

# LeverettNet Launches Fiber-to-the-Home Service

A small rural town finds a way to provide itself with a world-class gigabit network.

By Masha Zager / *Broadband Communities*

**F**or a decade, while fiber to the home and high-speed cable were rolled out in the heavily populated eastern half of Massachusetts, residents of Western Massachusetts watched and waited for their turn. Yet today, Western Massachusetts remains a broadband desert – many towns in this sparsely populated area still have no broadband service at all. However, the region is at a turning point, and the town of Leverett is leading the way.

Broadband stimulus funds enabled the Massachusetts Broadband Institute (MBI), a state agency, to build a middle-mile network throughout the western half of the state. This network, MassBroadband 123, was completed in early 2014 and now connects anchor institutions in 123 communities to the Internet. The availability of middle-mile fiber at last made broadband thinkable in the western region – but still didn't make it commercially viable. So the state government decided to subsidize a last-mile buildout in unserved and partially served towns, allocating \$40 million (about 40 percent of the required funds) to the 45 unserved towns for municipal builds and promising additional – as yet undetermined – funding for public-private partnerships in the 10 partially served towns. MBI administers these last-mile funds and provides technical assistance.

Most of the unserved towns banded together in a cooperative called WiredWest that plans to build a single, unified FTTH network. WiredWest has been collecting customer

pledges, and its member towns have been creating local broadband utilities (“municipal light plants,” in Massachusetts parlance) and voting to authorize bonding for their shares of the network. However, as of this writing, the cooperative's future is in doubt; on December 1, MBI wrote to local officials to say it would not fund WiredWest under its current draft operating agreement, which it called “not compatible with the best interests of the commonwealth, the towns or their residents.” WiredWest has disputed the MBI findings.

Long before WiredWest's current difficulties, one Western Massachusetts town, Leverett, decided not to wait for the other towns but to move forward with its own municipal fiber network, now called LeverettNet. Although Leverett is too small to operate a network efficiently on its own – its total population is less than 2,000, and there are few businesses – local officials doubted that WiredWest's larger scale would offer any significant advantage. They thought a better approach would be to contract with existing local operators that could manage the network and provide services.

Leverett had two important things in its favor: First, there was already strong local support for better broadband; the town had signed on to participate in the MassBroadband 123 project at an early stage and had assisted MBI's efforts to obtain federal funding. Second, residents who had deep expertise in relevant subjects, including capital project management,



Leverett Congregational Church, one of the historic buildings in Leverett

(Photo credit: John Phelan)

software development, network management and business incubation, were willing to devote time to the broadband project.

“That was critical,” says Peter d’Errico, now a member of both the Leverett Select Board (the town governing body) and the Leverett Municipal Light Plant board – and, incidentally, a law professor retired from the nearby University of Massachusetts. “It was the grace of the universe to have people like that in town.” Without the expertise of the volunteers and of Marjorie McGinnis, the town administrator, d’Errico says, managing the broadband project would have been difficult or impossible.

### GETTING STARTED

D’Errico and the others met weekly for several years to devise and implement a broadband plan. Under their guidance, Leverett applied for and received a planning grant from MBI in 2011 and hired the design/construction firm G4S

to perform an initial design and cost estimate for a townwide fiber network that would connect to MassBroadband 123.

The committee’s original plan was to build fiber to the curb and have users pay to extend the network to their homes. As the last 100 feet is the most costly part of the network and as perhaps not everyone wanted a network connection, building the network drops seemed an unnecessary extravagance. However, G4S convinced the committee that because homeowners faced barriers in connecting their homes, an incomplete network would attract neither users nor Internet service providers. Thus, building fiber only to the curb might leave the town with an expensive, unused asset. The committee decided that investing the additional money to build fiber all the way to homes was worthwhile – and, in the end, this proved to be a more efficient way to build and design the network, leading to lower overall costs.

The next major decision was how to finance the network. Leverett is a classic New England town with a true town meeting form of government, in which citizens vote in person on all major decisions. At the 2012 town meeting, Leverett citizens voted by a 90 percent majority to issue general obligation municipal bonds to finance the network.

The town opted for general obligation bonds rather than revenue bonds – an unusual choice – for two reasons. First, revenue bonds could be repaid only if the take rate was very high; if it didn’t prove high enough, there would eventually be a drain on the public treasury that hadn’t been planned for. Second, because citizens were well aware that the network would likely require a subsidy, they were willing to make that explicit choice up front to get the benefit of the lower interest rate available for general obligation bonds. At a later vote required by Massachusetts law to exclude the network bonds from

## An intensive marketing campaign by the committee and service provider yielded a take rate of 80 percent for LeverettNet services.

the town's normal borrowing limits, 83 percent of residents voted for a "debt exclusion override" that authorized the bonds.

The overwhelming support for the bond issue didn't simply reflect Leverett's long-standing interest in broadband; it was the result of thorough planning. Prior to the town meeting, the committee held four meetings to bring residents up to date on their work and the project they were proposing. "We had to hear out the questions and the naysayers and find answers for them," d'Errico explains. "By the time we got to the town meeting, we were able to answer any questions quickly and clearly."

At the time the town authorized the bonds, it expected to have to borrow money at 4 percent interest and pay the full cost of the network. This would have required a median tax increase of about \$300 per year for each property to cover the debt service over 20 years. As it turned out, the interest rate fell to 2.5 percent, and MBI awarded Leverett its share of the last-mile funds, so the actual median tax impact was only about \$219 per year.

### BUILDING THE NETWORK

With advice from MBI, the committee issued a request for proposals, and the town awarded a build contract to Millennium Communications Group. Construction began in mid-2013, with Millennium installing 39 miles of aerial fiber, gigabit-capable active Ethernet equipment and connections for the 800 homes and other buildings in the town. Fiber was also allocated for buildable parcels with no buildings on them. A 1 Gbps connection to MassBroadband 123 was provisioned; it is now being increased to 2 Gbps. By August 2015, construction was complete, and the

Leverett Municipal Light Plant took charge of the network.

To help oversee the construction project, Leverett contracted with Holyoke Gas & Electric (HG&E), the municipal utility of the nearby town of Holyoke. HG&E operates a fiber optic network that serves businesses in Holyoke and two other towns, and it has long experience with network construction and management.

HG&E also helped smooth the way for Leverett to gain access to utility poles. HG&E's successful experience as construction manager led to its selection (after responding to an RFP) as the network operator for LeverettNet.

Another solicitation led to the selection of Crocker Communications, a local ISP, as LeverettNet's provider for voice and Internet service. Crocker, which also provides service for some anchor institutions connected to MassBroadband 123, offers Leverett residents a double play of voice and gigabit Internet service for \$94.90 per month (soon to be reduced by \$5), about half of which is the Leverett Municipal Light Plant operating fee. D'Errico explains why the network isn't open access: "We're too small for more than one ISP. ... Initially, when we needed a lot of help with marketing and education, the ISP had to make an investment, so we had to offer sole access as an incentive."

In addition to Crocker's marketing the network and offering discounts to early subscribers, the committee – especially Denzel Hankinson, now chair of the Leverett Municipal Light Plant – made a huge effort to get residents to subscribe to services while the network was still being built. Newspaper ads, flyers and even door-to-door conversations helped educate residents about the services

that would be available to them.

The effort succeeded: 60 percent of residents signed up before the network was completed, and an additional 20 percent have subscribed since then. The total 80 percent take rate is well above the U.S. average 48 percent take rate for fiber to the home.

To attract as subscribers the older generation of residents – the ones who thought high-speed Internet was "only for kids" – the committee pitched the availability of telehealth as a tool for monitoring chronic illnesses and allowing people to live longer in their homes. "Now we find out that we're actually ahead of the curve," d'Errico says, noting that the medical community wasn't ready to provide this service. The Municipal Light Plant has been working for several months to encourage local hospitals and providers to take advantage of LeverettNet and offer telehealth services to residents.

### PIONEERING FIBER

Throughout the entire process, Leverett cooperated with and shared information with MBI. Tom Powers, a Leverett Municipal Light Plant board member and chair of the town finance committee, says, "The information we provided showed MBI what the operating expense profile looks like for fiber to the home. ... Giving all those numbers to MBI as the cost basis was helpful to them, and it was helpful to us for putting together the fee structure. Our fee structure is comparable to other broadband providers."

Leverett's most important lesson for MBI was that fiber to the home is viable on town-by-town basis. "We've been inventing wheels that others can now use," d'Errico says, "and MBI has been the conduit to other towns for those lessons." ❖

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