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Editorial • Commentary • Business News • Real Estate

Solutions on the horizon for broadband, cell connectivity issues

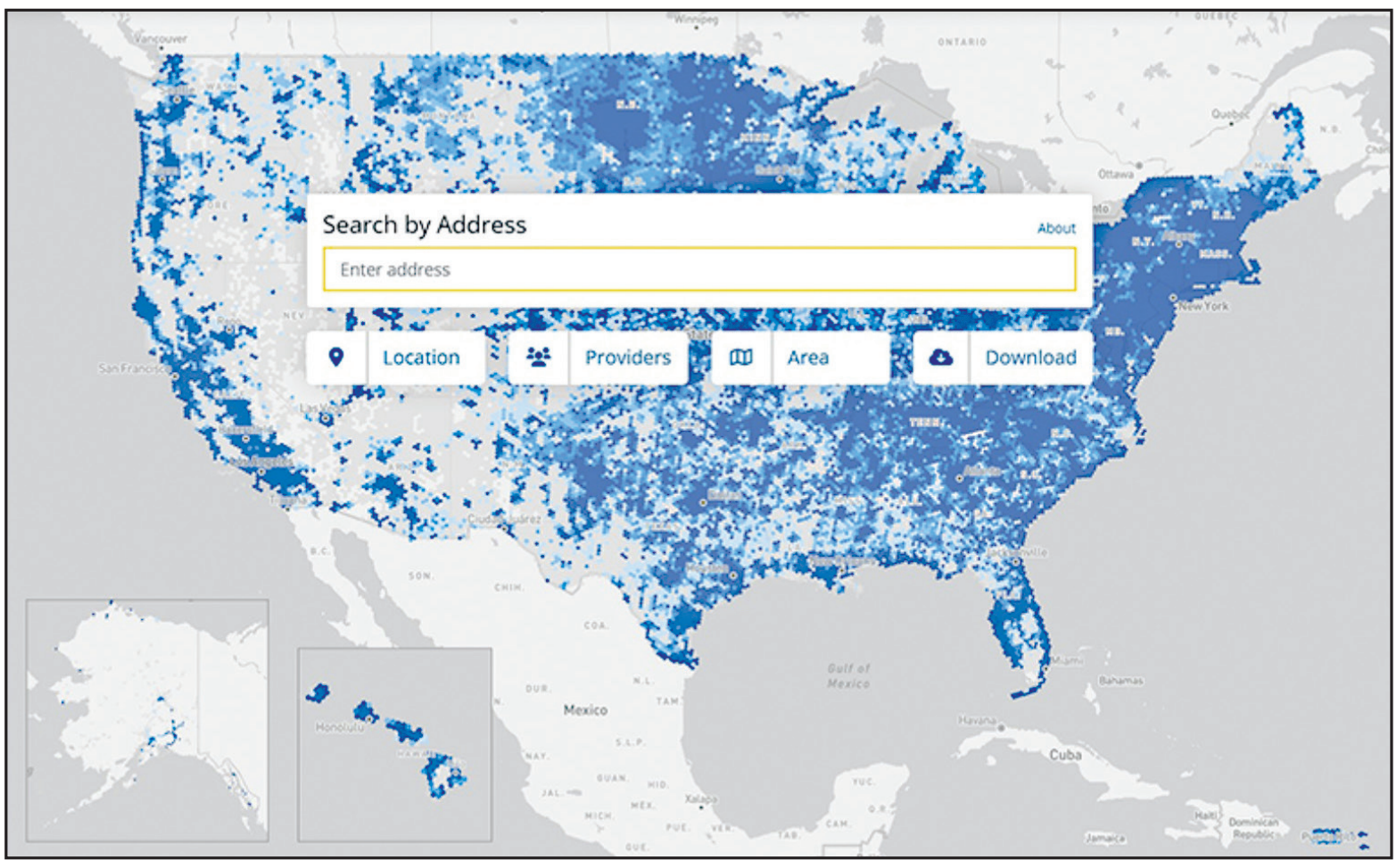
By Tom Ayres
Senior Staff Writer

This is the first in a two-part series on broadband and cell phone connectivity issues faced by many residents in our area.

You've just hit a moose on a rural road somewhere in the Upper Valley. Your car is totaled. You may have whiplash and a concussion from having struck your head forcefully, despite wearing a seat belt. You have zero bars on your cell phone and are unable to contact emergency services.

Or you have a child at home during the pandemic and access to remote learning via broadband is problematic at best and non-existent at worst without traveling to the nearest library or another public location. Perhaps you yourself are a first responder, reaching the scene of a late-night, head-on collision somewhere in Barnard, Plymouth, or South Woodstock, only to find that both cell phone and radio connections back to the police and rescue squad building or the nearest hospital emergency room are hampered by an inability to connect with a cell phone or relay tower. Or maybe you're a work-from-home techie or entrepreneur engrossed in a new business start-up, exasperated by the lack of reliable broadband capability at your home. Your problem might even be as mundane as being unable to connect with home from the supermarket when you have a question about the family shopping list.

We've all been there — increasingly frustrated and unable to get beyond it because both broadband and cell phone service are so unreliable amidst the more sparsely populated hills and dales of the Green Mountain State, including many parts of the Upper Valley.



Pictured above is the Federal Communications Commission's National Broadband Map, which Vermonters can assess and critique at fcc.gov/broadbanddata/consumers. Data from the map will be used later this year to drive funding decisions to states from a pool of $37.1 billion dollars available through the federal Broadband Equity, Access and Deployment (BEAD) initiative. Photo Provided

Broadly speaking, broadband (or internet) comes in two forms — via a hard-wired line or "over the air" via a cell tower. Broadband and cell phone connectivity issues are integrally connected — technically, economically, socially, and politically. They've been matters of great concern — particularly in underserved, disconnected, and economically challenged communities in rural parts of Vermont — for the better part of two decades now. The issues have been front-and-center in each gubernatorial race and at the outset of each session of the State Legislature since former Vermont Gov. Jim Douglas took office 20 years ago in 2003. Broadband and cell phone issues will once again be top-of-the-agenda items at the State House in Montpelier this year.

Advocates for high-speed, fiber-optic internet access and universal cell phone connectivity say it is going to take a highly collaborative, well-funded, and forward-thinking alliance between the federal, state, and local governments, regulators, broadband and cell service providers, the private sector, and everyday users to effectively address the telecommunications and connectivity challenges that rural Vermonters have long endured. While broadband and telecommunications problems are easing, however slowly, they remain persistent and resistant to the best efforts to tame them. It's going to take a sustained effort over the next several years to bring digital and economic justice to underserved populations in Vermont's most rural confines.

Here's a look at the challenges ahead and how we might make progress together.

The numbers tell the story

The data does indeed tell the tale of the challenges rural states such as Vermont face in tackling broadband and cell phone inclusivity issues.

The Vermont Department of Public Service (VDPS) reports that up to 40 percent of Vermont locations may be lacking in outdoor mobile voice or data services, and up to 63 percent may have inadequate indoor service. Of import to first responders and people in need of immediate assistance, the data also shows that more than two-thirds of all calls to emergency services in Vermont are from a cell phone. Couple that with the fact that 12 percent of Vermonters live in a landline-only household — the highest rate in the nation — and you have a sense of how challenging telecommunications can be in an emergency, major weather event or natural disaster, or for tele-education and health initiatives for underserved communities.

"I will make a kind of bold statement and say that once we get ubiquitous fiber out there, that's what will help Vermont solve its cellular problems."
— Christine Hallquist, VCCB executive director

The problem is exacerbated further for those households, businesses, or institutions in underserved areas that rely on the internet and Wifi-based service for incoming and outgoing telephone service. Question: What happens to those users during a widespread power failure such as occurred in central and southern Vermont during the ice storm last month? Answer: A Wifi phone user is essentially incommunicado in an emergency unless someone ventures out into a dangerous storm in search of a couple of bars on their cell phone. The VDPS estimates that as many as 75 percent of Vermonters do not have access to cell service that meets their needs, and the dearth of fiber-optic broadband penetration into rural enclaves and more remote areas in the state further exacerbates the problem.

Robust, reliable, rural cell service is thus of great import in Vermont for a plethora of reasons: for use connecting with emergency services; making phone calls while on the road in out-of-the way places or while hiking, mountain biking, snowmobiling or otherwise adventuring out-of-doors; and for connecting with tele-health providers and online educational opportunities in areas distant from hospitals, doctor's offices, clinics, colleges, and schools, especially for the elderly or for those students who cannot attend in-person classes for whatever reason.

Building out the interface

The big challenge of providing both meaningful broadband and cell phone service for rural Vermonters calls to mind the lyrics of the song "Ya Got Trouble" from the iconic Broadway musical, not: "The Music Man." To paraphrase con man and musical instrument salesman Prof. Harry Hill: "T" is for topography (or terrain, if you prefer.) And that spells trouble for efforts to provide broadband and cell phone access in many parts of Vermont.

The very mountains, valleys, and nestled hamlets that make ours one of the most beautiful, scenic, and livable states in the country also pose daunting challenges for the provision of broadband and telecommunications services. Tie that to the fact that the larger cell service suppliers in the state are resistant to sharing with competitors their 150-foot-tall, provider-owned-and-operated cell towers on Vermont ridgetops. This lack of collaboration further exacerbates the connectivity crisis.

The Vermont Community Broadband Board (VCBB), established by the Vermont Legislature under Act 71 in 2021 and administratively based in the VDPS, is developing policies and programs to coordinate, facilitate, and accelerate the development of reliable and affordable broadband to all parts of Vermont. Former Vermont Electric Cooperative CEO and Democratic gubernatorial candidate Christine Hallquist is the VCBB executive director, appointed to the post by her former political opponent, Gov. Phil Scott, nearly two years ago. Hallquist spoke about the critical intersection between broadband and cell phone services in a wide-ranging interview last week.

"Cell coverage and broadband fiber are totally integrated," Hallquist explained. "You have got to have a fiber backhaul for each of them. Today, we have cell towers, but with a macro solution to the issues, what we're looking at is a very nice overlay to a ubiquitous fiber network. The problem we have today with cell coverage is that Vermont is mountainous and has a lot of trees. And the more you go for higher data speed, the more you have a problem during the summer, because the more you have a problem penetrating trees," Hallquist continued. "And the biggest problem right now is the shadowing caused by our hills and mountains. We've all experienced it when driving down the road: you get into a shadow area and you lose cell coverage."

While the VCBB has not been charged with resolving Vermont's cell connectivity problems, Hallquist said the broadband authority can play a central role in addressing the issues. "I will make a kind of bold statement and say that once we get ubiquitous fiber out there, that's what will help Vermont solve its cellular problems," she predicted.

Central to a solution is the macro approach to telecommunications connectivity that Hallquist alluded to early in last Friday's conversation: utilizing small-cell technology — highly localized, pole-top cell towers which, at a typical height of just 50 feet, are far shorter than the spindly, 150-foot-tall, faux-pine-bough-covered relay towers that dot ridgetops throughout the state. The question is not whether the macro technology will work — judiciously located small towers are highly effective in addressing cell service drops from shadowing in a mountainous, highly forested state like Vermont — but how the technology will be implemented, owned, and operated. And, most importantly, how it will be funded.

A fledgling company founded by Vermonters, and incorporated last summer, Mac Mountain is endeavoring to bring small-cell technology to underserved communities. "The State of Vermont knows that this is a problem," Sydney Atkins, the CEO of the recently founded tech company, said Sunday. "We're all dedicating ourselves to finding a solution." One problem, Atkins and others aver, is that major cell service providers, who've often stated that it is economically unfeasible for them to extend service to rural pockets of the state, need to be convinced to make use of independently owned-and-operated, small-cell relay towers at a relatively nominal price when compared to erecting more and more towering, provider-owned ridgetop cell towers, which are ineffective in addressing coverage shadowing issues in any event.

"We're sitting here right now, trying to get carriers to say that they'll show up. Once we get the carriers to show up — we're

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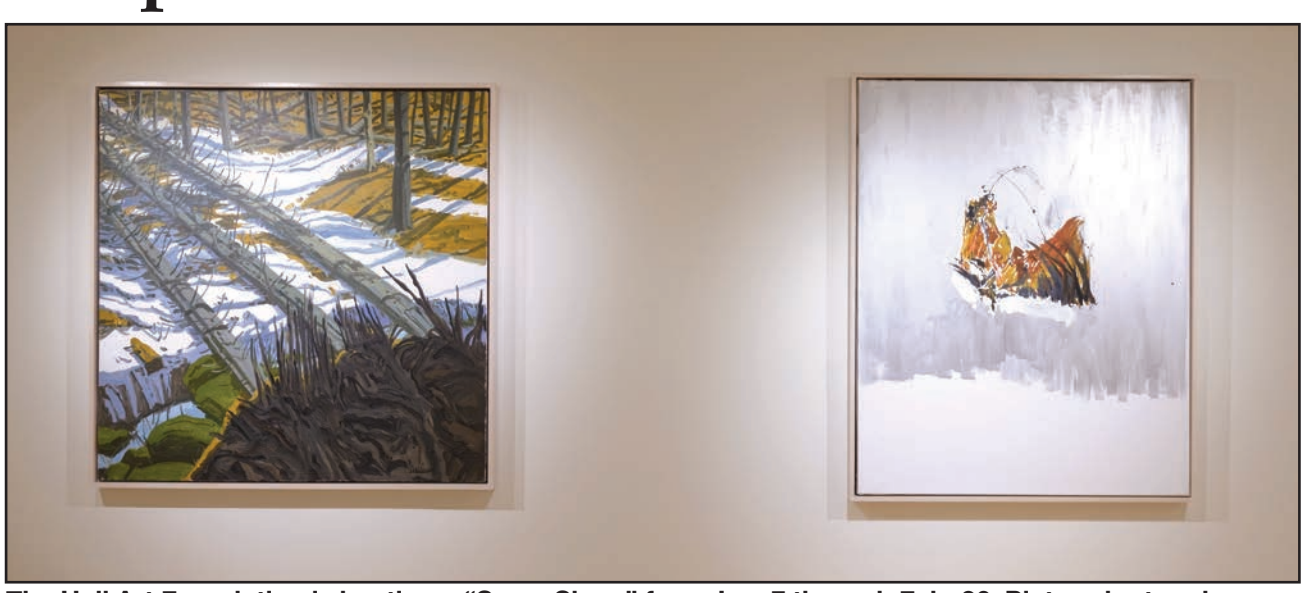
Sydney Atkins is the CEO of Mac Mountain, a Vermont company that is advocating for small-cell tower technology to improve cellular communications in underserved rural communities. The company is pursuing potential, small-cell pilot projects at three locations in Woodstock and Pomfret. Photo Provided

Fifty-foot-tall, small-scale cell towers could be key to providing reliable, readily accessible cell phone service to critically underserved rural areas in Vermont. Judiciously placed, the relay towers can significantly improve the "shadowing" effects of Vermont's mountains and copious forestation that cause cell phone signals to drop or be altogether inaccessible in many instances.
Courtesy of Easy Street Systems

Hall Art Foundation opens new exhibit — Snow Show

Located in Reading (Feltchville), the Hall Art Foundation opened its doors in 2012 on a seasonal basis from May through November, offering rotating, temporary exhibitions of contemporary art. During the off-season, the foundation offers occasional exhibits to expand exposure to its artwork.

This is the first year that the Foundation has been open for new winter exhibits. The Jan. 7 opening day of an exhibit called "Snow Show," depicting various winter themes, was well received. The show features the works of



The Hall Art Foundation is hosting a "Snow Show" from Jan. 7 through Feb. 26. Pictured artworks were done by Neil Welliver and Georg Baselitz.
Jeffrey Nintz Photo, Courtesy of Hall Art Foundation

BUSINESS BITS

By MARY LEE CAMP

Georg Baselitz, Anna Bjerger, Peter Doig, Lee Friedlander, Neil Jenney, Dan McCarthy, Yutaka Sone and Neil Welliver. The exhibit is open on weekends through Feb. 26.

The Snow Show exhibit takes place in one of the facility's historic buildings. The Hall Art Foundation campus boasts five historic buildings, creating nearly 6,000 square feet of museum exhibit space plus walking trails dotted with outdoor sculptures, a waterfall, woodland and hayfields to explore — some of which are available during the winter, depending upon walking conditions.

The Lex café is opened during winter facility hours, offering sandwiches, hot chocolate, mulled wine, coffee and tea; and in the warm weather, baked goods, salads, snacks and more. The food is provided by Brownsville Butcher & Pantry, owned by Peter Varkonyi and his wife Lauren Stevens.

In addition to the Vermont Hall Art Foundation location, there is a facility in Western Massachusetts called Mass MoCA and another in a converted convent in Germany called Kunstmuseum. The collection is privately owned and shared "for the enjoyment and education of the public."

Pictured is Blake Hill Preserves' finalist wild mint shrub entry for the Good Foods Award.
Photo Provided

Blake Hill Preserves of Windsor is finalist at The Good Foods awards

The Good Foods Foundation organizes an epic three-day Good Foods Awards Weekend for the public and the trade to meet, celebrate, taste and buy from the nearly 200 winners — exceptional food crafters who top the charts in a blind tasting and meet the environmental and social responsibility standards of the Good Food Awards. Over 2,000 entries from all 50 states are submitted in different categories each year.

Several Vermont-area contenders enter, make the finalist category and some stand in the winner's circle at the Good Food Awards Ceremony in Portland, Ore. each spring to receive their award(s). Among those Vermont competitors is Windsor's Blake Hill Preserves in the Elixirs category with wild mint shrub and spicy Jalapeno shrub and fresh tomato savory jam as a finalist in the preserves category. Not only is co-owner Vicky Allard's jam-making superb, her play with words, especially in her English accent, catches attention when she says, "We're so jam happy."

Reading's Spring Brook Farm was chosen for its Ashbrook cheese. Two Barnard Farms were also chosen, Fable Farm Fermentory for two of its ciders and Monsalvat Farm for its honey. Norwich's Organic Coco for two of its hot chocolates. And nearby in New Hampshire's Claremont is North Country Smokehouse for its Applewood Smoked Uncured Ham Steak.

According to the Good Foods Foundation's website, "For a long time, certification for responsible practices and awards for superior taste have remained distinct — one honors social and environmental responsibilities, while the other celebrates craftsmanship and flavor. The Good Food Award recognizes that the truly good food — the kind that brings people together and builds strong, healthy communities — contains all of these ingredients."

Got bits of business news you want to share? Send an email to mcamp@thevermontstandard.com.

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not willing to build these [small cell towers] on spec, right? – then we'll start the permitting process," Atkins offered. The Mac Mountain CEO added that "there are a lot of community conversations happening," especially about potential small-cell pilot projects in the Upper Valley, specifically in Woodstock and Pomfret, where reliable cell phone connectivity, regardless of the carrier, has long been a sketchy proposition. Woodstock Police Chief Robbie Blish is consulting with Mac Mountain on emergency services issues related to broadband and cellular access, wholly independent of his law enforcement and first responder role with the town.

Funding implications of the national broadband map

The National Broadband Map is a Federal Communications Commission (FCC) tool used to allocate federal funds for broadband deployment. The present version of the FCC's map contradicts both records from the state of Vermont and the reported experiences of many Vermont families who lack access to high-speed broadband. Should the National Broadband Map go without correction, the state may not receive adequate funding from a pool of $37.1 billion in federal Broadband Equity, Access and Deployment (BEAD) support that will be allocated through the National Telecommunications and Information Administration (NTIA) later this year.

Mac Mountain's Atkins and other broadband and telecommunications advocates, including VCBB Communications Director Herryn Herzog, are quick to point out that Vermont residents can continue to comment on the broadband map at least for the next several weeks in hopes that the data it contains will not be finalized for the purposes of funding decisions until later in the spring. To make their voices heard in the process, Vermonters should visit fcc.gov/broadbanddata/consumers at their earliest convenience.

What's next?

In the second part of this series, the Standard will dig more deeply into the technical, economic, social, and political issues surrounding expanded rural broadband and cellular service in the coming months, including Mac Mountain's potential small-cell pilot projects in the Upper Valley; legislative initiatives in Montpelier; the importance of collaboration between providers, private enterprise, regulators, and state and local officials; and the ongoing quest for fair and equitable federal funding for broadband expansion.