

Envision a Connected City

Introduction

The purpose of this City Council Retreat topic is to provide Council a general understanding of Longmont's history of innovation regarding telecommunications and how we are positioned today regarding infrastructure and our use of technology and to explore what role we, as municipal government, should play in the future to help ensure that our community continues its progress toward becoming a 21st century connected City. This white paper, in addition to a few brief presentations at the retreat, should provide a good background in preparation for the discussion regarding if or how Longmont should continue to try to leverage City infrastructure and expertise to improve the connectivity of the community.

Longmont Municipal Telecommunications History

In the 1990s, the telecommunication services industry was growing rapidly and becoming a topic of interest for many municipalities. This was especially true in smaller (second and third tier) communities like Longmont where incumbent providers had no definite plans to provide upgraded technologies such as DSL and high-speed cable modem Internet access that were already available for residents of larger cities like Denver. The following is a chronology of events that occurred in Longmont regarding municipal telecommunications efforts.

January 1996 – After a City Council Retreat discussion, Council authorized staff to perform a feasibility study regarding the construction of a municipal telecommunications infrastructure. The study identified public goals, benefits and risks associated with such an undertaking in addition to a community needs assessment, technology analysis, financial analysis, market penetration analysis, ownership and operations options, and build-out alternatives.

November 1996 – Council approved construction of the initial phase (7 miles) of a fiber optics backbone ring.

January 1997 – Council approved establishment of the Telecommunications Utility with the following objectives:

- Increase economic vitality (business retention and economic development);
- Create an environment for competition and choice of telecommunications providers and services;
- Enhance community services (education, health care, government, etc.);
- Improvement government and utility communications;
- Reduce City operations costs;
- Protect City rights-of-way; and
- Strategically position the electric utility for expected competition due to deregulation of the electric utility industry by providing advanced communications capability for electric operations. (Deregulation, although originally a nationwide plan, was implemented in a relatively few states, including California.

Deregulation is now thought by many as a failed idea, especially for consumers. Deregulation was never adopted in Colorado.)
(See Appendix 1: 1997 article by City of Longmont Mayor Leona Stoecker for more detail on the City's original objectives.)

April 1997 – Platte River Power Authority offered to fund construction of the entire 17-mile, 144-fiber backbone ring in conjunction with fiber installs in the other three PRPA cities. Council approved construction of the second phase (10 miles). PRPA retained 12 fibers for interconnection with its own fiber optic network and the City's electric substations.

October 1997 – City switched its voice and data communications between the Civic Center, the Service Center, and the Public Works facility from leased telephone lines to the City-owned fiber optic system resulting in significant annual cost savings.

January 1998 – Full fiber backbone ring construction was complete and placed into operation.

Throughout the late 1990s - The City met with dozens of potential telecommunications service providers and potential partners in an effort to further develop the infrastructure and provide new services to the community. These discussions included incumbent providers Comcast and Qwest. Both incumbents informed the City that they were not interested in partnering in any fashion. In the meantime, citizens began to complain at Longmont City Council meetings about the lack of high-speed Internet alternatives in Longmont that were already available in other communities. When pressed by City staff at Council's request, both incumbent providers repeatedly refused to commit to any time frame regarding the provision of such services in Longmont.

March 2000 – Agreements were signed with Adesta Communications to build out a full fiber to the home network in the City. The capital cost of the system was to be paid by Adesta, and no City funds were at risk. Upon completion, Longmont would be one of the few communities in the world to have such an infrastructure in place. Construction began in November.

November 2001 - Adesta filed for bankruptcy in the midst of an industry implosion that affected many other telecommunication companies.

June 2005 – Colorado Senate Bill 152 was passed preventing the state's municipalities from providing new telecommunication services. The law contained a provision that a municipality could re-establish this right if an appropriate ballot question was successful in a local election.

August 2006 – Agreements were signed with Kite Networks to build and operate a City-wide Wi-Fi system in Longmont.

February 2008 - Assignment of agreements to DHB/AirWirz was approved by City Council.

October 2009 – DHB assets were seized by Boulder County for delinquent property tax payments.

November 2009 – RidgeviewTel/Starnet purchased Longmont Wi-Fi system assets at Boulder County auction.

December 2009 – Agreements were signed between the City and RidgeviewTel/Starnet to enhance and provide services through the recently purchased citywide Wi-Fi system.

To date – In addition to the 17-mile fiber backbone, there are 25 miles of fiber extensions throughout the City. The Telecom Utility is an enterprise fund that leases to a dozen entities with approximately \$350,000 in 2009 revenues, \$180,000 in expenses, and a \$540,000 fund balance.

Adesta Communications Agreement – Success or Failure?

After various meetings with several telecommunications companies, including local service providers, municipal utilities that provided telecommunications services, and an official request-for-proposal process, the City moved forward on negotiations with Adesta Communications. In March 2000 an agreement was reached with Adesta in which it would fund the construction of a citywide fiber optics based broadband network that it would use to provide advanced telephone, data, Internet and digital cable services. The Adesta agreement provided the City significant revenues and services with minimal financial investment or risk. Adesta began network construction in November 2000, stopped construction in April 2001 due to lack of funding, and filed bankruptcy in November 2001.

Certainly the City did not receive the benefits originally planned in the Adesta agreement but did receive benefits in other ways. The infrastructure installed by Adesta, which included both fiber and empty underground ductwork, is now owned by the City. Additionally the Telecommunications Utility received \$50,000 in December 2001 and \$900,000 in October 2002 related to performance bonds as part of the agreement, and we recently have been given notice that the final distribution of the Adesta bankruptcy is approved and the Telecom Utility might receive additional funds. Another side benefit, but an important one to all Longmont residents and customers, is the fact that after repeatedly refusing to commit to a time frame for deploying higher speed services in Longmont, Qwest announced the start of DSL services in Longmont within a few months of the Adesta agreement and Comcast announced cable modem service about a year later. Although it cannot be proven that the incumbents finally stepped up to provide this service in direct response to the potential competition posed by the Adesta agreement, this sequence of events is similar to what other municipalities throughout the country experience with local providers once municipal broadband plans have been announced.

Senate Bill 05-152 and its impact on Longmont

In 2005, the Colorado General Assembly adopted Senate Bill 05-152, codified at C.R.S. 29-27-201 *et seq.*, which prohibits municipalities from providing telecommunications services, advanced services and cable television services either directly or through formal business partnerships with the private sector. C.R.S. 29-27-201 provides that before a local government can provide telecommunications services, advanced services and cable television services, an election must be held on the question of whether the local government shall provide the services. The ballot question must be approved by a majority vote before becoming effective.

City staff continued to pursue opportunities to leverage existing infrastructure and, in early 2005, had developed a proposed bandwidth rate ordinance that would have provided advanced telecom services directly to Longmont businesses using the fiber optics network. This would have enabled businesses to receive comprehensive services from Longmont's Telecom Utility using only fractions of a fiber instead of requiring them to lease an entire dark fiber. Leasing dark fiber necessitates substantial investment and high technical expertise for bandwidth levels in excess of what most business would ever need. However, S.B. 152 was passed just prior to approval of this ordinance. Since the Senate bill allows municipalities to provide only the telecom services it had provided prior to its passage, Longmont could continue to provide only dark fiber leases. This is a service that, for the most part, is not practical for the typical Longmont business.

Following passage of S.B. 152, the City successfully attracted a private-sector telecom company, Kite Networks, to begin deployment of a citywide Wi-Fi network, then carefully crafted a set of agreements in such a way as to conform with the new state law. This limited our financial involvement and our ability to influence customer service quality levels for retail services provided to the public. In late 2007, Kite Networks developed financial difficulty and the Wi-Fi network was in danger of being shut down to the public. Even though the City had the technical ability to keep the Wi-Fi network running and accessible to the public, it did not have the legal right to do so due to S.B. 152. Fortunately, staff was able to convince the network owner to keep the system up and running and provide free access until a buyer of the system could be found. This resulted ultimately in continuity of service and a fairly smooth transition to new ownership under DHB Networks.

Our experience with the volatility of private-sector telecommunications companies providing state-of-the-art services has been similar to that of other municipalities. Municipal involvement, either directly or through public-private partnerships, can provide some stability to these services that are being considered more essential by businesses and residents as time goes on. Re-establishing our ability to leverage the advanced telecommunications infrastructure our community has already invested in could help improve Longmont's competitive position and stimulate economic development.

In August 2009, Council approved this question to be taken to the voters in ballot question 2C for the November 3, 2009, election. After a heavily funded opposition campaign, the measure was defeated by a margin of 57% to 43%. At about this same

time, Boulder County seized the Wi-Fi assets from DHB Networks due to a default in property tax payments. Boulder County then held a sale of the Wi-Fi equipment installed in Longmont, and the lone bidder paid the minimum bid price of \$121,770, which included \$34,318 owed to the City for delinquent energy usage and miscellaneous Wi-Fi related bills.

In December 2009, Council approved agreements with RidgeviewTel/Starnet to provide Wi-Fi services in Longmont, including free services to Digital Divide customers and accounts for City use. RidgeviewTel already has upgraded and enhanced the system and has started marketing its Wi-Fi services to Longmont residents with a very competitive pricing structure.

Citywide Wireless – Current and Potential Municipal Uses

Although many Colorado municipalities have attempted to attract private companies to build citywide Wi-Fi systems, including a 10-city consortium lead by the City of Boulder, the City of Longmont has been the only city to successfully do so under the restrictions of S.B. 152. This unique system is providing our residents with a lower cost and mobile alternative to Internet connectivity that provides Longmont a significant advantage over most other municipalities. One advantage is the access that we as a municipality have to this system and the ability to develop new applications using it. Below are examples of how we currently are using the system and some planned applications.

- The most widespread use of the Wi-Fi system has been to actively support the Digital Divide Program. This is a program that provides free Internet access and a refurbished personal computer, previously used by our City employees, to families with school-age children who have a Housing Choice Voucher or who live in subsidized housing.
- Dispatching service requests to field staff. The Public Works and Natural Resources Department uses a mobile work management system. Field operations staff receive their daily work assignments and schedules electronically. If the dispatcher receives a call for service that requires an immediate response, he can create a service order in the office that will be received by the responder in the field. Likewise, the responder can complete the investigation, close the request and submit the transaction back to the office from the field unit. All communication is transmitted and received via the Wi-Fi system. This remote access via Wi-Fi also could be used by other field operations staff, including those in LPC, Building Inspection, Code Enforcement and Animal Control.
- Automatic vehicle locating system (AVL). The City is in the process of implementing an AVL system that will enable City departments to better use the fleet, including optimizing snow, sweeping and sanitation routes to improve productivity and reduce fuel consumption. This system is planned to run a test to measure the effectiveness of using the Wi-Fi system to transmit vehicle location. These units are equipped with a cellular back-up; however, the Wi-Fi system will be the primary conduit for communication to keep cellular fees to a minimum.

- The City's traffic signal system currently communicates vehicle counts, system events/diagnostics and timing changes via Qwest lines at an annual cost of over \$70,000. Copper phone lines have extremely low bandwidth by today's standards, and that impedes the flow of data in a timely manner. Running the system via cellular would significantly increase our annual cost. Wi-Fi is a more cost-effective option in the long term; however, it would require a significant system upgrade with capital costs ranging between \$200,000 and \$400,000, depending on required software and hardware upgrades.
- Automatic meter reading – Technology using Wi-Fi for transmitting water and electric meter information is available but not yet commercially viable. Since Longmont is one of the few cities in the country to have a citywide Wi-Fi system available, vendors have not focused their efforts on using this particular technology to a great extent. However, this does have future potential as more utilities use Wi-Fi technology and the devices become more readily available at a lower cost.
- Remote wireless cameras for Public Safety and other security and surveillance activities. In areas that are not close to our wired or fiber network, our Police staff has used remote cameras that access the Wi-Fi network. We also plan to mount cameras on key emergency response vehicles and command vehicles to coordinate major events from the Emergency Operating Center or Dispatch.
- Milpitas, California, uses Tropos Wi-Fi radios (the same radios used in the Longmont system) to transmit critical patient data from their "Lifepack 12" units installed in ambulances to hospital emergency rooms. This system provides the doctors with patient vitals while they are in transit to the medical facility.
- We also plan to use the public network to provide for additional public access points at some City facilities and conference rooms. Visiting vendors or special programs such as Wellness Fairs can make very effective use of the public access system to make presentations or to answer questions by remotely accessing their central databases.

A newer wireless technology is called WiMAX. This is a wireless digital communications system, also known as IEEE 802.16, that is intended for wireless "metropolitan area networks." WiMAX can provide broadband wireless access up to 30 miles for fixed stations and 3 to 10 miles for mobile stations. In contrast, the Wi-Fi/802.11 wireless local area network standard that our current system is based on is limited in most cases to only 100 to 300 feet. With WiMAX, Wi-Fi-like data rates are supported easily, but the issue of interference is lessened. WiMAX operates on both licensed and nonlicensed frequencies, providing a regulated environment and viable economic model for wireless carriers.

Since WiMAX can cover greater distances, it's possible to cover the entire City of Longmont with just a handful of radios in contrast to the hundreds required for our Wi-Fi

system. This advantage, combined with others, may make WiMAX a better candidate for fixed-location applications like smart grid metering. One issue with WiMAX is that most mobile devices such as laptop computers, cell phones and PDAs do not come equipped with WiMAX capability. This is due primarily to cost and battery drain (in order for WiMAX to reach up to 30 miles a more powerful, thus power hungry, transceiver is required). Because of this, most current WiMAX deployments are focused on fixed-location devices not dependent on battery power and as backhaul systems for local Wi-Fi hot spots.

RidgviewTel recently has deployed a new WiMAX system in Longmont and has just started offering retail services. Other companies also have discussed planned WiMAX deployments in and around our city. Since deployment capital costs are relatively low, we can expect to see more systems and more applications being developed using this technology in the near future.

Smart Grid and its Potential in Longmont

There has been considerable discussion in the media concerning the electric “smart grid” and other associated developments such as in-home energy monitors, smart appliances and advanced metering systems. This media focus is heightened in our area due to the smart grid project in Boulder by Xcel Energy. Following is an overview of smart grid issues.

The smart grid started on the utility side of the meter

The smart grid is the latest in a series of efforts by electric utilities to optimize operation of the grid to enhance safety, increase reliability and reduce operating costs. Most of the previous initiatives have been on the utility system itself and have focused on computerized controls. The linchpin of this effort has been SCADA – Supervisory Control and Data Acquisition – which monitors the grid and provides instant notification of system conditions and allows centralized dispatch for system control. LPC has employed a SCADA system since the mid-1980s, and the fiber optic ring in Longmont allows enhanced communications and operations with the system.

The grid now wants to be smart on the customer side, too

The present focus has shifted to systems on the customer side of the meter. The concept is that home energy systems would allow customers to control energy costs, facilitate energy conservation, increase their use of renewable energy supplies, and combine various home appliances under one universal remote control system.

Metering: The link between the customer and the utility

The common point between the customer and the utility is the electric meter. The present focus is to develop and deploy a system by which the meter can communicate securely with both the customer and the utility. This communication would collect electric usage, display power price signals, show renewable energy availability, monitor power quality, notify of outages and enable in-home control devices.

The key development: Communications

The key development that will allow the grid to expand to the customer side is the recent advancement in communications technology. The SCADA systems in use by utilities were constrained in the past by limited communications capabilities – mostly privately owned microwave systems that could not support thousands of metering sites. There are at least five competing communications systems (licensed frequency radio, unlicensed mesh network radio, power line carrier, cell site links, Wi-Fi and/or WiMax) that have enough range and bandwidth at this point to support the advanced capabilities envisioned by the smart grid. Longmont is in an enviable position with a fiber optic ring network in place and an operational Wi-Fi system under private ownership that will enhance the development of smart grid in the community.

The present smart grid status

The present smart grid incorporates all of these concepts. Grid automation systems on the utility side are generally available and are mature technologies that would incorporate well with the LPC infrastructure.

At the customer side, however, the meters, communications systems and customer devices still are mostly undefined and experimental. For example, the five major communication systems available for utility-to-meter links (listed earlier) all are competing for dominance in the market and for the associated cash. There is limited availability of smart appliances, home energy systems and monitors, and there presently is no standard communications link among all of the various components, although all of these features are under development.

The future where the glass is half full – The Grid with an IQ of 147

The general intent of a fully realized smart grid is two-fold:

- Customer control of electric usage and cost, and
- Maximum use of utility infrastructure and a reduction in new development of generation capacity.

A fully functional smart grid would allow customers to easily program their home to operate efficiently and automatically to keep their costs down. In addition, they could choose to buy renewable energy when it's available and conserve energy through the home control systems. When plug-in hybrids become commonplace, the smart grid could facilitate their energy transfer and optimize the operational costs.

The utility effort would be to organize energy usage in a way that uses all the capacity in the grid at all times to defer additional capital investment in power lines and generating capacity. Meter systems would notify the utility instantly of outages and pinpoint the problem location. The costs for meter reading and all of the meter access issues would go away with the new communications systems.

The future where the glass is half empty – Details, Details, Details

One significant component of smart grid and energy conservation success is a time-of-use rate (dynamic pricing) that establishes the utility cost for service at every time of the

day. At utility peak times, the correct rate may be 10 or 20 times higher than at off-peak times, and the utility of the future will charge that rate for peak usage. The customer will need a smart grid system that will curtail their load at the time of peak pricing or the monthly bill will be a problem. The family of the future may need to adjust to schedules for cooking, cleaning, heating, cooling and recreation that are set by electric prices. There presently are no dynamic price rates generally in use in Colorado.

Plug-in hybrid cars will be a large load on the system when they charge. Present-day infrastructure is likely not sized to allow all vehicles to charge at home without a centralized timing control, which will add complexity and reduce the flexibility for most customers.

There have been concerns raised about the security and customer privacy aspects of a smart grid system. For example, energy use patterns could be used to determine when customers are away from the home. The concern about malicious hackers interrupting service or manipulating billing data is obvious. From this standpoint, fiber optic links improve security and privacy but at a much higher cost than wireless and radio.

The amount of electric usage data that can be collected from these metering systems is HUGE (one reading vs. 2,880 readings per month per typical customer), and the utility's storage requirements and sorting and analysis needs are not clear at this time.

The initial cost of these systems is significant - \$5 to \$10 million for the LPC system – and it's a concern that the technology will be obsolete by the time it's completely installed.

It is not clear what general customer acceptance will be for a fully functional smart grid with dynamic pricing signals, computerized home energy systems and the associated changes in routine schedules that may occur. Can lower-income customers afford the smart appliances and home energy systems that control their power bill, or will they be exempted from dynamic rates?

LPC efforts to date and a comparison to the Boulder Smart City project

LPC has been well ahead of the curve for system automation and control (the utility side of smart grid), starting in the 1980s with SCADA, installation of fiber optic links in the 1990s, and integration of electronic relays with SCADA most recently. These utility-side improvements will facilitate the installation of further smart grid components as they become available, including customer premises devices.

Much of the effort and expense with the Xcel project in Boulder was on the utility system to enable the other smart grid features. The utility-side efforts included electronic relays in the substations and on main circuits, fiber optic links between control areas, and SCADA or other control systems necessary to evaluate and use the data. These are the systems that LPC has developed over a longer time period. Xcel also is testing several communications systems, advanced metering installations and in-home devices.

LPC Advanced Metering Infrastructure Pilot - 2010

LPC is included in a DOE stimulus grant for smart grid with Fort Collins, Loveland and Fountain. Fort Collins is pursuing full implementation of an advanced metering system and various smart grid components. The other participants have smaller-scale test installations planned. The DOE grant is a 50% match and LPC has been awarded about \$85,000. LPC will use the grant for several system automation components in the substations. In addition, we will pursue small-scale, advanced metering installations to assess the various vendor smart grid packages and evaluate performance of the communications technologies. This effort will begin in 2010.

The Role of Municipal Government in Transforming Longmont into a 21st Century Connected Community

Since Longmont established the telecommunications utility in 1997, its primary purpose has **not** been to compete with private industry. Its primary purpose has been to fill a gap in existing services and create an environment of economic, social and cultural growth through competition among various service providers. The community still wins if the end result of a municipal telecommunications investment is that it motivates existing and new providers to expand services, improve quality and reduce prices.

Many of the original goals for establishing the telecommunications utility have been achieved. The City is using the optical fiber network for most internal communication needs resulting in tremendous bandwidth capacity and significant cost savings. LPC and PRPA already are ahead of most utilities in the deployment of smart grid technologies and are well positioned to expand their capabilities due to the existence of the network. The St. Vrain Valley School District, Longmont United Hospital and other organizations use the City's optical network, expanding their capabilities and lowering their costs. The two major incumbent providers, arguably initially responding competitively to our municipal efforts, now provide most of the community with cable modem and DSL technology options for Internet connectivity. Longmont is the only city of its size in Colorado, and one of the few in the nation, to have a citywide Wi-Fi option due primarily to the availability of the optical fiber network that is used as the Wi-Fi system back haul.

Much has changed since Council established the telecommunications utility: local and national economies are struggling, technology has evolved, and higher speed data services now are available from a few providers in the community. One thing has not changed: there continues to be general consumer and especially business discontent with service choice, availability, cost and quality of advanced telecom services from existing providers. At the Longmont Area Economic Council, businesses have expressed a desire to see more choice, better service and lower costs for connectivity. In the most recent issue of *Consumer Reports* magazine (February 2010), both of Longmont's incumbent providers of wired services rank below average in either customer support or network speeds. In fact, out of 12 companies surveyed for overall satisfaction of bundled telecom services, Qwest ranked 6th and Comcast, ranked 11th.

According to a recent report by the Communications Workers of America, the U.S. ranks 28th in the world in average interconnection speeds and is not making significant progress in building faster networks. The report goes on to say that our nation continues to fall farther behind other countries. Other organizations that attempt to rank broadband connectivity globally have come up with similar findings (The Information Technology & Innovation Foundation as well as the Organization for Economic Cooperation and Development ranked the U.S. 15th). This is disheartening news considering the current state of the global economy and the increasing realization for many local businesses that their survival depends on their ability to compete globally.

Why has the country that invented the Internet and that prides itself at being a technological leader fallen so far behind? We may have witnessed evidence of at least part of the problem during our last election when Comcast and the Cable Telecommunications Association spent approximately \$200,000 to defeat our ballot question 2C. Spending significant resources to lobby for local and state legislation designed to block competition enables these large companies to continue to control the pace and location of new technology and service offerings while maximizing the time frame of profitability for their older infrastructure investments. Although this may be a good business strategy for maximizing the profits of these few large companies, it could certainly be argued that this is not in the best interest of consumers.

Given enough time, private industry eventually will begin to serve the increasing broadband demands of Longmont. This likely will occur only after new systems are deployed in larger, more profitable metropolitan areas. This situation also ensures that smaller communities like Longmont will continue to be behind the technology curve compared to their larger counterparts, and deployment of these new technologies may be delayed many years. One of the main issues facing municipal leaders is this: Can we afford to wait?

In some respects, the situation with telecommunications service in Longmont today is analogous to the situation with electric service in the early 1900s. Residents were not satisfied with electric service availability, pricing and quality, prompting the City to move toward creating a municipal electric utility to act in the public interest. The company providing electric service to Longmont at the time argued that providing electricity was too complicated and risky for a municipality. When their arguments failed to convince voters, they spent considerable resources trying to tie up the City with legal challenges. In the end, a group of 63 residents partnered with the City to help overcome these challenges and form the Longmont municipal electric utility. Because of this local grass-roots effort, our residents today enjoy the lowest electric rates in Colorado along with service reliability levels among the best in the nation.

Today, more than 450 municipal utilities across the country provide some form of telecommunications service to their communities because private company service was unavailable, limited, of poor quality or too expensive. Community-owned utilities have different goals than their private counterparts. Where private-sector companies may determine that return on investment is too low to enter (or expand in) a market, a

municipal utility may invest in infrastructure at cost-of-service rates for economic, educational, social and quality of life purposes.

Although both DSL and cable modem services are “broadband” as defined by the U.S. government, they are rapidly becoming inadequate due to their technological limitations and today’s increasing bandwidth demand. For many businesses and telecommuters, DSL and cable modems meet bandwidth demands of a few years ago at best.

Except for fiber, all rival technologies currently are working at the outer limits of their technological capacity due to fundamental physical barriers. The ultimate limit on capacity for fiber optics is several hundred thousand times higher than that of the coaxial cable used in cable TV systems. While wireless may provide a quicker and cheaper way to roll out services initially than wired infrastructure, it will remain a shared and limited spectrum. Basically, more wireless users will drive the need for fiber to be built closer to the end user to maintain adequate speeds at wireless access points.

No one can predict exactly what new technology is just around the corner. Although there may be additional incremental gains squeezed out of existing non-fiber infrastructure to provide higher bandwidths, it seems clear that fiber currently is the best “future-proof” solution.

The City of Longmont Telecommunications Utility owns and operates an 18-mile fiber optic backbone ring with 144 fibers and 25 miles of fiber spurs from the ring. The City currently uses 10 fibers for internal voice and data, and Platte River Power Authority has exclusive ownership of 12 fibers. The remaining 122 fibers are available to lease on a first-come, first-served basis. As of December 2009, 28 of the 122 fibers were being leased. Most City facilities, including all the electric substations, have links to the network, yet we still have significant additional capacity that could be leveraged to provide added benefit to our community.

In testimony before the Communications Subcommittee of the Senate Committee on Commerce, Science and Transportation, the American Public Power Association identified the elements that make municipal electric utilities uniquely qualified to provide communications services stating, “Municipal electric utilities already have the infrastructure and experience to deploy advanced communications services and infrastructure. They have skilled work forces that are accustomed to dealing with complex technologies. They have access to poles, conduits, rights of way and direct connections to their customers. They know how to help customers and provide prompt and efficient customer support.”

Questions for Discussion

It's clear that Longmont, having a well-established municipal electric and telecom utility and an optical fiber backbone network in addition to a citywide Wi-Fi system already in place, is uniquely positioned among U.S. cities to be transformed into a 21st century connected community. The question is:

What is the best way to get there and what role would Council like our City government to play in transforming Longmont into a 21st century connected city?

Attached in Appendices 3 and 4 are two reports written by Mr. Craig Settles, a broadband business strategist, marketing expert and author. Mr. Settles helps organizations use broadband technologies to improve government and stakeholders' operating efficiency, as well as local economic development. His biography is attached in Appendix 2. Mr. Settles explains that his "qualitative research and analysis reports provide an overview of major issues impacting communities' pursuit of broadband networks. They help community stakeholders make better decisions and build networks that meet constituents' needs and expectations. Each report presents roundtable discussions with representatives of urban and rural communities that have built high speed networks. They speak from experience and with insight that adds new perspectives to your thinking." Mr. Settles will facilitate a discussion at the retreat regarding these issues and potential strategies we should consider.

Arguments raised by large companies within the telecom sector, such as Comcast and Qwest, opposing municipal participation in the provision of additional broadband options to their communities have been well documented and well addressed over the years by many organizations throughout the country. In fact we heard some of these same arguments during the campaign against ballot question 2C. Attached in Appendices 5, 6 and 7 are three published articles addressing most of these arguments. These are the same articles staff provided Council in August of last year when we were considering placing the ballot question in the November 2009 election. These are just a few examples from independent organizations and individuals in support of community broadband efforts.

City government could do nothing and rely solely on the private sector for advanced communications services, or it could play an active role via our municipal telecom utility. The role of a municipal telecom utility can be to provide services directly or simply to provide the means of connecting end-use customers with private service providers in a wholesale business model. In other words, we could begin to expand our high speed communications network, connecting each and every residence and business just as we provide the roadway connections within our community. These connections could be made available to all private-sector providers enabling them to compete on price and services. Financial risk can be mitigated by incremental investment in network expansion projects, leveraging our existing electrical or water/wastewater connections using micro duct and other technologies and/or by partnering with a private sector investor.

If Council wishes our municipal government to do anything new related to the provision of telecommunication services, we must first address the current state law. Another specific question to discuss is:

Should the City consider placing another telecommunications question on the 2010 election ballot and/or pursue state legislation to repeal S.B. 05-152?

Things to consider regarding S.B. 05-152:

- No one knows what technological advancements we might see in the future and what kinds of opportunities they could bring to our community. The restriction placed upon us by the current law prevents us from acting in a timely manner to take advantage of future opportunities. In fact, we already have missed out on potential broadband stimulus funding opportunities that presented themselves last year within a narrow window of opportunity, and we missed out on the opportunity that presented itself just one month before the election to own and operate the citywide Wi-Fi system for the benefit of our community. The current law, as it stands, will ensure that we will miss out on future opportunities as well.
- The telecommunication companies lobbying in favor of S.B. 05-152 were able to obtain a neutral position from the Colorado Municipal League and ultimate passage of the bill by adding the local ballot question provision. However, based on our recent experience and considering the state's campaign finance law restrictions on a municipality's ability to promote its position in a campaign, the real benefit of this provision to residents is questionable.
- Broadly re-establishing the City's legal rights to potentially provide new telecommunications services puts things back the way they were before the state law was passed in 2005. This approach also provides the City the needed flexibility to respond to future potential opportunities in a timely fashion. All telecom opportunities have been and would continue to be presented to City Council in full detail and considered and decided upon in an open, public process.
- Developing specific business plans and presenting them to the public as part of a future ballot issue, versus the broader approach we last tried to simply re-establish the City's legal right to provide new telecommunications services, has several disadvantages.
 - Considering our limited ability under state campaign finance law to promote our position and the history and effectiveness of misinformation campaigns mounted by large telecom companies and their associations throughout the country in defeating such efforts, providing specific details on specific projects can play right into the hands of these very "creative" campaigns.
 - Significant funding and resources required to prepare specific business strategies prior to an election would be wasted if the ballot question is unsuccessful.
 - Partnership opportunities could be part of a specific plan. However, potential partners and our ability to negotiate could be limited or compromised if these plans/contracts would be contingent on the success of a ballot issue. Also,

- We would be required to go through the same campaign process all over again when a new or different opportunity presented itself. This is assuming that the opportunity even could be taken advantage of with the significant delays and uncertainties associated with the ballot process.

Attachments

1. 12-08-97 Mayor Stoecker *Times-Call* Article.pdf
2. Craig Settles Biography
3. Craig Settles Snapshot 1-09
4. Craig Settles Photo 4-09
5. Municipal Broadband Should Cities Have a Voice
6. Deceptive Myths About Municipal Broadband
7. Connecting the Public Truth About Municipal Broadband