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Executive Summary

Verizon appreciates the opportunity to respond to the Massachusetts Broadband Institute's ("MBI") Western Massachusetts Call for Solutions. Verizon is an international telecommunications corporation and a world-leading broadband provider of voice, data and video services. Verizon favors the widespread availability of broadband and continually seeks to engineer broadband solutions that can be justified on the basis of rational and economical business models that balance acceptable risks and returns on our private investments. In 2008 alone, Verizon expanded its FiOS offerings and now provides FiOS TV and data in nearly 100 communities across the state. In addition, in 2008 Verizon brought High Speed Internet service to 24 previously un-served communities in Western Massachusetts and now has 117 communities where it has more than doubled the speeds of its DSL offering from 3Mbps to 7Mbps.

Verizon supports the long term goal of bringing broadband to all citizens of Massachusetts. The creation of the MBI and the authorization of up to $40 million of bond funding is an important step in bringing broadband access to more citizens in the Commonwealth. The MBI should look to regulatory, economic and technical factors that have encouraged broadband infrastructure deployment across the country. Clearly the biggest issues facing the MBI are the rural nature of the areas in Western Massachusetts that currently lack broadband availability. The fact that no provider has been able to profitably bring a broadband solution to this area is an indication of the enormity of the task facing the MBI and its selected providers and partners. It also provides a clear signal that the MBI must be creative in its approach to the solutions it will be reviewing. In fact, there is likely not one "best" technological solution but, indeed, the most viable solution may very well come from a combination of complementary technologies, e.g. wireless, DSL, fiber, fixed wireless, copper, and/or satellite.

The MBI's goals and objectives may best be met by the recognition that a single service provider may be the most sustainable business model in some areas. Economies of scale and scope are important factors in today's telecommunications marketplace. The MBI should recognize that a decision that incorporates a single service provider that is best suited to provide the solutions will benefit the Commonwealth.

There is a clear potential that the "solutions" that will provide the robust broadband infrastructure sought by the MBI will include varied and innovative technologies. However, the MBI must be steadfast in its complementary goal to support a sustainable business model in which the service provider(s) is able to sustain and upgrade the infrastructure over time without the need for additional capital from the Commonwealth. In order to attain this objective, the MBI must look to providers that have experience, financial wherewithal, and capital structures that will allow them to succeed long after the broadband fund has been spent.

In order for any provider to successfully participate and reach as many citizens as possible, there must be positive indications by consumers and businesses in un-served and underserved areas of the need and willingness to buy the service. While there is agreement that broad based deployment is desirable, it will not suffice to simply set the benchmark of providing broadband services everywhere. There must be proven demand in order for a provider to realize the economic benefits of providing the service, even with significant support from the Commonwealth. Without those economic benefits, providers will not be able to sustain the services they propose to offer.

Section 1: Technical Model & Approach

Technological Approach and Demand Models are Co-Dependent

Verizon understands that the MBI seeks to partner with private sector participants to provide a robust, affordable broadband infrastructure that is able to extend the reach of broadband services to more un-served citizens and businesses in Western Massachusetts. In light of that goal, the MBI should look to regulatory, economic and technical factors that have encouraged broadband infrastructure deployment across the country. Current broadband networks and services are the direct result of private sector investments in many and varied technologies and infrastructures including wireless, fiber, and coax. These investments were made, in large part, as providers and their investors offered innovative solutions to customers' demands without the unnecessary and uneconomic burden of regulatory constraints. Those same forces are critical to the attainment of the MBI's goals and objectives.

National studies repeatedly have shown that not all consumers want broadband services, or due to issues such as computer ownership, could or would not purchase the service even if it were available. Taken together with the difficulty of deploying broadband in rural areas, these factors could negatively influence the successful deployment of any type of broadband services.

For these reasons, quantifying and pinpointing demand are critical to any successful business model that might be considered. As part of the creation of a public and transparent solicitation process the MBI should conduct a thorough analysis that quantifies the market demand for broadband services from un-served citizens and businesses. In particular, it is critical for the MBI to get up to date, specific and detailed data concerning the "gaps" that need to be filled. At the same time the MBI and its partners and providers should develop specific programs that will stimulate demand both in the short and long term in those areas.

Such a process will provide potential investors in broadband with critical data that will lead to the development of the technological solutions that will best meet the needs of both today's and tomorrow's customers in the most efficient and economically successful way.

Any technology solution to be proposed by providers will be significantly dependent on market demand. It will not suffice to simply set the benchmark of providing broadband services everywhere. There must be proven demand in order for a provider to realize the economic benefits of providing the service, even with significant support from the Commonwealth. Without those economic benefits, providers will not be able to sustain the services they propose to offer.

In addition, ensuring that broadband and the services delivered by a broadband network are not placed under outdated rules designed for old-world services in a different era that would hinder

the development and growth of these new innovative services is a critical factor in providing certainty for the marketplace and the providers. Without clear and unambiguous policies that ensure the ability of a provider to offer broadband and its services without the burden of regulation, the desire of providers to invest in those networks will be substantially reduced and possibly eliminated.

In terms of technical models, the MBI should not attempt to focus its efforts on one specific technology but be open to evaluating a myriad number and range of possible technological models. In allowing for providers to propose innovative technology solutions, as opposed to dictating specific technical solutions, the MBI can best meet its goal of providing a broadband network for business residential and government, but also a flexible network that allows for the technological changes that are inevitable in today's ever-changing telecommunications marketplace.

This flexibility will also allow the MBI to seek additional information on the additional services that will be offered to end users. The availability of services beyond broadband access e.g. voice, video, VOIP and other ancillary services are, in large part, dependent on the statutory and regulatory framework that is in place for the provision of these services. Artificial constraints placed on providers that limit their ability to provide these services timely, economically and efficiently will put unnecessary burdens on potential investors and dampen the desire of companies to enter the marketplace.

The MBI should also look to providers to provide specifics concerning their experience and ability to engineer, build and maintain a broadband network to meet the MBI's goals. It should also require providers to describe the specific build requirements that the provider will undertake and how those requirements will be met, both with financial and human resources.

Verizon has broad experience worldwide deploying a wide range of technologies, from wireless broadband to wired DSL and fiber optic broadband solutions. Any specific technological solutions that may be proposed by Verizon in the next phase of this project will be influenced by, among other factors, data concerning demand from un-served and underserved communities and available capital from MBI.

With our broad portfolio of broadband options, it is difficult and premature to offer a specific solution without more detailed information from the MBI concerning targeted deployment areas, coverage objectives, and a more specific review of the topology and other specifics of the targeted deployment areas

Section 2: Business Model & Approach

Single Supplier by Area

While the MBI should look to an array of technological solutions, its goals and objectives may best be met by the recognition that a single service provider may be the most sustainable business model in some areas. Economies of scale and scope are important factors in today's telecommunications marketplace. Recognizing that a decision that incorporates a single service provider that is best suited to provide the solutions will benefit the Commonwealth. It should also be recognized that if the marketplace thus far has been insufficient to attract at least one private investor and supplier to venture into these areas, it will be extremely difficult and challenging for multiple suppliers, even with government funding, to be able to develop sustainable business models in which all service providers are able to continually reinvest without the need for additional government capital.

Operational and Financial Viability

Regardless of the current financial market conditions, the MBI should carefully evaluate potential providers and insure that a provider has the requisite capital capacity to meet its stated commitments. Technology changes quickly. Not only must the provider have the capital wherewithal to provide the initial investments but also the capacity to garner future capital for customer and technological changes that will inevitably take place in the future. The MBI should, by careful evaluation and past experience, have confidence that the chosen provider has the ability to meet future expense and capital outlays associated with its proposal.

The MBI must also evaluate the potential providers' ability, from a capital, operating expense and human resource perspective to fully maintain the infrastructure it proposes.

Open Access Considerations

The implications of mandating open access are far reaching, complex and potentially detrimental to a project designed to bring broadband to rural areas where market and economic forces have not been favorable enough for any provider to establish service. The MBI must seriously consider the operational and economic implications of allowing multiple carriers to participate on a network that, at best, will have minimal payback potential for one carrier. The economics associated with building and maintaining a broadband infrastructure change dramatically when multiple carriers are allowed to use the infrastructure. In addition, the ordering, provisioning, maintenance and billing systems required for most providers' business models may require drastic changes should open access be required. Creating new systems, or changing existing

systems, to allow open access is an expensive, time consuming process. In this instance, the benefits may not exceed the costs.

Should the MBI proceed with open access requirements, it is critical that specific and detailed terms of use, including pricing, be clear and unambiguous.

Section 3: Service Area

As noted above, one of the first steps of the MBI should be to determine with specificity the "gaps" in current broadband coverage and the present and future demand for broadband services. Establishing a goal of reaching "all" un-served citizens may be difficult to achieve immediately – and perhaps unnecessary. There may be customers who are so remote or, uninterested in broadband applications that the high costs associated with serving those outliers are prohibitive.

However, armed with the demand data, a provider will be able to respond with technological proposals that can provide substantial progress toward reaching un-served citizens in The Commonwealth.

Verizon agrees that some of the first areas that should be considered for deployment under the broadband fund include the un-served citizens and businesses in Western Massachusetts (Alford, Hawley, Mt. Washington, New Salem, Tyringham, Wendell, and Warwick).

Based on our most recent deployment of High Speed Internet services in 24 Western Massachusetts communities, we know there are citizens and businesses in areas that have been deemed under-served that would also like these services. While we reached about 70 percent of lines on average in the areas where we recently deployed High Speed Internet services, in the course of our work we heard from citizens and businesses outside our deployment area about their desire for services.

In the next phase, the MBI should help providers focus on where tangible, quantifiable demand exists, so the MBI, its partners and providers, can target technology solutions for these areas.

Section 4: Partnerships

Across the county, successful deployment of broadband services depends as much on demand stimulation as it does on demand aggregation and identification. Verizon has the capabilities to build a viable network that would enable us to provide end-to-end broadband services without the partnership of an outside organization. However, partnerships will be valuable in defining and generating demand, educating potential users on the applications and uses of broadband connections, and promoting the availability of broadband services. The MBI may want to consider seeking these potential partners in a separate and distinct solicitation that would parallel the efforts to seek solutions to the lack of broadband in Western Massachusetts.

Section 5: Financing

Verizon's infrastructure is owned and maintained exclusively by Verizon. While other companies lease our facilities on a wholesale basis, this access is through specified network demarcation points to ensure Verizon can provide both wholesale and retail customers the best quality service.

Verizon utilizes a variety of proprietary systems in our infrastructure. These systems must maintain their integrity in order to provide continuity of service to our customers. Terms of use must be clearly defined prior to allowing outside organizations access.

Sharing of other network components presents potential technical accounting classification definitions that may be prohibitive. Common facilities create complications to a provider's ability to offer high quality service. A common investment structure will also be further complicated by gray ownership areas, requiring systems, processes, controls, continuous planning and oversight, to insure compliance with any applicable terms, contracts, laws or regulations. The weight of these burdens may chill potential providers' participation.

The MBI needs to clearly define what is meant by "shared access". There are multiple issues surrounding this concept including the terms of operations, maintenance, access points, demarcations, and many more. Those issues should be addressed, evaluated and solutions determined prior to the solicitation process.

While the MBI's investments will be funded by proceeds from the issuance of general obligation bonds and such funding requires certain parameters, including the Commonwealth or another public entity holding title ownership of the asset or infrastructure, the MBI should encourage providers to propose alternative ownership arrangements. Specifications that allow providers the utmost flexibility will provide the MBI with the potential to receive unique, creative solutions while still meeting statutory obligations.

Section 6: Public Role

To allow for true competition and investment stimulation, the MBI should maintain a moderately distant role to the service provider. Assuming the provider who is awarded the bid has the technical knowledge and experience in its own field, the management of the network build should be left to the discretion of the provider.

In return, the provider should be able to provide a read-out of the performance of both the coverage and the service take rate at various points in time (i.e. 75% communities covered and 30% customer take rate).