

Broadband blues?

Fiber-optic and wireless solutions are on the horizon

By Tom Ayres
Senior Staff Writer

On Town Meeting Day in 2008, 24 towns in east-central Vermont, many of them Upper Valley communities, voted overwhelmingly to join ECFiber, the nascent internet service provider (ISP) that was determined to bring fiber-optic broadband technology to the rural communities.

Broadly speaking, broadband (or internet) comes in two forms — via a hard-wired line or through the air, wirelessly, via a cell tower. Steeped in a Vermont tradition of self-reliance that dated back to the days of electric and telephone cooperatives in the mid-20th Century, towns throughout the region reached out to wireless ISPs for help, only to find that wireless technology proved unsatisfactory in hilly, wooded terrain.

Fast forward 15 years and the ECFiber network now encompasses 31 largely rural towns, including Barnard, Hartford, Pomfret, Reading, West Windsor, and Woodstock. The ISP is now one of 10 Communications Union Districts (CUDs) in the state, organized under the umbrella of the Vermont Department of Public Service (VDPS). A CUD is an organization of two or more towns that join together as a common entity to build telecommunications infrastructure together.

ECFiber has made solid strides in bringing broadband connectivity — and, simultaneously, improved cellular phone service — to rural Vermont communities, as have the other nine CUDs in the state.

But there is still a lot of work to be done. While broadband and telecommunications problems are easing, however slowly, they remain persistent in many parts of the Upper Valley and beyond. Solutions to bringing universal broadband access — and, consequently, consistently reliable cell phone service — to Vermont will require concerted collaboration between regulators, federal, state, and local governments, CUDs, large cellular service providers such as AT&T and Verizon, private investors, and both wired and wireless broadband users. Integra-



Fifty-foot-tall, small-scale cell towers such as this one could be critical to providing reliable, readily accessible cell phone service to underserved areas in rural Vermont. Strategically placed, the relay towers can significantly impact the “shadowing” effects of Vermont’s mountains and forests that cause cell phone signals to drop or be inaccessible in many rural settings. Courtesy of Easy Street Systems

tion is key and substantial funding is essential if underserved rural communities are to receive the multitudinous benefits of broadband

time political rival — former Vermont Electric Cooperative CEO Christine Hallquist — to lead the VCBB as its executive director. Hallquist

for the big providers, so we’re trying to get 100-percent grant funding for all the infrastructure to reduce the costs for the consumer.

so we’re trying to chase down some additional funds as well.”

Garnering the federal grant from the National Telecommunications and Information Administration (NTIA) nonetheless remains a top priority for the VCBB this year, according to Herryn Herzog, the broadband board’s communications and outreach coordinator. Hallquist and other broadband advocates last week began talking with legislators at the State House in Montpelier, encouraging them to include \$30 million in this year’s state Budget Adjustment Act to provide a required state match for the potential NTIA funding. “The match must be secured as of the time of the awarding, which is anticipated in March,” VCBB officials told legislators during a presentation last week. “If the grant is

“And third,” the VCBB executive continued, “it’s important that we maximize the positive social impacts of these investments. If you look at the people who are not connected, they are typically low-income people. They’re constantly put at a disadvantage because they are on the wrong side of the digital divide, so they aren’t participating in telemedicine, they aren’t participating in remote learning, they’re missing out on a lot of social activities and connection.”

Hallquist and her VCBB colleagues, in collaboration with CUDs such as ECFiber, are building what the telecommunications industry veteran terms “a middle mile ring network” — a 1,663-mile-long fiber-optic network designed to bring internet connectivity to every corner of the state by 2028. “We’ve applied for a \$114 million [federal] grant to build the network. Even if we don’t get it, we’re going to build the network,

“Our mission breaks into three things. One is to get everybody connected to fiber-optic broadband. We have a plan and we believe we have the funding stream to get that done within the next five years.”

— Vermont Community Broadband Board Executive Director Christine Hallquist

not awarded, the funds will be used to leverage other federal dollars or programs to reduce the overall cost of universal broadband,” the VCBB presenters continued.

“It’s a good use of state money for many reasons,” Herzog, the VCBB communications specialist, offered on Monday. “It’s a pretty good return on investment.” Hallquist and Herzog both said that the potential state and federal funding would reduce borrowing and financing costs for the “middle mile” effort, lower bulk data delivery costs, assure the resiliency and redundancy of rural broadband networks, benefit all ISP providers, large and small, and reduce end costs to consumers.

Turning to the topic of the intersection between fiber-optic broadband and wireless cellular phone service last week, Hallquist called the two “totally integrated. You’ve got to have a fiber backhaul for cellular. With the Mac Mountain solution, what they’re looking at is a nice overlay to a ubiquitous fiber network. Because the problem we have today with cell coverage is that Vermont is mountainous and it has a lot of trees. The more you go for higher data speeds [via wireless technology], the more penetrating the trees becomes a problem in the summer. But our biggest problem right now is the [signal] shadowing caused by our hills and mountains.”

A potential solution: Small-cell technology

Mac Mountain is a newly formed company that hopes to utilize so-called “small-cell” technology — highly localized, 50-foot-tall, pole-top cell towers, thoughtfully located throughout the nooks and crannies of underserved rural areas to relay cellular communications, countering the signal dropout and shadowing effects of Vermont’s forested, hilly, and mountainous terrain.

The prime mover behind getting the Mac Mountain concept going — and the tech start-up’s primary investor at this juncture — is a veteran telecommunications and fiber optic entrepreneur. Boston Omaha Corporation Co-CEO Alex Rozek, a part-time resident of Woodstock since 2018, relocated to the area with his family full-time at the height of the pandemic two

years ago. Last September, Rozek recruited a longtime colleague from Boston, strategic investment and wealth

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In a role that is wholly independent from his service to the town, Woodstock Police Chief Robbie Blish is serving as a consultant to Mac Mountain, the new, Vermont-based tech company that hopes to develop a statewide network of “small-cell” towers aimed at bringing reliable, universal cell phone coverage to rural Vermonters. Blish’s expertise in emergency response and preparedness is assisting Mac Mountain in making siting decisions for its proposed cellular relay towers in the state and region.

Courtesy of Mac Mountain

access: telehealth care, remote learning opportunities for students, high-speed internet connectivity for businesses, entrepreneurs, and work-at-home employees, greatly improved emergency services and connections to first responders, and reliable, everyday cell phone service for everyone, everywhere.

Here’s a look at the present broadband landscape in Vermont, focusing on the government entities, private sector initiatives, and legislative and funding strategies that are coming to the fore in the year ahead.

The Vermont Community Broadband Board

The Vermont Community Broadband Board (VCBB) was established by the State Legislature via Act 71 in 2021 and is charged with facilitating accelerated community broadband development throughout the state. Gov. Phil Scott named a one-

and her staff, guided by a group of five board members named by the governor and legislators and administered through the VDPS, have leapt into the broadband fray with passion and purpose. Funding strategies — and identifying those rural pockets with the most significant broadband deficiencies — are a top priority in the coming months.

“Our mission breaks into three things,” Hallquist said last week. “One is to get everybody connected to fiber-optic broadband. We have a plan and we believe we have the funding stream to get that done within the next five years. The second part of our mission is to make broadband affordable. Because the private telecom providers have kind of cherry-picked all the best areas, it’s pretty expensive to serve those rural areas where there’s no financial incentive



Communications Union Districts (CUDs) throughout the state are collaborating with the Vermont Community Broadband Board under the auspices of the Vermont Department of Public Service to roll out and install a 1,663-mile-long fiber-optic broadband network designed to bring internet connectivity to every corner of the state by 2028. Courtesy of Lamoille FiberNet

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management advisor Sydney Atkins, who together with her wife Caroline owns and operates the Mountain Inn and Killington Distillery in Killington, to lead Mac Mountain as the chief executive officer. Rozek, recognizing the critical importance of reliable cell coverage in rural areas, especially for emergency communications, also reached out to Woodstock Police Chief Robbie Blish through a mutual friend, asking Blish to serve in an advisory capacity to Mac Mountain.

At the heart of Mac Mountain's effort is determining where to locate its small-cell towers — and then convincing giant cellular service providers such as AT&T and Verizon to lease space on those towers to relay signals through areas where the big providers' massive ridgetop towers can't reach or where the services have deemed it not economically viable to serve.

"Given that we want to have carrier-neutral equipment, that's where we're asking the state to pay," Atkins said last week regarding Mac Mountain's financial strategy. "We're asking the state to make the capital expenditure for these carrier-neutral radios and we'll

put in the private capital to design, build, and operate the poles on an ongoing basis. Hopefully, if the state can put forward those funds to own the equipment, we can appeal to multiple carriers and build a more powerful and effective network," she added. "I spent some time at the State House last week to lay the groundwork and have some necessary conversations to hopefully have some of the state budget roll down not just to fiber, but to wireless as well."

Atkins next addressed site issues, referencing the import of Blish's role as an advisor to Mac Mountain, a position that is wholly independent of and not tied to the longtime law enforcement and emergency response professional's role as the Woodstock police chief. "I think it's an interesting perspective that a lot of folks in the state think it's fiber, fiber, fiber that's the solution. But we say let's have our cake and eat it, too. We have this situation where we're laying such critical infrastructure to give business and residential accessibility and hopefully we can do what we can on the wireless side to complement what's happening on the fiber side to make our roadways and communities safer, for



The Vermont Community Broadband Board is seeking \$30 million in state funding to leverage a potential \$114 million federal grant that will help enable construction of a 1,663-mile-long fiber-optic broadband network serving many of the most rural parts of the state.

Courtesy of NW Fiberworks

telehealth, for education, for economic development.

"When you look at the data for where to locate cell towers and where there are areas of greatest need, the large carriers are primarily using census data — and they're not going to go somewhere where they perceive that no one will be using their network," Atkins continued. "That's where Robbie [Blish] has been a brainchild. He put on his emergency services cap and

said let's layer traffic, crash data, school locations — all of that — on top of the FCC [broadband] maps and let's see what happens. You start to see a lot of patterns in places, for example, where a school might exist." Cell phone usage goes up in such instances, Atkins explained, because while a school is in a rural locale, parents and staff are driving past the site multiple times a day, reducing the cost per cell call markedly with the assistance

of a nearby, small-cell tower. Not surprisingly, given its connections to Rozek, Blish, and Mac Mountain Director of Community Relations Shanna O'Berry, who also lives in Woodstock, the emerging company hopes to stage three pilot tests of its small-cell tower technology in Woodstock and Pomfret this summer. The 50-foot-tall towers are slated to be installed at the South Woodstock Fire Station, on private property at Chip Kendall's family farm on Kendall Road, also in South Woodstock, and at the Saskadena Six Ski Area in Pomfret.

"We have to start somewhere," Atkins said of the pilot effort. "We're putting our own money up to do this. We've decided to scope this. These three locations reflect a fire department, one public service facility, a private company — in that Saskadena Six is run by the Woodstock Inn & Resort, and a private residence. It gives us a great sample set and geographically it works

well within the local topography."

Atkins concluded that Mac Mountain hopes to begin installing the Woodstock-area test towers in the late spring. "We're in conversations with the big carriers to determine that they'll show up. If we can get even one carrier to say that they'll sign on, we'll go ahead — but we're not going to build these on spec without a commitment. Once we have that, we'll start the permitting process, which is expected to take 120 days," the Mac Mountain CEO explained. "On an ideal timeline, we're hoping we can break ground on the pilots in late May or early June, and hopefully begin collecting some really valuable data."

"In the meantime," Atkins concluded, "we're hopeful that the carriers will come on board and that the state of Vermont comes to see this as a solution. Finally, they have a solution. Right now, there is no solution for wireless on the table."

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were born in Vermont during the past two years, simply because I did not ask.

There is a new girl, Savannah Ruby Churchill, daughter of Brieonna May Bassette of North Hartland, who was born on January 11, 2023 in Randolph. Welcome to the world Savannah!

Since the new year began, I have successfully trapped one red squirrel and two wood mice. The other red squirrel has been spreading sunflower seeds all over the front porch. It's Okay with me as long as he stays out of the house. That's when I will start setting traps and expect to catch him.

If it is not already too late to reserve a meal at the Famous Roast Beef Suppers on Jan. 28 and Feb. 4, here are the phone numbers: 802-738-006 and 802-432-8504. Call

to reserve a meal and a time. Cost is \$20 for adults and \$10 for children.

From my collection of Bad Puns: "I'm trying to organize a hide and seek tournament, but good players are really hard to find."

From the Indian Hills Community Center: "Resolutions—In one year and out the other."

Quote of the week: "The Future is something which everyone reaches at the rate of sixty minutes an hour, whatever he does, whoever he is." The Screwtape Letters [1941] C.S. Lewis (1898–1963) Clive Staples Lewis was a British writer and Anglican lay theologian. He held academic positions in English literature at both Oxford University and Cambridge University.



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