ANNUAL PERFORMANCE PROGRESS REPORT FOR BROADBAND INFRASTRUCTURE PROJECTS

General Information

1. Federal Agency and Organizational Element to Which Report is Submitted	2. Award Identification Number	3. DUNS Number
Department of Commerce, National Telecommunications and Information Administration	NT10BIX5570070	147368641

4. Recipient Organization

Massachusetts Technology Park 75 North Drive
, Westborough, MA 01581-3335

5. Current Reporting Period End Date (MM/DD/YYYY)	6. Is this the last Annual Report of the Award Period?
12-31-2014	⦿ **Yes** ◯ **No**

7. Certification: I certify to the best of my knowledge and belief that this report is correct and complete for performance of activities for the purposes set forth in the award documents.

7a. Typed or Printed Name and Title of Certifying Official	7c. Telephone (area code, number and extension)
Lisa Erlandson	
	7d. Email Address
	erlandson@masstech.org

7b. Signature of Certifying Official	7e. Date Report Submitted (MM/DD/YYYY):
Submitted Electronically	02-10-2015

OVERALL PROJECT PERFORMANCE INDICATORS

1. Please provide the following average cost figures for your project. Please review the instructions to determine how to calculate these figures. Write "0" in the second column and "N/A" in the third column if your project does not yet have this information. Depending on whether your project contains Middle Mile and/or Last Mile components, some metrics may not apply. Please provide a narrative description if the total is different from the target provided in your baseline plan (600 words or less).

Cost Indicator	Average Cost / Speed	Narrative (describe your reasons for any variance from the baseline plan or any other relevant information)
Average cost per new mile (Middle Mile)	$50,270.61 / mile	Based on the 949 new route miles against a total cost of $ 47,706,807
Average cost per household passed (Last Mile)	0	N/A
Average cost per subscriber (Last Mile)	0	N/A
Maximum broadband speed advertised (Middle Mile)	1 Gbps	For Ethernet services, we offer up to 1 Gigabit Ethernet. For wavelength services, we offer 10 Gigabit wavelength
Maximum broadband speed advertised (Last Mile)	0	N/A
Average broadband speed provided (Middle Mile)	52 Mbps	Provisioned speeds (excluding wavelength services) range from 5 Mbps to 1Gbps. The average speed is based on 228 active Ethernet and Broadband services.
Average broadband speed provided (Last Mile)	0	N/A

2. Please provide each facility name and type, the county where the facility is located, and census tract information for any facilities funded by your project during this annual reporting period. Report only facilities for which construction has been completed.

Facility Identifier / Name	Facility Type	County	Census Tracts
See Addendum	See Addendum	See Addendum	See Addendum

[Add Facility]   [Remove Facility]

3. Please identify (1) the total number of interconnection, peering, and/or transit agreements entered into during this annual reporting period; (2) the total number of agreements of each type that you are currently negotiating; and (3) whether you have denied any request for interconnection and if so, why. If you have not entered into any agreements, please write "N/A."

 Interconnection Agreements (600 words or less)
Total number of interconnection agreements: 19
Total number of interconnection agreements currently being negotiating: 0
No requests for interconnection have been denied
Listing of parties with executed interconnection agreements:
186 Communications
Access Plus
Ayacht Technology Solutions
Berkshire Unified Phone
CELT
Community WISP
Cornerstone Telephone
Crocker Communications
DSCI
FTG
HG&E
Lightower
MECNet (Addition Networks)
PEG Bandwidth
Streamline Networks

TOWARDWX
Warwick Broadband Service
Windstream
Wired West

Peering and Transit Agreements (600 words or less)

Total number of peering agreements: 0
Total number of peering agreements currently being negotiating: 0
No requests for peering have been denied

Total number of transit agreements: 1
Total number of transit agreements currently being negotiating: 0
No requests for transit have been denied
Listing of parties with executed transit agreements:
Crocker Communications Inc.

CAPACITY, UTILIZATION, AND CAPABILITY INDICATORS

4. Community Anchor Institutions: In the chart below, please provide information on the types of community anchor institutions capable of receiving service (i.e., anchor institutions connected to your network plus those passed by your network) as a result of BTOP funds.

Type of Community Anchor Institution	Total Number Within Service Area	Type of Community Anchor Institution	Total Number Within Service Area
Schools (K-12)	232	**Public Housing**	24
Libraries	143	**Other Institutions of Higher Education**	4
Medical and Healthcare Providers	56	**Other Community Support Organizations**	64
Public Safety Entities	378	**Other Government Facilities**	324
Community Colleges	8	**Total Community Anchor Institutions**	1,233

5. Please indicate the average increase in broadband speed provided to the community anchor institution customers as a result of your project, including a description of how this increase was calculated (600 words or less).

The average increase in broadband speed provided to the community anchor institutions (CAIs) is approximately 67 Mbps.

This figure is based upon each CAI using the lowest value from the Planned Speed Tier range and assumes that CAIs classified as "New" are considered to have a broadband speed of 0 Mbps and CAIs classified as "Improved" are considered to currently have broadband service at one speed tier lower than their Planned Speed Tier.

Speed Tiers for this purpose are 1-19 Mbps, 20-49 Mbps, 50-99 Mbps, 100 - 999 Mbps, and 1Gbps+.

6. What retail services are being provided by this project? Please describe below. (600 words or less). As an attachment to this report, please provide pricing plans (in $ per month) associated with each retail service. Retail services description:

MassTech does not provide any retail services directly to CAI. It provides wholesale services to Retail Services Providers via the MassBroadband123 network who in turn provide retail services to connect CAIs. The Wholesale Pricing Plan for Retail Services Providers is attached the final PPR.

7a. What network management policies (e.g., bandwidth limitations, traffic prioritization) are in place for the services provided by your project? 7b. Have you ever limited or blocked consumers from accessing any lawful content, service, service provider, or application, or prevented any consumers from attaching any legal device to the network? If so, please explain why (300 words or less)?
7a. None at this time
7b. No

8. If applicable, please provide the total number and the percentage of subscribers who have dropped the broadband service provided through this project (total number of households and/or businesses and the "churn rate") and the subscribers' reasons for discontinuing their service (600 words or less).
N/A

9. Please provide the following information regarding the number of fiber strand-miles:

Total Number of Strand-miles	Total Number of Active Fiber Strand-miles Used by Recipient	Total Number of Leased Fiber Strand-miles	Total Number of Dark Fiber Strand-miles	Total Number of Strand-miles Being Built		
				Active	Leased	Dark
143,095	17,426	8	125,661	0	0	0

10. If you wholesale dark fiber, please list your wholesale customers and the number of fiber miles you currently are leasing to those customers:
Currently leasing a 4 fiber-mile route to the Massachusetts Executive Office of Public Safety and Security. This 4 fiber-mile route has 2 strands for a total of 8 strand-miles (listed in the table above).

11. Please provide the following information regarding the facility collocation capacity:

Total Facility (total square feet for all facilities)	Number of Square Feet Used by Recipient	Number of Square Feet Leased	Number of Square Feet Available
5,784	5,784	0	0

12. If you do not own collocation space, please describe how and where other network providers and/or customers interconnect with your network (600 words or less).
MassBroadband 123 has leased co-location space in 23 locations as noted in the Colocation Capacity Addendum. We have finalized the installation of equipment and connections to all Points of Interconnection nodes that will house interconnection equipment in our racks for third parties and last-mile providers.

While MBI does make space available within our racks for qualified service providers to install equipment for interconnection purposes, the number of rack units available for colocation varies by site. The square footage listed above is the amount of space occupied by MassBroadband 123 and no floor space is available at any site for 3rd party use.

13. To the extent that you have made any subcontracts or sub grants, please provide the number of subcontracts or sub grants that have been made to socially and economically disadvantaged small business (SDB) concerns as defined by section 8(a) of the Small Business Act, 15 U.S.C. 647, as modified by NTIA's adoption of an alternative small business size standard for use in BTOP. Please also provide the names of these SDB entities (150 words or less).
N/A

14. Please describe any best practices/lessons learned that can be shared with other similar BTOP projects (900 words or less).
Make-Ready

The Massachusetts Technology Collaborative ("MTC") and the Massachusetts Broadband Institute ("MBI") worked collaboratively, proactively, and aggressively with all utility pole owners and all third parties on the poles including cable providers, municipalities and private entities. Operations staffs from all companies were in regular communication on a weekly and often daily basis. Senior staffs from all companies met bi-weekly and company executives met on an as-needed basis. MBI was in regular communication with Government Relations staffs of the utility and cable companies. This strategy built strong support for MassBroadband 123 at all levels of the companies involved in the successful outcome of the project.

MBI held a variety of weekly project management meetings to oversee the make-ready process including weekly meetings that brought together joint pole owners. Typically each owner or third party preferred to manage their own make-ready work and they were uncomfortable meeting with joint owners and licensees. MBI understood from the start that collaborative project management would be required to stay on top of make-ready work on over 30,000 utility poles. MBI collected work progress trackers from each company and loaded them into one database so all parties involved in the make-ready work for a single pole could work together to clear roadblocks and work together on the same MBI identified priorities. MBI liaised among the various parties to mitigate problems, particularly in a situation where one company was road blocked by another.

Whenever possible, MTC executed agreements with municipalities, cable providers and other third parties to enable our builder to perform make-ready construction. If the pole owner knew that MTC's contractor was going to perform third party make-ready, they would release licenses before all the work was complete and allow MTC to perform the third party make-ready work in conjunction with installation of our cable. This required very close communication among all parties, but saved time and gave the contractor more flexibility in prioritizing where they work.

Construction

Regardless of how quickly licenses are issued, on a project of this size there are many issues that arise that can cause delays. MTC worked closely with our builder to find ways to mitigate delays and compress the schedule where possible. Some of the practices that have helped MassBroadband 123 to make up time in the schedule include:

• Beginning negotiations with utilities and railroads prior to final design completion

• Installing messenger strand ahead of fiber when there are not enough contiguous miles of licenses to install fiber.   MTC fiber is typically stored on 20,000 foot reels and can not be cut arbitrarily. Strand is stored on smaller reels and can be cut as needed. This helped keeps crews working during lulls in licensing so they could stay on the project and not have to demobilize and then remobilize again at a later time.

• Partnering with a prime contractor with relationships and access to multiple vendors to assist with crew allocation

• Whenever possible, rodding and roping underground segments early in the project to avoid "work-arounds" required late in the project

• Utilizing directional boring instead of grass trenching can speed up environmental permitting and reduce restoration work

• Starting community anchor institution ("CAI") and point of interconnection ("POI") installation work prior to backbone fiber installation, so POIs and CAIs are ready to be connected by the time the fiber reaches them

 15. **Using the Excel spreadsheet template titled "Annual PPR CCI Addendum", please provide an updated list of Community Anchor Institutions (CAIs) that you have connected and plan to connect to your network**.

 16. **Using the Excel spreadsheet template titled "Annual PPR CCI Addendum", please provide a list of community pairs that are receiving new or improved broadband service as a result of BTOP grant funds.**

17. **Please provide up-to-date network route maps in a single file, in a Google Earth compatible format (e.g., KMZ file).**