Massachusetts (MA) is so associated with the greater Boston area that many people are unfamiliar with our state’s rural western region. While most residents in eastern MA have a choice of broadband Internet providers, those in western MA face substantial gaps in broadband coverage. According to the BIP/BTOP criteria, 4 western MA communities are unserved and 39 are underserved. With an average population density of 39 people per sq mi (vs. statewide average of 602), it is not surprising that 64% of the households in these 43 communities have no wired broadband available. To close this gap and ensure that the broadband needs of western MA are met for the next 30 years, the Massachusetts Broadband Institute (MBI) proposes to build over the next 2-3 years a 581-mile, carrier-class, fiber-optic middle-mile infrastructure project, providing scalable access from 1.5Mbps to 40Gbps, and covering a 97% rural service area of 1,591 square miles. This shovel-ready project will create over 3,040 jobs and, as evidenced by our letters of support, private network operators and last-mile Internet Service Providers (ISPs), as well as the state’s public safety and information technology (IT) agencies, stand ready to partner with this project, ensuring its effectiveness.

The middle-mile network for rural western MA is designed to meet the following purposes, at prices comparable to urban broadband offerings:

- In partnership with local ISPs, bring world-class, future-proof broadband to 4 unserved and 39 underserved communities, reaching 20,337 households, 5,750 businesses, and 368 local community anchor institutions (CAIs) and critical community facilities (CCFs), including sites for public safety, health care, senior centers, schools, libraries and towns halls;
- Directly connect 10 state police and county sheriff facilities as well as 20 regional CAIs consisting of acute-care hospitals, community colleges and job centers;
- Provide low-cost, scalable networking capacity to state government facilities throughout the region; and
- Pass 181 additional CAIs and CCFs from the middle-mile network, including sites not already listed above but included in our linked Public Computing Center (PCC) and Sustainable Broadband Adoption (SBA) proposals.

Conservatively, the MBI projects that after 5 years its network will be used to serve at least 7,700 households, 2,100 businesses, 130 local CAIs, and 78 regional CAIs and CCFs.

For a total investment of $125 million, this network will create 1,360 jobs directly through its construction, and at least 1,680 more jobs indirectly through use of the network (based on Brookings Institute, ITIF, and MIT/Commerce Dept. studies that estimate the creation of 1 job per 4 unserved households covered, on average). Property values and tax collections will also be sustained by this project, as jobs and homes become more attractive to long-term residents as well as student and vacation renters. Because we have linked this infrastructure proposal with PCC and SBA proposals submitted by the Franklin Regional Council of Governments for the same region, and because the proposed service area features high education levels (34% of adults have college degrees vs. 27% national average) and 10,700 children, we are confident that the enthusiasm for broadband reflected in our support letters from the impacted communities will translate into robust usage of the network once built. Finally, given the extensive industry outreach that the MBI has been doing since 2008 (see industry letters), the MBI is confident that
its middle-mile plans will stimulate private-sector investment by ISPs, creating additional jobs beyond the 3,040 quantified above.

The MBI was established as a division of the Massachusetts Technology Collaborative (MTC, a public instrumentality) by Governor Deval Patrick and the MA Legislature in August 2008, with a $40 million bonding authorization and the mission of extending affordable high-speed Internet access throughout the Commonwealth, with first priority placed on unserved communities in rural western MA. (The terms MBI and MTC are used interchangeably in this application.) The MBI’s statewide public mission, singular focus on broadband, and track record in developing broadband infrastructure projects expeditiously and collaboratively with other state agencies make us a leading role model for public broadband projects nationwide. On July 28, 2009, Governor Patrick kicked off the MBI’s first capital investment, a $4.3 million, 55-mile segment of 288-strand fiber deployed along the I-91 highway corridor in western MA in collaboration with a MA Highway Department Intelligent Transportation System construction project. This investment now forms part of the MBI’s cash match towards the proposed fiber ring.

The remaining match (for a total of $25 million, or 20% of the project cost) comes from two sources: $6.2 million from the state’s public safety and IT agencies (see letters), and an additional $14.5 million from the $40 million bond authorization for the MBI. The remaining $21.2 million of the bonding authorization for the MBI is necessary for: (1) startup capital to fund the MBI’s operations until its investments become operational and self-sustaining; (2) mapping functions which serve as match for the MBI’s application to the BDIA mapping program; (3) investment in last-mile infrastructure in un/underserved communities in western MA; and (4) matching funds for broadband infrastructure projects in other underserved regions of the state, such as Cape Cod. But for the federal investment, the MBI’s $40 million would not be sufficient to address both the middle-mile and last-mile coverage gaps with world-class, future-proof broadband for rural western MA.

The MBI’s location within MTC ensures strong financial oversight as well as synergies with its sister division devoted to e-health (the MA E-Health Institute). As our support letters attest, hospitals, clinics, and doctors’ offices in western MA are currently constrained by the high costs of bandwidth from adopting best practices in electronic health records and health information exchange, including those contemplated by the ARRA e-health provisions, as well as patient portals and telemedicine applications. These and other health-care applications and many more will be enabled by the proposed project’s focus on connecting 10 regional hospitals and the un/under served communities where their patients live.

Other applications planned for the network will redress the gaps that currently prevent every local police station, town hall, and Board of Health in MA from participating in online data reporting and exchange with state agencies. For example, lack of broadband in 30 western MA communities currently prevents their police from using the state’s Criminal Justice Information System, their town halls from participating in online financial reporting and local aid distribution with the state’s Department of Revenue, and their health officials from participating in bio-terrorism preparedness projects. The mass.gov portal supports 262 e-government applications, of which 20, including some which target low-income vulnerable populations (such as the ability to apply for food stamps online, reducing stigma associated with in-person application), are
specific to local governments and can be offered once the town halls and citizens in local communities can readily procure and afford broadband Internet access.

As network diagram (Q30) illustrates, the MBI will deploy 581 miles of redundant fiber infrastructure, consisting of:
- A 272-mile primary ring of 288-strand fiber encircling the region, providing key north-south and east-west connectivity;
- 279 miles of 48-strand fiber forming secondary rings to reach interconnection points in each of the 43 un- and underserved towns; and
- 30 miles of 12-strand fiber laterals directly connecting 30 regional CAIs.

The MBI will run a competitive procurement process, in partnership with the state’s IT Department, to select one or more firms to light the fiber, operate and maintain the network, and offer the following services: (1) dark fiber connectivity, offered on non-discriminatory terms to any customer; (2) non-discriminatory wholesale access, starting at 100 Mbps Ethernet port connections, to last-mile ISPs at interconnection points in the 43 un- and underserved communities; (3) wholesale to ISPs serving, at minimum, the 30 regional CAIs directly connected to the middle-mile network, starting at 100 Mbps Ethernet over fiber; and (4) retail data and voice services to state agencies as well as local CAIs (such as police stations) funded and configured as needed by the state in the 43 communities. These revenue sources, enabled by the combination of federal grant funding and general obligation state bond funding as match, create a sustainable business model in which operational costs can be covered and net income turns positive in year 1.

The MBI’s publicly owned network will offer open access wholesale services on a non-discriminatory basis to any last-mile ISP or other carrier. All non-discrimination and interconnection obligations agreed to by the MBI will flow through to all operators contracting with the MBI and will meet or exceed the non-discrimination and network interconnection requirements outlined in the NOFA.

Federal funding of this proposal will ensure that the same communities in MA that waited the longest to get electricity in the 20th century will no longer have to wait for broadband in the 21st. Adults will finally be able to work faster than the speed of dialup and children will be able to do their homework in the evening without having to sit in a parked car outside of a closed library with a hot spot. Your review of our proposal is greatly appreciated by the citizens of western MA for whom these scenarios are an everyday reality.