file an application containing detailed information unrelated to the rights-of-way; negotiate certain terms of the franchise with the cities; undertake extensive reporting and approval processes for transfers of ownership and stock; provide the municipalities with network capacity; and offer the municipalities favorable rates. The Ninth Circuit's opinion provides the most authoritative statement to date regarding the limitations on municipal telecommunications franchising. The court held that Section 253 of the Communications Act is a "virtually absolute" preemption on municipal franchise requirements. Section 253's "purpose is clear—certain aspects of telecommunications regulation are uniquely the province of the federal government and Congress has narrowly circumscribed the role of state and local governments in this arena." Accordingly, the court found that Section 253(c) "saves" only those municipal requirements that are "directly related to management of the rights-of-way."

³¹ See, e.g., *City of Issaquah v. Teleprompter Corp.*, 611 P.2d 741 (1980); *Teleprompter of Erie, Inc. v. City of Erie*, 537 F. Supp 6 (W.D. Pa. 1981); *Three Rivers Cablevision v. City of Pittsburgh*, 502 F. Supp 1118 (W.D. Pa. 1980); *Birmingham Cable Communications, Inc. v. City of Birmingham*, 1989 U.S. Dist. LEXIS 7475 (N.D. Ala. 1989).

Memorandum To: LSI Seminar Participants

November 21, 2003

Page 10

For example, the municipality may dramatically add to the cost of providing service, micromanage customer service, and threaten continued operation of a system by invoking breach proceedings and imposing unreasonable demands during transfer and renewal proceedings. The municipality also has the power to undercut the incumbent's rates at the expense of the municipality's taxpayers or municipal utility. In addition, when a municipality itself enters the broadband market, it has the power and strong incentive to disadvantage the incumbent and favor itself. Indeed, its very existence depends on its ability to take business away from the existing operator. This can, and often has, led to the municipally-owned utility driving out the incumbent.³²

However, few courts have considered the implications of municipal ownership on an operator's due process rights. In one case, *Warner Cable Communications, Inc. v. City of Niceville*,³³ Warner Cable challenged the municipality's decision to construct a cable television system, alleging, among other things, that the "City's conflict of interest, arising from its projected dual role as Warner's regulator and competitor prevents it from fairly and impartially regulating a company with which it hopes to eventually compete."³⁴ The court concluded that Warner Cable's due process claim was not ripe because the company had not pointed to any tainted decisions that implicated its due process rights. The court did not, however, "foreclose the possibility that the City's dual role as Warner's regulator and competitor might, in particular circumstances, give rise to a valid due process claim."³⁵ In fact, the court expressly noted that there might be some circumstances that would give rise to a valid claim:

If a dispute arises in which the City is called upon to be "complainant, jury, judge and 'executioner'" *Cruz v. Ferre*, 755 F.2d 1415, 1422 (11th Cir. 1985) (quoting *Cruz v. Ferre*, 571 F. Supp. 125, 133 (S.D. Fla. 1983)), there may exist an intolerably high risk of self-interested, unfair governmental action, particularly since the City's competitor in this case is a first amendment speaker. We recognized in *Cruz* that, because of the "potentially great impact upon first amendment rights[,]...regulation of communicative activity must adhere to more narrowly drawn procedures than regulation of ordinary communicative activity."³⁶

³² Denver Report Update, page 16.

³³ 911 F.2d 634 (11th Cir. 1990).

³⁴ *Id.* at 640.

³⁵ *Id.* at 642.

³⁶ *Id.*

Memorandum To: LSI Seminar Participants

November 21, 2003

Page 11

Another case, *USA Media Group v. Truckee Donner*,³⁷ provides an excellent example of the inherent conflicts and dangers of tainted decision-making a cable operator faces when a municipality decides to operate as both regulator and competitor. In this case, which settled in April 2003, the cable operator alleged that the Truckee Donner Public Utility District, a publicly owned utility, hindered the operator's attempt to upgrade its plant to provide high speed Internet access by making it difficult for the cable company to obtain access to the rights-of-way and enter into pole attachment agreements. Coincidentally, or maybe not so coincidentally, the city's municipally-owned electric utility also had plans to provide high speed Internet access.

Even before the suit settled, at least one board member of the TDPUD was quoted as saying that he thinks that the municipal system will put the existing operator out of business.³⁸ Since settlement, the TDPUD's plans have been delayed, while it attempted to find financing and underwriting. Three years into the project, the TDPUD is not yet able to serve customers and is looking at \$14 million in start up costs.³⁹ Perhaps taking a lesson from the failed Tri-Cities initiative, or perhaps recognizing the inherent risks to the local tax base, TDPUD has decided to forego public funding and has solicited private funding and underwriting.⁴⁰ In addition, TDPUD has decided to engage an outside, *private* company to provide the service packages. Is this a tacit, market-driven admission that a true public system is too risky a venture?

The Truckee system raises some other interesting questions. Will the City of Truckee fairly and evenly regulate both providers on non-discriminatory terms? How will the City deal with the inherent conflict of interest associated with the fact that it has a significant financial (as well as political) stake in one of the competitive entities it is regulating? To a large extent, the TDPUD's ability to recoup its start up expenses and achieve success in the broadband business necessarily depends on the existing operator's failure. With looming concerns that the district may have to raise the costs of other utilities to pay for the communications network, this case illustrates the potential for anti-competitive behavior that exists when the regulator is a competitor and owns and controls essential facilities such as the utility infrastructure.

Some communities are not shy about leveraging their positions as regulators. For example, the City of Healdton, Oklahoma recently launched a coaxial cable television system funded through municipal bonds. The Assistant City Manager touted the benefits of the municipal system by explaining that one of the reasons it was able to provide competitive services was because "there are no franchise fees added and, because we are a municipality, there is no tax added." Interestingly, Healdton's City Manager, in explaining the City's interest

³⁷ Case No. 99-CV-2315 (E.D. Cal November 22, 1999).

³⁸ "Utility Broadband Plan Moves Ahead," *Sierra Sun*, Feb. 27, 2003.

³⁹ "Utility broadband plan on tight schedule, original conduit sale agreement falls through in '11th hour,'" *Sierra Sun*, June 25, 2003.

⁴⁰ "Eagle Broadband Shifts Gears With Truckee Donner," *Broadband Business Report*, Nov. 18, 2003.

Memorandum To: LSI Seminar Participants

November 21, 2003

Page 12

in municipal broadband, stated that the City's was interesting in "profiting from cable TV and Internet."⁴¹ What remains to be seen is whether the City will be able to generate enough profits from the cable television system to cover the revenue in franchise fee and taxes that it otherwise would have collected from subscribers to the private system, without raising other taxes.

The anti-competitive implications of municipal ownership extend beyond the realm of communications network. For example, in *United States v. City of Stillwell*,⁴² the court prohibited the City of Stillwell, Oklahoma from requiring purchase of electric service as a condition of receiving water or sewer service. The case arose out of a complaint filed by the United States, which alleged that the city was involved in an illegal tying of services. Ultimately, the city consented to entry of judgment without trial or adjudication. Pursuant to the judgment, the city was "enjoined and restrained from requiring any consumer of electric energy to purchase retail electric service...as a condition of receiving water or sewer service..."⁴³ The city was also "enjoined and restrained from denying, withholding, or delaying any service, license or permit, or otherwise threatening, discriminating or retaliating against any person that has not agreed to purchase or does not purchase electric service...unless [the] reason for such conduct is unrelated to such person's choice of retail electric provider."⁴⁴ As more and more municipally-owned utilities branch into communications services, cable operators will be forced to become more and more vigilant to ensure that public utilities do not attempt to impose tying arrangements such as those described in *City of Stillwell* on communications services.

C. Alternatives To Dealing With The Anti-Competitive Threat

If a municipality does operate a system in an unfair manner that disadvantages the incumbent, one option for the incumbent, other than filing a due process claim or First Amendment Claim (as discussed below), is to seek a modification of its franchise under Section 625 of the Cable Act.⁴⁵ Under so-called "commercial impracticability" provisions of Section 625, a cable operator is entitled to demand a reduction in its existing franchise obligations if circumstances change in an unexpected manner. Such an application resulted in litigation in Naperville, Illinois.⁴⁶ In that case, when Naperville issued a more favorable franchise to an overbuilder—Ameritech New Media—the federal district court ruled that the incumbent was allowed to suspend access studio support, franchise fees, and other franchise obligations.

⁴¹ "Healdton Hopes To Tune In On Profit," *The Associated Press State & Local Wire*, Sept. 27, 2003.

⁴² 1998 U.S. Dist. LEXIS 18203 (E.D. Ok. Nov. 5, 1998).

⁴³ *Id.* at 3.

⁴⁴ *Id.*

⁴⁵ 47 U.S.C. §545

⁴⁶ *See Cable TV Fund 14-A, Ltd., v. City of Naperville*, 1997 WL 433628, 24 (N.D. Ill 1997)

Memorandum To: LSI Seminar Participants

November 21, 2003

Page 13

Significantly, once a modification request is filed, the operator can begin implementing the proposed modifications immediately.⁴⁷

IV. First Amendment Implications of Municipal Ownership.

Municipal ownership of broadband facilities implicates the First Amendment to the extent that the municipality acts in a manner that favors itself over the incumbent cable operator. Under well-settled law, a content-neutral government regulation that results in an incidental burden on First Amendment freedom must: 1) be within the constitutional power of the Government; 2) further an important or substantial governmental interest; 3) be unrelated to the suppression of free expression; and 4) restrict no more speech than is essential to the furtherance of that interest.⁴⁸

Applying this standard, a court has held that the First Amendment requires a city to set a content-neutral, non-discriminatory fee for the cable television franchise and prevents use of the fee as a vehicle for selecting a preferred operator.⁴⁹ Still another court has held that a franchising authority may not impose a policy that has the effect of permitting only one company to operate a cable franchise in the franchise area.⁵⁰ Under this case law, a municipality would clearly violate the First Amendment if it regulates the incumbent cable operator in a manner that favors itself over the incumbent operator. This is especially true if the favoritism results in the incumbent operator selling its rights and assets to the municipality.

V. Other Considerations

A. Section 253 Implications

In general, a municipality's authority to regulate is derived from the laws of the state in which it is located.⁵¹ Some states, such as Texas and Missouri (NOTE: Virginia law now authorizes municipal broadband networks, so I would take out *Bristol* case as well), have prohibited municipal ownership of broadband systems. These prohibitions have been challenged by municipalities as a violation of Section 253(a) of the Telecommunications Act, 47 U.S.C. § 253(a), which provides that "No State or local statute or regulation, or other State or local legal

⁴⁷ See *Tribune United Cable of Montgomery County v. Montgomery County*, 784 F.2d 1227 (4th Cir. 1986); *Cablevision Systems Corp. v. Town of East Hampton*, 862 F. Supp. 875, 887-88 (E.D.N.Y. 1994); and *Cable TV Fund 14-A, Ltd., v. City of Naperville*, 1997 WL 433628, 8-10 (N.D. Ill 1997).

⁴⁸ See *United States v. O'Brien*, 391 U.S. 367, 377 (1968).

⁴⁹ *Group W Cable, Inc. v. City of Santa Cruz*, 679 F. Supp. 977, 980 (N.D. Cal. 1988).

⁵⁰ See *Preferred Communications v. City of Los Angeles*, 13 F.3d 1327 (9th Cir. 1994).

⁵¹ See, e.g., *Sailors v. Board of Educ.*, 387 U.S. 105, 107-108 (1967).

Memorandum To: LSI Seminar Participants

November 21, 2003

Page 14

requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service.” The courts are split on whether a municipality is an entity protected by this statutory prohibition.

- ***City of Abilene Texas v. FCC.***⁵² This case concerned the validity of a Texas statute that prohibited municipalities from providing telecommunications services. The case was originally brought before the FCC, which determined that Section 253(a) does not preempt the Texas statute. The case was then appealed to the D.C. Circuit, which affirmed the FCC ruling, stating that “Federal law...may not be interpreted to reach into areas of State sovereignty unless the language of the federal law compels the intrusion.”⁵³ The court held that the term “any entity” did not necessarily include a municipality and therefore was insufficient to overturn the state statute.⁵⁴
- ***Missouri Municipal League v. FCC.***⁵⁵ This case invalidated a Missouri statute that prohibited the state’s local subdivisions from obtaining certificates necessary to provide telecommunications services or facilities directly or indirectly to the public. The case was initially brought before the FCC, which relied on the *Abilene* decision to uphold the state statute. The Eighth Circuit rejected the reasoning of the D.C. Circuit in *Abilene* and overturned the FCC’s decision: “we conclude that because municipalities fall within the ordinary definition of the term ‘entity’ and because Congress gave that term expansive scope by using the modifier ‘any,’ individual municipalities are encompassed within the term ‘any entity’ as used in § 253(a).”⁵⁶ In June 2003, the Supreme Court granted certiorari to hear this case and this case is now pending before that Court.

B. California’s Proposition 218

A municipality that seeks to build and operate a telecommunications facility obviously must raise money to fund the project. Typical options for doing so include selling municipal bonds, and imposing taxes. In California, if the project were funded by imposing a tax, Proposition 218 would require approval by a two-thirds vote of the people.

The relevant portions of Proposition 218 prohibit local governments—including charter cities—from imposing, extending or increasing any general or special taxes, unless or until the taxes are submitted to a vote of the people. In the case of a general tax, only a simple majority is

⁵² 164 F.3d 49 (DC Cir. 1999).

⁵³ *Id.* at 52.

⁵⁴ *Id.* at 53.

⁵⁵ 2002 299 F.3d 949 (8th Cir. 2002), *cert. granted* 123 S. Ct. 2606 (2003).

⁵⁶ *Id.* at 17.

Memorandum To: LSI Seminar Participants

November 21, 2003

Page 15

required.⁵⁷ In the case of a special tax, a two-thirds majority is required.⁵⁸ A special tax is one imposed for a specific governmental purpose.⁵⁹ Under this law, a tax levied for the purpose of funding a municipally-owned utility would constitute a special tax and require a two-thirds vote of the people.⁶⁰

V. Conclusion

Although many municipalities tout municipal ownership of broadband systems as a new and valuable potential source of revenue, the evidence shows that municipal ownership is rarely a good public policy or economic choice. In fact, any rate savings to the customer are generally offset by a number of countervailing factors, including higher taxes. As a result, municipal ownership often merely shifts the costs of service from the customers using the service to taxpayers in general, creating only an illusion of savings. Moreover, municipal ownership tends to remove valuable private assets from the tax base, which impacts the state funds available to county governments and school districts. Municipal ownership also is subject to abuse that skews competition in the marketplace in adverse ways. Finally, if political pressures cause the municipality in its dual role as regulator and operator to favor itself over the incumbent, the incumbent may have a valid due process or First Amendment claim.

⁵⁷ Cal. Const. art. XIII C, § 2, subd. (b).

⁵⁸ Cal. Const. art. XIII C, § 2, subd. (d).

⁵⁹ See, e.g., *Rider v. County of San Diego*, 1 Cal. 4th 1 (1991) (sales tax imposed for the purpose of financing a jail and a court house was a special tax, because it was levied to fund a specific governmental project).

⁶⁰ *Id.*