FiberTower – Virginia Middle Mile Broadband Solution Executive Summary

FiberTower proposes to build a Middle Mile network that brings broadband capabilities to strategic locations in the State of Virginia with specific focus on unserved and underserved parts of the state. The project will bring these capabilities to existing cellular and radio transmission sites that were built over the years to enable earlier generation wireless communications. Each site in the network will be provisioned with a MuniFrame® that will deliver an average nominal capacity of 100 Mbps, with the ability to scale higher.

MuniFrame® is a trademarked concept that was developed by FiberTower by extending its original shared infrastructure model. A MuniFrame® is a site enabled with large amounts of carrier-class bandwidth with the ability to provide a wide range of services. Wireless carriers, other last mile service providers, business customers, and community anchor institutions (collectively referred to as "beneficiaries" in this application) will have the ability to access bandwidth at MuniFrames® on a nondiscriminatory and first-come-first-served basis.

Building a middle mile network to reach unserved and underserved communities is a complex initiative that requires a committed set of partners with a shared vision. It involves bringing together long haul fiber backbone, internet connectivity, middle mile infrastructure, tower and rooftop access, and ultimately the beneficiaries, to execute on a complex project. FiberTower is able to leverage its years of investment in building relationships with various entities in the ecosystem.

In preparation for the infrastructure grants under the NTIA's Broadband Technology Opportunities Program, the company has spent many person-months building partnerships with all prominent tower companies, fiber service providers, deployment partners, and several beneficiaries. [redacted]

In short, the project proposed by the company is "shovel-ready" from multiple perspectives: an implementable design, realistic budgets and timelines, ability to mobilize quickly, and powerful network of relationships. [redacted]

System Description and Services Offered

FiberTower will use a combination of fiber and microwave technologies to implement the middle mile network. The company has built, and now operates, one the largest hybrid fiber-microwave networks in the country. It consists of over 3,100 sites serving in excess of 6,000 wireless carrier cell sites; and by company's estimates this infrastructure supports close to 6 million end users in urban and suburban areas of the country. FiberTower intends to replicate this model with important modifications for MuniFrame® beneficiaries while meeting the nondiscrimination and interconnection obligations outlined in the NOFA.

MuniFrames® will have the ability to support a broad range of services. Service offerings will include traditional Time Division Multiplex (TDM) services in the form of T1s and DS3s, Ethernet/Packet based services in the form of Ethernet Private Line (EPL) Services, and Dedicated Internet Access. TDM services will be available in T1 increments and ultimately reaching a DS3. EPL services will be available in 10 Mbps increments, starting at 10 Mbps and going up to 50 Mbps with opportunities to scale to 300 Mbps.

Once the network is fully deployed, the state will have 543 MuniFrames®. Each MuniFrame® will provide wireless carriers and other beneficiaries' access to middle mile broadband services. These beneficiaries will be able to scale their backhaul in an economic and timely manner, thus breaking one of the critical bottlenecks in their ability to provide advanced broadband applications to end users in underserved and unserved areas. Also, within a 30 to 50 square mile area around each site, community anchor institutions that have line-of-sight to a MuniFrame® will have access to bandwidth through the installation of low profile fixed wireless antenna.

In building the network FiberTower will leverage its existing relationships to gain access to long haul fiber routes at critical points such as In-Line Amplifiers (ILAs). Sites in the project will be interconnected using a network of high capacity microwave radios. Clusters of sites will then be aggregated at Fiber Exchange Points (FEPs) which will tap into long haul networks at the aforementioned critical points. The combination of (i) leveraging existing cellular towers (ii) using high capacity microwave radios and (iii) gaining access to long haul fiber through partnerships is not only unique but also one of the fastest and most efficient ways to deploy capital to bring broadband to unserved and underserved areas. Where applicable, FiberTower intends to leverage its extensive wide-area spectrum assets in the 24 GHz and 39 GHz bands.

Nondiscrimination and Interconnection Obligations

FiberTower will not favor any particular content over another. The company will use the following principles to meet the nondiscrimination and interconnection obligations:

- Allocate appropriate bandwidth described in each service offering
- Provide transparency around oversubscription rates for service offerings, where applicable
- Demonstrate a strong commitment to meeting service level agreements, and
- Enable bandwidth and provision services on a "first-come-first-served" basis.

[redacted]

The company does not intend to provide switched services through this project and thus will not be subject to traditional switched interconnection obligations.

Qualifications

FiberTower is uniquely qualified to execute on this proposed project. The company has built and operated similar networks for over 6 years in 13 markets. As a result it has mature relationships with over 20 fiber carriers across the country. It has Master Leases Agreements (MLAs) with 10 tower operators giving it access to over 100,000 sites. The company serves 9 wireless carriers, provides service to multiple schools and small businesses, has provisioned service in support of critical infrastructure, has been awarded a national-scope GSA Schedule, and has developed partnerships with 2 major government contractors for telecommunications services. The company's internal expertise in designing and deploying these types of networks has an aggregate investment of 1500 person-years in intellectual capital and around $250 Million in Capex. Finally, the company is led by seasoned executives and managers who have a long track record of execution in the telecom industry.

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Summary

It is our belief that the Recovery Act and the broadband provisions contained within it provide a great opportunity to bring broadband to unserved and underserved areas of

the state. Targeted investments in the most highly leverageable parts of the network represent the most efficient use of capital to lay the foundation for further economic expansion. The proposed project precisely accomplishes this for large parts of unserved and underserved areas within the state.