

# Census of Community Fiber Networks Rises to 165

A spate of new projects increases **BROADBAND COMMUNITIES'** list of community networks by 15 percent over last year. Many more fiber networks are being planned.

By Masha Zager / *Broadband Communities*

**B**ROADBAND COMMUNITIES' count of public and public-private fiber-to-the-premises network projects now stands at 165, a 15 percent increase over last year's count of 143.

As usual, additions to the list include a few that should have been included on earlier lists but were overlooked. However, the great majority are new projects – some pilot deployments in single neighborhoods and others more comprehensive. Fourteen new community fiber projects have been announced in 2015 alone.

More potential community fiber projects appear to be in the works than at any time in history. As many as 200 communities are actively exploring the possibility of building fiber to homes or businesses. Some initiatives will fizzle out, and others will spur incumbent providers to upgrade their existing networks. However, some will likely result in the creation of municipal or public-private networks.

Indeed, a few initiatives are almost ready to launch. For example, WiredWest, a coalition of several dozen Western Massachusetts towns that has been planning for five years to build an FTTH network, is very close to pushing the “go” button. Twenty-three WiredWest communities have already passed bond authorizations totaling \$36 million, which will qualify them for \$19 million in state funding. In addition, more than 7,000 would-be subscribers have put down deposits for service.

A year ago, reporting on several cities that had sold their networks to private entities, I wrote, “Additional networks are likely to be privatized in the near future to access more secure funding streams for growth and upgrades. As of press time, the cities of North Kansas City, Mo., and Burlington, Vt., were considering seeking buyers for their networks, and several UTOPIA communities were negotiating with Macquarie Capital for a long-term lease arrangement.”

This prediction was not entirely borne out. To the best of our knowledge, no community networks have been fully privatized in the last year, though some financially struggling communities continue to look for help from the private sector. North Kansas City leased its network to a private company, and Burlington sold its telecom assets to a private company and leased them back again. Both cities remain involved with their networks. The UTOPIA communities' negotiations with Macquarie have not reached any conclusion. Recently, Tacoma, Wash., began considering a public-private partnership for its underperforming Click! Network (which is mostly HFC but offers some fiber connections for businesses).

Despite the well-publicized financial difficulties some community broadband networks have encountered, the majority of community fiber networks appear to be self-sustaining or even profitable. Many continue to expand year after year or to add new types

of customers and services. Often, a municipal fiber network begins in one community and expands by popular demand into neighboring communities, though in some cases, expansions requested by residents have been quashed by state legislatures.

More important, well-run community fiber networks are instrumental in attracting new businesses and retaining existing businesses in their communities. The most common rationale for building community networks is to provide

businesses with affordable fiber connections; in fact, many networks are built or extended to accommodate specific requests by local businesses.

### THE CHANGING LEGAL AND POLITICAL LANDSCAPE

About 20 states either prohibit communities from building community networks altogether or impose restrictions that discourage or effectively prevent them from building such networks. In February 2015, the FCC voted to preempt

state laws in North Carolina and Tennessee that limit the expansion of municipal networks into neighboring communities. The decision had no immediate practical effect – it applied only to two states, and even in those states, there are still judicial, legislative and political challenges to overcome – but it offers new hope to communities that have no other possibility of getting advanced broadband.

In any case, the FCC decision, along with President Obama’s expressed support for public broadband, raised

## WHAT’S A MUNICIPAL NETWORK?

All the “MUNI” network deployers on this list

- Are public agencies, public authorities, public benefit corporations or consortia of public entities
- Own all-fiber networks that connect local homes or businesses to the Internet (or are actively developing such networks)
- Make available – directly or through retailers – such services as voice, Internet access or video (or are planning such services)
- Are in the United States or U.S. territories.

Excluded are the growing number of municipalities that provide broadband services exclusively for municipal government facilities, schools and other anchor institutions; those that serve private entities only by leasing conduit or dark fiber; and those that provide broadband services only over cable or wireless networks.

This list includes only organizations that have functioning networks or approved plans and funding. However, plans do not always materialize; several projects that were reported on earlier versions of the list failed to survive. Some others, although still in progress, have not met their deployment goals.

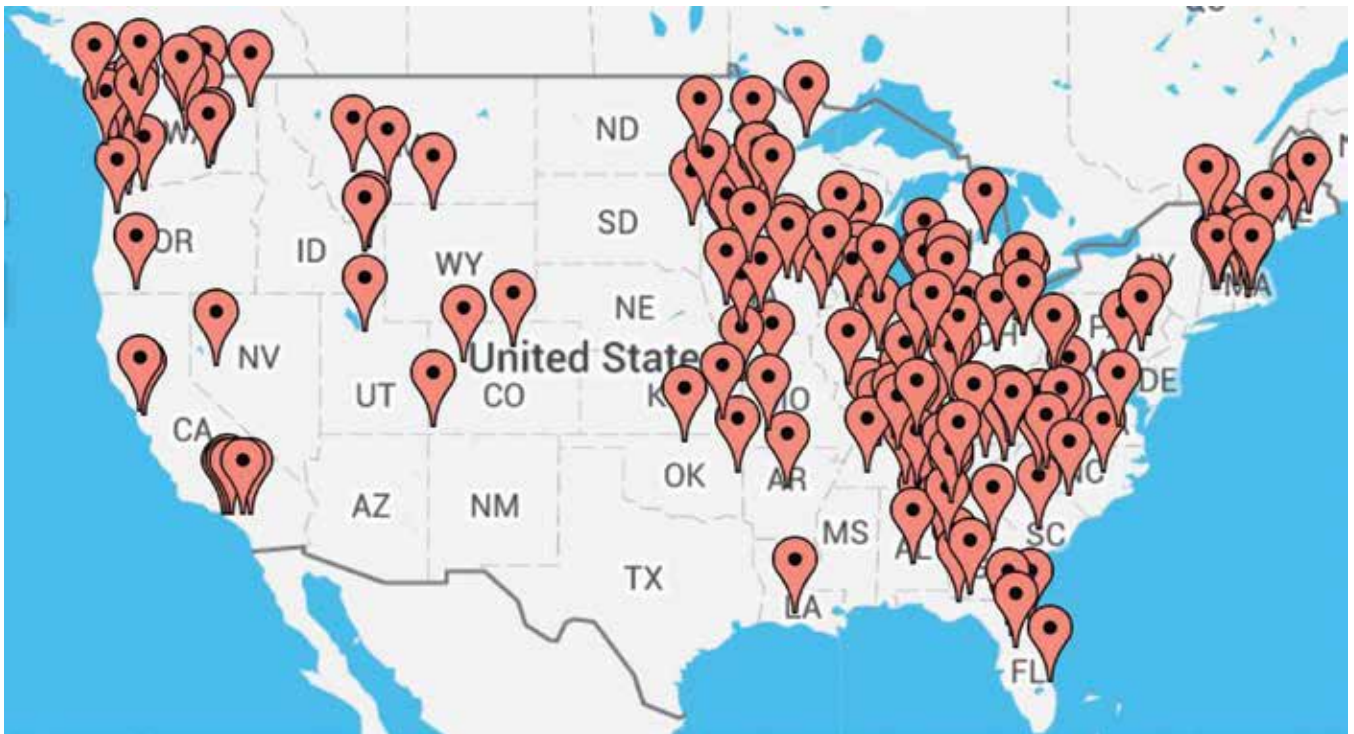
Multiple-municipality projects have become more common because they can achieve economies of scale in construction and operation and, by aggregating demand, they can attract third-party service providers more easily. UTOPIA, in Utah, is an example of an early FTTH network built by a consortium of cities. More recent projects include ECFiber in Vermont, SMBS in Minnesota and FastRoads in New Hampshire.

Even a network owned by a single town or city may provide service beyond city limits. For example, Jackson Energy Authority and Chattanooga EPB in Tennessee both serve areas adjacent to the cities that own them –

**BROADBAND COMMUNITIES** maintains updated information about community fiber networks and other FTTP deployments in the U.S. on a searchable database at [www.fiberville.com](http://www.fiberville.com). The database field labeled “Community Benefits” contains a wealth of information on the economic development and other benefits of these networks.

areas that were already served by their electric utilities. The city of Williamstown, Ky., used broadband stimulus funding to expand its community network beyond city borders. (Its original network was hybrid fiber-coax, but the expansion area is FTTH.) In Washington state, though each public utility district builds and operates its own network, most or all belong to the Northwest Open Access Network (NoaNet), a coalition of public utility districts that linked their fiber optic networks together to achieve economic feasibility in underserved areas. NoaNet offers long-haul transport and last-mile access to wholesale communications providers throughout the Pacific Northwest.

# COMMUNITY BROADBAND



Community broadband networks operate in 38 states and American Samoa (Alaska and American Samoa not shown).

public awareness about municipal fiber networks. This change in the political landscape is probably one reason for the great increase in the number of cities considering building broadband.

State legislatures aren't the only entities to impose constraints; often, opposition comes from community members who disapprove of municipal broadband on principle. Because the pendulum of public opinion shifts constantly, a broadband project that proves legally or politically impossible one year may become feasible a few years later, even in a conservative community. In several cases, city leaders and broadband activists succeeded in changing public opinion by educating citizens about the economic and social benefits of high-speed broadband.

Some states now actively support municipal broadband projects. For example, the state of Illinois helped fund Onlight Aurora.

## MUNICIPAL UTILITIES

Municipalities are more likely to become broadband providers when

they are already in the business of providing electric power. Citizens in these municipalities are already used to the idea of government-provided utility services. Many public power utilities were set up in response to the failure of the private sector to deliver adequate services, and residents accept that government might set up public communications utilities for the same reason. In most cases, citizens have had positive experiences with their municipal utilities and are prepared to buy additional services from them.

In addition, public power utilities already have the outside-plant personnel and the back-office operations, such as billing and customer service, that they need for providing telecom services. Finally, public power utilities are increasingly building communications networks for smart-grid applications; once they begin planning these networks, they often realize the networks are suitable for purposes such as business or residential broadband. Municipal utilities that distribute Tennessee Valley

Authority electricity have been in the forefront of combining smart grid and telecom applications.

In some cases, such as Wilson, N.C., the city operates a municipal electric utility but set up the telecommunications utility as a separate entity or department. A few cities, such as Salisbury, N.C., do not have municipal electric utilities.

## WHO ARE THE CUSTOMERS?

Cities often begin by installing institutional fiber networks to serve municipal office buildings or utility substations, then extend fiber to commercial buildings or business parks, add multiple-dwelling-unit properties and greenfield residential developments, and finally reach single-family households and small businesses. The list shows deployers at various points along this path. Building an institutional fiber network can also be a starting point for a path to a public-private partnership, as exemplified by UC2B.

Fifty-three of the municipal networks, or nearly one-third of the

total, deliver fiber services only to businesses, and several others serve mainly businesses. (Many of these deliver residential broadband services via cable or wireless; others don't serve residences at all.)

A few fiber networks that began as business-only, such as Gainesville Regional Utilities in Florida, now serve residential customers in MDUs or greenfield developments, and several, such as nDanville in Virginia and Cedar Falls Utilities in Iowa, built out fiber to residential customers citywide. Owensburg Municipal Utilities in Kentucky and Whip City Fiber in Massachusetts recently added residential pilot programs to their fiber-to-the-business networks.

### WHOLESALE OR RETAIL?

Municipalities are more likely than private deployers to allow third-party providers on their networks. In some cases, state laws require them to do so; in other cases they do not have the expertise to provide services themselves or they want to offer a wider variety of services than they can provide on their

own. Thirty-four municipal networks either allow or plan to allow multiple retail service providers to deliver services. Twenty others have contracted with a single third-party service provider to deliver services (some of these are open to additional service providers).

Some municipal providers have both wholesale and retail strategies. For example, ECFiber was conceived as an open-access network but is offering retail services until the network grows large enough to attract third-party providers. UC2B, which followed a similar strategy, recently turned network management and service delivery over to its private partner, iTV-3, which is expanding the network and also opening it to additional retail service providers.

Certain states, such as Utah and Washington, prohibit municipalities from providing retail services. This can pose a problem for municipal fiber deployers at startup, when third-party providers (especially for residential services) may not find joining the network worthwhile.

### OTHER PARTNERSHIPS

At least 19 municipal fiber systems contract with third parties – local exchange carriers or other network operators – to operate their networks. Such contracts (which also exist in the private sector) can be helpful for municipalities that lack experience operating telecommunications networks. On the other hand, like any critical outsourcing contracts, they must be intensively managed. Several such arrangements have ended abruptly or even resulted in lawsuits.

Some municipalities have formed agreements with real estate developers to allow municipal networks to build fiber in new buildings or developments or to provide fiber backbone and services if developers build the local access infrastructure. New models continue to be developed all the time.

### VENDORS AND TECHNOLOGIES

Because of open-access requirements and the importance of business customers, active Ethernet networks are slightly more prevalent among

## WHAT'S A PUBLIC-PRIVATE PARTNERSHIP?

Throughout the broadband industry, the term public-private partnership is used rather loosely – and no two partnerships seem to follow the same model. An interesting development of the last few years has been cities' becoming proactive about working with private providers and offering a variety of concessions and assistance to encourage the provision of better broadband. This article doesn't consider most of those arrangements to be true public-private partnerships, but some other articles in this issue use more inclusive definitions.

All the "PUBLIC-PRIVATE" network deployers on this list

- Are consortia of public and private entities, publicly built networks that later received infusions of private capital, or private entities that received significant investment or participation by local governments
- Own all-fiber networks that connect local homes or businesses to the Internet (or are actively developing such networks)
- Make available – directly or through retailers – such services as voice, Internet access or video (or are planning such services)
- Are in the United States or U.S. territories.

In all these networks, both public and private partners have made significant investments (which may include contributing preexisting conduit or fiber).

Excluded are publicly owned networks that contract with private retail service providers or operators (those are labeled as MUNI); privately owned networks for which public entities have helped raise funding, for example through low-cost tax increment financing or tax abatement financing, or have contributed grant funds; and privately owned networks for which public entities have donated access to rights-of-way, expedited permitting and so forth.

# COMMUNITY BROADBAND

municipalities than among private network builders. (Supporting open access used to be easier on point-to-point than on PON systems.) At least one-third of municipal deployers use active Ethernet technology. Several electronics vendors have sizable shares of this market, with no single vendor taking a leading position.

## GEOGRAPHIC DISTRIBUTION

Laws that govern municipalities' ability to compete as telecommunications providers vary from state to state. Some states give municipalities a free hand, and others do not. Municipal electric utilities are more common in some areas than others, and some regions are better served by private providers than others are.

Considering all these factors, the chances of municipalities' building their own broadband networks are wildly uneven in different parts of the United States. This census identified community fiber systems in 38 of the

50 states and in American Samoa. There are also about a dozen fiber networks, not listed here, built on tribal lands by tribal governments. Seven states account for a large number of deployments: California, Florida, Iowa, Kentucky, Minnesota, Tennessee and Washington.

## TRIPLE PLAY AND BEYOND

Though some municipalities offer only Internet access over their fiber networks, most whose planned or actual services we could determine offer the triple play of voice, video and data. Specialized business services are common, as are smart-grid applications. Broadband stimulus funding and encouragement from the Tennessee Valley Authority have made smart-grid applications more prevalent in the last few years, and these applications are likely to become still more important in the future.

A few open-access networks are actively recruiting many different kinds of services. For example, on the St. Joe

Valley Metronet, 30 providers deliver 20 different types of services, including such offerings as conferencing, disaster recovery and video surveillance. Enabling a wide variety of broadband services could become a way to make more community networks financially viable.

In conclusion, there is no single model for public broadband. Each project takes a slightly different approach, depending on the legal and political landscape, the availability of financing, the interest of potential partners, and the skills and assets that public agencies possess. Communities have many options and should explore as many as possible before committing to a plan or deciding that public broadband is not for them. ❖

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

## MUNICIPAL AND PUBLIC-PRIVATE FTTP NETWORKS IN THE UNITED STATES

NETWORK DEPLOYER	COMMUNITY(IES)	STATE(S)	PUBLIC-PRIVATE OR MUNI	DATE PROJECT STARTED	VENDORS (FTTH Electronics)	TECHNOLOGY	SERVICES	MARKETS SERVED BY FIBER (all premises unless otherwise noted)	SERVICE PROVIDER (if other than network owner)	OPERATOR (if other than network owner)
AccessEagan	Eagan	MN	MUNI	2013		Active Ethernet	Business Services, Data	Businesses only	Multiple	
Algona Municipal Utilities	Algona	IA	MUNI	2013	ADTRAN	Active Ethernet, GPON	Data, Video, Voice			
American Samoa Telecom	American Samoa		MUNI	2008	Calix	GPON	Data, Video, Voice			
Anderson Municipal Light and Power	Anderson	IN	MUNI	2009		Active Ethernet	Data	Businesses only	Multiple	
Ashland Fiber Network	Ashland	OR	MUNI	2000			Data, Video, Voice	Fiber connections mainly for businesses, HFC for residential	Multiple	
Athens Utilities Board	Athens	TN	MUNI	2015			Data	Businesses only		
Auburn Essential Services	Auburn	IN	MUNI	2006	Aurora	EPON	Data, Smart Grid, Voice			
Barbourville Utility Commission	Barbourville	KY	MUNI	2010	Calix	GPON	Data, Video			
Barnesville Municipal Utilities	Barnesville	MN	MUNI	2009	Calix	GPON	Data, Video, Voice			

NETWORK DEPLOYER	COMMUNITY(IES)	STATE(S)	PUBLIC-PRIVATE OR MUNI	DATE PROJECT STARTED	VENDORS (FTTH Electronics)	TECHNOLOGY	SERVICES	MARKETS SERVED BY FIBER (all premises unless otherwise noted)	SERVICE PROVIDER (if other than network owner)	OPERATOR (if other than network owner)
Bellevue Municipal Utilities	Bellevue	IA	MUNI	2006	Aurora	EPON	Data, Video, Voice			
Benton County Public Utility District	Kennewick, Prosser and Benton City	WA	MUNI				Business Services, Data	Businesses only		
Bowling Green Municipal Utility	Bowling Green and Warren County	KY	MUNI	2007	CTDI	EPON	Business Services, Data, Voice	Businesses only		
Bozeman Fiber	Bozeman	MT	PUBLIC-PRIVATE	2015						
Braintree Electric Light Department	Braintree	MA	MUNI	2008		Active Ethernet	Data	Businesses only		
Bristol Tennessee Essential Services	Bristol	TN	MUNI	2005	Alcatel-Lucent	GPON	Data, Smart Grid, Video, Voice			
Buffalo Municipal Utilities	Buffalo	MN	MUNI	1996			Data	Businesses only		
Burlington Telecom	Burlington	VT	PUBLIC-PRIVATE	2006	Calix	GPON	Business Services, Data, Video, Voice			
BVU OptiNet (BVU Authority)	Bristol	VA	MUNI	2003	Calix, Alcatel-Lucent	GPON	Business Services, Data, Smart Grid, Video, Voice			
Calnet (Calhoun Utilities)	Calhoun	GA	MUNI	2012 (built 1997)		Carrier Ethernet	Data, Voice	Businesses only		
CBPU Telecom (Coldwater Board of Public Utilities)	Coldwater	MI	MUNI	2010		EPON	Data	Businesses only		
CC Communications	Churchill County	NV	MUNI	2004	Aurora, Calix	Active Ethernet, EPON	Business Services, Data, Security, Video, Voice			
CDE Lightband	Clarksville	TN	MUNI	2007	Ciena, Zhone Technologies	Active Ethernet	Voice, Data, Video, Smart Grid			
Cedar Falls Utilities	Cedar Falls	IA	MUNI	2006	ADTRAN, Calix	Active Ethernet, GPON	Data, Smart Grid, Video			
Chanute Utilities	Chanute	KS	MUNI	2005			Data	Businesses only		
Charles City County	Charles City County	VA	MUNI	2015			Data		Multiple	
Chaska.net	Chaska	MN	MUNI	2004		Active Ethernet		Businesses only		
Chelan County Public Utility District	Chelan County	WA	MUNI	2004	Alcatel-Lucent	GPON	Data, Video, Voice		Multiple	
Chicopee Electric Light	Chicopee	MA	MUNI				Data	Businesses only		
Circa (Idaho Falls Power)	Idaho Falls	ID	MUNI	2007		Active Ethernet	Data, Voice	Businesses only	Multiple	
City of Ammon	Ammon	ID	MUNI	2011			Data		Multiple	
City of Bridgeport	Bridgeport	WV	MUNI	2014				Pilot project	Citynet	Citynet
City of Cortez	Cortez	CO	MUNI	2011	Calix	Active Ethernet, GPON	Data, Video, Voice	Businesses only	Multiple	

# COMMUNITY BROADBAND

NETWORK DEPLOYER	COMMUNITY(IES)	STATE(S)	PUBLIC-PRIVATE OR MUNI	DATE PROJECT STARTED	VENDORS (FTTH Electronics)	TECHNOLOGY	SERVICES	MARKETS SERVED BY FIBER (all premises unless otherwise noted)	SERVICE PROVIDER (if other than network owner)	OPERATOR (if other than network owner)
City of Danville	Danville	IN	PUBLIC-PRIVATE	2015	Calix	GPON	Data		Smithville	Smithville
City of Ellsworth	Ellsworth	ME	MUNI	2015			Data	Businesses only		
City of Hamilton	Hamilton	OH	MUNI	2014	Calix	Active Ethernet, GPON	Business Services, Data	Businesses only	CenterGrid	
City of Jasper/Dubois County	Jasper, Dubois County	IN	PUBLIC-PRIVATE	2015			Data, Video, Voice		Smithville	Smithville
City of LaGrange	LaGrange	GA	MUNI		Calix	GPON	Business Services, Data, Voice	Businesses only		
City of Lancaster	Lancaster	PA	MUNI	2015			Data, Smart Grid		MAW Communications	MAW Communications
City of Laurinburg	Laurinburg	NC	MUNI	2014			Data	Businesses only	Broadplex LLC	
City of Leesburg	Leesburg	FL	MUNI	2001			Data	Businesses only		
City of Mishawaka	Mishawaka	IN	MUNI	2012			Data	Businesses only		St. Joe Valley MetroNet
City of Mount Vernon	Mt. Vernon (also serves Burlington and Port of Skagit)	WA	MUNI					Businesses only	Multiple	
City of Ontario	Ontario	CA	MUNI	2015	Calix		Data			
City of Ponca City	Ponca City	OK	MUNI					Businesses only		
City of South Portland/GWI	South Portland	ME	PUBLIC-PRIVATE	2014			Data			
City of Vernon	Vernon	CA	MUNI	1999			Data	Businesses only		
City of Westminster	Westminster	MD	MUNI	2014			Data		Ting	
City Utilities of Springfield (SpringNet)	Springfield	MO	MUNI	2000		Active Ethernet	Business Services, Data	Businesses only		
Clallam County Public Utility District	Clallam County	WA	MUNI	2002	Cisco	Active Ethernet	Data		Multiple	
Click! Network (Tacoma Power)	Tacoma	WA	MUNI			Carrier Ethernet	Data	Businesses only	Multiple	
Community Fiber Network (formerly Goshen Fiber Network)	Goshen, New Paris, Milford, Nappanee, Wakarusa	IN	PUBLIC-PRIVATE	2008			Data, Voice	Businesses only	New Paris Telephone	New Paris Telephone
Community Network Services	Thomasville, seven other communities	GA	MUNI	1999		Carrier Ethernet		Businesses only in some communities		
Community Network System (Pend Oreille County Public Utility District)	Pend Oreille County	WA	MUNI	2001	Zhone Technologies	Active Ethernet	Business Services, Data, Video, Voice		Multiple	
Concord Light Broadband	Concord	MA	MUNI	2014	Calix		Data, Smart Grid			

NETWORK DEPLOYER	COMMUNITY(IES)	STATE(S)	PUBLIC-PRIVATE OR MUNI	DATE PROJECT STARTED	VENDORS (FTTH Electronics)	TECHNOLOGY	SERVICES	MARKETS SERVED BY FIBER (all premises unless otherwise noted)	SERVICE PROVIDER (if other than network owner)	OPERATOR (if other than network owner)
Conway Corporation	Conway	AZ	MUNI	2011			Data, Voice			
Crosslake Communications	Crosslake	MN	MUNI	2005	Calix	Active Ethernet, GPON	Data, Video, Voice			
DiamondNet (Sallisaw Municipal Authority)	Sallisaw	OK	MUNI	2004	Aurora	EPON	Data, Video, Voice		Momentum Telecom	
Douglas County Public Utility District	Douglas County	WA	MUNI	1999	Telco Systems	Active Ethernet	Data, Video, Voice		Multiple	
Dover Technology Services	Dover	OH	MUNI	2004	Hitachi		Data	Businesses only		
ECFiber	Consortium of 23 towns	VT	MUNI	2010	Calix, Zhone Technologies	GPON	Business Services, Data, Voice			
EmeryConnect	Emeryville	CA	PUBLIC-PRIVATE	2013		Active Ethernet			Multiple	PAXIO
EPB Fiber Optics	Chattanooga	TN	MUNI	2007	Alcatel-Lucent	EPON, GPON	Data, Smart Grid, Video, Voice			
EPlus Broadband (Jackson Energy Authority)	Jackson and part of Madison County	TN	MUNI	2004	ADTRAN	Carrier Ethernet, EPON	Data, Smart Grid, Video, Voice			
Erwin Utilities	Erwin	TN	MUNI	2014	Calix		Data, Smart Grid, Voice	Pilot project		
FastRoads	NH Community Development Finance Authority, Monadnock Economic Development Corporation, 42 towns	NH	MUNI	2011	Calix				Multiple	WideOpen Networks
Fayetteville Public Utilities	Fayetteville	TN	MUNI	2010	CommScope	EPON, RFoG	Data, Video, Voice			
FiberCom	Cartersville and surrounding areas	GA	MUNI			Carrier Ethernet	Business Services, Data, Voice	Businesses only		
FiberNet Monticello	Monticello	MN	MUNI	2008	Calix	GPON	Data, Video, Voice			
Fibrant	Salisbury	NC	MUNI	2008	Zhone Technologies, Calix		Data, Video, Voice			
FPUAnet Communications (Fort Pierce Utilities Authority)	Fort Pierce	FL	MUNI		Cisco	Active Ethernet	Data, Voice	Businesses		
Frankfort Plant Board	Frankfort	KY	MUNI	2009	CommScope	Carrier Ethernet, RFoG	Data, Security, Video, Voice			
Franklin County Public Utility District	Franklin County	WA	MUNI			Active Ethernet	Business Services, Data		Multiple	
Franklin Municipal FiberNET	Franklin	KY	MUNI	2013			Data	Businesses only		



# COMMUNITY BROADBAND

NETWORK DEPLOYER	COMMUNITY(IES)	STATE(S)	PUBLIC-PRIVATE OR MUNI	DATE PROJECT STARTED	VENDORS (FTTH Electronics)	TECHNOLOGY	SERVICES	MARKETS SERVED BY FIBER (all premises unless otherwise noted)	SERVICE PROVIDER (if other than network owner)	OPERATOR (if other than network owner)
Gahanna Net	Gahanna	OH	PUBLIC-PRIVATE	2010			Data, Business Services	Businesses only	WOW Business	WOW Business
Gainesville Regional Utilities	Gainesville	FL	MUNI	2001	Cisco	Active Ethernet	Data	Businesses, MDUs, greenfield developments		
Get Wired Alabama (South Central Alabama Broadband Commission/Oasis Construction)	17 counties	AL	PUBLIC-PRIVATE	2015			Data, Video, Voice		Multiple	Oasis Alabama Broadband
Glasgow Electric Plant Board	Glasgow	KY	MUNI				Data	Businesses only		
Glenwood Springs Community Broadband Network	Glenwood Springs	CO	MUNI	2002	Calix	GPON	Data, Voice		Multiple for residential services	
Grant County Public Utility District	Grant County	WA	MUNI	2000	Cisco, Allied Telesis	Active Ethernet	Data, Video, Voice		Multiple	
Grays Harbor County Public Utility District	Grays Harbor County	WA	MUNI	1998			Data		Multiple	
Greenlight	Wilson	NC	MUNI	2008	Alcatel-Lucent	GPON	Data, Video, Voice			
Harlan Municipal Utilities	Harlan	IA	MUNI	2010	Calix	GPON	Data, Video, Voice			
HES (Hopkinsville Electric System) EnergyNet	Hopkinsville	KY	MUNI		Calix		Data	Fiber for businesses, wireless for residential		
HG&E Telecom (Holyoke Gas & Electric Department)	Holyoke (also serves Chicopee and Springfield)	MA	MUNI	1997	Calix	Carrier Ethernet	Data, Voice	Businesses, some MDUs	OTT Communications	
Highland Communication Services	Highland	IL	MUNI	2010	Calix	GPON	Data, Video, Voice			
Holland Board of Public Works	Holland	MI	MUNI				Data		Multiple	
Hometown Utilicom	Kutztown	PA	MUNI	2002	Calix	BPON, GPON	Data, Smart Grid, Video, Voice		D&E Communications	
Independence Light and Power Telecommunications	Independence	IA	MUNI	2013	ADTRAN	GPON	Data, Video, Voice	Businesses		
Indianola Municipal Utilities	Indianola	IA	MUNI	2012	Calix	Active Ethernet	Data, Video, Voice		MCG	
Kitsap County Public Utility District	Kitsap County	WA	MUNI	2000		Active Ethernet	Data	Mainly businesses	Multiple	
KPU Telecommunications	Ketchikan	AK	MUNI	2007	Zhone Technologies, ADTRAN	Active Ethernet, GPON	Data, Video, Voice			

NETWORK DEPLOYER	COMMUNITY(IES)	STATE(S)	PUBLIC-PRIVATE OR MUNI	DATE PROJECT STARTED	VENDORS (FTTH Electronics)	TECHNOLOGY	SERVICES	MARKETS SERVED BY FIBER (all premises unless otherwise noted)	SERVICE PROVIDER (if other than network owner)	OPERATOR (if other than network owner)
Lac qui Parle County Economic Development Authority/Farmers Mutual Telephone	Lac qui Parle County	MN	PUBLIC-PRIVATE	2010	Calix	GPON	Data, Video, Voice			
Lake Connections (Lake County)	Lake County, part of Saint Louis County	MN	MUNI	2010	Calix	Active Ethernet, GPON	Data, Video, Voice			
Lenox Municipal Utilities	Lenox	IA	MUNI	2008	Calix	PON	Data, Video, Voice			
Leverett Municipal Light Plant (LeverettNet)	Leverett	MA	MUNI	2012	Calix	Active Ethernet			Crocker Communications	HG&E
iINKCity	North Kansas City	MO	MUNI	2007	Ciena, Calix	Active Ethernet	Data			DataShack
Lit San Leandro	San Leandro	CA	PUBLIC-PRIVATE	2012	ADVA Optical Networks			Businesses, MDUs		
Loma Linda Connected Communities Program	Loma Linda	CA	MUNI	2005	Allied Telesis	Active Ethernet	Data, Video, Voice		Multiple	
Longmont Power and Communications	Longmont	CO	MUNI	2012	Calix	GPON	Data, Voice			
Los Angeles Department of Water and Power Fiber Optic Enterprise	Los Angeles	CA	MUNI			Carrier Ethernet	Business Services, Data	Businesses only		
LUS Fiber	Lafayette	LA	MUNI	2007	Alcatel-Lucent	GPON	Data, Smart Grid, Video, Voice			
Marshall Municipal Utilities	Marshall	MO	MUNI	2005			Data, Smart Grid			
Martinsville Information Network (MINet)	Martinsville	VA	MUNI	2009			Business Services, Data, Voice	Businesses only		
Mason County Public Utility District	Mason County	WA	MUNI	2000	Telco Systems, Ciena	Active Ethernet	Business Services, Data, Voice		Multiple	
Mayfield Village	Mayfield Village	OH	MUNI	2012			Data	Businesses only		OneCommunity
Medina County Fiber Network	Medina County Port Authority	OH	MUNI	2012			Data	Businesses only	Multiple	
MI-Connection	Mooreville, Davidson and Cornelius	NC	MUNI	2009	Calix	GPON	Data, Video, Voice			
MINET	Monmouth and Independence	OR	MUNI	2007	Alcatel-Lucent	BPON	Data, Video, Voice			
Montana Economic Revitalization & Development Institute/Fatbeam	Butte	MT	PUBLIC-PRIVATE	2013			Business Services, Data, Voice	Businesses only		

# COMMUNITY BROADBAND

NETWORK DEPLOYER	COMMUNITY(IES)	STATE(S)	PUBLIC-PRIVATE OR MUNI	DATE PROJECT STARTED	VENDORS (FTTH Electronics)	TECHNOLOGY	SERVICES	MARKETS SERVED BY FIBER (all premises unless otherwise noted)	SERVICE PROVIDER (if other than network owner)	OPERATOR (if other than network owner)
Morristown Utility Systems (MUS Fibernet)	Morristown	TN	MUNI	2006	Alcatel-Lucent, ETI Software Solutions	GPON	Data, Smart Grid, Video, Voice			
Murfreesboro Electric Department	Murfreesboro	TN	MUNI	2015				Pilot project		
Murray Electric System	Murray	KY	MUNI	2000		Active Ethernet	Data, Video, Voice	Fiber for businesses, HFC for residential		
Muscatine Power & Water	Muscatine	IA	MUNI	2015			Data, Video			
nDanville	Danville	VA	MUNI	2007	Calix	Active Ethernet, GPON	Business Services, Security, Data, Video, Voice		Multiple	
NetQuincy	Quincy and surrounding areas	FL	MUNI	2003	Alcatel-Lucent	BPON	Data, Video, Voice			
New Albany Net	New Albany	OH	MUNI	2010			Business Services, Data	Businesses only	WOW Business	
Norwood Light Broadband	Norwood	MA	MUNI				Data, Voice	Fiber for businesses, HFC for residential		
Ocala Utility Services	Ocala	FL	MUNI	1995		Active Ethernet	Business Services, Data	Businesses only		
Okanogan County Public Utility District	Okanogan County	WA	MUNI	2002		Active Ethernet			Multiple	
OMU Fibernet (Owensboro Municipal Utilities)	Owensboro	KY	MUNI	1998	Calix		Data	Businesses, residential pilot program		
ONE Burbank (Burbank Water and Power)	Burbank	CA	MUNI	2010	MRV, Cisco	Active Ethernet, Carrier Ethernet	Business Services, Data	Businesses only		
Onlight Aurora	Aurora	IL	MUNI	2012			Business Services, Data	Businesses only		
Opelika Power Services	Opelika	AL	MUNI	2010	Alcatel-Lucent	GPON	Data, Smart Grid, Video, Voice			
Optilink (Dalton Utilities)	Dalton	GA	MUNI	2003	Alcatel-Lucent, ETI Software Solutions	GPON	Data, Video, Voice			
Orangeburg County Broadband	Orangeburg County (serves nine communities in the county)	SC	MUNI	2010	Calix	Active Ethernet	Data			
Pacific County Public Utility District	Pacific County	WA	MUNI	2000			Data			
Palm Coast FiberNET	Palm Coast	FL	MUNI	2009	Cisco	Active Ethernet	Business Services, Data, Voice	Businesses only	Multiple	

NETWORK DEPLOYER	COMMUNITY(IES)	STATE(S)	PUBLIC-PRIVATE OR MUNI	DATE PROJECT STARTED	VENDORS (FTTH Electronics)	TECHNOLOGY	SERVICES	MARKETS SERVED BY FIBER (all premises unless otherwise noted)	SERVICE PROVIDER (if other than network owner)	OPERATOR (if other than network owner)
PES Energize (Pulaski Electric System)	Pulaski (also serves Giles County)	TN	MUNI	2007	Calix	EPON	Data, Smart Grid, Video, Voice			
Philippi Communications System	Philippi	WV	MUNI	2005	Motorola	BPON	Data, Video			
Piqua Municipal Power System	Piqua	OH	MUNI	2013				Businesses only		
PowellLink	Powell	WY	MUNI	2007	Calix	GPON	Data, Security, Video, Voice		Tri County Telephone, open to other providers	
PPS FiberNet (Paducah Power System)	Paducah, McCracken County	KY	MUNI	2004	Alcatel-Lucent, Allied Telesis	Active Ethernet, BPON	Data, Security, Video, Voice	Businesses only	Multiple	
Princeton Electric Department	Princeton	IL	MUNI	2003			Data	Businesses only	IVNet	IVNet
Reedsburg Utility Commission	Reedsburg (also serves nearby rural communities)	WI	MUNI	2003	Calix	BPON, GPON	Data, Video, Voice			
Rochelle Municipal Utilities	Rochelle	IL	MUNI		Zhone Technologies	Active Ethernet	Business Services, Data	Fiber for businesses, wireless for residential		
Rock Falls Electric Utilities	Rock Falls	IL	MUNI	2007			Data	Businesses only	Essex Telcom	
Rockbridge Area Network Authority	Rockbridge County, Lexington and Buena Vista cities	VA	MUNI	2013			Data		Multiple	
RS Fiber Cooperative	Communities in Renville and Sibley counties	MN	PUBLIC-PRIVATE	2014			Data, Video, Voice		Hiawatha Broadband Communications	Hiawatha Broadband Communications
Russellville Electric Plant Board	Russellville	KY	MUNI	2010	Calix	Active Ethernet, GPON	Data, Video, Voice, Smart Grid			
Sandersville FiberLink	Sandersville and surrounding area	GA	MUNI				Data			
SandyNet Fiber	Sandy	OR	MUNI	2011	Calix		Data, Voice			
Santa Monica City Net	Santa Monica	CA	MUNI	2004	MRV	Active Ethernet, fiber to the building	Data	Businesses only	Multiple	
Scottsboro Electric Power Board	Scottsboro	AL	MUNI			Active Ethernet	Data, Smart Grid	Fiber for businesses, HFC for residential		
Sebewaing Light and Water Department	Sebewaing	MI	MUNI	2013	Calix	GPON	Data, Voice			
Selco (Shrewsbury Electric and Cable Operations)	Shrewsbury	MA	MUNI	1999	Calix		Data, Video, Voice			
Sherwood Broadband	Sherwood, Oregon	OR	MUNI	2004			Data	Businesses only	Multiple	
Southwest Minnesota Broadband Services	Bingham Lake, Heron Lake, Lakefield, Jackson, Round Lake, Brewster, Okabena, Wilder	MN	MUNI	2010	Calix		Data, Video, Voice			Windom Telecommunications

# COMMUNITY BROADBAND

NETWORK DEPLOYER	COMMUNITY(IES)	STATE(S)	PUBLIC-PRIVATE OR MUNI	DATE PROJECT STARTED	VENDORS (FTTH Electronics)	TECHNOLOGY	SERVICES	MARKETS SERVED BY FIBER (all premises unless otherwise noted)	SERVICE PROVIDER (if other than network owner)	OPERATOR (if other than network owner)
Spencer Municipal Utilities	Spencer	IA	MUNI	2007	Calix	GPON	Voice, Data, Video, Smart Grid			
Sun Prairie Utilities	Sun Prairie	WI	MUNI	1999	Ciena, Calix	Active Ethernet	Data, Smart Grid	Businesses, MDUs, residential pilot project		INOC
Swiftel Communications (Brookings Municipal Utilities)	Brookings	SD	MUNI	2006	Calix	GPON	Data, Video, Voice			
Sylacauga Utilities Board	Sylacauga	AL	MUNI	1997	Alcatel-Lucent	Active Ethernet	Data			
SyncSouth (SGRITA)	Baker, Calhoun, Early, Miller, Mitchell, Terrell, & Seminole counties	GA	MUNI	2007				Mainly businesses		
Taunton Municipal Lighting Plant	Taunton	MA	MUNI	2003	Calix	EPON	Data			
Town of Rockport/GWI	Rockport	ME	PUBLIC-PRIVATE	2014			Data, Voice			
Tullahoma Utilities Board	Tullahoma	TN	MUNI	2007	Aurora	GPON	Data, Video, Voice			
UC2B (Urbana-Champaign Big Broadband)	Urbana-Champaign	IL	PUBLIC-PRIVATE	2010	ADTRAN	Active Ethernet	Data, Video, Voice		iTV-3	iTV-3
UTOPIA	Consortium of 16 cities	UT	MUNI	2004	Allied Telesis, Alcatel-Lucent	Active Ethernet	Data, Video, Voice		Multiple	
Velocity Broadband	Hudson	OH	MUNI	2015	Calix			Businesses - pilot project		
Wadsworth CityLink	Wadsworth	OH	MUNI			Carrier Ethernet	Data	Businesses only		
Waverly Utilities	Waverly	IA	MUNI	2015	Calix		Data, Video, Voice			
Whip City Fiber	Westfield	MA	MUNI	2015			Data	Businesses, residential pilot program		
Williamstown Cable & Broadband	Williamstown (serves Corinth and parts of Grant and Owen counties)	KY	MUNI	2010			Data, Video	Fiber in network extension area only; Williamstown served by HFC		
Windomnet (Windom Telecommunications)	Windom	MN	MUNI	2004	Calix	GPON	Data, Video, Voice			
Wired Road (Blue Ridge Crossroads Economic Development Authority)	Carroll & Grayson counties, city of Galax	VA	MUNI	2009			Data		Multiple	WideOpen Networks
Zing (St. Joe Valley Metronet)	South Bend, Mishawaka, St. Joseph County	IN	PUBLIC-PRIVATE	2005			Business Services, Data, Security, Videoconferencing, Voice	Businesses, MDUs	Multiple	