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Public Broadband Rationale and Proposal

1   Rationale

The Syracuse Municipal Broadband Initiative (SMBI) was organized to educate city leaders and the public on the benefit of establishing a publicly-owned broadband utility service, and to help develop a plan for implementation. Following is a rationale and proposal for the creation of a Syracuse publicly-owned broadband utility.

High prices and lack of control of services

Cable service rates in Syracuse and in most of the country have been rising faster than the rate of inflation for many years. The average cable bill in Syracuse is around $90/month[1]. As more people signup for Internet service (increasingly a necessity) and phone service, bills of $150–$200 per month will be the norm. At the same time, wholesale broadband costs (data transmission cost) have fallen dramatically as fiber-optic technology improves in leaps and bounds. Add to that the cell-phone bill. In other countries, most notably Japan, Korea, and France, one can get a full-featured *Triple Play* service for $30–$40 per month. Remember when television was free, and telephone service averaged about $25/month? Why are we paying for commercial cable television anyway? We pay too much.

Despite the high rates we pay, we have not received all of the service our cable operator, Time Warner Cable (TWC), has committed to. For example, TWC has failed to maintain an industry standard-quality public access television studio; it has often refused to broadcast community submitted programs on the public access channel for no legitimate reason; and it has failed to provide—or taken years to provide—cable channels the community requested.

We also don't have the high-quality and very high-speed network or wireless access which TWC could affordably provide if it wanted to. Why? Because TWC prefers higher profits to the expense of upgrading. And it will resist upgrading as long as legal and market forces to do so remain weak. TWC invests to maximize its profits rather than to maximize the public benefit. This is normal for a private company. It is also the problem with private ownership of what is naturally a public utility: less service for more money.

Community control is a fundamental democracy issue

Our local telecommunications (i.e., *broadband*: TV, Internet, phone) infrastructure is crucial to the social, economic, and democratic health of our community. It is equal in importance to our public roads, schools, and utility services. As technology progresses, and the diversity of services grow, we will become evermore connected, reliant, and dependent on it. We are foolish if we as a community do not take action to secure public control of our broadband network.

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[1]*City of Syracuse Cable Franchise Report*, 2008, and other industry data.

Over the past 30+ years, federal law has systematically stripped away local governments regulatory authority over cable and telephone franchisees. Local government has virtually no control over prices, service options, channel lineups, or quality of infrastructure. As a result of unregulated prices and near monopoly markets, cable operators make very high profits of 30%–50%[2]. Those extra profits, locally estimated at $30M+/year[3], come from the pockets of local residents, and are taken out of the community. Moreover, cable operators continue to undermine public choice and authority as they attempt to privatize the airwaves and destroy *Net Neutrality*.

Community ownership is the only way to community control

Under current law, the only way the community can regain regulatory authority over cable system prices, service options, policies, infrastructure planning, and investment is to establish a municipally owned broadband service (i.e., a public utility). With publicly-owned service, profits can be redirected to benefit the community in various ways, including: (1) much lower rates (at least 30%); (2) abundant funding for non-commercial public access, education, and government (PEG) channels programming and public access studio(s); (3) connecting the under-served (bridging the *digital divide*); (4) greatly reducing municipal and school system telecommunications expenses through consolidation; (5) and building a very high-speed all fiber-optic network and city-wide wireless access, creating unique opportunities for telemedicine and educational services, and general economic development.

Municipal broadband service is not new

Municipal broadband is not new. Hundreds of cities across the country have already established municipal broadband (cable TV, Internet, phone) utilities. In fact the municipal model has been encouraged by the FCC for more than 35 years. It was also the model recommended by the *CATV Advisory Committee for the City of Syracuse* report of 1973. Many cities have already built high-speed all fiber-optic networks. Following are North American municipal systems currently serving customers with FTTH (from ftthcouncil.org (March 2008):

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[2]See *Cable Industry Economics*, George Kohl, Communications Workers of America, March 4, 2004, http://syracusebroadband.org/docs/CableIndustryEcon.pdf; also, Time Warner Cable 2008 yearly report.

[3]Based on a combination of local cable operator data and cable and advertising industry data of revenue streams and profits. An accurate value can and should be obtained through a full financial audit of the local operator by the city as authorized by federal law.

EXISTING SYSTEMS (30)		NEW SYSTEMS (14)
Baldwin, WI	Kutztown PA	Ashland OR
Barnsville MN	Lenowisco VA	Auburn IN
Bellevue, IA	Loma Linda CA	Cedar Falls IA
Bristol TN	MINET OR	Clallum PUD WA
Bristol VA	Morristown TN	CMON BC
Brookings, SD	North Kansas City MO	Holland MI
Burlington VT	Phillipi WV	Mason County PUD WA
Chelan PUD WA	Provo UT	Pend Oreille PUD WA
Clarksville TN 1	Pulaski TN	Radium Hot Springs BC
Crawfordsville IN	Quincy FL	Shawano WI
Dalton GA	Reedsburg WI	Spenser IA
Douglas County PUD WA	Rochelle, IL	Sylacauga AL
Gainesville FL 1	Sallisaw OK	Taunton MA
Grant County PUD WA	UTOPIA UT	Wilson NC
Jackson TN	Windom MN	

For a current and more detailed list of municipal FTTP deployments, see BroadbandProperties online database http://www.bbpmag.com/search.php?s0=1&cols=-co-st-ve-gr-te-se-ty-mu-su&st=&ve=&gr=&te=&se=&ty=-mun&qco=&qan=&qus=0&qmu=&qsu=&qpa=#results

Financing is readily available

Financing can be easily obtained by issuing municipal bonds or other forms of borrowing. Cable service is a very profitable enterprise, so bonding is no issue. We should also pursue any available government grants, especially the $7B in federal stimulus funding applicable to building municipal broadband infrastructure. This will lower the build-out cost, facilitate universal access and lower subscription prices, and increase the funding available for PEG channels support, public access studio(s), and general local origination programming support.

1.1   The Problem with Franchising

Over the past 30+ years, federal law has systematically reduced local governments regulatory authority over their telecommunications related franchisees. Local government has no power over prices, service options, channel lineups, or quality of infrastructure. Local government has only the right to 3 non-commercial channels use (public access, education, and government) and the right to charge up to a 5% franchise fee on all cable system service revenue.

1. Federal Law denies a franchise authority the legal right to regulate subscription prices.

2. Federal law denies a franchise authority the legal right to select available channels or define service tiers.

3. Federal law denies a franchise authority the legal right to regulate the nature, quality, and performance of the cable system infrastructure.

4. Franchisees with deep pockets can—and often do—contest and litigate reasonable demands by franchise authority by wearing them down financially and politically in the courts, often with great success.

5. Contract negotiation is complex and full of legal mine fields. With rapid technological advancement in the telecommunications industry, it is almost impossible to create a franchise agreement that foresees the effects of all possible technological developments so as to secure its relevance and effectiveness over the agreement period.

6. In the case of Time Warner Cable (TWC), who's ex-parent, Time Warner, owns approximately 36 cable networks (channels), its business interests are biased toward expanding the distribution and revenue of Time Warner's networks. Without such bias, a commercial cable operator would be more disposed to serving community preferences and entering into a franchise agreement far more favorable to the community.

7. The cable industry is lobbying states to centralize cable franchising at the state level, hoping to increase their political influence and decrease lobbying costs, all while effectively distancing themselves from the political reach of their customers. Some states have already converted; others appear well on their way.

8. TWC has already begun to push metered use of bandwidth, excluding their own services. They are doing this because Web video, Web radio, and Web phone service (e.g. Skype) threaten to reduce the value of their services: cable TV, radio, and phone. Bandwidth fees are their tool to discourage the use of these Web innovations.

9. Cable service is a very profitable business, helped by the fact that it functions as a near monopoly, which means that the community is charged unnecessary high service rates. Even in places where there are multiple providers, studies show that prices are essentially the same or only slightly lower than where there is only one provider. This is because where there are two major players, they act as a duopoly; where there are multiple contractors reselling the same underlying service, the network charges determine the retail price, and redundant organizations, marketing, and advertising, preclude any possibility of a more efficient system.

1.2 Benefits of Publicly-owned Broadband Service

There are several major benefits to a publicly owned cable service. Following is a partial list. Many of these items can expanded on considerably:

1. A publicly-owned service is answerable to the community. This will remain true even if the franchise is authorized at the state level in the future.

2. Significantly lower rates for subscribers. All current TWC profits will go back into the community.

3. Community driven selection of available channels and service tiers.

4. Community driven service policies, such as universal access—bridge the *digital divide*.

5. The ability to evolve our telecommunications infrastructure in ways that are most beneficial to our community, and to embark on whichever telecommunications service initiatives and policies we may see fit, such as a very high-speed network, universal access, low-cost Internet (closing the digital divide), more local public programming, citywide WiFi Internet, etc.

6. The ability to inexpensively add blanket wireless Internet service in Syracuse by leveraging the public fiber network.

7. The ability to develop/manage future resources and technologies, such as the federally licensed white space spectrum[4] or WIMAX[5] spectrum, which have been reserved for new wireless technologies that provide faster speeds and longer range than current WiFi (typical wireless hub) technology.

8. Community driven expansion of PEG and other local origination programming (education, political participation, community journalism, scholastic theatre, local cultural promotion), which could lead to a well-developed local video/film productions and broadcast industry.

9. **Increase the prestige of city schools** with innovative learning programs, services, and student experiences made possible by an inexpensive and ubiquitous high-speed network.

10. **Lure new residents to Syracuse** with innovative schools, invigorated cultural life, and state-of-the-art telecommunications.

11. Consolidate municipal (administrative, school, police, fire, 911) cable and wireless communications needs into one in-house service, providing increased flexibility and substantial savings.

12. Low-cost and very high-speed (100Mb/s–1Gb/s) broadband services as an economic development advantage for Syracuse.

13. Low-cost security monitoring service – both for property and, for example, healthcare monitoring.

14. Automated Meter Reading (AMR) – Ability to consolidate automated water, electric and gas, meter reading, wireless parking meter monitoring, traffic lights synchronization, and general residential/commercial Wi-Fi services into one network, dramatically reducing costs.

15. The option to offer cable service to nearby towns and villages, providing them all of the advantages Syracuse will have, plus greatly expand the franchise's viewership, which will provide greater bargaining power to negotiate lower channel fees the cable networks impose on some popular channels.

16. Confidentiality – The transition to all digital technology will increase the type and scope of available services; but, it will also generate considerably more customer usage information which could be packaged and sold to marketers. The use of such information is largely unregulated. Only community control of the service can provide a means to restrict the use of such information.

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[4]"White Space": FCC regulated frequencies, mostly the 700–800MHz range, previously used for analog television transmission.
[5]WIMAX: A protocol for high speed wireless devices that uses FCC regulated frequencies in the 2–4GHz range.

2 A Proposal

Natural resources and public infrastructure must belong to the people if we expect to preserve and strengthen government by the people rather than relinquish control to private corporations. The Telecommunications Act of 1996 strips municipalities of effective authority over the operation of telecommunications systems. The only way Syracuse can recapture regulatory authority over local telecommunications services is by owning them.

What Is Proposed

- A state-of-the-art high-speed fiber-to-the-home (FTTH) network.

- Plus city-wide wireless Internet access on top.

- Connecting all homes and businesses in Syracuse.

- A publicly owned utility.

- Funded from subscriber revenue.

- Financed by issuing revenue bonds, which will be repaid from subscriber revenue, placing no financial liability on local government.

What Is Gained

- Significantly lower TV, Internet, and phone service (by forgoing the 35–55% profit magins of incumbent operators), saving the community $20M+ per year, which, as effectively new disposable income, could stimulate roughly 400 new local jobs.

- Community control of prices, services, policies, and infrastructure investment.

- Television – All current channels and more, with a-la-carte selection.

- Internet – Extremely high-speed 100Mb/s–1Gb/s service.

- Telephone – local, national, and international calling.

- True universal access (bridging the *digital divide*) through flexible and affordable service options.

- Generous funding for public access, education, and government (PEG) channels, and well-equipped public access studio(s); and access to multiple additional local television channels.

- Greatly reduced City telecom expenses, and greatly increased service capabilities and flexibility.

Why Community-Owned

- Public ownership is the only legal avenue to local regulatory control of prices, services, investment, and access to our local telecommunications network.

- A community-owned network has no profit requirements; it can charge less and offer more services and greater public access. The decisions on prices, services, policies, and infrastructure investment are made to maximize the public good, not the profits of a private company.

- Community ownership can fund a full-featured and socially prominent *community media center*, which can help increase the cultural, educational, and artistic vitality of Syracuse via the creation and broadcast of local programs that engender community engagement, arts and cultural promotion, and economic development.

Form of Incorporation

There are a few different possible forms of business incorporation for a public broadband utility:

- Public Utility Service – A standalone municipally-owned entity, usually governed by a commission that is either elected or appointed. It may require a public referendum to establish it. Municipal ownership is mainly dependent on City's willingness to take a lead role in developing and operating the network. One problem is that such entity may be subject to Freedom of Information Law (FOIL) requests as well as to governance rules and regulations that could undermine business planning and slow down corporate decision-making. This is not an issue for monopoly utilities such as power and water. But it could seriously compromise broadband utilities which operate in competitive markets.

- Private Non-Profit (501c3) – This is the common form of non-profit organization. However, it is not commonly used for public utilities. One problem is that it is fundamentally a private entity, not directly answerable to the municipality nor to residents/customers.

- Consumer Cooperative (501c12) – A type of non-profit cooperative commonly used by publicly-owned power and telecommunications utilities. There are roughly 3,000 such entities in the United States, today. It's advantage is that it provides a very democratically form of governance, and is controlled by customers of the network. This assures that the network will be operated in the best interests of its customers.

The ideal solution for Syracuse is unclear. We should pursue in-depth discussions with experts and the public in order to understand which solution may be best.

2.1 Suggested Action Plan

Step 1: Organize and gather information

1. **Obtain a full financial and systems audit of local cable franchise operations** – The franchising authority is entitled by law to a full financial and system audit of the franchisee. The city should select an auditor with special knowledge of cable operator financial and operational methods to perform a full financial and system audit of the current franchisee, as part of the franchise renewal process,

in order to verify franchise fee payments, and to get updated information on the current cable plant throughout the city, as well as cable and conduit belonging to or accessible to City.

2. **Establish a public broadband committee** – (SMBI?) Initially to help steer the public broadband initiative. Later, we will need a formal public body to oversee our communications assets, and to provide a public forum in which cable service issues, concerns, and complaints of the community can be effectively addressed. The committee would oversee:

   a) Setting of subscription rates, channel tiers, channels offered, etc.

   b) Spending and general administration policies related to public studio facilities, PEG channels programming support, as well as program scheduling, and studio access, etc.

   c) Determination and allocation of any local program origination support fee collected by the franchisee on behalf of the city.

   d) Review of cable system upgrades and development plans.

3. **Discover Existing Community Assets** – What fiber and conduits does the city own or have access to? How much does city (county) government spend on telecom services? What existing network infrastructure is owned by local government, universities, hospitals, and major businesses? Remember that the Internet was started by large institutions connecting their existing networks to one another. Which organizations and individuals are telecom experts who can help the city design a municipal system? Some examples:

   a) Syracuse MetroNet – It's members represent all the major local institutions. Their low-priced network services from Verizon are expiring. They are looking for low-cost alternatives and wish to own rather than lease a network. Discuss joining forces to build a city-wide FTTH network rather than just an Institutional network (INet). An INet alone would cost $6M–$8M. But as part of a FTTH network, all members could be connected for $400K–$500K. The rest of the money would cover approximately 1/4 of the FTTH buildout. With the major institutions as "anchor tenants", the public network will operate immediately on very sound financial footing. http://syracusemetronet.com

   b) Syracuse University – Contact them for available expertise to perform a technical and business analysis for a FTTH and wireless broadband service. Some research groups of possible interest:

      i. Wireless Grids Lab – S.U. research group; experts in broadband network design and development. http://wglab.net

      ii. Community and Information Technology Institute (CITI) – from S.U. School of Information Studies; developed Medicaid conferencing software.

      iii. Syracuse Metropolitan Fiber-Optic Network (Symfony) – from S.U. and The Institution of a Now Culture (ThINC).

      iv. Collaboratory on Technology Enhanced Learning Communities (Cotelco) – S.U. research lab; helps enrich communities via greater connectedness and development of new products and services that broadband can make possible. http://cotelco.syr.edu/~dcogburn/ http://www.cotelco.net/

   c) Which local government/non-profit holds the license to the local 2.5GHz Educational Broadband Spectrum (EBS) and the 3.65GHz spectrum? – We may be able to incorporate some of this spectrum to improve wireless access to the public network, using WIMAX or LTE (high-speed, long-range) technology to enhance public safety, EMT, and city-wide wireless service.

4. **Feasibility Study** – With city sponsorship, have Onondaga Citizens League (OCL) and/or S.U. broadband experts, or other reputable local entity, in conjunction with an expert industry consultant, perform a technical and business analysis as well as a study of economic and social benefits of a municipal telecommunications utility for Syracuse.

    a) Create a preliminary technical/business plan for a Syracuse public broadband service.

    b) Survey residents – send out a questionnaire, perhaps with the water bill, asking residents if they would support a publicly-owned broadband service, etc.

    c) Survey Businesses – Assess how lower prices and very high broadband speeds may attract more businesses to Syracuse.

    d) Survey hospitals and public schools – investigate how very high-speed broadband may provide hospitals with new possibilities to develop telemedicine services; and similarly, investigate how the public schools might take advantage of high-speed broadband and additional funding to create innovative and unique educational programs and experiences for students, and help increase the prestige of the Syracuse public school system.

    e) Gather information on existing network infrastructure owned by local government, universities, hospitals, and major businesses (as mentioned above).

5. **Project Website** – create an accessible resource to provide information and facilitate public collaboration on the initiative.

Items 1, 2, 3, and 4 are largely dependent on the city's willing participation and support of the initiative. Item 5 can be developed by the community at large.

Step 2: Obtain Financing

How much financing is needed? As a rough estimate, Syracuse has around 60,000 potential subscribers. The cost of the central office (CO) equipment, substations, and running fiber along all the streets of Syracuse is fixed, no matter how many people signup for the service. Then there is the cost of connecting each premise (including customer premise equipment (CPE) and labor). So, the overall capital expenditure and per-subscriber cost to build the network is dependent on what percentage of potential subscribers actually signup (the take rate).

If nearly everyone signs up (our mission), total cost may be roughly $60M. However, not everyone would signup right away. So, we may need perhaps $40M in initial financing. The cost of connecting later subscribers could probably be funded from operating revenue. [Note: these are non-expert estimates.]

The public network will be a money-making operation. Broadband service is a very profitable enterprise. The service will be fully funded by subscriber revenue. Also, the publicly-owned will liekly provide to the city much more revenue—payments in lieu of taxes and other negotiated payments—than a private operator ever would. Initial investment and startup costs can be financed with revenue bonds, which are repaid from subscriber revenue. In addition, it should be possible to leverage state and federal grants to offset some of the cost. A number financing sources exist:

1. Revenue bonds – Low cost financing, repaid with subscriber revenue. These are backed by the broadband utility revenue rather than the obligation of the city. It is the common financing vehicle for both publicly-owned and privately-owned utilities.

2. Federal broadband stimulus grants – $4.7B available. These can be used to lower the build-out cost to connect municipal, school, library, and non-profit entities, facilitate universal access, improve affordability, provide public computer access and education, and increase the revenue available for PEG channels support, public access studio(s), and general local origination programming support.

3. Existing municipal and school district telecommunications funds – which could be deployed where applicable to connect to and leverage the broadband services and infrastructure provided by the new municipal broadband utility.

4. Other state & federal municipal and school grants – to build communications resources for education, municipal services, and facilities.

5. Homeland security grants – to build police and fire telecommunication networks, which could connect to and make use of the public network where applicable.

6. Federal and state telecommunications grants to colleges, universities, and healthcare facilities – could be leveraged to connect to and enrichen the public network with increased applications ans resources. Institutions internetworking their networks is how the Internet was created.

7. Crowd-sourcing – Finance the network with local dollars by encouraging residents to buy, e.g., $1,000 project bonds directly. "Support your community", "Invest in your community", etc. The lower prices of a public network will save the community $20M/yr, if not more.

In short, there are numerous avenues for financing, numerous opportunities to reduce local government telecommunications expenses, and high prospects for very low financing costs due to the high-revenue generating (low investment risk) nature of the investment as well as the low interest rate environment of the current economy.

Step 3: Build the Public FTTH Network

Using the analysis obtained from the feasibility study, create a new public utility business entity whose first mission is to build a new FTTH network. A request for proposal (RFP) would be sent to industry providers for the equipment and services needed to build the network. After a detailed engineering design of the fiber network topology is completed and equipment suppliers are selected, the required cabling and equipment is ordered, and construction can begin when the equipment is received.

Since our mission is to operate on a non-profit basis, connect every premise in the city—because everyone needs telecommunications services—and so be able to offer by far the lowest prices and highest quality services, we should plan accordingly from the outset. This will actually reduce the cost of connecting each premise.

Whether we upgrade the TWC system or build a new parallel installation in competition with TWC, we should build a high-speed fiber network to the home. It is actually the least expensive solution. This would cost around $700–$1,000 per premises (very rough estimate). Syracuse constitutes a relatively large and dense population with poles and conduit already in place for laying fiber along streets inexpensively (as little as $100–$200/pass-by). On-premises equipment and installation is the major cost. A fiber network is future-proof with virtually unlimited bandwidth to cover all foreseeable service needs or wants. If we build anything less, we are likely to face competition in the near future, and will have to rebuild in fiber to compete.

3 Conclusion

The creation of a public FTTH broadband utility is a bold step. But Syracuse would not be the first to do it. Dozens of communities have done it with great success, many having overcome major technical, economic, and political obstacles. These communities fought for their public interest and won. We can surely do the same.

Our challenges will be far easier in comparison, mostly a matter of organizing and planning. First, we are a comparatively large and dense city and will have much lower costs and much greater savings to offer the community. Second, the economic development effects of low-cost very high-speed Internet, the opportunity to dramatically enhance our schools, the city's cultural vitality, and the local medical, high-tech, and research industries should not be underestimated. And third, the national attention Syracuse will gain as a modern and progressive and technology savvy city, will surely do wonders to attract people and businesses to Syracuse and its suburbs.

We urge the mayor and the common council to offer their cooperation and support as soon as possible to the initiative. And we encourage representatives of major local institutions (city, school district, county, hospitals, colleges, and business) as well as broadband related experts and the general public to contact us to express their interest and to explore together the full potential of what public broadband can make possible for our community.

For more information and latest news, please visit http://syracusebroadband.org.