



at the MasTech
Collaborative



Last Mile Program Update

May 10, 2016



Program Update

- We have conducted and concluded an **intensive program review** in collaboration with the MBI.
- The MBI is shifting to a more flexible, responsive program framework which prioritizes affordable and sustainable solutions and embraces a range of technology and operating options.
- The new course marks a change for MBI which up to now has been constrained by irreconcilable expectations for speed, coverage, affordability, and a one-size fits all solution.
- We are prepared to **move forward quickly** and to partner with towns to discuss options and plans.

Goals:

1. A strong collaborative partnership between the Administration, the MBI, providers, and towns.
2. Rapid development and implementation of sustainable, reliable broadband expansion projects



Advisors

We have announced two new Advisors for the Last Mile program:

Peter Larkin: Special Advisor to the Secretary

- Will advise the Administration on the go-forward plan for community engagement and project implementation
- Will be Secretary Ash's designee to Chair the MBI Board of Directors
- MBI's advocate for success, and will help ensure community interests are heard and properly vetted

Bill Ennen: Last Mile Implementation Liaison

- Working alongside the MBI staff to help troubleshoot and expedite to get the best possible outcome in the shortest possible time
- Provides a consultative role to town leaders and MBI staff with regard to verifying each town's path forward
- Will be based in Western Mass



Pathway Forward

We are moving ahead with a fresh look.

- Our shared goal is reliable, sustainable, affordable broadband access for residents.
- We understand that there is no one-size-fits-all model for all towns.
- We will support projects that provide access to minimum speed requirements, demonstrate viable funding and financing plans, and achieve operating sustainability.
- We are willing to support a range of technology, collaboration, and operating choices.
- The MBI, Special Advisor, and Implementation Liaison will engage directly with Towns locally to propose and develop solutions.
- We want progress as quickly as possible.



Several Viable Models

There is no one-size-fits-all solution.
However, there are several different project models and technology options that may work:

Models:

- Expansion by Private Provider
- Extension of Existing Cable Infrastructure
- Multi-Municipal Network
- Independent Municipal Network
- Pilot Projects

Funding and Financing:

- MBI/State Grant Funding
- Private Partner Investment
- Municipal Investment:
 - USDA Loan Program
 - State House Notes
 - Qualified Bond Program
- Potential Federal Funding (FCC CAF II)

Technology Options:

- Fiber
- Wireless
- Cable
- Hybrid Systems



Baseline Requirements

To receive state investment support, projects will need to meet some minimum baseline requirements.

Minimum Project Requirements:

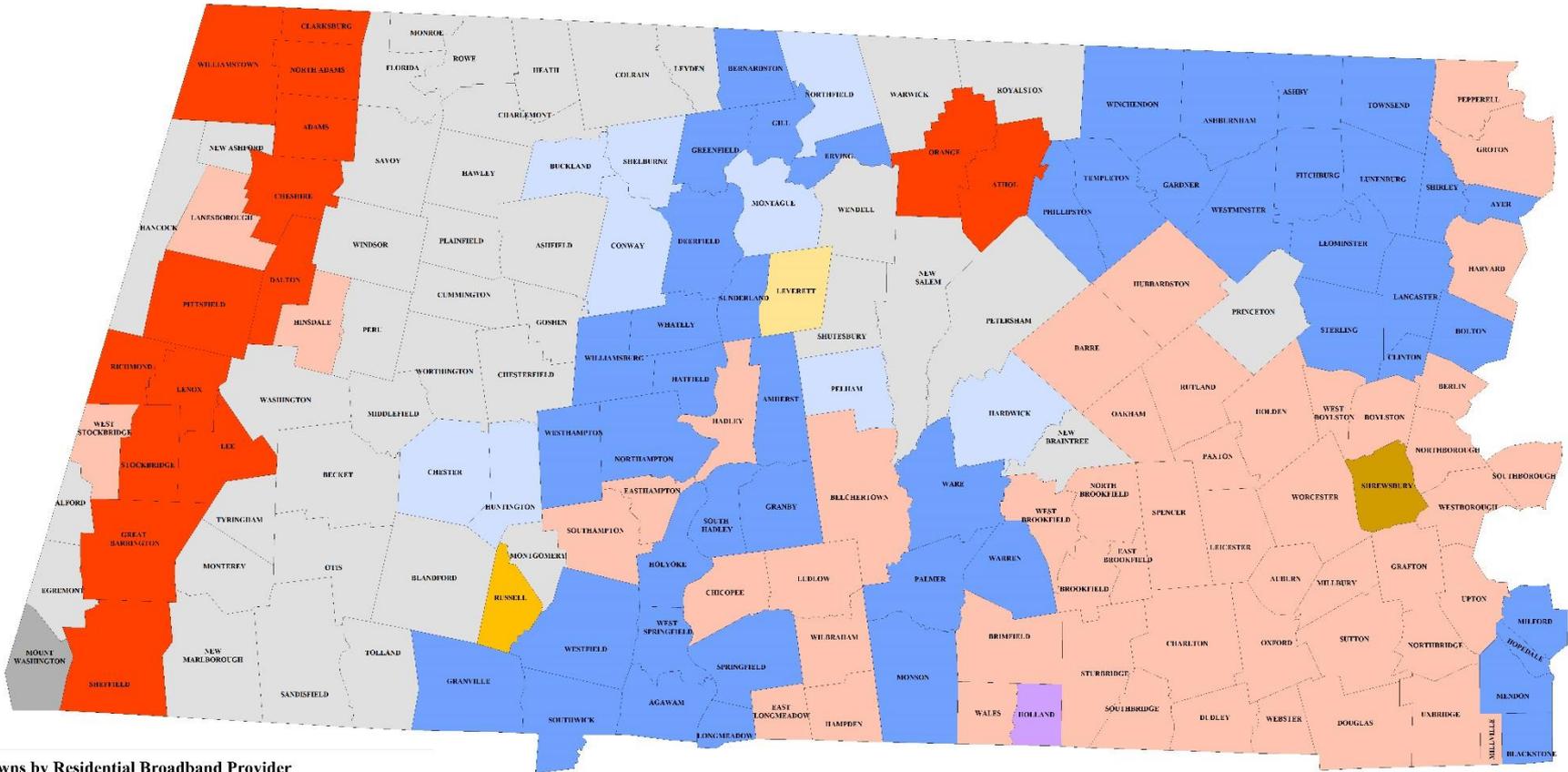
- Project's technology must provide access to broadband speeds as defined by the FCC (25/3)
- Project must be capable of demonstrating long-term operating sustainability without ongoing state subsidy
- Project must be affordable
- Project should seek a minimum goal of 96% residential coverage in its service area
- Endorsed by MBI professional staff
- Financing Endorsed by DLS (as needed)
- Approved by MBI board

Technology and Operations:

- Preference for network operations to be managed by experienced professional partners when possible
- Many technology choices: fiber, wireless, cable, and/or hybrid solutions
- Preference for utilization of *MassBroadband 123* network when appropriate



Communities by Residential Broadband Provider



Towns by Residential Broadband Provider

Charter	(51)	Mt Washington	(1)
Comcast	(47)	None	(40)
Extension RFP	(9)	Russell MLP	(1)
Cox	(1)	Shrewsbury MLP	(1)
LeverettNet	(1)	Time Warner	(15)

May 2016



Engaging with Providers

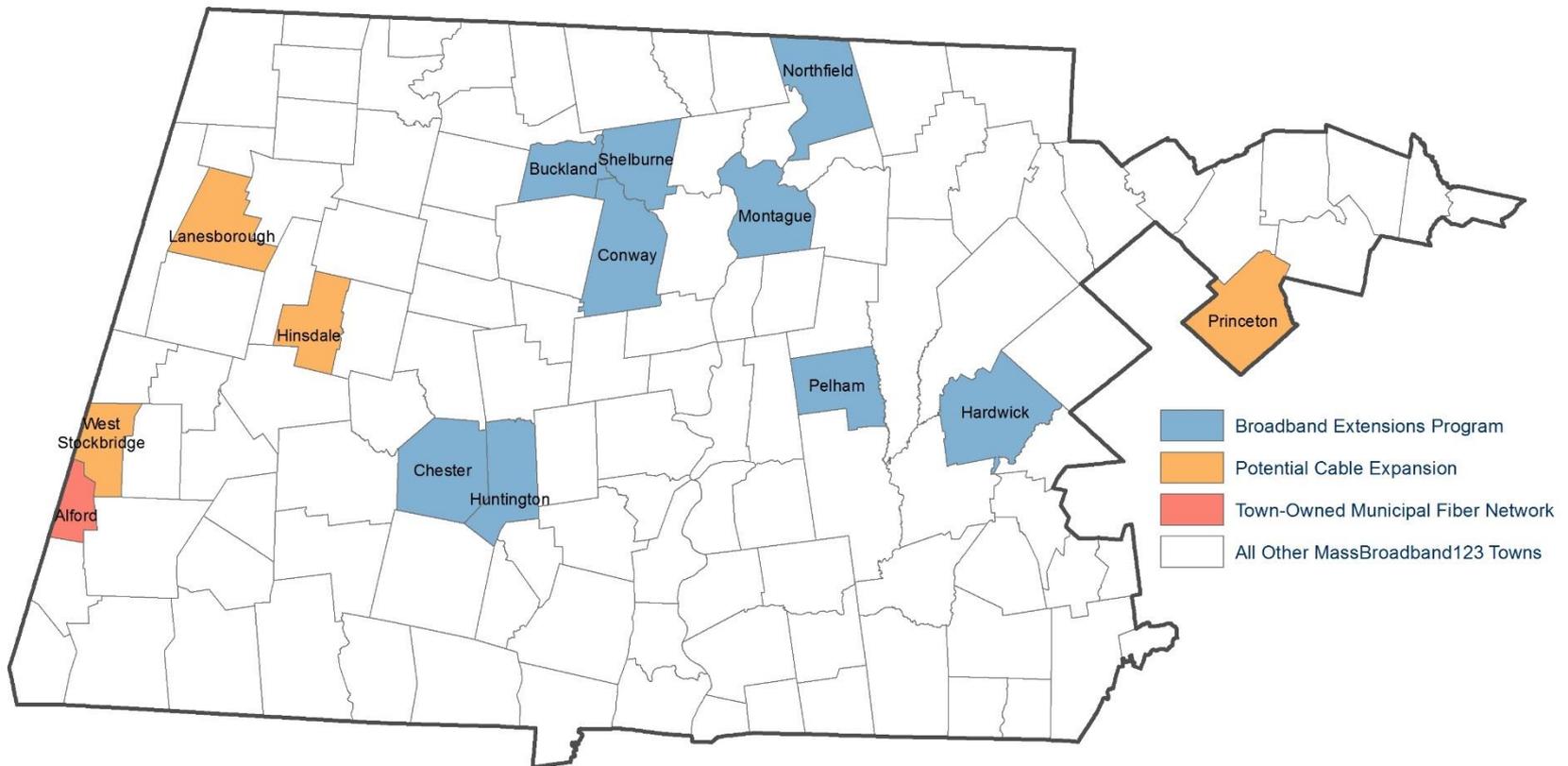
We are reaching out to providers about potential expansion:

Company	Comcast	Verizon	Charter	Frontier	Fairpoint	Mid Hudson	X5	Crocker	Hilltown Wireless	Holyoke G&E	Westfield G&E
HQ	Philadelphia, PA	New York, NY	Stamford, CT	Norwalk, CT	Charlotte, NC	Catskill, NY	Seattle, WA	Springfield, MA	Ashfield, MA	Holyoke, MA	Westfield, MA
CEO	Brian Roberts	Lowell McAdam	Tom Rutledge	Daniel McCarthy	Paul Sunu	James Reynolds	Greg Forrest	Matthew Crocker	Christopher Gray	James Lavelle, GM	Dan Howard, GM
CY 2015 Revenue	\$75 billion	\$131 billion	\$10 billion	\$5.5 billion	\$900 million		\$25 million			\$70 million	\$66 million
Number of Employees	153,000	177,000	25,000	19,000	2,700		50	50			Less than 30
Subscriptions Served	27 million	145 million	6.7 million	3.4 million	750,000	40,000					



Accelerating Progress

We want to move quickly and support sustainable broadband expansion projects that are vetted and ready. We are evaluating potential for an accelerated path forward for some projects:





Project Readiness

Using these models and available information, the MBI will develop and start posting individual readiness status reports for each town.

Example Readiness Elements Include:

Town Preferences and Actions

- Establish a Local Project Model Preference
- Take Local Actions: Bond Authorization and Debt Exclusion (if necessary)
- Establish MLP (if necessary)
- Establish Inter-Municipal Agreements (if necessary)

Financing and Funding

- Review MBI Cost and Sustainability Analyses
- Understand and Confirm Total Project Costs
- Examine and Pursue Funding Options
- Confirm and Review Financing Options with Financial Advisor and Bond Counsel
- Develop Financing Plan with Financial Advisor and Bond Counsel
- Local Borrowing Plan Endorsed by either DLS or USDA

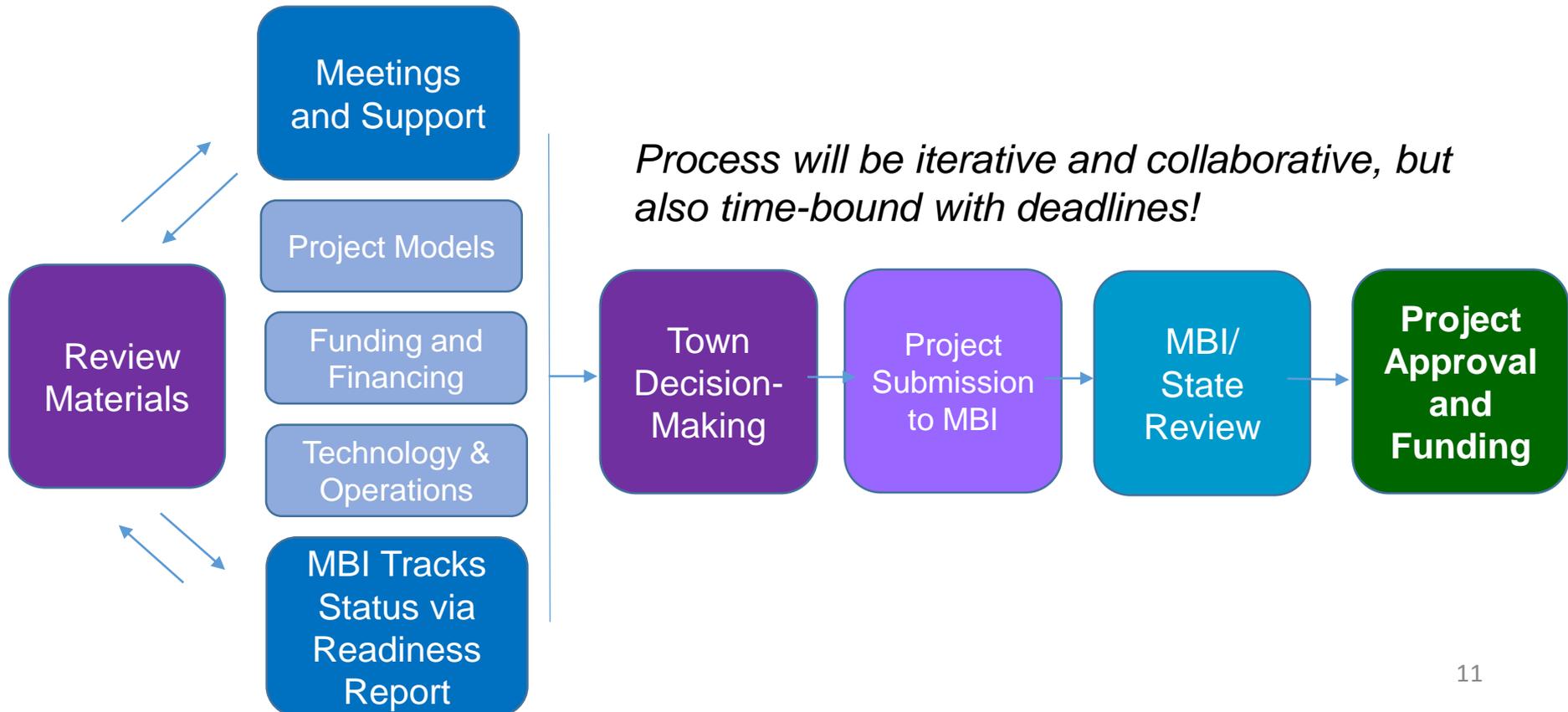
Project Details

- Review and Select Technology Options
- Review and Select Regional Collaboration Options
- Review and Select Operator/ISP
- Develop and Confirm a Sustainable Business Plan



How We Work Together

We are prepared to engage directly with each town individually or as collaboratives to support and review projects.





Appendix



List of Program Towns

Town	County
ALFORD	BERKSHIRE
ASHFIELD	FRANKLIN
BECKET	BERKSHIRE
BLANDFORD	HAMPDEN
BUCKLAND	FRANKLIN
CHARLEMONT	FRANKLIN
CHESTER	HAMPDEN
CHESTERFIELD	HAMPSHIRE
COLRAIN	FRANKLIN
CONWAY	FRANKLIN
CUMMINGTON	HAMPSHIRE
EGREMONT	BERKSHIRE
FLORIDA	BERKSHIRE
GOSHEN	HAMPSHIRE
HANCOCK	BERKSHIRE
HARDWICK	WORCESTER
HAWLEY	FRANKLIN
HEATH	FRANKLIN
HINSDALE	BERKSHIRE
HUNTINGTON	HAMPSHIRE
LANESBOROUGH	BERKSHIRE
LEVERETT	FRANKLIN
LEYDEN	FRANKLIN
MIDDLEFIELD	HAMPSHIRE
MONROE	FRANKLIN
MONTAGUE	FRANKLIN
MONTEREY	BERKSHIRE

Town	County
MONTGOMERY	HAMPDEN
MOUNT WASHINGTON	BERKSHIRE
NEW ASHFORD	BERKSHIRE
NEW BRAINTREE	WORCESTER
NEW MARLBOROUGH	BERKSHIRE
NEW SALEM	FRANKLIN
NORTHFIELD	FRANKLIN
OTIS	BERKSHIRE
PELHAM	HAMPSHIRE
PERU	BERKSHIRE
PETERSHAM	WORCESTER
PLAINFIELD	HAMPSHIRE
PRINCETON	WORCESTER
ROWE	FRANKLIN
ROYALSTON	WORCESTER
SANDISFIELD	BERKSHIRE
SAVOY	BERKSHIRE
SHELBURNE	FRANKLIN
SHUTESBURY	FRANKLIN
TOLLAND	HAMPDEN
TYRINGHAM	BERKSHIRE
WARWICK	FRANKLIN
WASHINGTON	BERKSHIRE
WENDELL	FRANKLIN
WEST STOCKBRIDGE	BERKSHIRE
WINDSOR	BERKSHIRE
WORTHINGTON	HAMPSHIRE



Model Examples

Town A: Expansion by Private Provider

- Ownership: The private party would own the network
- Operations: The private party would operate the network
- Financing: Likely a combination of state and private funding with a possibility for CAF II funding
- Technology: Fiber, Coax, or Wireless depending on provider
- Operating Considerations: Sustainability concerns would be minimized
- Challenges: Effectively incenting the private sector to invest with modest public investment

Town B: Extension of Existing Cable Infrastructure

- Ownership: Incumbent cable provider
- Operations: Incumbent cable provider under existing franchise agreement
- Financing: Likely a combination of state and private funding with a possibility for CAF II funding
- Technology: Likely the same as existing technology provider deploys in that town
- Operating Considerations: Minimal
- Challenges: Effectively incenting the private sector to invest with modest public investment

Town C: Multi-Municipal Network

- Ownership: Municipal
- Operations: Outsourced and based on consortium model
- Financing: Combination of state/MBI funds and municipal borrowing; unlikely availability for CAF II funds
- Technology: Fiber, wireless, or hybrid
- Operating Considerations: Emphasis on attaining broadband speeds with maximum coverage at affordable prices while focusing on long term sustainability
- Challenges: Fostering a flexible structure that will allow a town to exit with its assets

Town D: Independent Municipal Network

- Ownership: Municipality
- Operations: Outsourced
- Financing: Combination of state/MBI funds and municipal borrowing; unlikely availability for CAF II funds
- Technology: fiber or wireless
- Operating Considerations: emphasis on attaining broadband speeds with maximum coverage at affordable prices while focusing on long term sustainability
- Challenges: Achieving a sustainable network

Town E: Pilot Projects

- Ownership: Variable, but likely the applying municipality
- Operations: Variable, but preferably outsourced
- Financing: Variable depending on project
- Technology: Dependent on pilot program (wireless, fiber, hybrid, etc.)
- Operating Considerations: Ensuring that the pilot model will foster long term sustainability
- Challenges: Balancing the need to invest in new programs with a desire to be responsible stewards



Town Profile Example

From: Christine Hatch [<mailto:hatch@masstech.org>]
Sent: Wednesday, April 27, 2016 10:58 PM
To: Christine Hatch
Cc: Elizabeth Copeland
Subject: MBI Town Profiles

Hello Town Administrators, Select Board Members and Broadband Committee Members:

The Massachusetts Broadband Institute (MBI) has finalized and verified town profiles for all 44 unserved communities in Western and Central Massachusetts. While your town may have already received a profile from the MBI, we wanted to make sure each town had access to this information. The profiles include modeling for each town completed by the MBI which:

- Describes the construction costs for a fiber network and the associated likelihood of operating sustainability;
- Premise/household counts;
- Potential fiber-to-the home (FTTH) construction costs; and
- Potential property tax increases from local borrowing and operating sustainability information.

Also included with each profile is a map of the town with relevant data points including:

- Unserved locations;
- Existing *MassBroadband 123* network infrastructure and interconnection points; and
- Community anchor institutions connected to *MassBroadband 123*.

These profiles are available on the MBI website via a downloadable PDF document. Click here to access the file: [MBI Town Profiles](#) (PDF, 11 MB). If you have any questions or concerns regarding this research, feel free to contact me with your inquiry.

Kind Regards,
 Chris

Christine Hatch
 Outreach Manager
 Massachusetts Broadband Institute
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Alford: Town Financing Information

Financing Required		Town Status	
Projected Town Contribution	\$830,000	Vote	Action
Year 6 Debt Service @ 6% over 15 Years	\$65,000	Bond Authorization @ Town Meeting	Passed
2016 Total Assessed Value	\$273M	Debt Exclusion @ Town Election	Passed
Year 6 Debt Impact per mil	\$0.24		

Example Tax Bill Impact	
Assessed Property Value	Annual Property Tax Increase
\$110,000	\$36.30
\$250,000	\$89.40
\$500,000	\$178.90

Notes	
• 2016 Town Assessed Values from GIS Data Bank	
• Analysis scenario reflects:	
• Interest only payments in Years 1 & 2	
• Interest and partial principal payments in Years 3, 4 & 5	
• Issuance of bonds in Year 6	
• Amount borrowed is lower than net cost to town due to principal payback in Years 3, 4 & 5	
• Debt service payments remain level in Years 6, 20	
• Tax impacts can be influenced by changes in overall project costs, interest rates, home values and the town's total assessed value	
• Example Tax Bill Impact shows annual property tax impacts for the project	

Alford: Initial Model of Infrastructure & CAPEX

Fiber to the Home (FTTH) network enabling service to all homes in town. Costs include all capital required for the network, network equipment, and customer equipment needed to provide broadband service.

Infrastructure Components

Households Modeled*	322
Fiber Miles Modeled	25
Poles Modeled	605

* Approximate household locations from Experian

Capital Expenditures (CAPEX)

Estimated Total Network Cost	\$1,310,000
Construction Costs Funded by MBI	\$270,000
Professional Services Costs Funded by MBI	\$210,000
Projected Town Contribution	\$830,000

MBI Last Mile Town Profiles, Feb. 2016

Alford: Operating Expenditures (OPEX)

Profit & Loss (P&L) @ 60% Take Rate	
Households Modeled*	322
Subscribers Modeled	151
Entry Level Broadband Price	\$86
Average Revenue Per Unit (ARPU)**	\$109
Annual Revenue	\$198,000
Annual Operating Cost	\$148,000
Annual Profit	\$50,000

* Approximate household locations from Experian

Monthly Price Required for Basic Internet to Generate Profit of \$50,000 / year

40% Take Rate	\$128
60% Take Rate	\$86
75% Take Rate	\$69

Assumptions

- Fully outsourced model
- Costs include:
 - Depreciation reserves
 - Customer Premise Equipment (CPE)
 - Municipal Light Plant (MLP) ongoing operating expenses
- Costs exclude:
 - Debt service
 - Town administration
- Subscription assumptions (included in ARPU**):
 - Video breaks even at \$54/month and 10% of subscribers
 - Phone Cost of Goods Sold (COGS) of \$10/month, revenue of \$25/month and 40% of subscribers
 - 20% of subscribers selecting a higher speed and higher priced internet package
 - 33% of households modeled are seasonal premises occupied for an average of 4 complete months/year

MBI Last Mile Town Profiles, Feb. 2016