

**Massachusetts Broadband Institute (MBI)
Round 2 BTOP Project Proposal**

MassBroadband 123

FREQUENTLY ASKED QUESTIONS

What is the MBI?

The Massachusetts Broadband Institute (MBI) is a division of the Massachusetts Technology Collaborative (MTC), the state's technology economic development agency. The MBI was founded to bridge the digital divide in Massachusetts. Governor Deval Patrick announced the Massachusetts broadband initiative in August 2007. The foundational premise of this initiative is that the state would make strategic and targeted public investments, analogous to government support for rural electrification in the early 20th century.

Governor Patrick filed legislation that would implement his broadband initiative in western Massachusetts, and this was passed by the Massachusetts Legislature and signed by Governor Patrick into law in August 2008. This landmark bill created the Massachusetts Broadband Incentive Fund to seed public-private partnerships to develop broadband infrastructure, with an explicit mandate to target the citizens and businesses in unserved areas of Massachusetts who have no broadband access whatsoever. Governor Patrick introduced in spring 2009 and secured the passage of additional state broadband legislation to help leverage federal economic recovery funds to boost broadband services in western Massachusetts. Western Massachusetts is the MBI's initial focus as it is where all of the unserved, and most of the underserved, communities exist in Massachusetts. We believe these proactive measures assure that the Commonwealth is well-positioned to take full advantage of federal funding opportunities for deployment of broadband.

What is MassBroadband 123?

The MBI has submitted a "Comprehensive Community Infrastructure" (CCI) project named ***MassBroadband 123*** to the second, and final, round of the competitive grant Broadband Technology Opportunities Program (BTOP), which is administered by the National Telecommunications and Information Administration (NTIA) within the U.S. Department of Commerce.

This name represents the 101 communities of western Massachusetts and the 22 additional communities in north central Massachusetts we propose to serve. It also represents the fundamental nature of this network, as it will bring competitive broadband to many communities for the first time. The ***MassBroadband 123*** project proposes that we build a middle-mile fiber network serving 123 communities, connecting students to learning opportunities, first responders to vital information, patients to life-saving health

technologies and local service providers to new customers. **MassBroadband 123** will greatly improve economic opportunities in the region.

The 1,338 mile fiber-optic network will serve high-value public safety locations, state-designated economic target areas, or un/underserved communities. The network stretches as far east along Route 2A as Ayer, where it will meet an existing fiber network that will provide access to the Boston point-of-presence (PoP) and other key networks. The network will provide a middle-mile backbone infrastructure from which last-mile service providers can serve households, businesses and community anchor institutions (CAIs) in the region. The project will directly connect to CAIs, including:

- all 10 community college campuses in the region;
- 232 of the K-12 schools;
- 126 of the public libraries;
- 378 public safety entities, including police, fire and emergency management sites;
- 139 medical and healthcare providers;
- 128 public housing entities serving vulnerable populations;
- 9 non-community college higher education locations;
- 15 community support organizations; and
- 355 non-public safety related government facilities.

MassBroadband 123 infrastructure will be a publicly owned, open access, middle-mile network. Services will be delivered by a network operator overseen by the MBI. **MassBroadband 123** will deliver a portfolio of wholesale offerings ranging from residential and small business services to major bandwidth data transport services. This service portfolio will enable the network operator to build a robust, competitive universe of last-mile services that will extend affordable, high-speed Internet access to private and public enterprises and residences throughout western Massachusetts.

How much broadband money is available under the American Recovery and Reinvestment Act (ARRA)?

ARRA provided a total of \$7.2 billion to the NTIA and the U.S. Department of Agriculture's Rural Utilities Service (RUS) to fund projects that will expand access to, and adoption of, broadband services. Of that funding, the NTIA will utilize \$4.7 billion for grants to deploy broadband infrastructure in unserved and underserved areas, expand public computer center capacity, and encourage sustainable adoption of broadband service. The RUS will use \$2.5 billion in budget authority to support grants and loans to facilitate broadband deployment in primarily rural communities.

Initially, the RUS and the NTIA planned to have three separate funding rounds. They are now having two separate funding rounds, so Round 2 is the second, and final, opportunity for broadband funding under ARRA.

How was the BTOP money divided between Rounds 1 and 2?

	BTOP Infrastructure	Public Computing Centers	Sustainable Broadband Adoption	Mapping	Reserve¹
<u>Total Funds to be Allocated</u>	\$3.55 billion	Up to \$200 million	\$250 million	\$350 million	Not known
<u>Total Funds to be Allocated in Round 1</u>	\$1.2 billion	Up to \$50 million	Up to \$150 million	\$240 million	\$200 million
<u>Total Funds to be Allocated in Round 2</u>	\$2.35 billion	At least \$150 million	At least \$100 million	No formal second round	Not known

How did Massachusetts do in Round 1?

Despite our disappointment for the rejected western Massachusetts applications, the Commonwealth appears to have done better than many states in Round 1 BTOP:

- OpenCape received a \$32 million first round middle-mile infrastructure award in March 2010;
- The City of Boston received a \$1.9 million first round Public Computing Center award in December 2009;
- The University of Massachusetts, Lowell received a \$780,000 first round Sustainable Broadband Adoption award in January 2010; and
- The Cambridge Housing Authority received a \$700,000 first round Public Computing Center award in March 2010.

Separate from Round 1 BTOP, but also under ARRA, the MBI received a \$2 million award from the State Broadband Data and Development Program in November 2009, \$500,000 of which is being used for planning activities by WesternMA Connect.

¹ The reserve funds are funds that the NTIA can award across the categories at its discretion. \$200 million in reserve funds were to be allocated in Round 1. It is unclear whether there are additional reserve funds in Round 2.

Why was the MBI unsuccessful in Round 1 BTOP?

While the MBI was disappointed with the Round 1 BTOP outcome, we worked aggressively to learn from our experience and to produce a more competitive Round 2 application. We sought and received feedback from a number of sources and had external consultants who are experts in their field provide a detailed analysis of the relative strengths and weaknesses of our Round 1 application. We analyzed successful Round 1 applications from other states to identify common traits, themes and indicators of success.

The results of this analysis and feedback indicate that the MBI's Round 1 application's total dollar amount was too big, the cost/mile was out of line with national averages, and it was not considered "shovel-ready" by NTIA reviewers. We have addressed at length each of these issues, perceived or real, in the Round 2 BTOP application.

How do the new rules in the Round 2 Notice of Funding Availability (NOFA) affect the MBI?

The BTOP Round 2 NOFA contains all of the rules, definitions and selection criteria that govern this competitive grant program. There are major differences between the Round 1 and Round 2 NOFA on both a process and substantive level.

In Round 1, the NTIA conducted a joint application process with the U.S. Department of Agriculture's Rural Utilities Service (RUS), which used a single application for both agencies and required some applications, including the MBI's, to be reviewed (and rejected) first by the RUS prior to review by the NTIA. In Round 2, applications are separate for the NTIA and the RUS. Because we are proposing a middle-mile (rather than last-mile) project, the MBI is applying directly to the NTIA under the Round 2 BTOP program.

There are significant changes in the focus of the BTOP program between Round 1 and Round 2. In Round 1, the primary focus was on unserved and underserved areas, and projects which addressed either middle or last mile, or both. In Round 2, the primary focus is on middle-mile programs which focus on comprehensive communities of anchor institutions. Applicants are no longer required to include any unserved or underserved areas, although there is favorable treatment for doing so.

The changes to the Round 2 NOFA appear favorable to the MBI in that they allow us to apply directly to the NTIA for a middle-mile project. As we have modified our project proposal to satisfy the seven ranking criteria and align the grant application with the revised requirements of the BTOP program in Round 2, we have substantially re-scoped and modified our network design and architecture. We have also created a real partnership with the Massachusetts Information and Technology Division (ITD) and the Massachusetts Executive Office of Public Safety and Security (EOPSS) to develop the strongest possible application that will also advance the broader IT and public safety

objectives of the Commonwealth. The MBI's core project team was supplemented with staff and consultants from our partners. The project team was very focused on developing a high-quality, well-supported application that specifically addressed the exact requirements of the grant application. The expanded team worked closely and productively together, with sustained engagement and management by senior leadership from MTC/MBI, ITD, EOPSS and the Massachusetts Executive Office of Housing and Economic Development (EOHED).

Each draft answer of the MBI Round 2 application was reviewed by a senior review team to ensure that it was both readable and presented our need and proposed solution in a compelling fashion. In addition, each answer was cross-checked against NTIA guidance to ensure that the answer addressed all required and requested points clearly and in a fashion that would be easy for the reviewer to recognize. Lastly, each draft of the application was internally scored to see how we stacked up against the criteria published in the Round 2 NOFA.

Will the MBI be successful in Round 2?

The NTIA chose not to fund the MBI's Round 1 BTOP application, and there are no guarantees that the MBI will be successful in Round 2. Any funding award is made by the NTIA, not by Governor Patrick. We know that Round 1 was extremely competitive, and we were not alone in our disappointment with a Round 1 rejection. There were 260 applications for the specific middle-mile broadband infrastructure type of project that the MBI proposed in Round 1, and as of March 22, 2010, the NTIA had made only 34 middle-mile infrastructure awards. We are confident that we are submitting the strongest possible application for western Massachusetts in Round 2 BTOP.

While it is impossible to estimate the number of applications in Round 2, the NTIA has indicated that they expect fewer applications due to the nature of the comprehensive community approach. Also, the NTIA has folded the previously anticipated final two rounds of funding into this Round 2, which will result in roughly twice the amount of funding being made available in Round 2 as compared with Round 1.

What is different about the MBI's Round 2 application?

Based on the Round 2 NOFA and application guidelines, the MBI's Round 2 BTOP application's major focus is to directly connect as many community anchor institutions as possible to the middle-mile network. The Round 2 network design differs from Round 1 in the following ways:

- The Round 2 design emphasizes direct connections to multiple anchor institutions vs. the Round 1 design which went to an electronics hut in town centers. Community colleges and public safety entities were specifically called-out as priorities in the Round 2 NOFA. Round 2 will directly connect 1,392 anchor institutions while Round 1 connected only 31.

- The Round 2 design covers all 101 towns of western Massachusetts plus 22 north central Massachusetts communities, while the Round 1 design, as directed by the first NOFA, focused only on the 43 unserved and underserved western Massachusetts communities.
- The *MassBroadband 123* network's total project cost is \$71.6 million, which includes \$26.2 million in matching funds (the same amount from Round 1). The total Round 2 network will build 1,338 fiber miles. The Round 1 application was for a 581-mile, \$125 million project with the same \$26.2 in state matching funds.
- The Round 2 design concentrates on placing high-strand count fiber as close to population and business centers as possible, while the Round 1 design ran relatively few strands into the town centers and created fewer connection points. This fundamental design change allows the MBI to provide sufficient fiber for last-mile providers to use along their entire routes, enabling connection at virtually any point of the network. This also will eliminate the need for anyone to overbuild the MBI routes for the foreseeable future.
- Equipment requirements were reduced significantly now that we better understand the needs at the termination points.
- We have substantially revised the sustainability model and the relationship with, and requirements of, the network operator. We expect that the network operator will sell wholesale services only. In Round 1, the service mix was different, and the network operator was in competition with local service providers for community anchor institutions.
- The NTIA reviewers were tasked with reading and evaluating over 2,200 Round 1 applications. This was a daunting task that placed a premium on producing an application that was crisp, concise and told a compelling story. Our Round 2 application is much tighter and provides a clearer and more compelling account of how the MBI's *MassBroadband 123* project will advance the BTOP Round 2 objectives.

We have worked very hard to challenge every preconceived notion and to make sure that the application is benefitting from the insight and perspective of those more distant to the application proposal development (and hopefully more objective on the strengths and areas for improvement in the application). Accordingly, the application was subjected to multiple, rigorous "external expert" review panels. The application was also reviewed and approved at a joint special meeting of the MTC Executive Committee and the MBI Board of Directors on March 10. The team developed the network design and sustainability model to make sure that we kept within key metrics that we saw in successful applications from Round 1. MBI Director Judy Dumont and her team incorporated feedback and suggestions from these meetings, and the application was further refined, checked and double-checked from a quality-control perspective.

What is the cost per mile in the MBI's Round 2 BTOP application?

Our Round 1 BTOP application cost per mile was extremely high compared to the average cost/mile seen in successful applications elsewhere, and in hindsight we believe that we did not justify these high costs sufficiently to the NTIA reviewers to convince them that they were acceptable. In the absence of any cost guidelines from the NTIA, the MBI's Round 1 project budget was based on very conservative engineering assumptions and worst-case scenarios in rights of way and permitting and included a significant contingency to account for the many unknowns related to obtaining the necessary licenses, permits and agreements needed.

We have since commissioned additional environmental and engineering work that has enabled us to greatly diminish previous uncertainties and unknown variables and substantially reduce the contingencies that were reflected in the higher Round 1 cost per mile. Also, where possible, we now expect to connect to existing electronic closets at community anchor institutions to remove much of the original construction cost at termination points.

Using the guidelines provided by the NTIA, the cost per mile in our Round 2 BTOP application has been calculated at \$42,430. We believe this compares very favorably to metrics we have seen in other successful applications from Round 1.

How reasonable is the MBI's "federal ask" in its Round 2 BTOP application?

There were several factors that went into the development of the ***MassBroadband 123*** project scope, project cost and the amount of the federal ask reflected in the application. Primary in our thinking is what it actually costs to construct a suitable network to comprehensively serve western Massachusetts. Under the Round 2 NOFA, the NTIA is expecting middle-mile infrastructure applications ranging from \$5 million to \$150 million. In Round 1 BTOP, individual middle-mile infrastructure awards from the NTIA ranged from \$1 million to \$126 million. Most awards were in the \$20-40 million range. OpenCape received \$32 million in Round 1.

We determined the actual reasonable costs to build a suitable network to cover the target service area comprehensively, and we believe a federal ask of \$45.4 million is appropriate in Round 2. This number is consistent with what Massachusetts would expect to receive in Round 2 BTOP if awards were allocated to states by population alone. Moreover, historically, Massachusetts has not fared well under RUS broadband programs, and we do not expect that to change with ARRA. That RUS bucket represents approximately \$53 million in funding streams that we are effectively prevented from obtaining if we were to receive any RUS funding based on population alone. We believe the \$45.4 million ask of the NTIA for the MBI's Round 2 BTOP application passes every reasonableness test.

Finally, we believe the success or failure of the application in Round 2 will rest more on our being within internal metrics the NTIA expects to see, such as cost per mile. We believe the MBI's Round 2 application is on very solid ground due to much more rigorous analysis of the budget, on a line-by-line basis, as well as the removal of many uncertainties through additional planning that has reduced the contingency line items built into the Round 1 application budget.

How does this application relate to last mile efforts in western Massachusetts?

Our mission is to ensure that every community in western Massachusetts has affordable, accessible, quality broadband. We are building a robust, open-access middle-mile network that will make it more cost effective for last-mile providers to connect homes, businesses, colleges and other institutions. If we want to secure federal funding through BTOP for broadband in western Massachusetts, given the rules in the Round 2 NOFA, we need to apply for middle mile, as they do not have a last-mile component. We believe the middle-mile network is the foundational investment needed for last-mile providers to finish the job. We intend to work with them closely to complete our mission.

The ***MassBroadband 123*** service area contains over one million residents, 44,300 businesses, 2,100 critical anchor institutions, or CAIs, and 3,429 square miles. The middle-mile network will be within 3 miles of over 98% of the households, CAIs, and businesses. Again, this will dramatically change the cost equation and service options for last-mile providers and allow for competitively priced residential and business class broadband services. We are thrilled that eight last-mile providers have already indicated their intent to use the network.

MassBroadband 123 addresses a critical need for individuals and businesses forced to go without access to broadband for far too long. The MBI is working to close the digital divide in Massachusetts.

When the MBI was created, the Massachusetts State Legislature authorized up to \$40 million for broadband expansion. How is this money being allocated?

Of the \$40 million in state bond funding authorized at the MBI's formation, approximately \$20 million is being committed as a match for BTOP and \$5 million as a match for OpenCape, \$5 million is being used to fund general MBI operations over a 5-year period, and the remaining \$10 million is being reserved for future uses which will include some combination of contingency for the BTOP project, last-mile build-out in western Massachusetts, and other broadband infrastructure projects to be identified, as needed.

Where did the state's \$26.2 million for the Round 2 BTOP application come from?

The MBI and the Commonwealth will provide \$26.2 million in cash and in-kind matching funds as the required match for the BTOP application. The total cost to build ***MassBroadband 123*** is \$71.6 million. We are requesting \$45.4 million in federal funding from BTOP. The \$26.2 million in required matching funds will come from the following sources:

- \$3.1 million – Massachusetts Executive Office of Public Safety and Security (EOPSS);
- \$3.1 million – Massachusetts Information and Technology Division (ITD); and
- the remaining \$20 million from the MBI's bond funds (approximately \$5 million of which is already committed to deploying fiber-optic cable along the I-91 corridor).

A 30% match is required under the Round 2 BTOP NOFA. In Round 1, a 20% match was required. When including the in-kind components of the MBI's fiber deployment along I-91, the ***MassBroadband 123*** match is 36.5%, which we believe further strengthens our application.

What happens next?

The Round 2 BTOP process explicitly establishes a set of seven criteria by which applications will be sorted into rank order for merit review. Applications which fail to meet the higher ranked criteria will undergo merit review only after all higher ranked applications have been reviewed. While not explicitly stated, it is possible that meritorious applications which score highly may be funded without waiting for review of all applications, making it very important that applications score highly on these initial ranking criteria to increase the chances of being fully reviewed before BTOP funding runs out.

*Comprehensive Community Infrastructure
Priority Criteria
(in order of importance)*

1. Community Anchor Institutions
2. Public-Private Partnership
3. Growth in economically distressed areas
4. Community colleges
5. Public safety
6. Last mile in un/underserved
7. 30%+ match

The MBI's Round 2 application addresses all seven of the initial ranking criteria, meaning that the MBI application should be reviewed early in the process. This gives us the best chance at obtaining federal funding.

Will Governor Patrick be provided an opportunity to review and prioritize BTOP applications?

In the American Recovery and Reinvestment Act (ARRA), the NTIA was authorized to consult with states, territories, possessions and the District of Columbia regarding the identification of unserved and underserved areas within their borders and the allocation of grant funds to projects affecting each state. In October 2009, Governor Patrick indicated to the NTIA those applications that he believed best reflected the diverse needs of, and his priorities for, Massachusetts in Round 1. In Round 2, each state Governor will again be given an opportunity to prioritize applications from within their respective states. The NTIA has not indicated what weight, if any, is given to these prioritization recommendations. It is possible to be on the Governor's list and not be funded (such as the MBI in Round 1), and it is possible to be funded and not be specifically called out for funding by the Governor.

We anticipate that, for Round 2, the Governor will be asked to review and prioritize BTOP applications submitted from Massachusetts sometime in April or May. Governor Patrick strongly supports the ***MassBroadband 123*** application.

Why is broadband important?

Broadband access has a proven track record of stimulating economic growth, creating jobs, and increasing property values and tax receipts. Universal, affordable and consistently high-quality broadband would thus be the 21st century equivalent of previous federal government infrastructure initiatives, including the expansion of electricity, telephone and road networks, which resulted in tremendous economic development and increased prosperity from targeted public investments.

To compete effectively, we must be "open for business" in every region and town. We wouldn't expect businesses or citizens to locate to (or prosper in) areas without adequate roads, sewer systems or electricity. In today's knowledge economy, high-speed Internet is as essential as other utilities. This is why we have been focused on broadband equity since day one.

We will empower the students and businesses in our state with the tools they need to succeed. These projects are a vital part of Governor Patrick's plan to create economic opportunities that lead to improvements in public safety, education, health care and other critical services.

Why is public investment in broadband important? Why not just leave this to the private sector?

Overcoming the economic challenges of reaching unserved areas with world-class infrastructure requires direct capital infusions. Programmatic options such as tax breaks and loan guarantees make sense when an incentive is intended to sway a business in its investment choices between one viable business case and another. However, the pure business case for world-class broadband is simply not viable in all rural areas. That's why broadband grants were included in ARRA, and that's why Massachusetts is pursuing them.

Private sector firms have indicated that they will not invest in bringing broadband to low-density communities any time soon. The capital investment is too great, and the breakeven timeline too long. For example, detailed financial modeling suggests that a private provider would require roughly 30 years to break-even on an investment in a rural area like western Massachusetts.

To be clear, public investment is justified by public returns. Many of the benefits of broadband do not flow directly to commercial Internet providers and are therefore not part of their business calculus. Broadband produces documented benefits in public goods such as new business and job creation, better access to education and health care and public safety. Broadband has proven repeatedly to be an engine for economic growth in both expected and unforeseen ways.

What happens if the MBI receives no federal stimulus funding?

The MBI will not learn if it has submitted a successful Round 2 BTOP application probably until late summer / early fall. Independent of federal funding, we have currently identified several options for bringing broadband to unserved citizens of western Massachusetts in 2010. The MBI's I-91 fiber deployment is ongoing. This work would contribute to the overall network regardless of whether we are successful with the BTOP application. We will also shortly begin the RFP process for the network operator and begin the pole attachment licensing process that will allow us access to the poles required to complete our network. If we are not successful with BTOP, we will develop a much smaller network with state funds to reach the most unserved communities as possible, likely using a different mix of network technologies.

When will all ARRA broadband awards be announced?

Under ARRA, both the RUS and the NTIA are required to award all broadband federal stimulus funding by September 30, 2010.