



Your Local Provider for  
Fiber, Wireless and Hybrid Broadband Solutions



Regional Broadband Solution for Six Western MA Communities

*Response to  
Mass Tech Notice of Funding Availability,*

*no. 2018-MBI-01*

*November 10, 2017*

WiValley, Inc. • 310 Marlboro St • Keene, NH 03431 • (866) 946-2999  
[www.wivalley.net](http://www.wivalley.net)

Ed Donnelly  
Massachusetts Technology Collaborative  
75 North Drive  
Westborough, MA 01581-3340

RE: NOFA No. 2018-MBI-01

Dear Mr. Donnelly,

I am pleased to present WiValley's proposed regional broadband solution for six Western MA communities in response to the MBI's Notice of Funding Availability, no. 2018-MBI-01. Under our innovative approach, WiValley will design, build, own (apart from fiber and vertical assets), operate and maintain a multi-town communications network to offer broadband service to a minimum of 96% of each town's residents and businesses.

I look forward to speaking with you and the subject municipalities on how WiValley can deliver a responsive, affordable solution to closing the remaining last mile broadband gaps.

The provisions of this proposal are intended only as an expression of interest on behalf of WiValley, are not intended to be legally binding on any party, and are expressly subject to the negotiation and execution of an appropriate binding Agreement.

Sincerely,

Brian Foucher, President  
WiValley, Inc.

# Contents

<b>About WiValley .....</b>	<b>4</b>
<b>An Affordable Regional Solution .....</b>	<b>4</b>
<b>Cross-border Economies .....</b>	<b>4</b>
<b>Network Resiliency and Redundancy .....</b>	<b>5</b>
<b>Technologies Employed .....</b>	<b>5</b>
<b>Conditions for maximum deployment: .....</b>	<b>5</b>
<b>Fiber ownership .....</b>	<b>6</b>
<b>Vertical assets and wireless siting assumptions.....</b>	<b>7</b>
<b>Technology Enhancements.....</b>	<b>7</b>
<b>Coverage .....</b>	<b>8</b>
<b>Service Description .....</b>	<b>8</b>
<b>Service Prices.....</b>	<b>9</b>
<b>Additional Services .....</b>	<b>9</b>
<b>Assurance of Long-Term Service .....</b>	<b>9</b>
<b>Buy-out by the Towns.....</b>	<b>10</b>
<b>Project Schedule.....</b>	<b>10</b>
<b>Pricing to the Commonwealth .....</b>	<b>10</b>

## About WiValley

WiValley leverages the strengths of the latest wireless and fiber technologies to bring broadband to underserved communities, taking advantage of our ability to innovate and scale. We engineer custom hybrid fiber/wireless solutions that address future communications needs of both business and residential customers, with broadband speeds that exceed those available over traditional copper (wired) infrastructures. Our involvement with state and town initiatives include projects with NH FastRoads and the Massachusetts Broadband Institute (MBI).

Founded in 2008, WiValley provides broadband coverage to a growing list of over 50 communities in MA, NH and VT. Our track record demonstrates that we possess the organizational capacity, financial resources and requisite experience to effectively manage long-term construction and operational risks.

For the purpose of this project, we have engaged the engineering and project management services of the Interisle Consulting Group. Interisle led the original MB123 grant design, and is familiar with the challenges faced by the towns in question, having performed several of their last mile feasibility studies.

## An Affordable Regional Solution

WiValley is proposing to design, build, maintain, and operate an affordable hybrid wireless/fiber regional network for six of the unserved towns:

- A minimum of 96% of homes & businesses served
- 100% funded via town broadband grants
- No town tax support, funding authorization or financial risk
- Fiber and vertical assets will become public property, unlike cable networks built with state subsidies
- Low installation fees, with no subscriber financing or hidden costs
- Rates comparable to urban services, lower than in fiber proposals
- 25/3 Mbps or greater service to 75% or more of homes, minimum of 12/2 Mbps available service to at least 96% of homes

We are proposing a five-town regional solution incorporating four contiguous towns (Florida, Hawley, Monroe & Savoy), plus a physically separate solution for Middlefield. We are also proposing a hybrid fiber-wireless response for Worthington as an optional extension of the Middlefield proposal.

## Cross-border Economies

By working across municipal boundaries, the regional project will deliver significant economies:

- Efficient network configuration
- Maximum advantage of existing infrastructure (e.g. Florida & Hawley access to Savoy tower)
- Construction efficiency
- Administrative & service efficiency
- Lower backhaul costs via combined purchase
- System-wide reliability via redundant paths

Various efficiencies will also apply to Worthington should it join the network.

## Network Resiliency and Redundancy

The regional network will be engineered for resiliency and redundancy, with the aim of assuring reliable access to state and national backbones. It will interconnect with both the Mass Broadband 123 network and a licensed microwave carrier network, providing backhaul redundancy for service during unplanned network outages. Where practical, key wireless sites will have multiple connection paths. Every site will have battery backup power.

## Technologies Employed

Services will be provided via the optimal deployment of several technologies:

- Fiber, where economical in dense locations
- 5 GHz for locations where path conditions (line of sight) permit, including point to point backhaul and point to multipoint subscriber access. This band provides the greatest bandwidth (data carrying capacity) at lowest cost.
- 3.5 GHz CBRS band for locations where near-line-of-sight paths permit. This evolves in 2018-2020 from the current 3.65-3.7 GHz band (for which WiValley has a nationwide license) into the new 3.55-3.7 GHz CBRS band, offering the quietest spectrum and higher power levels on a licensed-by-rule or priority-access license basis.
- 2.4 GHz for more obstructed paths in low-density locations. Medium bandwidth.
- 900 MHz or TV white space (TVWS) for cluttered paths. Best non-line-of-sight coverage but least bandwidth.

Our proposal includes an option for a hybrid fiber-wireless design that provides fiber service to some homes and wireless to others.

## Conditions for maximum deployment:

After acceptance of our proposal but prior to the initiation of construction, WiValley will undertake, in cooperation with each Town, a survey of all residents and businesses to identify levels of interest for fiber and wireless service. A 96% or greater coverage rate in a town is dependent upon an expression of interest from at least 35% of potential customers in that town. Regardless of survey results, vertical assets and the network core which are critical infrastructure for future broadband success of each town will be constructed for each town. Service need not be built to a location in which no customers have yet expressed interest. Upon future expression of interest or growth in an area not yet served, we will extend our network to such an area within an interval in keeping with current industry standards for the selected technology.

Our fiber build for each town is predicated on a pre-deployment signup of 35% of the homes to be passed by fiber. Fiber signup will entail a minimum one-year service contract, with no installation fee. If fewer than 35% of the potential fiber customers in a town sign up for service, we will build that town all-wireless.

The scope of fiber deployment will depend upon whether or not we can gain access to at least 12 strands (one binder group) of the MB123 dark fiber on reasonable acceptable terms and conditions for second-mile use within the towns and can also overlash new fiber along the MB123.<sup>1</sup> Additional fiber will be built to select locations not along the MB123 route.

---

<sup>1</sup> With Axia about to be replaced by a new network operator, MBI has the option to make the fiber available for last-mile operator use, as planned for in the original grant design, through its new network operator.

We do not offer to overbuild the MB123 plant (i.e., require an additional pole attachment) in any locations, except incidentally if required. In locations where MB123 fiber exists, we request permission to a) overlash the existing fiber with new fiber that would be engineered for last mile use, and b) make use of a binder group (12 strands) of dark MB123 fiber for “second mile” or limited last mile use, within the towns, generally accessed at existing CAI and slack loop locations.

In locations where there is no MB123 plant, where we propose pulling new fiber, we anticipate that the existing poles do not have cable or fiber attachments in the communications space, and are thus likely to have relatively low make-ready costs, compared to an overbuilt route. We may also request the installation of additional slack loops in the MB123 plant, if necessary to facilitate access.

Our maximum fiber build (hybrid fiber/wireless) option, based upon these terms, will reach at least 35% of homes in Savoy, and 40% of the homes in Monroe and Florida, via fiber. If Worthington opts to accept our proposal, at least 40% of homes there will also be reachable by fiber. Most business locations in these towns will also be reachable by fiber.

In Middlefield, our fiber build will include the “business district,” roughly the area along Skyline Trail from Bell Road north for ¼ mile, and ½ mile along Bell Road. No fiber is planned for Hawley at this time. Some opportunistic use of MB123 fiber for last-mile purposes will be considered but is not planned for Middlefield or Hawley.

Absent the ability to use the MBI fiber, the same amount of fiber will be built in Middlefield and Monroe. However, Florida, Savoy and Worthington will then be built all-wireless.

Homes will be eligible for fiber service if they are within 500 feet of a fiber passing. If a home for which service is requested has a driveway or setback longer than 500 feet, WiValley reserves the right to provide this service with a supplemental charge for the additional length of the drop fiber. Wireless service will also be made available as an alternative in such cases.

## **Fiber ownership**

For the fiber built for this project (not part of the original MB123 network), including overlashed distribution and subscriber drops, we propose that title be conferred to the MBI, with renewable Indefeasible Rights of Use granted to WiValley on sufficient strands to carry out this project, for as long as WiValley remains the network operator. Only cost-based recurring maintenance and installation charges will be assessed to WiValley for the use of this IRU. Such charges will be negotiated with the Service Provider and if acceptable rates are not agreed to, we will provide all-wireless service.

Prior to project initiation, WiValley will share maps of the proposed new build routes with MBI and MBI will have the right to request strands for its own use, such uses not including direct competition with WiValley for retail services. Essentially all of the new fiber would be added to the MBI fiber inventory as last mile plant, while WiValley would only pay rental charges for the local use of binder groups on the original MB123 plant.

Any connections to the MB123 fiber would be made by the MB123 Network Operator or its selected contractor. Connection to the overlashed and new-route fiber would be made by WiValley or its contractor, with the responsibility to do no harm to the MB123 fiber or messenger strands that it is overlashed to.



## Vertical assets and wireless siting assumptions

Our proposal requires the construction of one new antenna tower, at the Transfer Station site in Middlefield. We propose granting title to this tower to the Town of Middlefield in exchange for our right to use it at no charge. The proposed 90' Rohn 55G guyed tower would also have sufficient capacity for public safety use. No new towers are anticipated for the remaining towns. We will however consider construction of a guyed tower at Florida Town Hall for shared public safety use, in lieu of the planned pole, and may consider other sites.

We anticipate placing 30 new wood utility poles extending 42 to 68 feet above ground, for the regional network in Savoy, Florida, Hawley and Monroe, and 13 new wood utility poles in Middlefield. We anticipate placing 17 new wood utility poles in Worthington, should the Town accept WiValley's proposal. These quantities are preliminary estimates and may change in final engineering. Our proposal is contingent upon there being no zoning or similar obstacles (i.e., tower ordinances) to the placement or use of these poles. These poles will also be available for public safety use, for instance to provide fill-in receiver antenna locations for a town or regional voting repeater system, and our network will be made available to support such applications (i.e., voice-priority bandwidth to the voter site) at no charge, provided that it is within the network's service area.

While most of the utility poles are in the served towns, we anticipate requiring a specific site to place a pole in the Town of Charlemont, which is critical to Hawley's coverage. A site in the Town of Becket is also required to serve the Bancroft area of Middlefield. A site in the Town of Rowe has been identified which might be useful for serving Monroe.

No land acquisition is anticipated. Our proposal is contingent on being able to set these utility poles in the public roadside rights-of-way, with the cooperation of the towns and state. Title to these poles will belong to the towns in which they are located, in exchange for our having use rights, at no charge, for as long as WiValley owns or operates the network.

We will require the use of several existing towers. One is the existing DCR fire tower on Holcomb Hill in Chester, which provides necessary coverage to Middlefield. (Permission to plant a separate pole on the site would be an acceptable substitute.) We anticipate expanding an existing collocation on the Borden Mountain fire tower in Savoy, which may also be one of our upstream Internet access points. We plan to seek permission to use the meteorological tower at the Avangrid Renewables site in Monroe. Its Crum Hill site is of particular importance to serving Florida. Absent access to these sites, we may need to adjust our designs and schedules accordingly.

At wireless subscriber locations, customers will be required to sign a homeowner access agreement, and we reserve the right to select the antenna location and type, upon consultation with the homeowner. If the technologically feasible site selected by WiValley is not acceptable by the homeowner for aesthetic or other non-technical reasons, WiValley will have met its obligation to deliver service to the customer premise and the premise will not count against our commitment to premises covered.

## Technology Enhancements

Other delivery options may become available via new or improved technologies and changes in the regulatory environment. As speeds of delivery improve, the percentage of homes capable of receiving 25 Mbps or greater service may increase over time.

While fiber performance already exceeds anticipated residential demand for the next decade and the technology is fairly mature, wireless technology continues to advance rapidly. Improvements will be particularly important for serving non-line-of-sight locations. Among the wireless enhancements that may become practical within the next 5 years, in addition to CBRS, are licensed point-to-multipoint operation, massive (more than 4x4) MIMO



with beam steering, and advanced LTE transmission. Our business model presumes that wireless electronics have a shorter economic lifespan than do fiber or vertical assets, and our continued success depends upon opportunistic utilization of improved technologies. Higher-speed wireless connections may also be custom-engineered to business locations on demand, dependent upon terrain and path conditions.

## Coverage

We will provide at least 96% coverage in every town. In the case of Middlefield, Savoy, Florida, and Worthington, our wireless coverage is expected to exceed 98% of homes.

However, because many homes are located in heavily wooded areas reachable only via non-line-of-sight wireless paths, WiValley is offering a minimum of 12/2 Mbps to all served homes and 25/3 to at least 75% overall.

Fiber-served homes and businesses would all be offered at least 100/25 Mbps service, as well as lower-priced options.

## Service Description

WiValley will provide:

- Broadband service to a minimum of 96% of homes and businesses
- No data caps
- Voice priority phone service, with battery backup, free porting of existing numbers, and no charge for calls to anywhere in the United States and Canada.
- Hosted email and cloud services based upon Google's G-Suite Platform with user specified custom domain names. All fees for these services match Google's recommended pricing for residential or business consumers
- Optional home Wi-Fi router



## Service Prices

WiValley plans to offer broadband service at the following standard monthly rates:

Service <sup>i</sup>	Price
12/2 Mbps	\$59.95
25/3 Mbps	\$69.95
50/10 Mbps	\$79.95
100/20 Mbps	\$109.95
25/25 Mbps Business class <sup>ii</sup>	\$119.95
100/100 Mbps Business class	\$299.95
Digital Phone Service (Unlimited) <sup>iii</sup>	\$24.99

<sup>i</sup> Service above 25 Mbps fiber only.

<sup>ii</sup> Business class services are customized for business applications; basic services are available everywhere. Additional phone service options including business-grade electronic PBX service will also be available at competitive prices.

<sup>iii</sup> No additional “FCC subscriber line charge” will be assessed; Universal Service Fund and E911 taxes do apply.

The residential installation charge will be \$50 during the initial service rollout; \$100 thereafter. Monthly rates shown here are committed maximum rates for the first two years.

## Additional Services

Broadband network operational services provided by WiValley include:

- Customer service
- Billing
- Tech support
- Network monitoring & security
- Program management
- Sales & marketing
- Legal & regulatory requirements

## Assurance of Long-Term Service

WiValley commits to maintain our network in a state of good operation and repair, and perform upgrades, when necessary, in keeping with current industry standards. WiValley commits to providing broadband service to the communities included in this proposal for a minimum of three (3) years with two renewable 7 year terms. If before each of the renewable terms, customer adoption for any of the towns is below or falls below 35%, WiValley can elect for the network assets and customer base to revert to an entity designated by the Town or Commonwealth. If for some reason WiValley is unable to provide service to a Town before then, its network assets and customer base will revert to an entity designated by the Town or Commonwealth.



## Buy-out by the Towns

The Towns will have the option to purchase the network from WiValley. Terms related to the buyout options will be defined at the execution of a contract.

## Project Schedule

While it is difficult to ascertain a definitive project schedule, should the state and towns complete their reviews and approvals – including rights of way and other access rights and zoning variances – by February 2018, it is anticipated that the wireless portions of the network could be largely completed during calendar year 2018, with service available in some areas by mid-year. Fiber portions would take somewhat longer to complete. Because the wireless coverage will essentially overlap the planned fiber coverage, some future fiber customers could opt for interim wireless coverage.

Fiber rollout along the existing MB123 route could begin in 2018, if the new network operator collaborates with us on this project. Extension to additional areas will be gated by the pole attachment and make-ready process. While we aim for substantial completion in 2019, we recognize that there may be local delays caused by factors beyond our control, such as environmental review.

## Pricing to the Commonwealth

WiValley proposes to build the networks for the following amounts of grant funding:

- Middlefield, Hawley, Florida, Monroe and Savoy, maximum fiber: \$2,700,000
- Middlefield, Hawley, Florida, Monroe and Savoy, minimum fiber: \$2,500,000
- Worthington, additional to Middlefield, maximum fiber: \$1,070,000
- Worthington, additional to Middlefield, all-wireless: \$925,000

Payment will be on a negotiated milestone basis. Funding would be provided to WiValley by the Commonwealth directly, after the Towns accept this proposal. Work would begin after release of an initial round of funds to WiValley.

