

# 'What Would You Do With a Gig?'

Faced with challenging economic conditions, local governments improve their odds by making sure businesses have access to adequate broadband.

By Masha Zager ■ *Broadband Communities*

Many supporters of municipal broadband are discouraged by North Carolina's Level Playing Field/Local Government Competition Act and other recent initiatives that outlaw municipal builds or raise their costs. (For a summary of these initiatives, see Barriers to Municipal Broadband in this issue.) Despite these setbacks, however, a surprising number of public and public-private fiber projects continue to move forward in many states.

Public fiber projects tend to focus on community needs for economic development and advanced applications. Over the last several years, communities' goals and expectations for these projects have become more nuanced. Smaller communities, such as Cortez, Colo., and the towns collaborat-

ing on the New Hampshire FastRoads project, see fiber as table stakes for the modern economy. They don't expect broadband to be a magic bullet. Rather, they expect it to help them make the most of their innate advantages, such as convenient location, beautiful scenery and appealing lifestyle.

Some larger communities are using fiber infrastructure to advance specific applications. For example, Chattanooga is working with software vendors to integrate and tailor a smart-grid application. The result will be "useful and actionable information" for the municipal electric utility – and, eventually, lower electric bills for the city's residents.

– MZ

## MUNICIPAL FIBER SYSTEMS

### EPB Completes Its Fiber Buildout

In March, EPB Fiber Optics finished building fiber to the home throughout its entire 600-square-mile service area, which includes Chattanooga, Tenn., and surrounding areas. The project was completed a full two years earlier than originally planned. Already the operator of the largest municipal fiber system in the United States, EPB hoped to extend its network into a neighboring county, but the legislation that would have permitted this extension was withdrawn by sponsors in the face of opposition. For now, EPB Fiber Optics will remain within the utility's traditional service area.

The smart-grid system that was the original impetus for EPB's fiber build is still under development and will not be completed until 2012. EPB recently collaborated with vendors Alcatel-Lucent and Tantalus Networks on a new soft-

ware interface that will deliver electricity usage data to meter data management systems. This high-speed, low-latency interface will allow EPB to collect large volumes of real-time data.

Defining the interface between Tantalus' data communications system and the meter data management system was a key step toward EPB's vision of a smart-grid management system. "Smart meters are delivering exponentially greater volumes of data," says Eric Murray, president and CEO of Tantalus. "In a modern power distribution network like Chattanooga's, nearly every compo-

nent – meters, reclosers, transformers – will communicate with the utility on a regular basis. The challenge is how to manage the torrent of data, transform it into useful and actionable information and make it available instantly to all appropriate departments, such as billing, customer service, asset management, engineering and operations, in a usable format."

Another municipal utility whose fiber network supports a smart electric grid is BVU in Bristol, Va. BVU recently announced its collaboration with the Tennessee Valley Authority (TVA) to reduce

Check out the new FIBER DEPLOYMENT blog on BBCmag.com for timely news about FTTH projects.

#### About the Author

Masha Zager is the editor of *BROADBAND COMMUNITIES*. You can reach her at [masha@bbcmag.com](mailto:masha@bbcmag.com).

peak electricity demand. This project saves money for BVU customers and helps TVA reduce costs for all the power distributors in its service area.

Through a 10-year agreement with TVA, BVU will begin to reduce its peak load for up to 100 hours annually by making slight voltage adjustments at seven distribution substations. It will also be able to control the voltage remotely, using its fiber network.

TVA has agreed to pay BVU nearly \$900,000 for the demand reduction, and BVU will apply the payment toward its automated metering project, which will yield still more cost savings for BVU customers.

“These types of opportunities to provide better, more efficient service to our customers confirm our decision, years ago, to invest in the most advanced fiber optic broadband system available. Our broadband technology continues to provide new solutions in a variety of applications,” says Wes Rosenbalm, president and CEO of BVU.

#### LUS FIBER RAISES THE INTERNET ACCESS CEILING

LUS Fiber, the citywide FTTH network operator in Lafayette, La., increased its system Internet connection to 10 Gbps to meet subscriber demand for Internet services. “This is an exciting next step by LUS Fiber to literally lift the ceiling off of Internet access, and in doing so, [make] Lafayette more attractive to new and existing companies [that] want to create new jobs for Lafayette,” says Joey Durel, city and parish president. “We are now only one of a handful of communities in the world with this level of accessible Internet capacity – and only one of the few in the world to have a system like this which is owned by its citizens. That is the differentiating factor – the success of LUS Fiber is passed on to and enjoyed by all Lafayette’s citizens.”

Terry Huval, director of LUS, adds, “We are impressed that our customers are utilizing our system so intensely. Although our fiber system has an operating speed of 20 Gbps and higher, our draw on the Internet is a function of more customers using this system for higher-demand applications. Of special note is the utilization of our services by busi-

nesses, both large and small, to run their enterprises more effectively and efficiently.”

Fibrant, the municipal telecom provider in Salisbury, N.C., is now using Minerva Networks’ IPTV software to deliver video services. The city’s new TV services include HDTV, whole-home digital video recording, VoD and

Internet TV. The Minerva solution also features a TV widget engine for delivering third-party applications, including news feeds, stocks, weather and traffic information, visual voice mail, caller ID and social networking services. Minerva also plans to help Fibrant deliver local community television, online education services and digital signage.

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*"The alternative is to do nothing tonight and sit on our hands, waiting for a private company to come in and do something."  
– Selectman Peter d'Errico of Leverett, Mass.*

## UTOPIA EXPANDS ITS FOOTPRINT

The Utah Telecommunications Open Infrastructure Agency (UTOPIA), the fiber optic network owned by a consortium of Utah cities, has begun to expand its network and add nearly 400 institutions in eight Wasatch Front cities. The new additions include schools, health care providers, public safety agencies, public housing facilities, a library and a variety of government facilities and other institutions. The expansion is financed by \$16 million in broadband stimulus funds.

UTOPIA will also begin a residential expansion this summer in Centerville, one of the eight cities whose anchor institutions will benefit from the broadband stimulus grant. Retail service providers will begin to advertise their services in Centerville even before construction begins. Scheduling advertising first helps determine whether enough demand exists to justify construction costs in any particular area.

"I've been very impressed with the work that they've done," says Larry Wright, a Centerville City Council member, who was opposed to participating in UTOPIA three years ago, when the network used a different business model.

## COLLABORATIVE PROJECTS IN NEW ENGLAND

Towns across western Massachusetts are voting on legislation that will allow them to participate in **WiredWest**, a regional telecommunications cooperative. To join WiredWest, each town must vote twice, at consecutive town meetings, to establish municipal light plant legislation (so-called because a century-old mechanism for allowing Massachusetts cities to operate their own electric utilities was updated in 1996 to include

telecommunications systems). As of mid-May, 19 towns had finalized the legislation, 11 others had passed their first votes, and more towns were getting ready to vote. Every vote so far has been in favor of joining.

WiredWest plans to build and operate an open-access, community-owned fiber optic network that offers comprehensive, affordable and reliable Internet, phone and television services to all residents, businesses and institutions that want service.

According to Steve Nelson, a delegate from the town of Washington, "People are unhappy now about having poor Internet service, but things are only going to get worse if we don't take action. By joining together in the WiredWest cooperative to deploy an advanced fiber network, we can assure a bright future for our region."

One town that voted to establish municipal light plant legislation, Leverett, is still considering whether to join WiredWest or proceed on its own, according to local press. At the time of the vote, selectman Peter d'Errico noted, "The point of this [referendum] is to establish the institutional framework to move forward. The alternative is to do nothing tonight and sit on our hands, waiting for a private company to come in and do something."

**FastRoads**, a collaboration of the New Hampshire Community Development Finance Authority, the Monadnock Economic Development Corporation, the 34 towns of the Monadnock region and WCNH.net (the eight towns of the Upper Valley–Lake Sunapee region), awarded a design and project management contract for its regional broadband network to Design Nine and is soliciting bids from engineering companies. The network, which is part

of the broadband stimulus–funded Network New Hampshire Now project, will include last-mile networks in the towns of Rindge and Enfield as well as middle-mile components and anchor-institution access throughout the region.

FastRoads' goal is to ensure that the region's businesses, institutions and residents have the right infrastructure to support jobs and sustainable economic development. The towns and cities of the area offer an excellent quality of life, a relatively low cost of living and superb recreational activities, and the area is located within reasonable distances of major urban areas. Widespread availability of business-class broadband has the potential for accelerating economic development while maintaining the quality of life and without incurring risks of overurbanization.

**ECFiber**, an FTTH project of some two dozen towns in Vermont, has begun constructing its first phase after several years of planning. This spring, conduit was laid to connect the central office to the rest of the network, power and equipment were installed in the network operations center, the equipment to connect the network to the Internet was put in place and poles for aerial fiber began being installed. As of mid-May, the fiber itself was still awaiting arrival, with delivery dates possibly affected by the tsunami in Japan.

The first phase of ECFiber, in which parts of four towns will be built out, has been funded by promissory notes issued by ECFiber and purchased by local residents. The original plan was to use municipal capital lease financing for the entire project, but the collapse of the market in 2008 made that plan impractical. If the first phase confirms the project's projected costs and take rates, ECFiber intends to go back to the private capital markets to fund the remainder.

## SEATTLE TO BRING FIBER INTERNET SERVICE TO PIONEER SQUARE

As the next step in **Seattle's** effort to bring high-speed fiber internet to Pioneer Square, a historic downtown district that houses art and entertainment venues as well as businesses and government offices, the city is publishing

a request for proposals for Internet service providers to offer fiber optic-based broadband to businesses.

"Businesses have told us the Internet service available to them in Pioneer Square is 'barely adequate,'" says Mike McGinn, mayor of Seattle. "Today we are one step closer to bringing them the extremely fast Internet service they need to compete in the global economy."

A former mayor, Charles Royer, adds, "This is something we have needed and is coming at the right time, just as new-economy firms are filling up Pioneer Square office space."

In February, McGinn announced in his State of the City address that Seattle City Light and the Department of Information Technology would lay conduit under four blocks of in Pioneer Square. Fiber optic cable can be pulled through the conduit to provide Internet connectivity to nearby businesses.

"What we are able to get in Pioneer Square right now is about half the speed of what you'd be able to get in your home," said Jeff Strain, founder of Undead Labs, a game development company based in Pioneer Square. "Fiber Internet is essential in order for us to keep our company here."

The city expects two or three Internet service providers to submit proposals and make Internet service available by September. If no proposals are received, the city will take steps to make service available directly.

## NEW MUNICIPAL PROJECTS

The city of **Cortez, Colo.**, went live with the first phase of its FTTH network and is now serving local businesses. "The multiphase FTTH plan for Cortez is an open-access/open-service model of deploying high-capacity fiber to the community," says Rick Smith, the city's general services director.

The Southwest Colorado Council of Governments secured the initial project funding, which came from a state grant of \$1 million from oil, gas and coal-leasing rights. The city provided a 25 percent match for the grant funds and expects to see its investment funneled back into the economy of Cortez and the surrounding area when it offers large

## *The Internet service available in Pioneer Square is barely adequate, says Seattle Mayor Mike McGinn. Now the city is a step closer to bringing businesses the service they need to compete.*

employers and data center providers the bandwidth and technology to grow their businesses from Colorado. The city aims to "make metro-style broadband affordable in a rural Colorado setting" in hopes that available broadband along with its strategic location in the Four Corners area, its high quality of life and its outdoor lifestyle will make it an attractive location for business.

The Cortez network used a complete FOX FTTH Solution from cable and connectivity supplier OFS. The solution includes a customized fundamental network design plan using OptiCost modeling software, Fortex DT All-Dielectric gel-free cable with AllWave ZWP fiber, Orbital fiber distribution cabinets and full-spectrum optical splitters.

According to John George, director of systems and applications engineering for OFS, fiber was installed through underground conduit to the fiber distribution cabinets and to the businesses covered in the first phase. The citywide design provided by OFS incorporates the anchor institutions already connected by the city; in future phases, the network will be expanded to additional service areas with additional fiber rings and distribution cabinets.

The city of **Ammon, Idaho**, lit the first 2.5-mile section of its new fiber network in May. The network will begin by serving municipal agencies, and it is expected to pay for itself by reducing the city's monthly telecom costs. Eventually, it will be operated as an open-access network for the benefit of the community.

The city says on its website, "We expect the early beneficiaries of this 'open' policy commitment to be community anchor institutions, such as law enforcement, public safety, emergency responders and our local schools. We are already working to help a number of these agen-

cies meet their broadband needs. It is our hope that creating this open network will also entice businesses [that] require robust and affordable broadband services to consider settling their operations in Ammon. We also anticipate being able to give you, the Ammon residents, more choices in broadband services and providers and at better rates and much faster speeds than currently available through fiber technology."

The city of **Opelika, Ala.**, awarded a contract to Alcatel-Lucent for a GPON fiber-to-the-home network that will deliver triple-play services, including IPTV, to as many as 13,500 residential subscribers.

The town of **Tillsonburg, Ontario**, was awarded \$487,000 through the Ontario Government's Rural Connection Broadband Program to expand high-speed internet service to two major industrial parks and more than 600 businesses and public institutions in the community.

In **Dubuque, Iowa**, the City Council approved funding for a second feasibility study to determine whether current technology and marketplace conditions make a municipal telecommunications utility more viable now. The city's first study was conducted in 2005.

The commissioners of **Todd County, Minn.**, voted unanimously to spend up to \$20,000 to match a grant for an FTTH feasibility study. One of the prime movers of the municipal broadband initiative is the Todd County Livestock Advisory Council, whose members need fast connection speeds to participate in the global agriculture market.

Arvig Communications Systems, a local independent telco that provides fiber-based services in a portion of the county, committed \$20,000 toward the feasibility study, and Todd County will

## *The city of Cortez, Colo., hopes that affordable high-speed broadband along with its strategic location, high quality of life and outdoor lifestyle will make it an attractive business location.*

also apply for a \$40,000 foundation grant.

### **CHELAN COUNTY RETURNS STIMULUS GRANT (WITH REGRETS)**

**Chelan County Public Utility District** (PUD) in Washington State, which has operated an open-access fiber network for nearly a decade, received a broadband stimulus grant in 2010 to extend the network to 16,000 additional residents in the district's rural areas. In April, the PUD commissioners voted to withdraw from the project when they found that costs were higher than anticipated and they could not meet the construction schedule. General Manager John Janney said expenses could have risen as much as \$34 million over initial projections.

The original grant would have pro-

vided \$25 million to extend fiber over the next three years to areas of Chelan County not yet served by high-speed broadband. The PUD at first calculated its share of the costs at about \$8 million.

However, it did not take into account that many transmission poles would need to be replaced to carry the new fiber optic lines, which would have taken an estimated three years beyond the time limit allowed by broadband stimulus funding. The costs of building in difficult terrain and in winter conditions to meet the tight schedule also raised the estimated price tag for the buildout. Finally, many of the rural lines would have had to be placed underground in uncertain terrain because electrical lines in those areas were underground.

Commissioners voted to accept the federal grant last September after about

two-thirds of customers indicated they favored taking the grant if it required a rate increase of no more than 3 percent (about \$1.50 per month on the average PUD bill). However, a majority favored rejecting the grant if the rate increase were higher. That echoed community sentiment in survey taken a year earlier.

Chelan PUD discussed with the Rural Utilities Service (RUS), the grant-making organization, whether it could trim costs by reducing the geographic scope of the project. However, RUS officials said the agency would not approve such changes in scope.

PUD management concluded it could not meet the original scope, schedule and budget and recommended that the PUD withdraw before it received any money.

The PUD recently added a line extension policy for the roughly 70 percent of county residents who have access to the existing fiber network. Now, potential customers can receive fiber service if they agree to pay any installation costs above \$1,500.

The PUD is also developing a new long-term strategic plan for fiber, which it hopes will identify new options for providing broadband services.

### **PUBLIC-PRIVATE PARTNERSHIPS**

## **Google Selects Kansas City, Mo.**

Yes, that's Missouri. After we had all gotten used to the idea that Google was building its first gigabit fiber network in Kansas City, Kan., Google turned its attention eastward and included Kansas City, Mo., in the project. Google plans to begin offering service to residents on the Missouri side of the border in early 2012.

Like Kansas City, Kan., the Missouri city put intense effort into its Google application. Its GoogleKC coalition included representatives of city government, the local electric utility, economic development organizations, the chamber of commerce, the school district, some of the same nonprofits

that were involved in the Kansas City, Kan., project, and an inclusive group of local business and community leaders.

The city greeted Google's announcement as "the beginning of what promises to be an incredible opportunity for its residents." The mayors of the two cities have pledged to work with each other and Google to make the most of the net-

work for both communities by improving public services, advancing education and sparking economic development.

A major partner for Google in Missouri is Kansas City Power & Light (KCP&L), an investor-owned utility that will provide access to its electrical poles, infrastructure and existing fiber network to enable Google to bring high-

*Both Kansas Cities, in Kansas and Missouri, will now partner with Google to build gigabit fiber networks.*

## BRINGING GOOGLE FIBER TO KANSAS CITY, KAN.

"I'm not a broadband czar, and I don't have any technical expertise," said Brent Miles, president of the Wyandotte County (Kansas) Economic Development Council and organizer of Kansas City, Kan.'s, (KCK) successful bid to become a Google Fiber Community. At the Broadband Properties Summit Economic Development Program in April, Miles explained that he views the world through the lens of economic development. That worldview, he said, helped KCK put together a winning application.



Introducing Kansas City, a city that few in the audience were familiar with until Google's March 30 announcement, Miles said it was a "cow town" located near the geographic center of the United States. The city and county, which have a unified government, operate a municipal electric utility and have revived the region's economic fortunes through a number of creative public-private partnerships with major-league sports teams and with the International Speedway Corporation, which runs the NASCAR racetracks. "We do large, complex, public-private partnerships that are unique," Miles said. "Google is just the latest and the greatest."

KCK has several economic development goals: recruiting new companies, retaining and growing existing companies and changing the culture to address problems of

low skills and chronic unemployment. The third goal is the most difficult of the three. What excited KCK about the Google project is that it could contribute to all the city's goals.

Miles quickly realized that gigabit fiber throughout the city could make it a more hospitable environment for data centers, call centers, technology entrepreneurs and many other types of companies. "We were getting lots of calls – everyone from insurance agents to application developers," he said.

Corporate site selection involves what Miles called a "process of elimination." Companies cross a city off their site selection lists if, for example, its sewer plant or its electric plant is lacking in capacity. KCK has always focused on investing enough in infrastructure that it wouldn't be crossed off anyone's list. With gigabit fiber connections, the city will never lose a deal because of inadequate connectivity.

Miles' next challenge is to measure the impact of the new network. "We want to have a great career as a Google city," he said.

But how will KCK decide whether the network has been a success? "We need new measures," Miles said. "Not just square feet of new plant. How do we measure new technology start-ups? We've been asking our technology entrepreneurs, 'What would you do with a gig?'"

### *Deploying service over Kansas City Power & Light's infrastructure will allow Google to significantly reduce both costs and time.*

speed Internet services to the city. Deploying service over KCP&L's existing infrastructure will allow Google to significantly reduce both its costs and the time needed for engineering, permitting and construction.

KCP&L's history of bold initiatives includes negotiating a landmark carbon offset agreement with the Sierra Club, launching an urban smart-grid demonstration project and introducing all-

electric vehicles to its fleet.

"Today is an exciting day for our

company, our customers and the Kansas City region," said Mike Chesser, chairman and CEO of KCP&L and its parent company, Great Plains Energy. "KCP&L's electrical infrastructure, one of the most reliable systems in the United States, combined with Google's state-of-the-art fiber optic technology, will deliver Internet service at speeds unknown anywhere else." ❖

### VENDOR SPOTLIGHT

Alcatel-Lucent .....	<a href="http://www.alcatel-lucent.com">www.alcatel-lucent.com</a>
Design Nine .....	<a href="http://www.designnine.com">www.designnine.com</a>
Minerva Networks .....	<a href="http://www.minervanetworks.com">www.minervanetworks.com</a>
OFS.....	<a href="http://www.ofsoptics.com">www.ofsoptics.com</a>
Tantalus Networks .....	<a href="http://www.tantalus.com">www.tantalus.com</a>

## DEPLOYER SPOTLIGHT

States with deployments  
referenced in this article



### NORTH AMERICAN DEPLOYERS

Ammon, Idaho	<a href="http://ww.ci.ammon.id.us">ww.ci.ammon.id.us</a>	Google	<a href="http://www.google.com">www.google.com</a>
BVU	<a href="http://ww.bvu-optinet.com">ww.bvu-optinet.com</a>	LUS Fiber	<a href="http://www.lusfiber.com">www.lusfiber.com</a>
Cortez, Colo.	<a href="http://www.cityofcortez.com">www.cityofcortez.com</a>	Opelika, Ala.	<a href="http://www.opelika.org">www.opelika.org</a>
Dubuque, Iowa	<a href="http://www.cityofdubuque.org">www.cityofdubuque.org</a>	Seattle, Wa.	<a href="http://www.seattle.gov">www.seattle.gov</a>
ECFiber	<a href="http://www.ecfiber.net">www.ecfiber.net</a>	Tillsonburg, Ontario	<a href="http://www.tillsonburg.ca">www.tillsonburg.ca</a>
EPB Fiber Optics	<a href="http://www.epbf.com">www.epbf.com</a>	Todd County, Minn.	<a href="http://www.co.todd.mn.us">www.co.todd.mn.us</a>
FastRoads	<a href="http://www.newhampshirefastroads.net">www.newhampshirefastroads.net</a>	UTOPIA	<a href="http://www.utopianet.org">www.utopianet.org</a>
Fibrant	<a href="http://www.fibrant.com">www.fibrant.com</a>	WiredWest	<a href="http://www.wired-west.net">www.wired-west.net</a>

### ADDITIONAL DEPLOYMENTS

Comcast launches Metro Ethernet services in 20 major markets ... Many stimulus-funded fiber projects break ground ... SureWest to undertake major FTTH build in Kansas City area ... Fiber projects around the world

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