

Application for Federal Assistance SF-424 Version 02

<p>* 1. Type of Submission:</p> <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Application <input type="checkbox"/> Changed/Corrected Application	<p>* 2. Type of Application:</p> <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision	<p>* If Revision, select appropriate letter(s): <input type="text"/></p> <p>* Other (Specify) <input type="text"/></p>
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<p>* 3. Date Received: <input type="text" value="08/13/2009"/></p>	<p>4. Applicant Identifier: <input type="text"/></p>
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<p>5a. Federal Entity Identifier: <input type="text"/></p>	<p>* 5b. Federal Award Identifier: <input type="text"/></p>
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State Use Only:

<p>6. Date Received by State: <input type="text"/></p>	<p>7. State Application Identifier: <input type="text"/></p>
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8. APPLICANT INFORMATION:

* a. Legal Name:

<p>* b. Employer/Taxpayer Identification Number (EIN/TIN): <input type="text" value="042-773-673"/></p>	<p>* c. Organizational DUNS: <input type="text" value="147368641"/></p>
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d. Address:

* Street1:	<input type="text" value="75 North Drive"/>
Street2:	<input type="text"/>
* City:	<input type="text" value="Westborough"/>
County:	<input type="text"/>
* State:	<input type="text" value="MA: Massachusetts"/>
Province:	<input type="text"/>
* Country:	<input type="text" value="USA: UNITED STATES"/>
* Zip / Postal Code:	<input type="text" value="01581"/>

e. Organizational Unit:

<p>Department Name: <input type="text"/></p>	<p>Division Name: <input type="text"/></p>
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f. Name and contact information of person to be contacted on matters involving this application:

Prefix: <input type="text"/>	* First Name: <input type="text" value="Cynthia"/>
Middle Name: <input type="text"/>	
* Last Name: <input type="text" value="Gaines"/>	
Suffix: <input type="text"/>	

Title:

Organizational Affiliation:

<p>* Telephone Number: <input type="text" value="508-870-0312 x1225"/></p>	<p>Fax Number: <input type="text"/></p>
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* Email:

Application for Federal Assistance SF-424

Version 02

9. Type of Applicant 1: Select Applicant Type:

A: State Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Department of Commerce

11. Catalog of Federal Domestic Assistance Number:

CFDA Title:

*** 12. Funding Opportunity Number:**

0660-ZA29

* Title:

Recovery Act - State Broadband Data and Development Grant Program

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

*** 15. Descriptive Title of Applicant's Project:**

Acquisition and development of broadband availability and infrastructure data in the Commonwealth of Massachusetts, in support of the NTIA State Broadband Data and Development Grant Program.

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

Application for Federal Assistance SF-424

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16. Congressional Districts Of:

* a. Applicant

* b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment

Delete Attachment

View Attachment

17. Proposed Project:

* a. Start Date:

* b. End Date:

18. Estimated Funding (\$):

* a. Federal	4,933,081.00
* b. Applicant	37,036.00
* c. State	1,096,234.00
* d. Local	0.00
* e. Other	100,000.00
* f. Program Income	0.00
* g. TOTAL	6,166,351.00

* 19. Is Application Subject to Review By State Under Executive Order 12372 Process?

- a. This application was made available to the State under the Executive Order 12372 Process for review on
- b. Program is subject to E.O. 12372 but has not been selected by the State for review.
- c. Program is not covered by E.O. 12372.

* 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes", provide explanation.)

- Yes
- No
-

21. *By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)

** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name:

Middle Name:

* Last Name:

Suffix:

* Title:

* Telephone Number: Fax Number:

* Email:

* Signature of Authorized Representative: * Date Signed:

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*** Applicant Federal Debt Delinquency Explanation**

The following field should contain an explanation if the Applicant organization is delinquent on any Federal Debt. Maximum number of characters that can be entered is 4,000. Try and avoid extra spaces and carriage returns to maximize the availability of space.

**Massachusetts Broadband Institute Project Abstract
Funding Opportunity No. 0660-ZA29**

The Massachusetts Broadband Institute (MBI) is a division of the Massachusetts Technology Collaborative (MTC), a public instrumentality, and the eligible entity designated by Governor Deval Patrick for carrying out the requirements of the NTIA's State Broadband Data and Development Grant Program. The MBI's broader mission is the extension of affordable high-speed Internet access to all homes, businesses, schools, libraries, public safety and medical facilities, government offices and other public places across the Commonwealth. Part of this mission is to collect information regarding the availability of broadband services and make it available to residents, businesses, and government agencies.

The MBI team will use its experience, tools, and relationships, many of which are already in place, to quickly and efficiently provide detailed broadband availability and infrastructure data in compliance with the requirements and timelines of the NTIA grant. The goals and objectives of the Massachusetts Broadband Data Mapping Project are to:

- Develop a database of broadband availability and capability at the county, community, and street address level;
- Put in place the tools, partnerships, and processes to keep the database as current and accurate as reasonably possible;
- Make the public portions of the database easily accessible by the citizens, businesses, and agencies throughout the state while maintaining the security and integrity of the data;
- Utilize stringent protocols and processes consistent with all state and federal legal requirements to protect confidential data; and
- Provide regular updates of the data to the NTIA for inclusion in a nationwide database.

The Mapping Project will accomplish these goals and objectives by:

- Creating a complete and accurate master address list from other public and commercial address listings and assuring the accuracy of the master address list by cross checking between the various sources;
- Identifying broadband availability at each of those addresses using data from providers and state records, validating and enhancing the provider database data through analysis of cable strand maps, schematics, and various modeling methods based on the transport technology (e.g. Fiber To The Home, DSL); and
- Making the data accessible through the expanded use of the MBI's web-based map library, data repository, and searchable broadband map.

All of these activities will be supported by appropriate tools for regularly updating, validating, and uploading the broadband data. In addition, the MBI will support the creation of Local Technology Planning Teams and outreach to identify barriers and assets to broadband adoption in unserved and underserved communities.

Massachusetts **BROADBAND** Institute

Connecting the Commonwealth

Program Narrative for the
State Broadband Data and Development Grant Program

Response to Notice of Funding Availability
Funding Opportunity No. 0660-ZA29

Submitted on:
August 13, 2009

Submitted by:
The Massachusetts Broadband Institute,
A Division of the Massachusetts Technology Collaborative
75 North Drive, Westborough, MA 01581

Submitted to:
National Telecommunication and Information Administration,
US Department of Commerce

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Attachments

- Attachment 1: Governor's Letter of State Designation
- Attachment 2: Draft Non-Disclosure Agreement
- Attachment 3: MassGIS Letter of Match Contribution
- Attachment 4: WesternMA Connect Letter of Match Contribution

1 Executive Summary

The Massachusetts Broadband Institute (MBI) is a division within the Massachusetts Technology Collaborative (MTC), a public instrumentality of the Commonwealth of Massachusetts established in 1982 as the state's development agency for the innovation economy. The MTC has a \$13 million annual operating budget and an experienced corporate team with a strong track record of financial, legal, and administrative oversight, including 10 years of experience through its John Adams Innovation Institute with funding small broadband development grants to user and community-based organizations including what are now WesternMA Connect and OpenCape.

The MBI was established as a division of the MTC, a public instrumentality, by Governor Deval Patrick and the MA Legislature in August 2008, with a \$40 million bond authorization and the mission of extending affordable high-speed Internet access to all homes, businesses, schools, libraries, medical facilities, government offices, and other public places across the Commonwealth, with first priority placed on unserved communities, all of which are located in rural western MA. (The terms MBI and MTC are used interchangeably in this application.) The MBI's public mission, statewide purview, singular focus on broadband, and track record in developing broadband infrastructure projects expediently and collaboratively with other state agencies make us a leading role model for public broadband projects nationwide. The MBI currently has a \$1.7 million annual operating budget and 5 employees.

The MBI has been designated by Governor Deval Patrick to be the agency authorized to submit this grant request in support of the Department of Commerce's State Broadband Data and Development Grant Program (0660-ZA29) for Massachusetts (reference Attachment 1). While Massachusetts' Governor and Legislature has anticipated and acted aggressively to the need for ubiquitous broadband data and access, we are constrained in what can be accomplished due to limited resources. The grant program is a unique opportunity for Massachusetts to leverage and accelerate its initial work in broadband data mapping. Without this grant opportunity, the goals of the MBI would be unachievable for the foreseeable future.

The MBI's \$4,933K grant request (including \$500K for broadband planning) meets all of the requirements of the grant in terms of:

- ***The project is able to meet the required timelines*** of: Nov 1st for an initial data set as it exists already, Feb 1st 2010 a first substantially complete dataset, Mar 1st for an update, and then semi-annual updates for the remaining term. The MBI can meet this timeline because of the significant broadband data mapping efforts already underway at the MBI.
- ***The MBI approach for data gathering provides accurate data quickly*** via the creation of a master address list from readily available and reliable address sources such as 911 listings, tax assessor listings, and others. Given this accurate address foundation, broadband availability will be determined via provider data, modeling and schematic reviews, and field reviews and surveys. This "trust but verify" approach will help assure current and accurate data throughout the state.

- ***Assuring accurate and verified data via the MBI's three part process of:***
 1. Cross referencing of various data sources used for data gathering and against land ownership records.
 2. Checking this data through the use of resident and field surveys.
 3. Voluntary installation of monitoring equipment in homes and businesses to verify broadband performance.
- ***MBI has already put in place the facilities for accessibility.*** The MBI will leverage and expand its existing website that provides the public with broadband information to provide: a broadband mapping survey, a map library, an interactive searchable map, and a broadband data repository. This grant allows the MBI to enhance and assure our residents and businesses of the currency and accuracy of the availability of broadband services throughout the state.
- ***Security and confidentiality is thoroughly addressed*** by a multi-tiered approach of:
 1. Establishing non-disclosure agreements with any party providing confidential data within the limits of existing State and Federal Laws.
 2. Employing a data security expert to assist the MBI in establishing a “defense industry-like” set of procedures, processes and facilities for receipting, logging, copy controls and storage security of all data that falls within the non-disclosure agreements.
 3. Having that security expert periodically audit the MBI for security and confidentiality compliance.
- ***The MBI has already invested in-kind matches in data mapping and availability*** through state investments in an enhanced NAVTEQ road network, a 2005 land use/land cover development project, and quality high-resolution 2009 orthophotography.
- ***The MBI team has the expertise and experience*** to achieve the commitments identified in this grant application. MBI staffers have already demonstrated success in the broadband industry in terms of mapping, working with federal, state and local agencies, providers and broadband partners. In addition to this world-class team is a strong set of pre-established partnerships with the Commonwealth's Office of Geographic and Environmental Information, known as MassGIS, as well as other entities dedicated to assuring broadband services within their region.
- ***Strong collaboration with state, regional and local agencies*** has already been established by the MBI. The MBI was established at the Governor's behest, due to the Commonwealth's deep commitment to providing broadband to all the state's residents and business. Given its charter, the MBI has existing and highly effective relationships with the state's Executive Offices for Housing and Economic Development, Public Health, Telecommunications and Cable, Information Technology, Public Safety and Security, Transportation, Labor and Workforce Development, Conservation and Recreation, and Education. An array of local and regional agencies are also identified in this application.

By leveraging the funds available through this grant Program, the MBI could significantly expand the scope of its current efforts and more quickly assess the availability of broadband throughout the Commonwealth. The following sub-sections provide an additional level of overview of the MBI's proposed approach to the requirements of the grant program.

Understanding Broadband Availability

Through this Program, the MBI will develop a detailed understanding of broadband availability across the state, including at the location of homes, businesses, state and local government and community anchor institutions. The MBI has access to detailed information that will allow it to track broadband availability, and thus accurately prioritize and target broadband infrastructure investments to meet Governor Patrick's goal of fast, affordable, ubiquitous broadband access in the Commonwealth by 2011. Although the State Broadband Data and Development Grant Program no longer requires the collection of availability data at the address level, the MBI continues to believe that this is the best approach.

First, the MBI believes that information provided by existing broadband service providers represents the most accurate and complete data source. Today, the MBI has access to cable strand maps in every community in Massachusetts. Updated filings of these strand maps are required under Massachusetts state law. Further, the MBI has been in discussions with the incumbent telephone companies operating in Massachusetts about providing address-level availability information. The MBI is prepared to enter into non-disclosure agreements with broadband service providers to commit to appropriate protection, consistent with the requirements of the Notice of Funding Availability (NOFA) and state law, for the confidential information required by the NOFA.

Second, the MBI will work with the state's GIS agency, MassGIS, to acquire and develop data to create a master address list and define provider service areas. These data will be used to validate and supplement provider data. MassGIS has a number of statewide datasets that will be valuable to this process, including enhanced NAVTEQ roads, orthophotography and land-use datasets that are proposed as in-kind match. The MBI also has access to various data sources from Telcordia and MapInfo that display existing network infrastructure for the incumbent phone companies and can estimate the reach and availability of their DSL offerings.

Finally, the MBI will conduct a grass-roots civic engagement process to survey local residents, businesses, and community anchor institutions and assist in the validation of network infrastructure locations.

Broadband Services and Infrastructure Information

This Program will enable the MBI to collect additional information related to broadband services and infrastructure in the state. These data include the type of technology, typical upstream and downstream speeds, facility ownership and capacity, among others. As with the availability information, the MBI will collaborate with various agencies and hire

field engineering consultants to validate and analyze provider-submitted data. The MBI will also hire additional staff to support the collaboration and data management effort required. To make the data submission process for providers as easy and efficient as possible, the MBI will set up a regular, standardized reporting program.

Secure Data Repository

The MBI will maintain all broadband related data in a secure data repository, and intends to adopt and implement a "best practices" protocol for the receipt, processing, and access to any confidential information received from broadband service providers. This protocol will include practices designed to minimize the number of copies, if any, made of confidential information, the number of MBI employees with access to confidential information, and the extent of any sharing of confidential information with outside consultants and/or other state agencies. The MBI will work with a security consultant to develop and implement a program designed to adequately protect confidential information. The security consultant will also perform semi-annual audits of the MBI's protocols to ensure compliance with terms of the non-disclosure agreements and with industry best practices.

Data Sharing

The primary goal of this Program is to support the development and updating of a national broadband map that will be made available to the public. The broadband dataset developed and maintained under this Program will be delivered to the National Telecommunication and Information Administration (NTIA) semi-annually for inclusion in the national broadband map. A current broadband availability dataset will initially be provided to NTIA on November 1, 2009 and will be followed by a deliverable of substantially complete broadband data on February 1, 2010. In addition to these submissions, the MBI will make broadband information available to the public primarily through a website containing broadband availability maps, updated periodically; an interactive, searchable broadband availability map; and a non-confidential broadband availability dataset that can be used by researchers and other industry experts. To do this, the MBI will purchase additional hardware and software and hire additional staff and consultants.

The MBI has already developed an interactive map where the public can submit data related to their own broadband usage as well as the availability of broadband infrastructure in their area.

Outreach

The MBI has already made significant efforts to reach out to the citizens and towns for input on broadband availability, through local forums and an online broadband mapping survey. The MBI will continue to maintain and publicize the online survey to collect information for data verification, and will also continue to reach out to town select boards and Local Technology Planning Teams for data verification. In addition, the MBI has partnered with a non-profit broadband initiative, WesternMA Connect, to help create the Local Technology Planning Teams in the four western counties. WesternMA Connect

will also work with these teams to identify barriers and assets to broadband infrastructure and adoption and coordinate with other broadband initiatives in western Massachusetts, including any Broadband Technology Opportunities Program (BTOP) infrastructure, public computer center and sustainable adoption grant programs. They will also develop documents and materials for use by other entities throughout the state to facilitate the deployment of broadband infrastructure in other underserved communities.

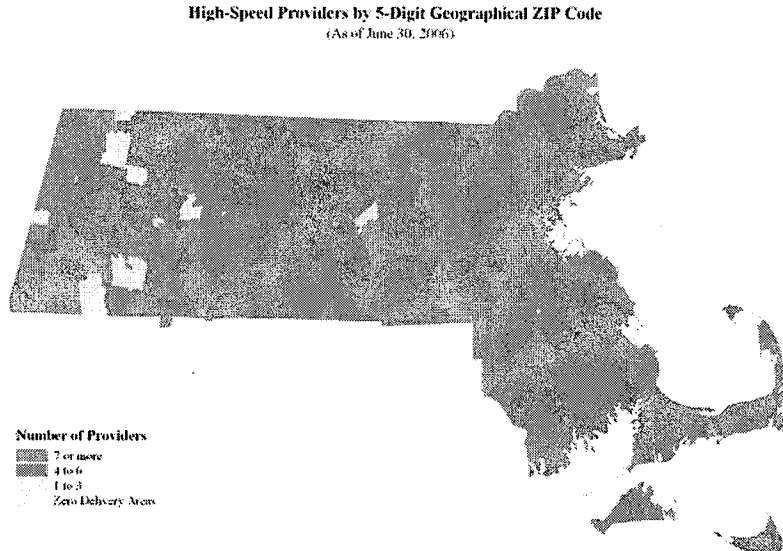
Conclusion

The MBI requests a grant of \$4,933,081, which includes \$500,000 for planning, to support this Program over the next five years. The MBI has a significant head start in developing a program that utilizes provider data and has a replicable method for validating this information. This “trust but verify” approach is unique in that the MBI’s progress has been achieved through direct collaboration with providers and other government agencies and does not rely on a non-governmental organization. On its own, the MBI cannot achieve its goals. The MBI has been funded, and concentrated its mapping efforts in only a third of the state and does not currently have the financial or staff resources to expand that effort consistently across the state or the ability to provide high quality, current and updated data on broadband performance. A grant in the amount of \$4,933,081 will enable the MBI to support a staff to acquire data and systems necessary for advanced mapping, and develop interactive tools for data display and sharing. The details of this grant request are discussed in the following application.

2 Unserved and Underserved Areas

The mission of the Massachusetts Broadband Institute (MBI) is to assess and improve broadband access conditions in communities that have no access or have limited or insufficient access to broadband. The MBI, created by Governor Deval Patrick and the Massachusetts Legislature in August 2008, began the process of understanding the availability of broadband infrastructure in the Commonwealth well before the State Broadband Data and Development Grant Program NOFA was issued. In June 2006, the Federal Communications Commission (FCC) published a national broadband availability map, **Figure 1**, that represented Massachusetts as fully served by at least one broadband service provider. After receiving feedback from constituents who believed this map overstated availability and competition in the state, the Commonwealth decided to undertake a project to assess broadband availability at a more granular level.

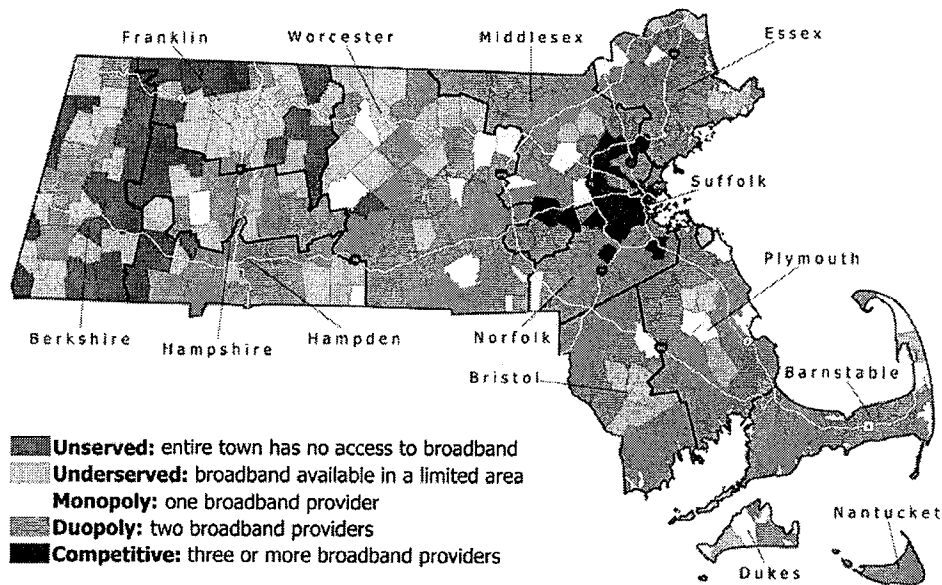
Figure 1: FCC National Broadband Availability Map, June 2006



In June 2007, the John Adams Innovation Institute (JAI), a division of the Massachusetts Technology Collaborative (MTC), conducted a study of broadband facilities using a combination of survey information and an “on-the-ground” assessment for all 351 municipalities in the state. JAI determined that at that time 32 towns in Massachusetts, primarily in the western portion of the Commonwealth, had no terrestrial broadband available, and an additional 63 towns had only partial broadband coverage. While this study used different definitions and methodologies than those contemplated by the NOFA, it provided a valuable initial view into the scope and scale of the problem, resulting in the map shown in

Figure 2. In the study, broadband was defined as a 1 Mbps connection that included cable, fiber, DSL, WiMax and WiFi, but not satellite or dial-up. An unserved town was defined as having no access to broadband and underserved as having limited availability, regardless of percentage.

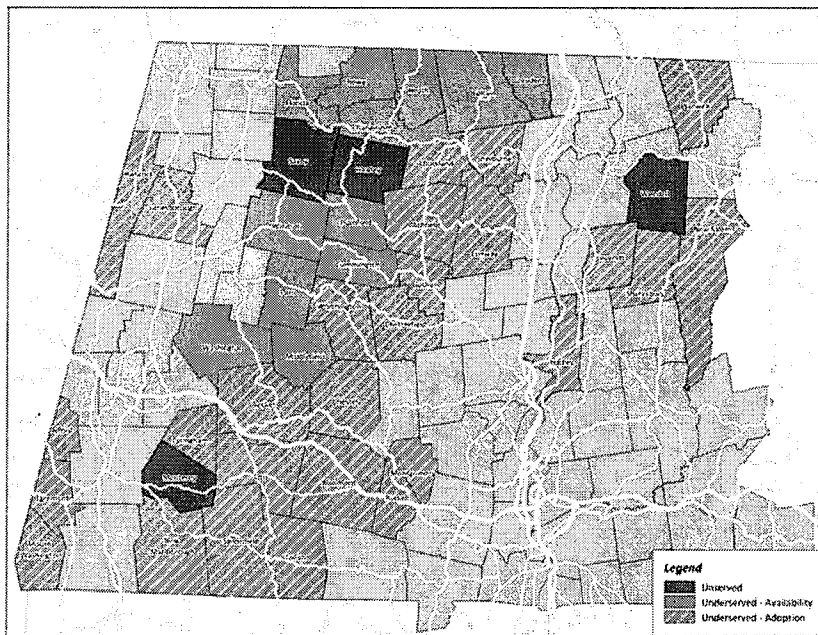
Figure 2: Broadband Availability in Massachusetts Municipalities, June 2007



The MTC/MBI understood that a more granular level of information was required in the underserved towns to understand the location and performance of broadband availability within the Commonwealth. Since the 2007 map was created, DSL service was deployed by Verizon in parts of many of the previously unserved towns, which has made it even more important to assess and map the broadband availability on a more granular level. In collaboration with many different state agencies, the MTC/MBI conducted additional studies on broadband availability, concentrated in western Massachusetts where the greatest percentage of unserved areas are located. Using the definitions outlined in the NOFA, western Massachusetts has four towns, containing roughly 2,600 households, that are unserved, and an additional 39 towns, containing 18,483 households, that are underserved. This is largely because areas in Berkshire, Franklin, Hampden and Hampshire counties in western Massachusetts and Barnstable County on Cape Cod lack critical middle mile infrastructure to encourage private sector development of last mile service.

Figure 3 shows a current view of broadband availability information for western Massachusetts.

Figure 3: Current Broadband Availability in Western Massachusetts



The Commonwealth continues to build upon the western Massachusetts study in three ways. First, the MBI has obtained access to street-level cable strand maps, through the Department of Telecommunications and Cable, as well as the location of critical DSL-equipped central offices. Second, the Office of Geographic and Environmental Information, also known as MassGIS, has started analyzing this data to determine which households and businesses in the Commonwealth are currently “passed” by broadband infrastructure. Finally, the MBI has developed an online broadband mapping survey for residents and businesses to self-report their use of broadband in all parts of the Commonwealth.

With the initiatives discussed above, the MBI has made significant progress in its assessment of broadband availability and the development of a statewide broadband map, but there is still substantial work to be done. Most of the recent work has been focused on western Massachusetts, but the MBI is aware of other underserved areas that require more detailed assessment. For example, the 2007 map does not show the broadband needs of educational institutions on Cape Cod as well as some underserved areas on the Northern Coast. Central Massachusetts also has underserved areas that will require a more granular level of information to identify and quantify.

In addition, the MBI has already begun to define geographic communities, initiate dialogue with the private sector, and develop public data display tools. The MBI has also made substantial progress in developing the methodologies necessary to create and validate the various datasets required by NTIA and outlined in the NOFA, but additional financial resources are needed to complete the task.

3 Data

3.1 Data Gathering and Verification

To support the NTIA's national broadband mapping project, the MBI will collect, aggregate, verify, and submit all data of the type and in the format provided in the NOFA Technical Appendix as amended on Friday August 7th for all facilities-based providers offering broadband service within the Commonwealth of Massachusetts. The MBI will work with MassGIS, as well as Regional Planning Agencies and consultants to accomplish this in an expedient manner and meet the timelines outlined in the NOFA.

The following discussion of the data to be collected and analysis to be completed is based on the updated mapping NOFA and contains the following sections:

1. Initial Master Address List – Defines the universe of MA households; small, medium and large businesses; governmental locations; and other locations. Although address-level data is no longer specifically required, the MBI still plans to acquire address information where possible.
2. Broadband Availability in Provider's Service Area – Identifies the available service area at the address level where available or at the census block-level for each broadband provider in the Commonwealth.
3. Residential Broadband Service Speed in Provider's Service Area – Identifies and calculates the average nominal speed for residential broadband users by each broadband provider's service or local franchise area, by MSA and RSA.
4. Broadband Service Infrastructure in Provider's Service Area – Identifies last mile, middle mile, and backbone infrastructure and interconnect points for the broadband providers operating in the Commonwealth. Understanding that last mile infrastructure is no longer specifically required, the MBI still plans to verify the first points of interconnection like central offices or cable nodes.
5. Community Anchor Institutions – Identifies, for each community anchor institution within the Commonwealth, their current broadband subscribership, technology, and typical speed.

These items are critical components of the project to gather comprehensive and accurate state-level broadband mapping data, develop state-level broadband maps, aid in the development and maintenance of a national broadband map, and assist in the development of broadband planning.

Initial Master Address List

In preparation for recurring data collection, the MBI will enlist the help of MassGIS, the state's GIS department, to develop a master list of all addresses and locations within the Commonwealth. The MBI understands that this information is not specifically required by the updated NOFA, but the MBI continues to believe that this is the best approach. The master address list will be used to track availability across a single standardized set of addresses and their associated census blocks. This list will evolve as structures are built, demolished or changed, and will identify all residential, business, government, and

other locations. While end-user information is no longer expressly required by the NOFA, the MBI has seen that needs and availability vary widely between end-user segments.

The MBI will leverage existing statewide address lists and reformat the address data according to the NTIA/Postal Service standards. The MBI and MassGIS have already begun to pursue the acquisition of master address lists from several sources, including the statewide Emergency Service List (ESL) list, US Postal Service, white pages, the Warren Group, InfoUSA, Dun and Bradstreet, and several others. Each dataset has pros and cons, so it will be important to acquire and merge data from multiple sources.

- The ESL, or 911 list, contains an address record for every land-line in the state, including individual units. This list is comprehensive and because of its intended use the address information is good quality. However, conditions for release of the 911 data covering its provision to NTIA are still being negotiated.
- The US Postal Service Zip+4 product provides street name and block range information that may be used to validate local tax assessor and NAVTEQ street names and addresses. This product is well-maintained, but does not provide validation for addresses outside of mail delivery ranges.
- The white pages provides for a base listing of most residential households. There are obviously many unlisted entries, but this list will provide a valuable validation tool for address identification and validation.
- The Warren Group dataset is a compilation of all local tax assessor listings. The license terms for this list have been negotiated and address information and land use codes will be in public domain. This listing includes locations without land-lines.
- InfoUSA is a commercial business listing which may be used to categorize the business size at each end-user location based on employment numbers. This list is of medium-to-excellent quality, including the rural areas of the state.
- Dunn & Bradstreet information contains the address, industry, and size of each business throughout the Commonwealth.
- Census block data from the US Census Bureau's TIGER4/Line Files contains household and population counts for defined geographic areas.

Accurate address locations are a critical component of the MBI's methodology for validating the wireline availability information and determining the locations that can be served with wireless. This list will be geocoded using a high quality NAVTEQ road network and overlaid on orthophotography and existing land-use data, developed by MassGIS, to ensure the accuracy of the locations. MassGIS is developing or has already developed the datasets that will be integral to this process.

- NAVTEQ roads: Where digital parcel data do not exist and cannot be developed, this very high-quality roads dataset will be used for geocoding. This dataset has been developed in partnership between the State 911, MassGIS, and the NAVTEQ company over the last four years. Hundreds of thousands of edits have been made to

this dataset with the intent of achieving as close to 100% success rate as possible on geocoding (98+% for all land-line records). The list has been built against a summary version of the ESL, which is refreshed every six months.

- **Orthophoto base map:** In 2005, MassGIS completed an update of the orthophotography (½ meter resolution 4-band aerial imagery) for the state, serving as a highly accurate base map used for virtually all GIS data development in the state.
- **Land-use areas:** From 2005-2008, MassGIS developed a state-wide GIS dataset for land use/land cover, derived from the orthophotography. This dataset has and will continue to be used for broadband data development to identify residential, commercial, industrial and institutional locations.

The inherent issue with Census geography is that it is impossible to know how the population is distributed within any given Census block. Households could be near or far from where infrastructure is located and it is impossible to determine whether or not they have access based on Census geography alone, so even if broadband is available in a portion of the census block this does not necessarily indicate that all households within that census block can order service. In order to accurately identify populations and households served, MassGIS has developed a method of integrating land use information, which accurately delineates developed areas, with the Census geography, which provides population numbers but not precise location. As a result, MassGIS will be able to produce a map of all developed areas with reasonably accurate counts of households and population assigned to each land use polygon, where the household or population density of the polygon is consistent based on the land use category. This work has been done by MassGIS for 70 unserved and underserved towns in western Massachusetts, as defined by the MBI prior to the NOFA.

Broadband Availability in Provider's Service Area

The MBI will use several complementary methods to collect and verify the data related to address-level broadband availability. Principally, the MBI will rely on the following approaches:

1. Access to Provider Data
2. Modeling and Schematic Review
3. Field Review and Survey

The MBI acknowledges that while providers ultimately have the most extensive information, there will likely be several providers who, without regulatory mandate, are unwilling to share data and/or do not provide the data in a timely manner. Further, it is important for the MBI to be able to validate the information that it does receive from the providers. It is with this in mind that the MBI plans to use all three methods in concert.

Access to Provider Data

The MBI will immediately begin work to establish relationships with each broadband provider currently operating in the state and request their compliance in providing all data

relevant to the specifications in the NOFA Technical Appendix. For DSL, fiber to the home (FTTH), and cable modem providers, the MBI will request information contained in availability databases that exist at most providers. These “loop-qual” databases generally contain a list of all locations currently qualified for the provision of broadband service. In our experience, there will be a significant amount of data cleaning required in order to ensure address matching is appropriate and accurate. To the extent possible, the MBI will request data in a format that matches that contained in the NOFA for address-level broadband availability. For wireless broadband providers, the MBI will request engineering-level maps depicting the availability areas of wireless broadband service including spectrum utilized to provide this service.

The MBI will pursue the cooperation of providers. MTC/MBI may in its discretion enter into Non-Disclosure Agreements with providers specifying the terms and conditions under which such data will be received and can be protected, as discussed in section 3.4 below. MTC/MBI and the Commonwealth already have had a successful history of interacting with the private sector and exchanging data. For example:

- WesternMA Connect: With the active support of MTC, WesternMA Connect was created by the merger of two successful Internet service aggregators, Berkshire Connect and Pioneer Valley Connect, and has aggregated demand for Internet services to entice providers to offer services in unserved areas in Western Massachusetts. It has been assisting MTC/MBI in collecting information about broadband availability in Western Massachusetts.
- The Massachusetts Department of Telecommunications and Cable (DTC), Biannual Competition Report: The DTC will soon publish its first biannual competition report. This report covers availability and adoption of voice and video services in the Commonwealth. As part of preparing the report, the DTC has actively engaged telecommunications and cable service providers to collect information about the availability and adoption of their service offerings. Providers’ participation in this data collection effort was entirely voluntary. **Figure 4** and **Figure 5** show cable and wireless coverage maps resulting from this effort.
- Call for Solutions (CfS): In the winter of 2008-2009, MTC/MBI conducted a Call for Solutions for proposals to deliver broadband services to unserved areas in Western Massachusetts. The CfS received 27 responses from commercial service providers, other interested commercial entities, and local community groups.

Figure 4: DTC Cable Video Coverage Map

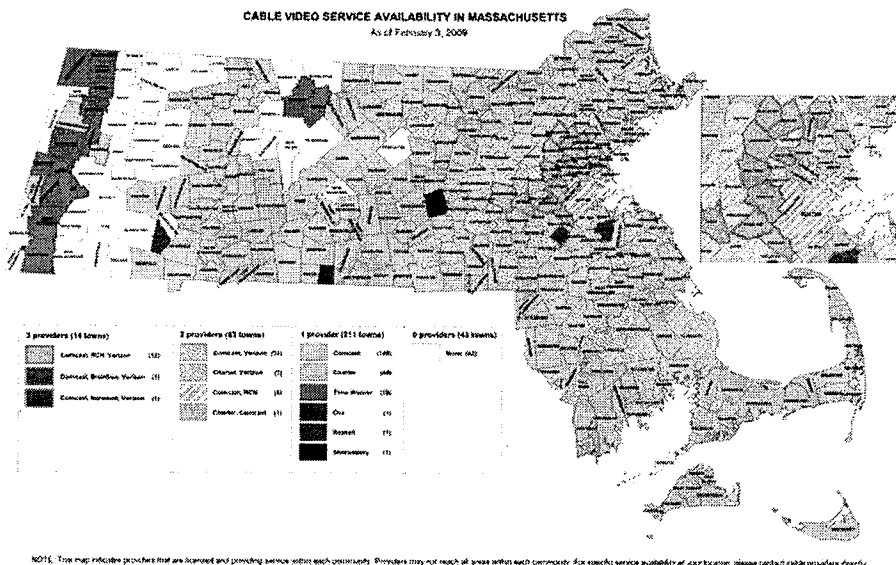
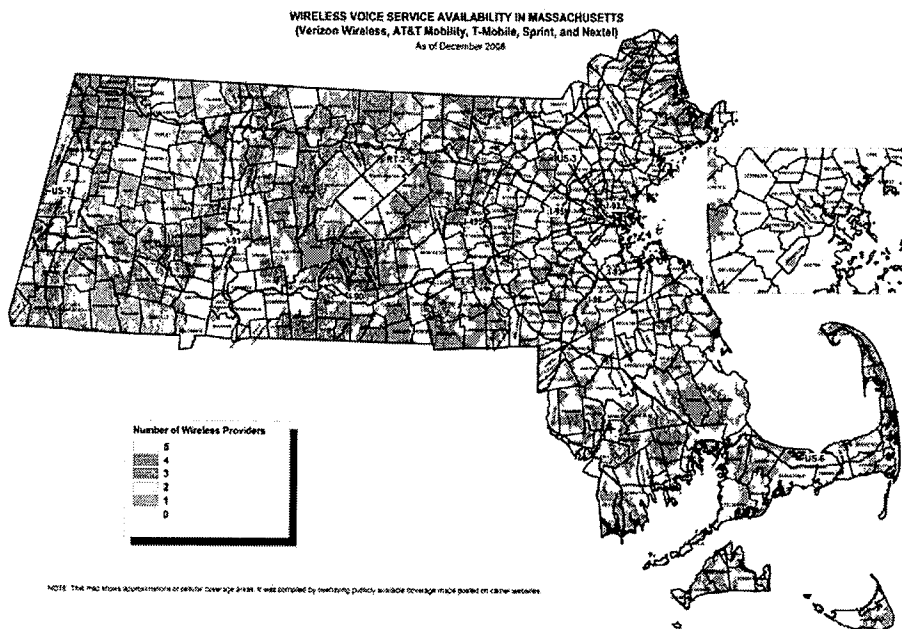


Figure 5: DTC Wireless Voice Service Coverage Map



The MBI has also already been in contact with and requested data from several broadband providers operating in the state and has reached some preliminary agreements, but not the level of agreement required by the NOFA. Based on discussions with those providers, the MBI anticipates reasonable cooperation from some providers and significant difficulties with others. The MBI will remind any providers that have received grants funds through RUS (BIP) and NTIA (BTOP) that they are required to comply with the data collection requirements of this Program.

With participation of the broadband service providers, the MBI will make resources available to ease the operational burden on these participating carriers. For example, the MBI will investigate the possibility of constructing an online data submission portal that will provide a secure, simple solution for carriers to upload data. The MBI will also incur costs associated with aggregating and standardizing the addresses and census blocks. It is expected that there will need to be a significant amount of initial work required to ensure that data obtained from the provider community is usable and accurate.

The data obtained from each provider will be as robust as possible, including all of the relevant fields listed in the Technical Appendix of the NOFA. These fields will include address information, technology, and typical upstream and downstream speeds, with speeds being reported across each service area or local franchise area, by MSA and/or RSA. The MBI will appropriately code the technology and speed based on the guidelines contained in the NOFA and any subsequent updates thereto.

This data will be updated at least semi-annually and on a continuing basis. The MBI expects to develop a standard process for providers to submit updated data on a regular basis. **Table 1** is a list of broadband providers with a current FCC Form 477 filed for Massachusetts.

Table 1: Broadband providers in Massachusetts

FRN	Filing Company Name	Type of Technology
0006875322	Airespring, Inc.	Cable Modem – DOCSIS 3.0
0004496774	AT&T Corp.	Terrestrial Mobile Wireless
0003766532	New Cingular Wireless Services, Inc.	Terrestrial Mobile Wireless
0015437841	Braintree Electric Light Department	Cable Modem – DOCSIS 3.0
0018122523	Broadcore, Inc.	Asymmetric xDSL
0010296853	Broadview Networks Holdings, Inc.	Asymmetric xDSL
0004350930	BullsEye Telecom, Inc.	Cable Modem – DOCSIS 3.0
0018506568	Cellco Partnership	Terrestrial Mobile Wireless
0003746468	Charter Communications	Cable Modem – DOCSIS 3.0
0018562652	City of Holyoke Gas & Electric Department	Optical Carrier/Fiber to the End User
0003768165	Comcast Cable Communications, Inc.	Cable Modem – DOCSIS 3.0
0003753753	Covad Communications Company	Asymmetric xDSL
0006945950	T-Mobile USA, Inc.	Terrestrial Mobile Wireless
0004324851	DSLnet Communications, LLC	Asymmetric xDSL
0003772753	Taconic Telephone Corp.	Asymmetric xDSL
0006797849	Fiber Technologies Networks, LLC	Optical Carrier/Fiber to the End User
0002850519	Global Crossing Telecommunications, Inc.	Optical Carrier/Fiber to the End User
0008394322	Enventis Telecom Inc.	Asymmetric xDSL
0018483073	HNS License Sub, LLC	Satellite
0007484389	Internet & Telephone, LLC	Terrestrial Fixed Wireless – Unlicensed
0003723822	Level 3 Communications, LLC	Optical Carrier/Fiber to the End User
0008599706	Broadwing Communications, LLC	Optical Carrier/Fiber to the End User
0012465480	Mega Broadband, Inc	Terrestrial Fixed Wireless – Unlicensed

FRN	Filing Company Name	Type of Technology
0009806019	Metropolitan Telecommunications Holding Company	
0014076749	MVA.NET, Ltd.	Terrestrial Fixed Wireless – Unlicensed Asymmetric xDSL
0006825954	Netlogic, Inc.	
0003720471	New Edge Network, Inc.	Asymmetric xDSL
0015337702	One Communications Corp.	Asymmetric xDSL
0018657692	Granby Tel & Tel Co of Ma Inc	Asymmetric xDSL
0011017795	PAETEC Communications, Inc.	Asymmetric xDSL
0003605953	Qwest Communications Company, LLC	Asymmetric xDSL
0003734993	RCN BecoCom, Inc.	Cable Modem – DOCSIS 3.0
0006254403	RCN New York Communications, LLC	Cable Modem – DOCSIS 3.0
0006066039	Richmond Connections, Inc.	Asymmetric xDSL
0004330916	Richmond Telephone Company	Asymmetric xDSL
0006204630	segTEL, Inc.	
0003774593	Sprint Nextel Corporation	Terrestrial Mobile Wireless
0018547828	Telefonica USA, Inc.	Other Copper Wireline
0013430244	Time Warner Cable LLC	Cable Modem – DOCSIS 3.0
0007097355	Towerstream, Inc.	Terrestrial Fixed Wireless – Licensed
0009700592	Shrewsbury Community Cablevision	Cable Modem – DOCSIS 3.0
0008904690	Transbeam Inc.	Cable Modem – DOCSIS 3.0
0014942668	tw telecom holdings inc.	Cable Modem – DOCSIS 3.0
0004333647	Freedom Ring Communications, LLC	Asymmetric xDSL
0010856284	Verizon Business Global LLC	Asymmetric xDSL
0003628971	Verizon New England Inc.	Asymmetric xDSL
0004343737	RNK, Inc.	Cable Modem – DOCSIS 3.0
0015329394	Wave2Wave Communications Inc.	Terrestrial Fixed Wireless – Unlicensed Asymmetric xDSL
0010568673	Westfield Gas and Electric	
0007843766	WildBlue Communications, Inc.	Satellite
0003716511	WiTel Communications, LLC	Asymmetric xDSL
0016131617	WiSpring, Inc.	Terrestrial Fixed Wireless - Unlicensed
0014286934	Nextlink Wireless, Inc.	Terrestrial Fixed Wireless – Licensed
0006275945	XO Communications, LLC	Cable Modem – DOCSIS 3.0
0008072803	Reliance Globalcom Services, Inc.	Other Copper Wireline

Modeling and Schematic Review

The MBI will simultaneously seek infrastructure information from alternate sources to define broadband availability within each provider’s service area. This effort will rely on engineering information to estimate the addresses that could reasonably receive broadband based on the availability of the underlying facilities.

For cable modem providers, the MBI has already used and will continue to use legal authority to acquire cable strand maps. The General Laws of Massachusetts, Chapter 166A, requires that all cable providers operating within the Commonwealth file and

update information related to the location of their cable plant. MassGIS has developed and tested the steps for converting these CAD strand-map files into a GIS product compatible with the other inputs. In general, the files are georeferenced so that they align with the orthophoto base map, and then individual road segments are tagged as having cable. Once the cable strand has been mapped, it can be “buffered” to create an approximate representation of the service territory. The final version of the service territory is created by integrating the buffer with the developed land use described above, so that all developed land use polygons which appear to be served are coded.

For DSL providers, the MBI will use the location of the central offices and remote terminals, where known, to estimate the propagation of DSL. The MBI understands that there are other factors, such as the existence of bridge taps and other line degradation that affect the availability of DSL. The starting point for the development of a service territory for DSL is mapping the point location of central offices and remote terminals which have DSLAM equipment currently installed therein. This is done via a combination of address, parcel mapping and tax ownership, Google maps and other sources. The original intent was to use a network distance analysis to tag all road segments or portions thereof within 18,000 feet of the central office, but that method has the disadvantage of not accounting for long driveways and other distance between customers and the road. MassGIS has developed a “cost-path” method which accounts for all these components. This method will also allow for customizing the distance used for the analysis based on local survey and other information. The resulting GIS layer, as with the cable, is comprised of developed land use polygons, and their associated census blocks, which are coded as being served by DSL.

For FTTH providers, the MBI will estimate availability based on the location of central offices and remote terminals, and the specific build out requirements established in video franchise agreements. FTTH providers, as long as they offer video service, are also required to file strand maps with the DTC. In the future, the MBI expects to have access to these strand maps in the same way as it has access to cable strand maps. However, a dispute filed by Verizon with the DTC has forestalled access to those documents in the near term.

For wireless broadband providers, the MBI will leverage publicly available marketing maps, usually made available on the providers’ websites or at the providers’ retail locations. With these availability maps, the MBI will determine, using the land-use data, which addresses and census blocks are located within the applicable wireless signal range.

Once the master address list is completed, the MBI will estimate the availability of broadband using the techniques described above for every address and census block in the Commonwealth. This modeling exercise will identify any areas or groups of addresses where there may be discrepancies between the information submitted by providers and the data estimated by the MBI. It is expected that this will be an iterative process where providers may need to produce supplemental information in areas where

the two methods do not match. This process is a critical part of ensuring that the data is as accurate as possible and that the MBI's modeling tools represent reality.

The MBI has already obtained authorization to mine the availability data from one broadband provider in the Commonwealth. The MBI expects that this will serve as a valuable validation that can supplement the modeling done with cable strand maps, FTTH modeling, and DSL propagation data.

Currently, MassGIS is in the process of estimating broadband service availability from cable and DSL networks in the western part of the state using cable strand maps and known locations of DSL-equipped central offices. These networks are then overlaid with land-use polygons containing census-based population information to determine the approximate service areas and households/addresses served. The MBI currently only has resources to complete this analysis for western MA, and the funds from the State Broadband Data and Development Grant Program will allow the MBI to complete this work for the rest of the state in an accelerated timeline.

Field Review and Survey

The MBI will supplement the above two methodologies with a feet-on-the-street verification that involves identifying specific infrastructure locations, conducting user surveys, and even installing end-user monitoring tools.

In visually identifying assets, the MBI will deploy a network engineer in specific areas to identify the locations of key pieces of network infrastructure such as cable nodes, DSL and FTTH equipped central offices, DSL and FTTH equipped remote terminals, and wireless towers. The field engineer will carry GIS-enabled data gathering equipment to facilitate tracking and reporting.

The MBI will also deploy an end-user survey of residents and businesses. These will take a variety of forms including via phone, online, and mail, and they will inquire about availability, adoption, spending, and other valuable factors used in the MBI's preparation of the data for the NTIA. A preliminary version of the online survey is already in operation, as described below, and collects information on typical upload and download speeds. This survey information will be useful in validating information for other sections of the data collection efforts described below, as well as validating availability data collected through service providers and modeling.

On May 26, 2009, the MBI launched an online broadband mapping survey to collect broadband service related information from residents, businesses, and other institutions throughout the state. Survey respondents are required to enter and locate their address through a Google Maps-based interface and are given the opportunity to correct the default geocoded location using the street map or orthophoto. Respondents are also required to provide the location type (e.g., residential, business, or other) and the current technology and broadband provider used to access the Internet at that address. In addition, respondents may also provide information regarding the monthly cost and typical upload and download speeds of the service at that address.

The MBI has collaborated with the Massachusetts Board of Library Commissioners and the regional library systems to place signs in libraries throughout the state with instructions on how to access the online survey. The MBI will continue to encourage citizens throughout the state to enter or update their broadband service information on the site. Survey entries are date-stamped to track the progress of broadband infrastructure/expansion work. Links to the online survey and survey results pages are located on the MBI website at <http://www.massbroadband.org/mapping/survey.html>.

To date, there have been 1,072 responses to the online survey since it was launched on May 26, 2009. Of those responses, 947 were residents, 36 were businesses and 89 were other institutions. **Figure 6** shows the survey results map categorized by type of technology and **Table 2** the number of responses in each category.

Figure 6: Online broadband mapping survey results by technology

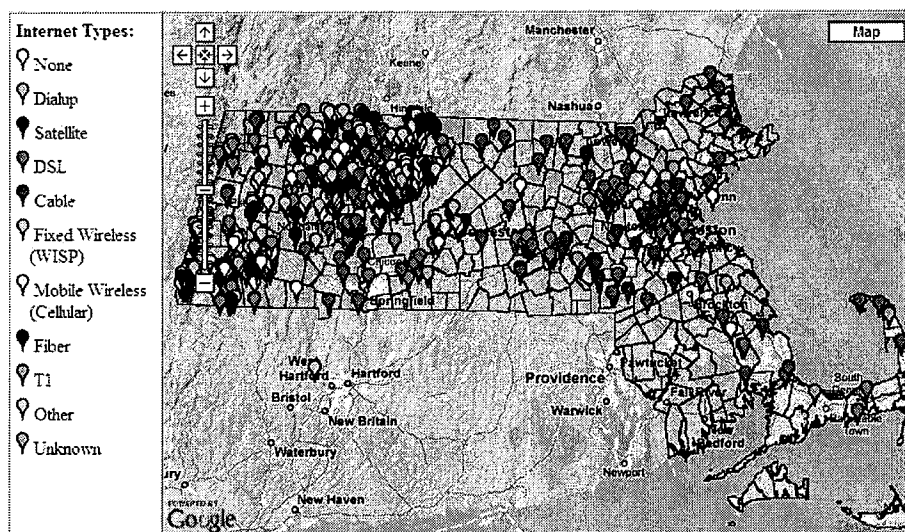


Table 2: Number of responses by technology for online broadband mapping survey

Technology	Count	Technology	Count
No Internet	130	Fiber	21
Dialup	307	Fixed Wireless	18
Satellite	214	Mobile Wireless	14
DSL	156	Other	24
Cable	128	Unknown	60

The MBI will also deploy network monitoring devices at volunteer homes and businesses throughout the Commonwealth. Similar to the way that Nielsen collects viewer habits, the MBI will monitor the speed performance of network connections at various locations, on various networks, and at various times of day throughout the Commonwealth. This data will be used to validate data about typical upload and download speeds.

Residential Broadband Service Speed in Provider's Service Area

The MBI will collect a count of residential subscribers by download speed and technology from each broadband provider in the Commonwealth. It will then be able to calculate the subscriber-weighted average speed by provider and for the entire Commonwealth. The MBI will use the following methodology for calculating subscriber weighted average speed

$$\frac{(\text{speed tier-1 in kbps} \times \text{no. of tier-1 subs}) + (\text{speed tier-2 in kbps} \times \text{no. of tier-2 subs}) + \dots}{\text{total average monthly subscribers}}$$

Average Speed data will be verified using survey information and the providers publically reported nationwide figures.

Broadband Service Infrastructure in Provider's Service Area

The MBI will use facilities information, as discussed above, collected by the DTC and other state agencies, as well as further resources from state and local agencies, carriers, and field surveys performed by the MBI. The primary source of data will be collected directly from carriers.

Last Mile Infrastructure

The MBI understands that this information is not specifically required by the updated NOFA, but the MBI has access to several other data sources for identifying infrastructure. This data will serve as a valuable verification tool to the extent that the MBI is unable to fully verify the availability data or the provider service area contained in the previous sections.

Notwithstanding the aforementioned, for cable, the MBI will collect strand maps submitted to the DTC as required by Commonwealth law, including digitizing, where necessary, older paper maps. For DSL and FTTH, the MBI will utilize central office information filed with the DTC, combined with information filed in the LERG, a database of telecommunications equipment maintained by Telcordia, to identify the location of DSL and FTTH equipped central offices. The MBI has, in the past, relied on third party data from MapInfo and Telcordia, to identify the specific operational boundaries of Incumbent Local Exchange Carrier (ILEC) central offices and remote terminals. The MBI will continue to update and leverage this data as needed.

To the extent wireless operators are reluctant to participate, the MBI will use the FCC's antenna site registration (ASR) database, carrier submissions, and information from state agencies and local zoning authorities to identify cellular and wireless Internet tower locations. For example, the Massachusetts Department of Conservation and Recreation (DCR) leases cellular sites collocated with its fire towers and the Executive Office of Transportation leases tower sites along highways and interstates. This data also serves as a valuable validation tool for those providers that do exchange data with the MBI. These analyses will be supplemented by field surveys conducted by MBI engineers to confirm the location of remote terminals and wireless towers.

Middle Mile Infrastructure

The MBI will conduct an inventory of all state and local agency owned communications conduit and coordinate with federal agencies, such as the Army Corps of Engineers, to identify additional conduit. Further, it will work with local planning and inspections departments to identify privately owned underground conduit and overhead cabling. The MBI will also digitize fiber maps provided on carrier websites, obtain transmission line maps where fiber is likely run, and obtain microwave links from the FCC Universal Licensing System (ULS) database.

The MBI will cross-reference the above data with land ownership records and field surveys to validate the existence and ownership of the equipment and confirm the precise locations of PoPs, handholds, data centers, and other middle mile equipment.

Community Anchor Institutions

MBI and MassGIS maintain GIS datasets of public safety entities, medical and healthcare facilities, libraries, state and local government, schools, community colleges and other higher education. The MBI has been and will continue to work with a variety of state, regional and local agencies to cross-reference this information and maintain accurate, up-to-date lists of community anchor institution locations throughout the state that will be updated at least semi-annually. Some of the key agencies and datasets include:

- The Department of Public Health (DPH) and the e-Health Institute at MTC – hospitals, community health centers, clinics, nursing facilities, group practices, outpatient surgery centers, laboratories, home health agencies and local boards of health
- The Executive Office of Public Safety and Security (EOPSS) – state and local police, county sheriffs' offices, public safety answer points (PSAP), fire stations, ambulance providers and town halls
- The Massachusetts Board of Library Commissioners (MBLC) and six regional library systems – public libraries and branches
- The Department of Elementary and Secondary Education (ESE) and Department of Higher Education (DHE) – K-12 schools, community colleges and other colleges and universities
- The Executive Office of Department of Labor and Workforce Development (EOLWD) – One-stop career centers
- Massachusetts Association of Councils on Aging (MCOA) – senior centers and councils on aging

The MBI will establish a regular reporting process for each of these agencies to provide periodic updates, at least semi-annually. The MBI will also request assistance from Regional Planning Agencies to validate the data through outreach and field verification. In addition to location, the MBI will collect information on broadband availability, needs, usage, technology and speed.

3.2 Data Verification

As discussed above, the MBI's plans for data collection incorporates several inherent methods for data verification. For broadband availability information, data is verified in a three part process. Data collected from carriers and modeling exercises is cross-referenced against each other, and against land ownership records. Further, this data is checked against MBI conducted surveys of residents and businesses and field surveys conducted by MBI engineers. Typical upstream and downstream speeds are also verified using monitoring equipment installed in the homes and businesses of volunteers to determine peak and typical speeds throughout the day and the week.

Broadband infrastructure will cross reference carrier submissions with regulatory filings with the DTC and FCC, information from state and local authorities, and field surveys by trained engineers. Community Anchor Institutions will cross-reference the MassGIS data with reporting from state and local authorities and commercial datasets to identify all Community Anchor Institutions.

The MBI is also planning to utilize a statistician to perform regular statistical analyses of the data received/developed as part of the mapping program. These analyses will provide detailed insight into the data for the Commonwealth as it prioritizes broadband investments and help identify statistical anomalies which will assist in the verification of data on an ongoing basis.

3.3 Accessibility

The MBI is committed to the public availability and transparency of the broadband data. The MBI already has a website that is updated on a regular basis to keep the public informed of current broadband activities and information. Through the website, it will make information related to current broadband availability and statistics across the state available through the following online tools:

1. A broadband mapping survey;
2. A map library;
3. A data repository; and
4. An interactive, searchable map.

Broadband Mapping Survey

The MBI website already has a link to the Massachusetts Broadband Survey, a publicly accessible online survey of broadband access at residences, businesses and other institutions throughout the state. In addition to address and Internet access data, the survey collects information on the type of technology, provider name, typical upstream and downstream speeds and cost. Users may also view, on a statewide map, the location of all of the survey results to date. The mapped locations are color coded by type of technology.

Map Library

The MBI will maintain a collection of maps on its web site. Users will be able to browse the contents of the map library collection, view the maps in a web browser and download the maps in PDF format. The map library will be updated on a regular basis; at a minimum, on a semi-annual basis corresponding with the broadband data submissions to the NTIA. The maps will display a snapshot of the current state of broadband availability throughout the Commonwealth. The maps will be accompanied by associated, non-confidential statistics and survey information. The MBI will add its own qualifications to the data in order to discuss the evolution of the market and any relevant trends. This information will be presented to government officials, community leaders, and the public at large.

Data Repository

The MBI will also maintain metadata for each dataset, in compliance with Federal Geographic Data Committee (FGDC) standards, and will display the metadata on the website for users to browse. The metadata will be linked to the associated broadband availability data tables and GIS datasets. More advanced users will be able to download tabular datasets in DBF or XLS format and GIS datasets in SHP or KML format. The MBI will also tabulate and display survey information.

Interactive, Searchable Map

Finally, the MBI will hire a consultant to develop an interactive map that allows users to search a consolidated map, showing statewide broadband availability, to find providers and general broadband availability information in specified areas. This interactive map will allow users to add or subtract various layers, such as availability and demographics and community anchor institution locations. The map will allow the user to zoom in to specific geographies and it will be designed to be consistent, non-technical and easily understandable to the average person.

3.4 Security and Confidentiality

The MTC/MBI data collection and protection processes will be transparent, but will to the extent permissible by law and subject to the discretion of MTC's General Counsel, maintain confidentiality of necessary provider data. MTC is prepared to enter into non-disclosure agreements with broadband service providers (in a form substantially identical to the draft agreement included as Attachment 2 to this Narrative) to commit to appropriate protection, consistent with the requirements of the NOFA and state law, for the confidential information required by the NOFA. In addition to specifying the terms under which MTC will agree to receive, process and protect such information, such non-disclosure agreements will specify terms under which MTC will agree to facilitate efforts by broadband service providers to prevent the disclosure of such information in response to Public Record Law requests or other sources of compulsory process against MTC arising in the context of judicial, regulatory or other legal proceedings. MTC will not agree to any provisions that restrict the providing of all data collected under this mapping program to NTIA, or restrict NTIA's use of such data as contemplated under the NOFA, including sharing the data with the FCC or other federal agencies.

MTC intends to adopt and implement a "best practices" protocol for the receipt, processing, and access to any confidential information received from broadband service providers, including practices designed to minimize to the maximum extent reasonably practicable the number of copies, if any, made of Confidential Information, the number of MTC employees with access to Confidential Information, and the extent of any sharing of confidential information with any outside consultants and/or other state agencies. The MBI will work with a security consultant to develop and implement a program designed to adequately protect confidential information. The security consultant will also perform semi-annual audits of the MBI's protocols to ensure compliance with terms of the non-disclosure agreements and with industry best practices.

4 Project Feasibility

4.1 Applicant capabilities

Note: The NOFA required that this section provide a detailed budget narrative. However, as directed by NTIA, the budget description is provided in a separate Budget Narrative Attachment and budget table is provided in Standard Form 424A, Budget Information for Non-construction Programs.

The Budget Narrative (see Budget Narrative Attachment) requests \$4,933,081 of NTIA funding, including \$500,000 in planning funds, and the MBI will provide a 20% match of \$1,233,270. To support this match, the MBI has access to up to \$40M in bond funds dedicated to the expansion of broadband service in Massachusetts, less funds required as match for BTOP grant programs. The MBI may use these bond funds for data development, mapping, and infrastructure investments. Presently, some of these funds are needed for the development of middle mile and last mile infrastructure, including approximately \$20M of match against the NTIA BTOP grant. The MBI proposes to use data contributed by MassGIS as \$1,096,234 in-kind match (see Attachment 3, MassGIS Letter of Match Contribution). WesternMA Connect and three Regional Planning Agencies in western Massachusetts will contribute \$100,000 in match towards the planning component (see Attachment 4, WesternMA Connect Letter of Match Contribution). The MBI will supplement the balance with a \$37,036 cash match in order to meet the 20% requirement

The MBI in-kind data contributions include:

- An enhanced NAVTEQ road network;
- Statewide 2005 land use data; and
- Statewide 2009 orthophotography.

Enhanced NAVTEQ road network

MassGIS has been working in partnership with NAVTEQ over the past four years to improve the quality of the NAVTEQ road network in Massachusetts. This work is ongoing, requiring two full-time staff, and funded by the State 911 program. Hundreds

of thousands of edits have been made to this dataset with the intent of achieving as close to 100% success rate as possible on geocoding (98+% for all land-line records). The list has been built against a summary version of the Emergency Service List (ESL), which is being maintained and refreshed every six months to remain current. The data licensing covers full and unrestricted use of the street names and linework.

Statewide 2005 land use data

From 2005 to 2008, MassGIS acquired a statewide GIS dataset for land use/land cover from the 2005 orthophotography, using 37 categories of land use. The key land use classes for the purpose of the broadband data development include various densities of residential uses (e.g., single family and multi-family), commercial, industrial and institutional. This data was acquired using state funds.

Statewide 2009 orthophotography

In 2009, MassGIS funded the collection of new higher resolution orthophotography (30 cm resolution 4-band aerial imagery) for the state. This highly accurate imagery will provide a current snapshot of the infrastructure and development in the state and will replace the 2005 orthophotography as the base for GIS data development and quality control. It will be used for verifying and digitizing point locations for households, businesses and other structures, developing linework representing all DSL and cable infrastructure coincident with roads, and verifying the location of towers and other broadband related infrastructure. The imagery has already been collected using state funds and will be delivered to MassGIS incrementally from September 2009 to February 2010.

4.2 Applicant capacity, knowledge & experience

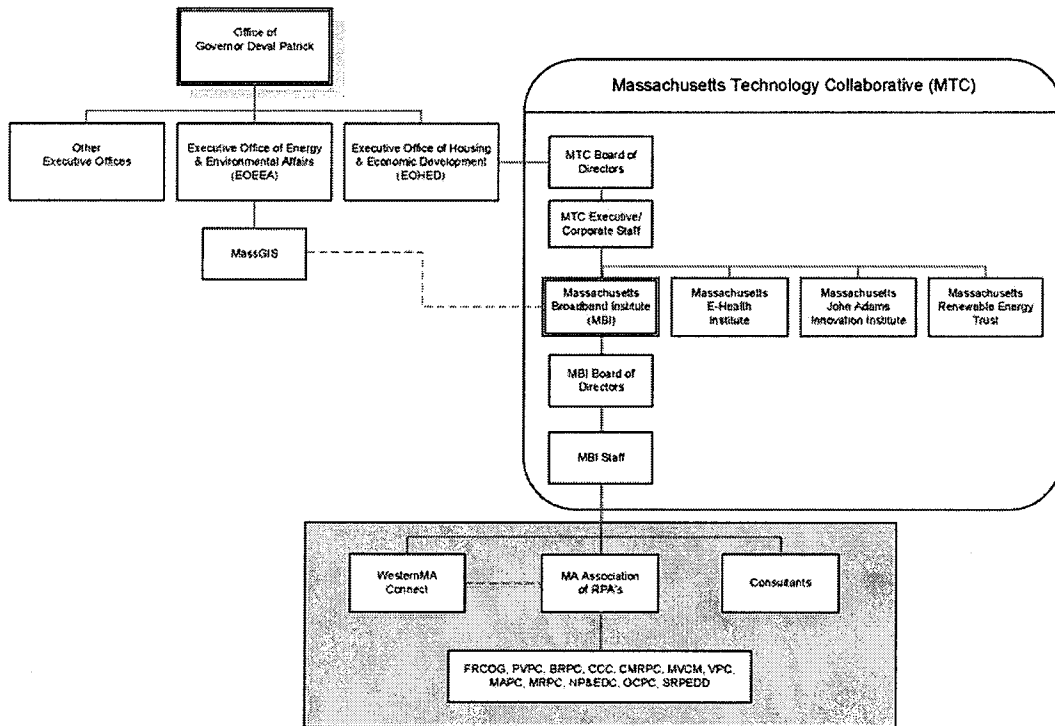
MTC/MBI has the expertise, capacity and authority to implement and manage a broadband mapping program. The Massachusetts Broadband Institute, a non-divisible component of the Massachusetts Technology Collaborative, a public instrumentality of the Commonwealth of Massachusetts (MTC), was created and \$40 million of funding was authorized under Chapter 231 of the Acts of 2008, *An Act Establishing and Funding the Massachusetts Broadband Institute* (Broadband Act). The MBI was specifically created to extend affordable high-speed Internet access to all homes, businesses, schools, libraries, medical facilities, government offices, and other public places across the state. An essential part of the MTC/MBI plan is to assess existing broadband availability, resources, and needs throughout the Commonwealth.

MTC is the Commonwealth's technology development agency, created in 1982. The John Adams Innovation Institute, another division of MTC, was instrumental in the creation of the MBI and was involved in a number of initiatives including a broadband availability survey in 2007 and the creation of regional organizations Pioneer Valley Connect, Berkshire Connect, OpenCape and OpenAir Boston.

The MTC has a \$13 million annual operating budget, 70 employees and over 10 years of experience in leveraging public and private broadband infrastructure investments, as well

as renewable energy and e-health initiatives. The MBI has a \$1.7 million annual operating budget and 5 employees. Both the MBI and the MTC have Boards comprised of distinguished industry leaders. Additionally, the MBI has the support and guidance of the state's Secretary of Housing and Economic Development, Secretary of Administration and Finance, Secretary of Public Safety, Secretary of Education and Secretary of Labor and Workforce Development. The organization chart shown in **Figure 7** identifies key personnel and agencies affiliated with the MTC/MBI broadband mapping team.

Figure 7: The MBI broadband mapping and planning team



Project Oversight

The MA Executive Office of Housing and Economic Development (EOHED) plays an important oversight role for MTC and the MBI. EOHED Secretary, the Honorable Gregory P. Bialecki, is on the Executive Committee of the MTC Board of Directors and Assistant Secretary C. Stanley McGee is Chairman of the MBI Board of Directors.

C. Stanley McGee, Assistant Secretary, EOHED; Chair, MBI Board of Directors

As Assistant Secretary for Policy and Planning in the Executive Office of Housing and Economic Development (EOHED), Mr. McGee supports Secretary Greg Bialecki with respect to all strategic policy initiatives and coordinates various agencies and departments within the secretariat on overall policy direction. He also serves as Director of Wireless and Broadband Affairs and as Chairman of the MBI Board of Directors.

Mitchell Adams, Executive Director, MTC; Member, MBI Board of Directors

As Executive Director of MTC and a member of the MBI Board of Directors, Mr. Adams brings more than 30 years of management experience and a diverse portfolio of expertise in strategy, business process, and systems implementation management. Most recently, he founded and served as Chairman and CEO of a company concerned with the application of advanced information technology in the healthcare systems.

Project Management Team

Sharon E. Gillett, Director, MBI

As Director, Ms. Gillett oversees all MBI project activities and led the team that developed this application. Ms. Gillett most recently served as the first commissioner of the Department of Telecommunications and Cable, a statewide regulatory agency. She has been appointed as Wireline Competition Bureau Chief by the Federal Communications Commission and will be leaving the MBI in late August. After her departure, a successor will be named by the Governor to direct the MBI.

Cynthia S. Gaines, GIS Project Manager, MBI

Ms. Gaines will coordinate all data collection activities, oversee new staff, handle collaboration with state and local agencies, and manage consultants related to this Program. At the MBI, she has supervised cable and DSL network estimation by MassGIS, worked closely with MassGIS to design an online broadband mapping survey, managed the acquisition of broadband infrastructure and community anchor institution datasets in western Mass, and collaborated with numerous state, regional and local agencies. Ms. Gaines has thirteen years of professional GIS experience, holds a B.A. in environmental science and economics from the University of Virginia and holds a GIS Professional (GISP) certification from the GIS Certification Institute.

Donna Baron, Program Director, MBI

Ms. Baron's current project at the MBI is overseeing the \$4.2 million, 55 mile I-91 deployment. She has been instrumental in the development of the MBI and its efforts in western Massachusetts. Previously, she served as Director of Information Technology for Five Colleges, Incorporated, where she directed the design and build of a \$3.8 million, 53-mile metropolitan area optical fiber network that connects several towns, as well as the region's five major colleges and universities. Ms. Baron holds a B.A. in geography from Clark University and a M.S. in geography and women's studies from the University of Wisconsin, Madison.

Key Partnerships

Office of Geographic and Environmental Information (MassGIS)

MassGIS is the Commonwealth's Office of Geographic and Environmental Information, within the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA). Through MassGIS, the Commonwealth has created a comprehensive, statewide database of spatial information for environmental planning and management.

MassGIS collaborates with GIS staff at the Regional Planning Agencies (RPAs) and tracks the status of municipal GIS development. The state's Operational Services Division (OSD) and the Information Technology Division (ITD) also work closely with MassGIS on GIS related procurements and on-line mapping. The MBI has partnered with MassGIS to conduct a detailed mapping project, focused on western Massachusetts, where the digital divide is most acute, to determine which locations within each community lack any broadband access. Under this Program, this work will be extended to the rest of the state.

WesternMA Connect, Inc.

WesternMA Connect is a non-profit organization that was formed in April 2009 by the merger of Berkshire Connect and Pioneer Valley Connect. Their mission is to encourage the creation of an advanced telecommunications landscape that will provide affordable, reliable, and redundant high capacity broadband services throughout the four western Massachusetts counties. WesternMA Connect has extensive experience partnering with the three RPAs that serve western Massachusetts (FRCOG, BRPC and PVPC), with two of the RPA Executive Directors also serving on the five-member WesternMA Connect Board of Directors. The Connects conducted a series of studies from 2005 through 2008 to identify the best options for resolving the broadband gap in western Massachusetts. The development of a public-private partnership model that included public investment in middle mile infrastructure inspired the regional legislative delegation and Governor Patrick to create the Massachusetts Broadband Institute and Incentive Fund. WesternMA Connect has partnered with the MBI to perform Broadband Data Improvement Act (BDIA) related planning functions and to assist with outreach on the mapping effort, as needed.

Massachusetts Association of Regional Planning Agencies

The Massachusetts Association of Regional Planning Agencies (MARPA) is a statewide organization of the Commonwealth's 13 RPAs. Each RPA comprises representatives of the member cities and towns constituting its geographic region, serving as advisory bodies to member communities, private business groups, and state and federal governments. They provide research and analysis services and help to implement planning in areas such as economic development, community and rural development, infrastructure development and maintenance, environment and land use, regional and municipal services, historic preservation, transportation and transit, GIS mapping and graphics services and technical assistance to member communities. As needed, the MBI will contract for the services of the RPAs, through MARPA, to support data gathering and verification and local outreach.

Access to GIS consultants

The MBI also has access to approved IT and GIS solution providers through a state Master Services Agreement for IT Services - Solution Providers (ITS33SolutionProv). Eight of the companies on the contract are local GIS solution providers that were competitively selected based on their experience with GIS data development and web mapping software.

5 Expedient Data Delivery

Based on the 3 pronged approach proposed in section 3.1, including coincident collection of data from providers, modeling and field work, the MBI feels confident that it will be able to provide NTIA with the data required and by the dates specified in the NOFA. Given the broadband data collection and studies performed by the MBI and MTC over the past several years, the MBI has a significant head start on an availability dataset to be provided on November 1, 2009. The MBI will continue to improve the existing broadband availability dataset, in order to provide the best availability data possible by November 1. This will include the development of a master address list, overlaid on existing provider service areas estimated by MassGIS, as well as the continued development of cable and DSL service areas for the rest of the state.

Once the contract for this Program is in place, the MBI will immediately begin working with MassGIS, RPAs and field engineers to collect and verify the required availability and infrastructure data and associated broadband information to meet the submission deadlines. The deliverables and dates as defined in the NOFA and proposed in this application are listed below.

1. On November 1, 2009, or 15 calendar days from the date of the signed contract, whichever is later, the MBI will provide NTIA with the most current version of the statewide broadband availability dataset. The data will be provided either as polygons in ESRI Shapefile format or as a tab-delimited address list.
2. On February 1, 2010, or 3 months from the date of the first deliverable, whichever is later, the MBI will provide NTIA with all datasets identified in and in the formats specified in the Technical Appendix of the NOFA, including clarifications to the NOFA on August 7th. This includes the following datasets, which will be substantially complete, as defined in the NOFA:
 - a. A wireline availability dataset in tab-delimited text format, including end-user address fields, technology of transmission and typical upstream and downstream speed attributes.
 - b. A wireless availability dataset in ESRI Shapefile format, in the WGS 1984 geographic coordinate system, including associated technology of transmission, spectrum and typical upstream and downstream speed attributes.
 - c. A speed characteristics dataset in tab-delimited text format, including county, technology of transmission and subscriber-weighted nominal speed attributes.
 - d. A middle-mile/backbone dataset in tab-delimited text format, including ownership, capacity, facility type, geographic coordinates and elevation attributes.
 - e. A community anchor institution dataset in tab-delimited text format, including name, address, geographic coordinates, category of institution, broadband service and technology of transmission attributes.
3. On March 1, 2010, or 1 month from the date of the second deliverable, whichever is later, the MBI will provide NTIA with updates to all of the datasets provided in the second deliverable. The data will be of the same type and format as the second deliverable.

The completeness of datasets will be dependent on the extent and timeliness of cooperation from all broadband providers operating within the state. The list of deliverables above is based on the following assumptions:

- A contract between MTC and NTIA is signed by all parties by October 1, 2009.
- Non-disclosure agreements with providers are signed by all parties by October 15, or within 15 days of the date of the signed contract.
- The MBI receives data from providers within 15 days of the date of the signed non-disclosure agreement.
- There are no significant address discrepancies between the MBI and provider data.

6 Process for Repeated Data Updating

The MBI has a vested interest in keeping the Massachusetts state broadband map as current as possible in order to accurately target investments in broadband infrastructure. The MBI will establish efficient, repeatable procedures for acquiring data from broadband providers and other sources to support the submission of semi-annual updates to NTIA. As the data is collected, processed, verified and formatted for the first submission of substantially complete datasets, the MBI will define and document best practices for managing and preparing subsequent data updates, including standardized data formats and workflows.

The MBI will develop a standard submission form, similar to the FCC's Form 477, for broadband providers operating in Massachusetts to submit updates about the availability of their services. This will ensure that data is collected in a standardized format pursuant to the NTIA's requirements. Initially, however, the MBI understands that, in order to comply with the timing requirements, it will need to take on the majority of the data analysis and standardization. Going forward, the MBI will work with carriers to assist in their own standardization of data so that it can be submitted regularly and with little incremental effort. The MBI also expects to work with other states, the FCC, and the NTIA to spearhead the development of a national standard form for the submission of this data. MBI will develop similar procedures for acquiring data from alternative sources, including state, regional and local agencies.

The MBI will establish a semi-annual delivery schedule for broadband providers and alternative data providers to follow, which will mirror the submission deadlines established by NTIA for data updates from the states. The MBI will submit data updates to NTIA according to the schedule defined in

Table 3, based on the following guidelines:

- Data submitted to the MBI on or after December 31 will be incorporated and submitted to NTIA by March 1 of the following year.
- Data submitted to the MBI on or after June 30 will be incorporated and submitted to NTIA by September 1 of that year.

Table 3: Schedule of MBI data update submissions to NTIA

Submission date	Data current as of
Sept. 1, 2010	Dec. 31, 2009 and June 30, 2010
March 1, 2011	Dec. 31, 2010
Sept. 1, 2011	June 30, 2011
March 1, 2012	Dec. 31, 2011
Sept. 1, 2012	June 30, 2012
March 1, 2013	Dec. 31, 2011
Sept. 1, 2013	June 30, 2012
March 1, 2014	Dec. 31, 2012
Sept. 1, 2014	June 30, 2013

The MBI will monitor press releases and regulatory filings for information about changes to provider networks and services, which it will use to verify updates from providers and to guide changes to its models. It will also conduct periodic site visits with field engineers in order to verify ongoing operation of broadband services and validate upgrades to broadband networks.

7 Planning and Collaboration

7.1 Collaboration with state, regional and local agencies

The MBI is collaborating intensively with other state, regional and local agencies to understand how their resources can contribute to the MBI's mission, and how the MBI's investments can help address their needs. A significant amount of data has already been collected regarding broadband infrastructure, availability, and the location of community anchor institutions.

Gubernatorial Support and Commitment

On August 4, 2008, Governor Deval Patrick signed into law *An Act Establishing and Funding the Massachusetts Broadband Institute (MBI)*, Chapter 231 of the Acts of 2008. Through this Act, the MBI was chartered with "assessing and improving broadband access conditions" in the Commonwealth. Since that date, Governor Patrick has continued to support and prioritize the initiatives of the MBI. At a public broadband forum in South Deerfield, MA on May 26, 2009, Governor Patrick presented the MBI Director, Sharon Gillett, a letter of intent to designate the MBI as the single eligible entity to apply for and receive BDIA funding through the State Broadband Data and Development Grant Program. At that same event, Governor Patrick and the MBI announced the launch of an online broadband mapping survey to engage citizens in the broadband assessment process. On July 28, 2009, at an event in Northampton, MA, Governor Patrick announced a new partnership between the MBI and the Executive Office of Transportation (EOT) to lay fiber-optic cable along Interstate 91 through western MA from the Connecticut border to the Vermont border.

The \$40 million state bond funds investment demonstrates Governor Patrick's commitment to fast, affordable broadband service throughout the state and collaboration at all levels of government to make that happen.

Collaboration with State Agencies

Through an Inter-Governmental Agreement between the MTC, EOHEd, and EOEEA, the MBI contracted for the services of MassGIS to create GIS datasets of cable and telecommunications infrastructure that support broadband, combined with data on population and land use to provide a detailed assessment of the level of broadband access available via cable and phone in western Massachusetts. The MBI will extend the MassGIS work to develop similar data for the rest of the state. In addition, MassGIS will support the MBI in the development of a master address list. MassGIS also maintains a host of statewide datasets that are valuable to the assessment of broadband availability, including orthophotography, land use, parcels, transportation infrastructure and many community anchor institution locations.

MBI collaborations with other state agencies include:

- MA Executive Office of Housing and Economic Development (EOHEd): MBI Chairman of the Board, C. Stanley McGee and several staff members provide the MBI with assistance in establishing and maintaining collaboration with other state agencies and participate in weekly interagency conference calls with the MBI.
- MA Department of Public Health (DPH): MTC's e-Health Division provides MBI with strong ties to DPH. Broadband availability has become a critical tool for medical and healthcare providers, including access to the Massachusetts Virtual Epidemiologic Network (MAVEN) for critical public health information. DPH has already provided the MBI with an extensive amount of data on the locations of medical and healthcare facilities.
- MA Department of Telecommunications and Cable (DTC): Prior to her appointment as MBI Director, Sharon Gillett was the DTC Commissioner, bringing with her invaluable relationships. Her successor as DTC Commissioner, Geoffrey Why, also strengthens these relationships through his position as a member of the MBI Board of Directors. The DTC has already been instrumental in providing the MBI with cable strand maps and assisting the MBI in establishing contact with broadband providers.
- MA Information Technology Division (ITD): Assistant Secretary and Chief Information Officer (CIO) of ITD, Anne Margulies, is also a member of the MBI Board of Directors. The MBI has been collaborating with ITD to incorporate the mission of their Massachusetts Information Turnpike Initiative (MITI) into the MBI middle-mile infrastructure plan.
- MA Executive Office of Public Safety and Security (EOPSS): The MBI has partnered with EOPSS to combine the overlapping missions to develop and improve broadband connections to public safety facilities, particularly in the unserved and underserved areas in the western counties. EOPSS has already provided a significant amount of information on the location of public safety facilities throughout the state, including locations lacking connectivity to access to the Criminal Justice Information System.

- MA Executive Office of Transportation (EOT): The MBI recently established a partnership with the EOT's Massachusetts Highway Department (MassHighway) to enable the MBI to lay fiber-optic cable along I-91 in western Massachusetts inside conduit that MassHighway is currently in the process of installing. EOT has already provided infrastructure datasets that may be valuable resources for targeting locations for broadband infrastructure development.
- MA Executive Office of Labor and Workforce Development (EOLWD): EOLWD provides critical unemployment and workforce development services that include publicly available computers and on-line courses at One-Stop Career Centers throughout the state. EOLWD has provided the MBI with the locations and broadband availability of their One-Stop Career Centers, which the MBI has identified as important connection points for middle-mile infrastructure in its western Massachusetts BTOP grant application.
- MA Department of Conservation and Recreation (DCR): DCR owns and maintains fire towers and other towers throughout the state. The MBI is in the process of developing an agreement with DCR to establish first right of refusal to place equipment on the DCR towers. DCR has provided the MBI with a list of towers and relevant access and equipment information.
- MA Department of Elementary and Secondary Education (ESE): ESE has provided the MBI with a list of public K-12 schools in the four western Massachusetts counties.

Collaboration with Regional Agencies

The MBI is collaborating with regional organizations that are interested stakeholders in ensuring broadband availability, access and adoption. For example, the MBI has a continuing relationship with the Massachusetts Board of Library Commissioners and their associated regional library systems. Through this relationship, information is shared about the needs of the multi-jurisdictional library systems as well as their individual community libraries, and support has been extended for particular outreach efforts. Recently, the Western Massachusetts Regional Library System distributed information to their member libraries about the MBI's online broadband mapping survey to determine broadband availability at the household-level in unserved areas. This outreach resulted in a significant increase in participation of the online survey.

Regional Planning Agencies (RPAs) in Massachusetts were formed as early as the 1960s, and continue to serve the planning function for designated regions. There are currently thirteen RPAs that serve the communities throughout the Commonwealth, with nearly all 351 municipalities in the state represented by an RPA. The RPAs participate in the Massachusetts Association of Regional Planning Agencies (MARPA), which coordinates activities, recommends policy, and shares information. Each RPA has its own land use and zoning, transportation, and economic development planning services and GIS capabilities. The RPAs often function as advisory bodies to member communities, private business groups, and state and federal governments. **Table 4** provides a listing of the RPAs with their size, population and area.

Table 4: Regional Planning Agencies in Massachusetts

Regional Planning Agency	Number of Communities	2000 Census Population	Area in Square Miles
Berkshire Regional Planning Commission (BRPC)	32	134,953	946.4
Franklin Regional Council of Governments (FRCOG)	26	71,535	724.6
Pioneer Valley Planning Commission (PVPC)	43	608,479	1,179.3
Montachusett Regional Planning Commission (MRPC)	22*	228,005	684.4
Central Massachusetts Regional Planning Commission (CMRPC)	40	518,480	960.4
Northern Middlesex Council of Governments (NMCOG)	9	281,225	195.9
Merrimack Valley Planning Commission (MVPC)	15	318,556	271.7
Metropolitan Area Planning Council (MAPC)	101**	3,056,224	1,438.4
Old Colony Planning Council (OCPC)	15**	321,515	343.7
Southeastern Regional Planning and Economic Development District (SRPEDD)	27	607,494	805.9
Cape Cod Commission (CCC)	15	222,230	415.2
Martha's Vineyard Commission (MVC)	7	14,987	108.9
Nantucket Planning and Economic Development Commission (NP&EDC)	1	9,520	49.5

* The Towns of Athol and Petersham are not formally part of the MRPC, but are provided technical assistance services by the MRPC.

** The Towns of Pembroke and Stoughton are served by both the MAPC and OCPC.

To achieve the MBI's broadband planning objectives in western Massachusetts, the MBI will formally collaborate with the non-profit organization, WesternMA Connect, Inc. WesternMA Connect is coordinating an innovative effort, known as the Western Massachusetts Broadband Strategy and Implementation Plan, to leverage the collective capabilities of key partners in the region, to make the best use of resources, and to assist the MBI in its goals and activities to encourage broadband availability, access and adoption. To accomplish this goal, applications to the BTOP Infrastructure Program, the BTOP Public Computer Center Program, and the BTOP Sustainable Broadband Adoption Program are being submitted to support important projects in Western Massachusetts.

7.2 Planning Proposal

The MBI recognizes that planning is critical to successfully deploying broadband to all areas of Massachusetts. It has been documented that the vast majority of unserved and underserved communities in Massachusetts are located in the four counties of western Massachusetts. The planning focus in Massachusetts must therefore be directed to this area of the state. The MBI will rely on its regional partners to conduct the planning work necessary. Specifically, the MBI will sub-contract with WesternMA Connect, which will delegate specific functions to the three designated Regional Planning Agencies in the western Massachusetts region.

WesternMA Connect and the three RPAs serving western Massachusetts will utilize their experience and lessons learned from these planning activities to assist other RPAs and additional entities in supporting similar activities. To the extent possible, reference and guidance materials will be produced and staff will be made available to share information so that similar planning activities may be duplicated in other areas of the Commonwealth.

7.2.1 BDIA-related uses of funding

The tasks identified for completion under the planning program have been designed to complement the MBI's data collection and development work, as well as western Massachusetts infrastructure, sustainable broadband adoption and public computer center projects proposed for federal BTOP funding. The planning tasks outlined below are also entirely consistent with the following eligible uses of grant funds outlined in Section 106 of the Broadband Data Improvement Act (BDIA):

- Eligible use 3: To identify barriers to the adoption by individuals and businesses of broadband service and related information technology services
- Eligible use 5: To create and facilitate by county or designated region in a state a local technology planning team
- Eligible use 6: To work collaboratively with broadband service providers and information technology companies to encourage deployment and use
- Eligible use 7: To establish programs to improve computer ownership and Internet access for unserved areas and areas in which broadband penetration is significantly below the national average

7.2.2 Problems to address

The MBI, with support from WesternMA Connect and the RPAs serving western Massachusetts, has identified key problems to be addressed through planning resources.

1. Local Technology Planning Team creation – Existing local or sub-regional broadband committees, largely comprised of municipal residents and small business owners adept with technology issues, will require additional members to transform them into Local Technology Planning Teams. Members may include municipal staff and officials, especially those with policy and regulatory responsibility; school personnel; healthcare advocates; and emergency responders. In addition, new municipal or sub-regional teams will need to be created for those areas without committees already formed.
2. Barriers to deployment and adoption – There are many barriers to the deployment and adoption of broadband in the western portion of Massachusetts, including sparse population densities; topographical constraints; regulatory issues; and high rates of poverty. The western Massachusetts region, in large part, is sparsely populated, hilly and/or mountainous, and largely forested. Incumbent providers have not considered the region sufficiently populated to support investment in infrastructure, while unlicensed wireless providers are troubled by summer leaves blocking signals and the presence of potential customers located in dips and valleys where their service cannot

reach. Private providers and infrastructure builders have also commented on the challenges of deploying infrastructure in this region due to regulatory issues that appear at the local level. At the same time, many of these communities have very limited capacity to address these regulatory issues and institutional knowledge and expertise is lost as volunteer positions turn over.

3. Computer and Internet Training – Through past projects, including implementation of a beta test of wireless technology, WesternMA Connect discovered that residents often do not have the technological knowledge to correctly configure or use a computer to take advantage of broadband opportunities. Education and training about computer and broadband use is required to ensure increased computer ownership and use of broadband. This is particularly true in communities where broadband has not previously been available. As a result of these experiences, WesternMA Connect will emphasize the role of education and training needed to complement infrastructure investment through the coordinated projects being initiated through the Western Massachusetts Broadband Strategy and Implementation Plan.

7.2.3 Proposed solutions

Utilizing the MBI's relationship with WesternMA Connect and the RPAs serving western Massachusetts, a scope of work to address the key problems identified has been developed.

Task 1 – Outreach and Establishment of Local Technology Planning Teams

Outreach and communication activities will focus on involving and informing residents, businesses, and public officials in unserved and underserved communities in western Massachusetts. The task will include scheduling and holding public forums at project inception and at key project milestones, forming Local Technology Planning Teams, and keeping all interested citizens aware of and involved with broadband deployment and adoption activities. Specific sub-tasks will include:

- Developing a database of community contacts, including existing and new local broadband committees, anchor institution contacts, relevant public officials and municipal staff. This work has already been initiated and will be completed by WesternMA Connect.
- Holding sub-regional public forums at project inception and at key milestones, and updating local residents and public officials on topics related to broadband deployment and adoption. This work will be conducted by WesternMA Connect, the three RPAs, and the MBI in partnership, and will be based on the MBI's plan for infrastructure deployment.
- Forming community-based or sub-regional local technology planning teams. In areas where active local broadband committees exist, the teams will be expanded to include local officials and municipal staff and other key stakeholders. As the lack of broadband has been such a critical issue in this region of the state, nearly a dozen local broadband committees already exist. New teams will be formed in areas currently without local broadband committees. Efforts will be made to ensure that all teams, whether new or expanded, include a diverse representation of community

members. Specifically, municipal officials and policy makers; small business owners; residents that are technologically savvy and can help teach computer-related skills; school personnel; healthcare advocates; emergency responders; and other interested citizens will be recruited. WesternMA Connect will coordinate with the RPAs on this task, as needed.

- Regular updates posted online and distributed via email to interested stakeholders by WesternMA Connect and/or the MBI. Both entities already have in place large email contact lists and active websites. The WesternMA Connect email contact list reaches approximately 500 interested stakeholders already and will be expanded throughout this project period. Use of email notification and established websites has proven to be a quick and effective way to communicate and distribute information.

Task 2 – Identification of Barriers and Assets to Infrastructure Deployment and Adoption

WesternMA Connect will work with each Local Technology Planning Team to identify and document barriers to broadband deployment and adoption; find resolutions to as many barriers as possible; and identify unique assets that will aid in the deployment of broadband and increase adoption of broadband and computers. Barriers may include population density limitations, topographic challenges, regulatory problems, as well as less tangible issues, such as lack of awareness of computer and broadband capabilities. Assets will include potential non-traditional anchor institutions (such as a general store), regional high points (such as a rooftop of a barn or silo), and community spaces available to support broadband infrastructure that have not already been identified through the data collection and mapping portion of this grant.

The issue of broadband has been such a focus in the region that there is a cadre of volunteers and professionals ready to assist the MBI in issues of access and adoption. WesternMA Connect has a Chief Technology Officer who is a retired, thirty-year veteran of the region's telecommunications incumbent and has a wealth of information, expertise and relationships that can be utilized. Specific sub-tasks will include:

- The WesternMA Connect Chief Technology Officer will work with telecommunications infrastructure builders and service providers to review opportunities and discuss potential constraints in deploying infrastructure and services in the identified communities, and work to identify innovative solutions and uses.
- As potential traditional and non-traditional assets are identified, WesternMA Connect will work to access these facilities for broadband use. This work could include communication with private property owners, businesses or state agencies, and the creation of template agreements.
- To address existing regulatory barriers, the RPAs will analyze zoning and permitting in each town identified for broadband deployment by the MBI. The RPAs will work with the Local Technology Planning Teams and municipal boards to assess if zoning and permitting currently prevent or delay telecommunications deployment, and suggest amendments or changes to remedy these constraints. To the extent possible, the RPAs will attempt to create uniform modifications and amendments to municipal

zoning and permitting requirements, so that providers experience the same or similar municipal requirements during siting and permitting. Because changes to municipal zoning and permitting in Massachusetts currently require a two-thirds vote of Town Meeting voters, this sub-task will include the creation of educational materials for municipal officials and the Team, as well as, the coordination of public forums, meetings, and hearings to ensure public awareness and support.

- The lack of broadband has effectively constrained growth in these communities by decreasing their attractiveness as places to live and do business in today's technological society. Time and budget permitting, the RPAs will apply a comprehensive perspective while addressing regulatory barriers at the local level. To encourage broadband adoption in areas where such telecommunications infrastructure has not been previously deployed, the examination of municipal zoning ordinances should include an exploration of how appropriate growth can be leveraged and/or managed.

Task 3 – Coordination with Other Broadband Initiatives to Assure Broadband Access

The MBI and WesternMA Connect have learned that expansion of broadband in western Massachusetts must be approached from many different angles simultaneously. The four American Recovery and Reinvestment Act (ARRA) federal broadband program opportunities, along with ongoing efforts by the MBI and WesternMA Connect, allow the region to approach broadband expansion in a uniquely collaborative and innovative way: it allows the region to create and implement a Western Massachusetts Broadband Strategy and Implementation Plan. Investment in middle-mile and last-mile infrastructure will occur through BTOP Infrastructure Program investments and state bond funding that has been previously secured. With State Broadband Data and Development Grant Program funds, address-level data about broadband availability and speed will be mapped to fully understand the problem, develop a solution, and monitor success. Municipal zoning and permitting will be adjusted for ready deployment; Local Technology Planning Teams will be formed; and barriers to broadband access will be identified and addressed.

Through communication with telecommunications infrastructure builders and service providers, WesternMA Connect will review opportunities and discuss potential constraints in deploying infrastructure and services in the identified communities. These activities will be particularly important in areas with lower than average broadband adoption penetration. Specific sub-tasks will include:

- Connecting Local Technology Planning Teams with key partners participating in middle-mile and last-mile infrastructure, sustainable broadband adoption and public computer center programs to leverage opportunities in these communities as infrastructure is deployed. These partners may include state agencies, community colleges, regional employment boards and housing authorities, regional educational collaboratives, library systems, municipalities, and other stakeholders.
- Providing technical assistance, in cooperation with Local Technology Planning Teams, to community and critical facilities and related organizations to encourage the adoption of broadband services.

13. Governing Law. This Agreement and any dispute arising hereunder or in connection herewith shall be governed by, interpreted under, and construed and enforced in accordance with the laws of the Commonwealth of Massachusetts (without regard to conflict of law provisions).

14. Prior Agreements Superseded. In the event of any conflict or inconsistency between the terms hereof and any prior agreements between MTC and Broadband Service Provider terms of this Agreement shall govern and control.

15. Counterparts. This Agreement may be executed in counterparts, any of which may be deemed an original, but all of which taken together shall constitute one and the same instrument.

IN WITNESS WHEREOF, each of the Parties has caused this Agreement to be executed on its behalf by its duly authorized officer.

MASSACHUSETTS TECHNOLOGY PARK CORPORATION,
an independent public instrumentality of the Commonwealth of Massachusetts

By: _____
Name: Mitchell Adams
Title: Executive Director

By: _____
Name: _____
Title: _____

DRAFT



Ian Bowles, Secretary
Tel: (617) 626-1000



Massachusetts Geographic Information System
Executive Office of Energy and Environmental Affairs
251 Causeway Street, Suite 500
Boston, MA 02114



Deval Patrick, Governor
Tim Murray, Lieutenant Governor

MassGIS is the Commonwealth's Office of Geographic and Environmental Information at mass.gov/mgis

August 13, 2009

Larry Strickling
Assistant Secretary and Administrator
U.S. Department of Commerce / NTIA
1401 Constitution Avenue, N.W.
Washington, D.C. 20230

Dear Assistant Secretary Strickling:

The Office of Geographic and Environmental Information, also known as MassGIS, is responsible for the creation and maintenance of a comprehensive, statewide database of spatial information for planning and resource management for the Commonwealth. In support of the MBI grant application, MassGIS will provide, as in-kind match, several datasets that are central to the proposed development and verification of the broadband availability data. MassGIS will provide the datasets for match within 5 business days of the NTIA award.

The development of statewide broadband datasets is a critical part of the mission assigned to the Massachusetts Broadband Institute (MBI) by Governor Deval Patrick and the Massachusetts Legislature. Detailed, accurate data is essential for making targeted investments to bringing fast, affordable, reliable broadband access to everyone in the Commonwealth. MassGIS is already working with the MBI, through an Inter-Governmental Agreement, to develop cable and DSL service area datasets in the unserved and underserved towns in western Massachusetts. MassGIS looks forward to continuing to support the MBI to develop statewide broadband availability datasets for the State Broadband Data and Development Grant Program and, ultimately, a more detailed and accurate national broadband map.

MassGIS is proposing to use the following datasets as match for the MBI grant application:

- Enhanced NAVTEQ road network – MassGIS has worked in partnership with NAVTEQ for the past four years to improve the road network in Massachusetts to achieve as close to 100% success rate as possible for geocoding. The list was built against a summary version of the emergency service list (ESL) which is maintained and refreshed every six months. The value of this dataset, \$555,215, is based on work performed by MassGIS for State 911 to enhance the street network and addressing to improve geocoding accuracy in the NAVTEQ roads dataset. All of the labor costs included in the valuation

are directly relevant to the broadband data development work. This work was entirely paid for with state funds and data licensing covers full and unrestricted use of the street names and linework.

- 2009 Orthophotography – New 30 cm resolution, 4-band aerial imagery (orthophotography) was collected in 2008 and 2009 for the entire state. As the imagery becomes available, with deliveries for 2009 coming in through March 2010, all development of infrastructure data will transition onto this newer imagery. The orthophoto will provide a current snapshot of development in the state and as the base map for GIS data development and quality control. This dataset is valued at \$295,000 and represents state funds applied to the cost of the contract to collect and process this imagery.
- Land-use – From 2005 to 2008, MassGIS developed a statewide GIS dataset of land use/land cover from 2005 imagery which includes 37 categories of land use. This dataset has and will continue to be used for broadband data development to create provider service areas and to identify residential, commercial, industrial and institutional locations. This dataset is valued at \$246,019 and represents state funds applied to the cost of the contract to create the data.

The total value of the datasets provided as in-kind match is \$1,096,234. I encourage you to contact me if you would like additional information about the use or valuation of the datasets provided as in-kind match.

Sincerely,



Christian Jacqz
Director, MassGIS
Executive Office of Energy and Environmental Affairs
Commonwealth of Massachusetts

WesternMA Connect, Inc.

August 13, 2009

Larry Strickling
Assistant Secretary and Administrator
U.S. Department of Commerce /NTIA
1401 Constitution Avenue, N.W.
Washington, D.C. 20230

Dear Assistant Secretary Strickling:

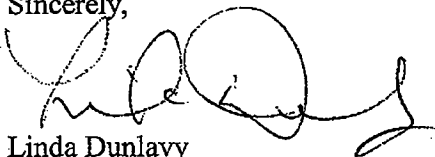
WesternMA Connect has partnered with the Massachusetts Broadband Institute (MBI) to perform Broadband Data Improvement Act related planning functions under the State Broadband Data and Development Grant Program and will be providing a \$100,000 match for this work. WesternMA Connect is a non-profit organization with the mission to encourage the creation of an advanced telecommunications landscape that will provide affordable, reliable, and redundant high capacity broadband services throughout the four western Massachusetts counties.

WesternMA Connect will collaborate with the three regional planning agencies (RPAs) that serve western Massachusetts to perform the planning work. The three RPAs are the Franklin Regional Council of Governments (FRCOG), Berkshire Regional Planning Commission (BRPC), and Pioneer Valley Planning Commission (PVPC). WesternMA Connect has confirmed that each of these RPAs will contribute to the match for the planning funds, in cash and in-kind services, for a total of \$100,000.

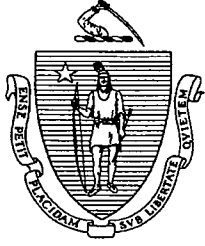
WesternMA Connect has extensive experience partnering with the MBI and MTC and the three RPAs, with two of the RPA Executive Directors also serving on the WesternMA Connect Board of Directors and one of the RPA Executive Directors serving on the MBI Board of Directors. We look forward to furthering these relationships through our support and commitment to the MBI effort.

If you would like additional information about the WesternMA Connect or RPA matches, please contact Jessica Atwood at 413-774-1194 x101.

Sincerely,



Linda Dunlavy
Board Director



OFFICE OF THE GOVERNOR
COMMONWEALTH OF MASSACHUSETTS
STATE HOUSE • BOSTON, MA 02133
(617) 725-4000

DEVAL L. PATRICK
GOVERNOR

TIMOTHY P. MURRAY
LIEUTENANT GOVERNOR

July 30, 2009

Larry Strickling
Assistant Secretary and Administrator
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue, N.W.
Washington, D.C. 20230

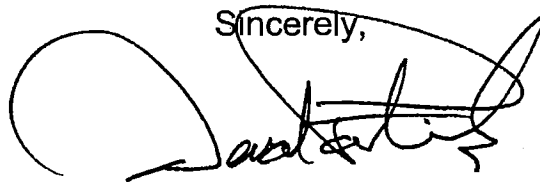
Dear Assistant Secretary Strickling:

I hereby designate the Massachusetts Broadband Institute (MBI) to be the single eligible entity in the Commonwealth of Massachusetts for receiving funds from the State Broadband Data and Development Grant Program.

The MBI's statutory mission and leadership on broadband mapping are entirely consistent with the goals of the Broadband Data Improvement Act (BDIA). Furthermore, as a division of the Massachusetts Technology Park Corporation and a public instrumentality, the MBI qualifies as an "eligible entity" for receiving funding. The MBI will use this funding to collect comprehensive and accurate state-level broadband mapping data, develop state-level broadband maps, aid in the development and maintenance of a national broadband map, and fund statewide initiatives directed at broadband planning.

Assistant Secretary Larry Strickling
July 30, 2009
Page Two

I look forward to the MBI's receipt and application of grant funds for the State Broadband Data Program and wish you continued success in your efforts to improve broadband access and information for all Americans.

Sincerely,


cc: The Honorable Gary Locke

Applicants should also review the instructions for certification included in the regulations before completing this form. Signature on this form provides for compliance with certification requirements under 15 CFR Part 28, 'New Restrictions on Lobbying.' The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of Commerce determines to award the covered transaction, grant, or cooperative agreement.

LOBBYING

As required by Section 1352, Title 31 of the U.S. Code, and implemented at 15 CFR Part 28, for persons entering into a grant, cooperative agreement or contract over \$100,000 or a loan or loan guarantee over \$150,000 as defined at 15 CFR Part 28, Sections 28.105 and 28.110, the applicant certifies that to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, 'Disclosure Form to Report Lobbying,' in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure occurring on or before October 23, 1996, and of not less than \$11,000 and not more than \$110,000 for each such failure occurring after October 23, 1996.

As the duly authorized representative of the applicant, I hereby certify that the applicant will comply with the above applicable certification.

*** NAME OF APPLICANT**

Mass. Tech. Park Corp. dba MTC ("Mass Broadband Institute")

*** AWARD NUMBER**

N/A

*** PROJECT NAME**

N/A

Prefix: [] * First Name: Mitchell Middle Name: []

* Last Name: Adams Suffix: []

* Title: Executive Director

* SIGNATURE: Mitchell Adams

* DATE: 08/13/2009

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C.1352

Approved by OMB

0348-0046

1. * Type of Federal Action: <input type="checkbox"/> a. contract <input checked="" type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance	2. * Status of Federal Action: <input type="checkbox"/> a. bid/offer/application <input checked="" type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award	3. * Report Type: <input checked="" type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change
4. Name and Address of Reporting Entity: <input checked="" type="checkbox"/> Prime <input type="checkbox"/> SubAwardee * Name: <input type="text" value="Massachusetts Technology Park Corporation"/> * Street 1: <input type="text" value="75 North Drive"/> Street 2: <input type="text"/> * City: <input type="text" value="Westborough"/> State: <input type="text" value="MA: Massachusetts"/> Zip: <input type="text" value="01581"/> Congressional District, if known: <input type="text"/>		
5. If Reporting Entity in No.4 is Subawardee, Enter Name and Address of Prime: <div style="border: 1px solid black; height: 40px;"></div>		
6. * Federal Department/Agency: <input type="text" value="N/A"/>	7. * Federal Program Name/Description: <input type="text"/> CFDA Number, if applicable: <input type="text"/>	
8. Federal Action Number, if known: <input type="text"/>	9. Award Amount, if known: \$ <input type="text"/>	
10. a. Name and Address of Lobbying Registrant: Prefix: <input type="text"/> * First Name: <input type="text" value="N/A"/> Middle Name: <input type="text"/> * Last Name: <input type="text" value="N/A"/> Suffix: <input type="text"/> * Street 1: <input type="text"/> Street 2: <input type="text"/> * City: <input type="text"/> State: <input type="text"/> Zip: <input type="text"/>		
b. Individual Performing Services (including address if different from No. 10a) Prefix: <input type="text"/> * First Name: <input type="text" value="N/A"/> Middle Name: <input type="text"/> * Last Name: <input type="text" value="N/A"/> Suffix: <input type="text"/> * Street 1: <input type="text"/> Street 2: <input type="text"/> * City: <input type="text"/> State: <input type="text"/> Zip: <input type="text"/>		
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when the transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.		
* Signature: <input type="text" value="Mitchell Adams"/> * Name: Prefix: <input type="text"/> * First Name: <input type="text" value="Mitchell"/> Middle Name: <input type="text"/> * Last Name: <input type="text" value="Adams"/> Suffix: <input type="text"/> Title: <input type="text" value="Executive Director"/> Telephone No.: <input type="text" value="508-870-0312"/> Date: <input type="text" value="08/13/2009"/>		

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Standard Form - LLL (Rev. 7-97)

ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

<p>* SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL</p> <p>Mitchell Adams</p>	<p>* TITLE</p> <p>Executive Director</p>
<p>* APPLICANT ORGANIZATION</p> <p>Mass. Tech. Park Corp. dba MTC ("Mass Broadband Institute")</p>	<p>* DATE SUBMITTED</p> <p>08/13/2009</p>

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