

Mahoosuc Community Broadband Committee

Progress Report & Recommendations – April 2022

The Mahoosuc Community Broadband Committee is pleased to provide an update on its work since the last convening of the town select boards heard a presentation by Casco Bay Advisors on its report for the seven-community region. This report is organized into three sections plus two technical appendices:

- Section I – Context and charge from the selectboards
- Section II – Summary of proposals received and committee analysis
- Section III – Recommendations and proposed next steps
- Appendix A – Side-by side analysis of Internet Service Providers’ (ISP) proposals received to date
- Appendix B – Definition/Explanation of terms

SECTION I – Context and Charge from the Selectboards

The Mahoosuc Community Broadband Committee first approached the towns of Woodstock, Greenwood, Bethel, Newry and Oxford County in winter 2021 to open formal discussions about the need and opportunity to take steps to expand high speed internet service. The Committee had been working for six months at that point to familiarize itself with the issue, survey local residents, and conduct speed testing.

Based on that first round of engagement, each participating town and Oxford County (on behalf of the unorganized territories of Albany Township and Milton Plantation) adopted the shared goal: ensuring that everyone in the Mahoosuc region has access to reliable, affordable, high speed, and future-ready internet service.

Each participating community and the County also allocated funding to support contracted mapping and strategy development to guide work toward this goal. The results of that work are contained in the August 2021 Mahoosuc Broadband Planning Report from Casco Bay Advisor (CBA).

Based on this foundation of work, the towns tasked the Committee with gathering and analyzing proposals from Internet Service Providers (ISPs) and producing a set of recommended next steps. In addition to technical review elements, the analysis process was informed by the following basic questions:

- What is it going to cost towns?
- How likely will we be to get grant funding to cover that cost?
- How soon can the project start?
- When will it be done?
- Is there an opportunity for the towns to generate revenue from the approach?

SECTION II – SUMMARY OF PROPOSALS RECEIVED AND COMMITTEE ANALYSIS

Since September the Committee’s work has focused primarily on evaluation of proposals from ISPs to implement the strategies outlined in the Casco Bay Advisors report. The Committee has also engaged in modest community outreach and engagement activities which will be addressed in more detail in

Section III – Recommendations and Proposed Next Steps. Strategic approaches and proposals evaluated by the Committee can be grouped into three categories:

1) Expand Existing Private ISP Networks – Strategies A and B in the CBA report focused on working with existing (incumbent) ISPs to expand service to unserved and underserved areas. For analysis purposes, we refer to these collectively as Expand Existing Private ISP Networks:

- *Strategy "A" - Partner with First Light & Spectrum excluding existing Fiber To The Home (FTTH) & community antenna television or cable TV (CATV) areas*
- *Strategy "B" - Partner with FirstLight excluding existing FTTH areas*

2) Broadband Utility District – Strategies C and D in the CBA report focused on creation of a public or municipally owned fiber to the home (FTTH) network. For analysis purposes, we've grouped these as Broadband Utility District (BUD):

- *Strategy "C" - Town-owned excluding existing FTTH*
- *Strategy "D" - All new Town-wide / Town-owned FTTH including existing FTTH*

3) Fixed Wireless – Though it wasn't included in the 2021 CBA report, in light of new technology with the potential of overcoming traditional shortcomings, the Committee also looked into a Fixed Wireless approach to broadband service expansion.

Following is the Committee's high-level assessment of each of the strategies Casco Bay Advisors outlined in its report as well as a wireless approach to expanding high speed internet service. The Committee heard presentations and received preliminary proposals from the incumbent internet service providers in the area – Charter/Spectrum and FirstLight – and from Maine-based GWI and Redzone Wireless.

Expand Existing Private ISP Networks

The Committee began its assessment by focusing on Strategies A and B and requesting proposals from incumbent internet service providers – Charter/Spectrum and FirstLight. While this was the approach favored by participating select boards based on the CBA report, overall the Committee was disappointed by the proposals from these providers.

Charter/Spectrum: Charter's proposal would install new fiber networks into currently unserved areas but leave subscribers that currently have Charter's service with Ethernet passive optical network (EPON) or older cable technology connections. This approach would essentially perpetuate the situation that currently exists with some residents being served by old technology (not future ready) and other residents being served by new technology. Furthermore, Charter has indicated that it will not apply for ConnectMaine funding which eliminates a grant funding source from consideration and would require a multi-million dollar investment by participating communities. If selected, Charter would not begin construction for 20 months – nearly 2 years.

Conclusion: The Committee's assessment is that the combination of timing, leaving much of the area without future-ready technology, and Charter's unwillingness to participate in state grant funding programs eliminate this option from consideration.

FirstLight: Partnering with FirstLight seemed like the most viable option based on the CBA report. However, the Committee was disappointed and frustrated by FirstLight's lack of responsiveness and in

the quality of its proposals. After several months of delay FirstLight submitted a proposal in January that would result in fiber to the home (FTTH) service throughout the service area. FirstLight's approach assigns responsibility for 75% of the project cost to the towns, and it assumes only 25% of the project cost. The state funding agency, ConnectMaine, will not currently accept an infrastructure application from FirstLight because it has not fulfilled previous grant reporting requirements. FirstLight has expressed a willingness to comply with ConnectMaine's data requirements so that it can apply for future grants, but eligibility remains in question.

They also have been expanding their fiber network in Woodstock and indicated plans to install fiber to the home on Route 5 and adjacent roads in Albany Township in the coming weeks and months. FirstLight has recently expressed interest in further discussion with the Committee.

Conclusion: The Committee's assessment is that consideration for further expansion of FirstLight's fiber network should remain a viable option despite its lack of responsiveness and poor-quality proposals. The Committee proposes pursuing additional conversations with FirstLight for fiber expansion and tracking its efforts to become eligible for state and federal grants.

Broadband Utility District: Strategies C and D from the CBA report would both involve forming a Broadband Utility District (BUD) to build, own, and operate a FTTH network serving the Mahoosuc region. While this approach was not a priority for the select boards based on the CBA report, given the disappointing response from incumbent ISPs and promising funding and grant opportunities for a utility, the Committee decided to explore this in the spirit of due diligence.

The Committee conducted a two-part assessment of this approach. First, the Committee asked CBA to produce a more detailed analysis of this strategy – looking beyond the up-front construction costs presented in the original report to consider both contracted operating expenses and revenue streams over time. CBA's analysis confirmed the Committee's understanding that construction, operations, and maintenance would be contracted with an outside technical partner – not managed by the towns themselves. In addition to grant funds, the model presented by CBA did include modest increases in local taxes. It further incorporated income streams from subscribers which pointed to a positive net revenue position by year three of operations. While still hypothetical, the CBA analysis helped the Committee fully understand the BUD model and sparked interest in further exploration.

Following the presentation from CBA the Committee invited a proposal and presentation from GWI – a Maine-based ISP with extensive experience building and operating its own private networks as well as Broadband Utility Districts (i.e., Communication Union Districts) in Vermont. GWI's proposed approach would build a new FTTH network serving the entire Mahoosuc region – including currently served areas. This approach would involve creation of an independent, nonprofit BUD with its own governance structure and the legal authority to secure state and federal grants and to float revenue bonds which would be repaid with income from subscriber fees. The BUD would have no taxing authority. As presented, this financing approach would require little to no direct investment by the towns beyond the upfront legal fees to create the BUD. The BUD network would be open access with at least two providers to ensure competition even in currently unserved areas. The network would be locally owned, and once the revenue bonds are paid off, would generate surplus income to be used to keep rates low and/or returned to the towns. Once the BUD is formed, GWI would assume responsibility for all network construction, operation, and maintenance. As an independent, nonprofit entity, the BUD would carry all

legal liability related to ownership and management of the network. Although a utility has the highest overall cost to towns, it is best positioned for funding support, such as grants and revenue bonds and user fees, making it likely the approach that actually costs the towns the least over time

Conclusion: The Committee was impressed by GWI's proposal which would result in a locally owned FTTH network serving the entire area, take advantage of grant funding and revenue bonds to minimize town expenses, and ensure service competition throughout the region. While still wary of the work required and related local capacity, the Committee recommends further detailed assessment of this approach, including carefully reviewing GWI's full proposal for a utility district and evaluating the viability, risk and difficulty of this approach.

Fixed Wireless – RedZone: Fixed wireless uses radio transmitters mounted on existing communication towers to broadcast a wireless internet signal directly to homes – basically a large-scale version of wireless service in homes and offices. Fixed wireless is not cell phone service.

Verizon and T-Mobile are aggressively deploying fixed wireless access (FWA) as an alternative to fixed-line broadband. For residents who have a line of sight to a cell tower with this equipment, this is an option for receiving internet service, but it does not deliver universal service.

As noted above fixed wireless technology was not included in the original CBA report because of long-recognized challenges with signal interference by hills and trees. A new transmission technology from a firm called Tarana has demonstrated potential to overcome these challenges and is being offered by Maine-based RedZone Wireless.

The Committee invited a preliminary proposal and presentation by Redzone for using the new Tarana equipment to provide broadband in the Mahoosuc region. The Committee was impressed by Redzone's presentation which proposes installation costs far below the fiber networks and a rapid installation timeline – with initial service available within 30 days of start and the full network complete in 12 months. While cost and timing factors are attractive, the Tarana equipment does not have an extensive track record – with the first town-wide system in Maine expected to come online in Litchfield early this summer.

Conclusion: The Committee's assessment is that while fixed wireless costs and timing factors are compelling, significant questions remain about the reliability of the new technology in a mountainous, forested area like the Mahoosuc region. Given the potential cost and time savings, the Committee feels this option is worth actively tracking as Redzone rolls out the product in Litchfield and the state evaluates the new technology to determine eligibility for grant funding and where it can be deployed most effectively.

SECTION III – RECOMMENDATIONS & NEXT STEPS

Based on the analysis summarized above in Section II, the Committee presents the following near-term recommendations for expanding broadband in the Mahoosuc region. These recommendations are grounded by a commitment to the shared goal adopted by participating communities of ensuring everyone in the Mahoosuc region has access to reliable, affordable, high speed, and future-ready internet service.

1. **Conduct Due Diligence on a Broadband Utility District for the Mahoosuc area.** Work with Casco Bay Advisors, GWI, the Maine Connectivity Authority and others as needed to evaluate up front feasibility and long-term sustainability of an independent Broadband Utility District to serve the area. The Committee will implement a three-month due diligence process addressing the following issues:
 - A. Organizational Structure
 - B. Funding
 - i. Estimated grant funding amount
 - o Estimated grant funding expected
 - o Estimated matching funds needed
 - ii. Estimated revenue bond funding amount
 - iii. How much funding can be raised using revenue bonds without first establishing a revenue stream?
 - iv. If grant/revenue bond funding is not sufficient for an immediate build-out to all areas, what other sources of funding can fill the gap?
 - C. Schedule
 - i. Define overall project timeline.
 - ii. If complete funding is not available from the start, how will unserved areas be prioritized and what is the impact on the overall schedule.
 - D. Sustainability
 - i. What take-rate is required over what period of time to operate the utility with sufficient cash flow to maintain operations and comfortably service the debt.

2. **Actively support and track evaluation of Redzone’s new Tarana fixed wireless technology with a special focus on its ability to provide service to unserved and hard to reach locations.** This includes tracking results of planned network activation in Litchfield and work by the Maine Connectivity Authority to assess the technology’s effectiveness, reliability, durability, and eligibility for state grant funding.

3. **Track activity by Charter and FirstLight to expand existing cable and fiber networks and actively engage FirstLight in discussions about its expansion plans in the region and partnership opportunities.** Any ongoing buildout by existing ISPs will influence strategy and financing related to other approaches.

4. **Secure additional match funding to demonstrate community commitment and limit reliance on state grants and revenue bonds**
 - A. *Formally Commit American Rescue Plan Act funds.* Include a warrant article for approval at town meetings to formally allocate ARPA funds for broadband. These funds will serve as match for state grants, help minimize debt funding, and serve as a pledge of good faith to GWI that the towns have skin in the game and are serious partners. Bethel, Greenwood, Newry and Woodstock have dedicated their ARPA funds for broadband expansion and combined their funds total \$520,000. Gilead has not followed suit and the County has not expressed a willingness to allocate any of its ARPA funds on behalf of Albany and Milton. A formal written request for \$60,000 from the County’s ARPA allocation was submitted for Albany and Milton and is on hold as the County Commissioners assess the costs of priority projects.

5. Implement a Robust Outreach and Community Engagement Campaign

The Committee has already laid the groundwork and begun community outreach and engagement. We have established a regular monthly column in the Bethel Citizen, created an information portal on the Maine West website to provide public access to reports and meeting notes, and produced a series of videos that focus on the importance of broadband for telehealth, education, community well-being and business development. We propose the following activities to build public support for broadband expansion generally and understanding of the Broadband Utility District concept:

- A. Continue monthly columns/articles in the Bethel Citizen.
- B. Distribute the new broadband videos widely through public access television, Town Facebook pages, the Mahoosuc Broadband Committee webpage and other means.
- C. Conduct a series of public forums to explain the Committee's work and its recommendations and respond to questions from area residents. We anticipate at least two rounds of public forums as work to create the BUD proceeds. In addition to open public forums, community organizations, including Rotary, Senior College and Age Friendly Community, SAD44 School Board, Bethel Chamber, will be targeted for presentations as well.

Respectfully submitted by the Mahoosuc Community Broadband Committee:

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Appendix A – Side-by-Side Analysis of ISP Proposals Received to Date

Following is a comparison of the providers’ proposals using the Committee’s goal -- Everyone in the Mahoosuc region has access to reliable, affordable, high-speed and future-ready internet service – as a benchmark for comparing them. The colors represent **Good**, **Fair** and **Poor**.

	Charter/Spectrum	FirstLight	GWI	Redzone
Universal service , especially unserved <50/10 Mbps = 1,736 locations, 5,531 = all locations	Some locations but not all = 1630 locations or passings Does not include Milton Pltn	Some locations but not all = 4295 locations	All locations	All locations
Affordability Speeds and Subscription rates	100/10 Mbps \$74.99 400/20 Mbps \$94.99	30/30 Mbps \$49.99 50/50 \$59.99 100/100 \$69.99 200/200 \$99.99 400/400 \$159.99 1/1 Gbps \$299.99	125/125 Mbps \$60 250/250 Mbps \$70 500/500 Mbps \$80 900/900 Mbps \$90	100/20 Mbps \$50 100/100 Mbps \$79 500/100 Mbps \$99
Installation Charge	\$50	\$100	None	\$100
Future-ready Technology	Older cable technology plus some fiber	Fiber	Fiber	Fixed wireless with new equipment (Tarana)
Low-cost option for income eligible customers	Yes	Yes	Yes	Yes
Applying for ConnectMaine / MCA grants	Not participating	Not in good standing and taking steps to become eligible again	Yes	Yes
Total estimated build out cost / ISP’s share or other funding	\$6,429,719 Charter share = \$3,260,000	\$9,653,838 FirstLight’s share = \$2,413,459	\$14,663,028, \$8.5 million (58%) in revenue bonds	\$4,306,500 + \$10,000 for radio network planning
Town Share / Grant Funding	Town share = \$3,169,720 (49%)	Town/Grant share = \$7,240,379 (75%)	Town/Grant share = \$6,163,028 (42%)	To Be Determined
Timeframe for construction	20 Months to begin construction	To be determined	28 months from when the utility district is created to build out FTTH to unserved and underserved locations	Begin in 30 days, complete in 12 months and begin activating in 90 days.
Can generate revenue	No	No	Yes	No
Eligible for revenue bonds	No	No	Yes	No

Appendix B – Definitions/Explanation of Terms

Universal service. The Committee's intention is to make internet service available to everyone who wants it, including the 173 locations that the Casco Bay Advisors report identified as off grid and uneconomic. These locations by definition are more expensive to provide service to, which raises questions. Who covers the additional cost to connect these locations? How is internet service provided to these locations?

Affordable service. Affordable is a relative term. The cost of internet service is connected with upload and download speeds. The faster the speeds are the more internet service costs. Since it is likely that the Mahoosuc region will apply for grant funding, it is useful to consider the speed requirements of the major grant funding sources and cross reference them with the speeds and associated costs of the providers the Committee has spoken with. The ConnectMaine Authority and the American Rescue Plan Act require or recommend that funds be allocated for projects that provide access to a connection that meets or exceeds symmetrical 100 Mbps. The Infrastructure Investment and Jobs Act states that projects must provide speeds of at least 100/20 Mbps. GWI and FirstLight are the only providers that offer symmetrical 100 Mbps speeds for \$60 and \$70 per month, respectively. FirstLight offers internet service at 30/30 Mbps for \$50 per month, and Redzone offers 100/20 Mbps for \$50 per month.

All of the providers the Committee has spoken with are participating in the Affordable Connectivity Program which was passed by Congress last year to provide income-eligible people with a \$30 subsidy for their monthly cell phone or internet service bill.

Future-ready. Like affordable, future-ready is a relative term. For something to be future-proof or future-ready, it must retain value into the distant future and not become obsolete. In particular, it should be able to keep up with demand for and deliver faster speeds over time. The Committee's intention in including it in its goal is the technology that is deployed should last for 20+ years and not need to be replaced.

Reliable. The Committee wants to ensure that children can access the internet at home to do their homework, telehealth is available to everyone who needs it, businesses can use the applications and software they need to operate without service slowing down, dropping off or otherwise being unavailable when it is needed.