Town of Great Barrington, MA

Community Compact – Downtown Fiber

Prepared By: Amelia Percentie, Rodrigo Medina, and Michael Hamel

The Office of Municipal & School Technology

EOTSS | Executive Office of Technology Services & Security

Image: Great Barrington Town Hall[1]

Introduction

Settled in 1726 and incorporated as a municipality in 1761, the Town of Great Barrington is located in the southwest corner of Massachusetts in Berkshire County. The Town has a population of 7,104 residents and a median household income of $56,431[2]. Great Barrington has 45.86 square miles of land, including 7,264 acres of State Forest, two public libraries, one highschool, and a vibrant downtown area. Like many Massachusetts towns, Great Barrington seeks to find new ways to more efficiently and effectively meet their citizen's needs while staying within budget confines. In alignment with this goal, the Town signed a Community Compact agreement with the Baker-Polito Administration in December of 2015 to explore available broadband options. Town leadership believed that a more robust internet infrastructure could fuel economic development in their downtown area and help businesses remain competitive. The Town of Great Barrington also partnered with EOTSS to identify key considerations and potential challenges related to enhancing their fiber infrastructure.

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[1] John Phelan. "Town Hall, Great Barrington Massachusetts." *Wikimedia Commons*. Accessed on February 5, 2018. https://commons.wikimedia.org/wiki/File:Town_Hall,_Great_Barrington_MA.jpg
[2] United States Census Bureau. "Community Facts." *American FactFinder*. Accessed on February 5, 2018. https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml

Map: Complete MBI Fiber Infrastructure in Massachusetts

Project Background

On December 22, 2015, the Town of Great Barrington became a member of the Community Compact Cabinet; a program that was created through Governor Baker's first Executive Order to strengthen the bond between state and local government agencies. Through this program, the Town received guidance from EOTSS in exploring possible opportunities for broadband expansion in their downtown area. Possible options included leveraging the Mass Broadband 123 fiber-optic network displayed in the map above. Unlike some of the smaller neighboring communities in Southern Berkshire County, Great Barrington's residents and businesses have existing internet options via coaxial cable. Town leadership believes that a higher-quality fiber-based service offering that could attract and maintain important businesses in the future. Some of the industries that are present in the Town's downtown area today include digital media, software development, retail sales, cultural programming and broadcast, financial services, health care, research and academics.

DSL /CABLE/FIBER – ADVANTAGES & DISADVANTAGES

To get a better sense of Great Barrington's situation, the table below provides a snapshot overview of the three most common modes of broadband connectivity along with their potential advantages and disadvantages. The modes include – Digital Subscriber Line (DSL), Cable, or Fiber Optic. Each carries varying internet speeds based on several circumstantial factors like: type of connection, physical distance between the user and the Internet Service Provider (ISP), upload and download speeds[3], and number of users on the network.

Internet Connection	What is it?	Advantages	Disadvantages	Typical Speeds
DSL	Transmits data through a telephone network via the copper wire of a telephone cable.	• Internet speeds not affected by shared bandwidth	• Internet quality decreases as distance from ISP increases	Up to 24Mbps
Cable	Transmits data through a cable television network via a Coaxial Cable.	• Generally faster than DSL • Internet speed generally not affected by distance from ISP	• Internet speeds are affected by shared bandwidth	Up to 150Mbps
Fiber	Data is transmitted through glass/plastic fibers as light waves.	• Offers most potential for high-speed data transmission	• Most expensive option to install	Up to 1Gb or more

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[3] A symmetric internet connection transfers data over equal upload and download speeds, while an asymmetric internet connection transfers data at different speeds.

STATE/MBI FIBER NETWORK

In early 2014, the Massachusetts Broadband Institute (MBI) completed the Mass Broadband 123 fiber-optic middle-mile broadband network. Geographically, the network covers more than one-third of Massachusetts with approximately 1,200 miles of fiber connecting 123 communities in Western and North Central Massachusetts. The Mass Broadband 123 network was the first step in bringing high-speed internet to all parts of Massachusetts. Today, it is a foundational building block for installing last mile, or local, network connections to residents and business in areas that lack high-quality broadband. Below is a map of the network's infrastructure, which provides insight into the various connectivity options that exist in that area of the state. The Town of Great Barrington (lower left corner) is located near interconnecting fiber.

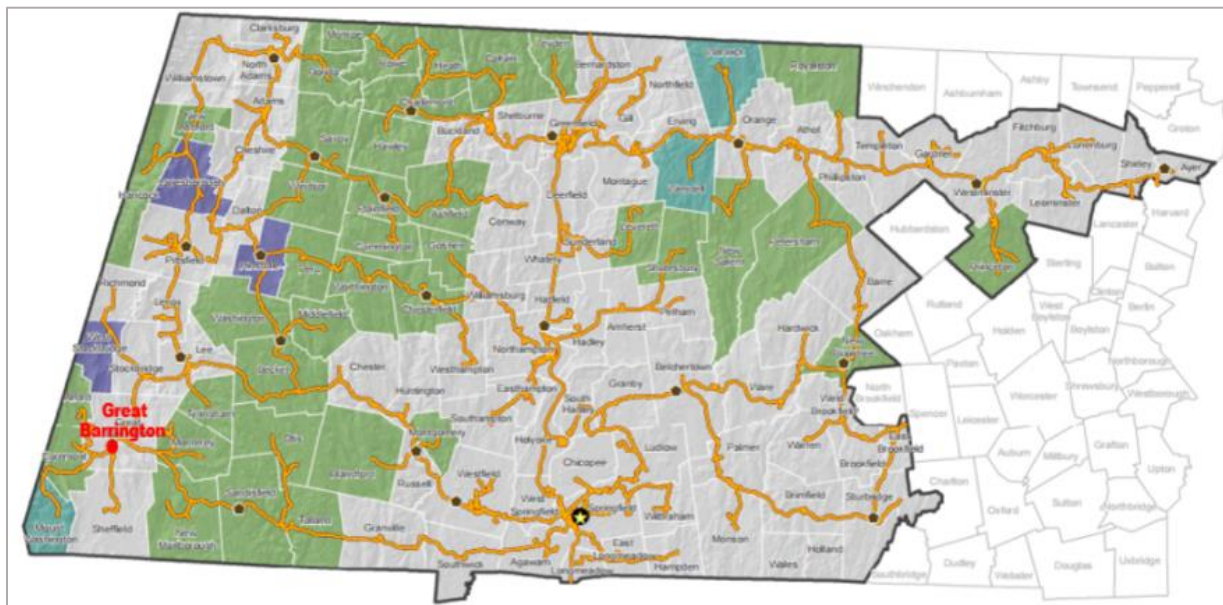| Map Filters		
	No Cable or DSL	MassBroadband 123 Service Area
	Partial DSL and No Cable	MassBroadband 123 Fiber
	Partial DSL and Cable Video Only	Internet Point of Presence
	DSL and Cable Broadband	Network Points of Interconnection

Image: Western Massachusetts MBI Fiber Infrastructure (Map Date: July 1, 2015)

EOTSS Engagement

EOTSS's Office of Municipal and School Technology helped the Town better understand their broadband options, focusing on the following key considerations:

- Level of service currently available
- Location of existing high-speed fiber
- Ways in which fiber can be expanded in the downtown area
- Barriers to expansion that are of concern to property owners and business owners

One possible option included obtaining bandwidth services via the Mass Broadband 123 network. Great Barrington would have to work with the network operator to connect to the state's fiber infrastructure, so services could potentially be extended to business locations. EOTSS facilitated communication with other vendors and provided expertise on the technology and business models needed to develop the strategic approach to the networking initiative.

Project Timeline & Process

The Town of Great Barrington started researching their connectivity options shortly after signing their Community Compact agreement in 2015. Town officials worked with EOTSS in the summer of 2016 to identify approaches that could be viable.

SUMMER 2016

In the summer of 2016, the team prepared background materials for businesses that reviewed the existing technology options in town. The review included details about the costs and benefits of each solution and a layout of infrastructure in the area was illustrated. In July, Great Barrington held a workshop at Town Hall with local businesses to identify demand for broadband and barriers to implementation. In late July and August, college interns conducted door-to-door outreach to businesses on Main Street to discuss their interests and need for broadband. The group gathered feedback and identified the following concerns from their conversations with constituents:

- Concerns about the monthly service charges
- The need for reliable connection for credit card purchasing
- General questions related to navigating the purchase of Time Warner by Charter / Spectrum

- The need for some to obtain faster speeds to upload digital media.

Following this, Great Barrington explored the option of using a web-based survey application to aggregate data on local demand. Town staff spoke to the Manager in Provincetown to learn about their experience with the tool, but due to the limited access to up-to-date email addresses and the expense of the system, Great Barrington was unable to pursue that path.

FALL 2016

Later in the year, Great Barrington established a small broadband task force which included two local business leaders in the technology space. The task force met with several vendors to gather details about pricing and technology options. Fiber Connect submitted a proposal to the Town to run fiber across building rooftops along Main Street and requested the Town's assistance with obtaining easements. To evaluate Fiber Connect's proposal, and alternatives, the task force gathered background information on the ownership of utility poles in the downtown area and the cost of renting space on the poles and related utility line coordination that would be needed. They compared prices of the following vendors, based on the perspective of a local business owner. The Town wanted to know how much the monthly cost would be for a business to determine what the market is for various fees and test what is considered affordable.

1) Time Warner / Charter/ Spectrum
2) CELT
3) Crocker Communications
4) Fiber Connect

The one-time costs ranged from $250 to $12,200; the ongoing monthly recurring cost for 100 Mbps of bandwidth ranged from $100 to $899 a month. Internet service providers had different terms pertaining to the future use of broadband should the businesses decide to switch to another internet service provider.

WINTER 2016

Great Barrington gathered information on areas that have underground utilities or above ground utilities. They attended regular meetings of a local economic development task force made up of over twenty business owners in the area and gave updates on initiatives pertaining to broadband and shared

information on issues and questions. They also attended the meeting of the Five Town Cable Advisory Commission to request information from Time Warner on the transition and requested information on the business services and their costs available to downtown businesses. They explored if the issue of broadband was addressed in the contract with Charter / Spectrum.

<u>SPRING 2017</u>

In the spring of 2017, the Town continued to work to advance the formation of their business improvement district, which would have an interest in the pursuit of connectivity options for local businesses. They also joined a Broadband Working Group, with Williamstown, Pittsfield and North Adams who were in a similar situation, having existing broadband service, with a desire for faster service options. The group explores ways to work collectively and expand broadband access and affordability. Great Barrington provided local media with a detailed status report[45] on access to fiber at community institutions and the challenges to installing broadband.

Conclusion & Recent Updates

The Town of Great Barrington has done an incredible amount of research for their Community Compact IT best practice. For a Town that supports numerous businesses and over 7,000 citizens, leadership understands the importance of keeping up with public demands, maintaining an efficient and secure IT infrastructure, and boosting the community's productivity and the region's economy. Great Barrington has done their due diligence in exploring their broadband connectivity options with EOTSS. Today, the Town has a better sense of the internet solutions available.

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[4] "Re: Great Barrington Business District – Fiber Broadband Options." Accessed on May 24, 2018. https://drive.google.com/file/d/0BwHiJrd_j0eRdnI1VXVVYnNUYjQ/view
[5] "Fearing competitive disadvantage, Great Barrington explores high-speed Internet connectivity." *The Berkshire Edge*. Accessed on July 24, 2018. https://theberkshireedge.com/fearing-competitive-disadvantage-great-barrington-explores-high-speed-internet-connectivity/

FIBER CONNECT IMPLEMENTATION

As of this writing, Fiber Connect is independently working to build out last mile infrastructure in Great Barrington[6]. Town officials mentioned in a news release earlier this year that Fiber Connect will cover the costs of maintaining the network and that "the installation of the fiber-optic cable will come at no cost to landlords or the town."[7] The new infrastructure will give citizens standard download speeds of up to 1 gigabit per second. There is no formal agreement with the Town to implement this solution, however, there is a unified sense of urgency and enthusiasm to get citizens access to better broadband service. There is no specific timeline or budget in place for this fiber initiative. The biggest barrier to success so far has been requesting easements from property owners to run fiber across the buildings. However, once the infrastructure in downtown is complete, the company will be ready to take on new customers.

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[6] "What a relief: real broadband coming to downtown Great Barrington." *The Berkshire Edge*. Accessed on July 24, 2018. https://theberkshireedge.com/what-a-relief-real-broadband-coming-to-downtown-great-barrington/
[7] "Great Barrington's Downtown to be Outfitted with Enhanced Fiber-Optic Internet Capability." Accessed on July 24,2018.https://jgpr.net/?mailpoet_router&endpoint=view_in_browser&action=view&data=WzEwMDAsMCwyMDMzLCJmYjk3YzUiLDEzNTMsMF0