Ingenuity – and an ATV – brings broadband to parts of Fauquier

By Christopher Connell
Piedmont Journalism Foundation

Several times a year, Paul Conlin barrels up a steep, wooded hillside in his mud-green Rhino SUV to the top of Rattlesnake Mountain above Hume to perform maintenance on his equipment, which puts homes scattered in the valley below on the internet superhighway.

The first task for the Blaze Broadband owner is to cut the power to the electrified fence around the perimeter of the small clearing that houses the dish, the solar panels and cabinet filled with batteries that keep it running. The fence protects the equipment “from the bears,” he explains, pointing out teeth marks on a yellow insulator.

Blaze has upwards of 1,500 customers in Fauquier County, including those in the Hume area within the line of sight of the broadband signal from Rattlesnake. The microwave dish there gets that signal from a tall tower in Warrenton.

The breathtaking view from the mountaintop is also a vivid reminder of the challenges the county faces in executing its $20 million plan to bring broadband to everyone in the 651-square-mile county through 130 miles of new fiber and towers. The difficulty is multiplied in the northern and southern parts of the county where fewer people live.

The board of supervisors may de-
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...considered as early as Aug. 8 whether to greenlight broadband proposals from the two companies it selected last November to design and build the new infrastructure, Omnipoint Technology Partners – recently acquired and renamed Data Stream Mobile Technologies – and Tenbris Fiber.

**Engineering solutions**

Conlin, an engineer, launched Blaze 12 years ago in part to get broadband for his own needs. Blaze’s proposal to the county didn’t make the final cut. But even when the county gets infrastructure built, thousands of people will still likely need broadband from wireless internet service providers (WISP) like Blaze. Fiber optic cable bears pulses of light at speeds that leave copper wire or coaxial cable signals in the dust. The county is cross- crossed by mostly privately-owned fiber that providers own or pay to tap into, but it doesn’t reach everywhere. That’s where WISPs like Blaze come in.

Conlin installed and owns 12 miles of underground fiber and leases 150 more miles, but he also broadcasts high-speed, wireless signals from 19 locations with equipment mounted on big towers in Vint Hill and Warrenton, a water tower in Catlett, poles on the side of Big Cobbler Mountain, atop Rattlesnake and even on the runway light beacon at Warrenton-Fauquier Airport.

Conlin, 50, doesn’t have a phalanx of workers on the payroll. He uses subcontractors to bury fiber lines, just as Comcast and Verizon do. But befitting his background as an automotive engineer, he knows how to engineer solutions. He devised an unusual one seven years ago for a couple living halfway up the east side of Big Cobbler Mountain in Marshall. Hills obscured the line of sight to a tower 9 miles away in Warrenton, so Conlin put his equipment closer to the top, where it could capture the signal and provide service to that home and other customers.

The property changed hands this year. New owner Christopher May, an engineer with his own consulting business who works from home, says he wouldn’t have purchased the 22 acres on Big Cobbler if it lacked broadband.

“We looked at houses in Hume, Marshall, the Plains, Bluemont, all the way out to Front Royal and the No. 1 catch was always internet. I don’t care about TV or my cellphone, but I had to have internet. I transfer very large data files,” he says. “On a good day I get 25 megabits down and 40 up.” (May’s uploads are faster because of the fiber Conlin ran to the house.)

Most Blaze customers are easier to reach, especially where Conlin has buried the much faster and more reliable fiber lines or leased existing ones. That’s the case for hundreds of new homes in Warrenton’s Brookside development, where Joe Hofman also needed broadband to make his livelihood.

Hofman does advanced troubleshooting for a Texas-based digital banking enterprise. “I couldn’t do my job without it. It’s not commutable,“ he says. While Blaze advertises speeds of 250 megabits for its top-tier plan, “it regularly see (speeds) way faster than that, as high as 600 to 800.”

**Who needs internet that fast?**

“You’d be surprised. The kids are on their tablets, we’re streaming HD videos, I’ve got work going on … and I like to play some very advanced video games. People underestimate how much they need,” says Hofman, who counts 19 devices in his home that swallow broadband.

When officials preach the need for universal broadband, they always say it’s needed for kids to get their homework done. But people also demand faster connections so they can stream Netflix movies at 9 p.m. on a Friday, Conlin says.

The county is subsidizing the construction of towers by Calvert Crosslands, a Maryland company, and paying Omnipoint to offer wireless broadband in Casanova and soon, other places – more competition for WISPs. New towers, like existing ones, will still need line of sight to homes that may be shadowed by hills or under tree canopies. Smaller relay towers can help with that problem.

Conlin has 16 radio transmitters that provide high-speed feeds to other sites Conlin uses for wireless, including a 105-foot water tower in Catlett owned by the Water and Sanitation Authority. The authority relies on Blaze for a data network to link their pumping stations and headquarters and allows remote monitoring and control of the pumps.

But Conlin doesn’t have a fiber connection, so it gets its broadband signal from the 450-foot tower at Vint Hill that the U.S. Army left behind in 1997 when it closed its once-classified base used for foreign radio intelligence gathering. Vint Hill is now home to the Virginia Tech Research Institute for the Commonwealth. Conlin’s site, miles from the tower, is usable.

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**The bigger picture**

Fauquier isn’t the only place grappling with the broadband challenge. (See sidebar on Bedford County, page 5.) Universal broadband is a priority for Gov. Ralph Northam and legislators in Richmond, who have nearly quadrupled broadband grants to $10 million a year, and the federal government, which has already spent billions to connect rural America.

Those leading the charge argue broadband is a prerequisite for modern life, as rural electrification was in the midst of the Depression. Since telecom companies are loathe to build infrastructure where they can’t see profits, governments have stepped in to help pay for it.

In the meantime, the demand in both rural and urban areas is mushrooming as people keep purchasing new devices that suck whatever bandwidth makes it to a family’s home – not just computers and laptops but tablets, 4K Ultra HD televisions, Kindles, Alexa and more.

The FCC used to emphasize how many Americans lacked speeds of 10 megabits per second downloads and 1 megabit uploads; now its yardstick is 25 and 3 megabits. By that standard, 21 million Americans fell short at the end of 2017, mostly in rural places.

**PHOTOS BY CHRISTOPHER CONNELL**

Paul Conlin of Blaze Broadband uses this water tower in Catlett to send broadband wirelessly.

Paul Conlin of Blaze Broadband checks his box filled with fiber circuits in a new Brookside subdivision in Warrenton.

**The Piedmont Journalism Foundation**

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Rectortown finds community-sized solution

By Robin Earl
TIMES STAFF WRITER

It’s taken the entire village of Rectortown to agree on a solution to its broadband problem, one resident at a time. Those who live and work in the historic district in northern Fauquier, halfway between Marshall and Upperville, would love to have fast, dependable internet service for their homes and businesses. But broadband service has been elusive.

For years, residents have been individually scoping out towers and limping along with personal Direct TV or Verizon hotspots and satellite service, the kind of jury-rigged patchwork that exists throughout Fauquier County.

They think that now they’ve found a game-changing solution: broadband delivered by new underground fiber straight to their homes at an affordable price.

Almost 50 people crowded into the small community room June 23 at Rectortown United Methodist Church to hear the pitch of a small broadband provider enlisted by organizers Matt Calligan and Charles Gauthier from the Friends of Rectortown. (Hotspots are one of many imperfect alternatives, as organizer Calligan demonstrated when he had to ask everyone at the meeting to disconnect from their hotspots so he would have enough bandwidth to use a laptop for his presentation. The crowd chuckled and exchanged knowing glances.)

As explained by Claude Schoch, proprietor of High Mountain Farm Broadband in The Plains, the new, high-speed fiber would not cost much more than they are spending now, but would be faster, more reliable and easier to upgrade as new technology comes along.

Schoch’s customer base includes his one internet-thirsty neighbors in The Plains, but he markets broadband in other parts of Fauquier and in nearby counties, too. He said, “We started 13 years ago delivering broadband wirelessly, but discovered that we could not reach 100 percent of the homes with wireless technology due to terrain and thick trees. Also, the wireless isn’t as fast as fiber. While we still provide broadband wirelessly in some places, we are converting them to fiber and at the same time serving homes and businesses we weren’t previously able to service with the new fiber.”

Schoch used a map on a big screen display to show residents where the main fiber line would travel and pointed out the “spokes” or pedestals from which wire would run to individual homes.

Schoch’s original calculations were based on 50 customers in Rectortown, but Calligan said 90 have signed up, which would lower each share of the cost of installing the main fiber line. He said that it’s not necessary for every single person in the area to sign up in order for him to make it work, but when there is a gap because people don’t want to join, it can be problematic.

The total installation bill for individual houses would vary depending how far off the path of the main line they were. The cluster of homes in the center of Rectortown would require less cable to reach and those on the outskirts would be charged more because of the longer cable, Schoch explained.

“You could choose to share the cost equally,” he said. “It’s up to you, but in that case those in the center of town would be subsidizing those who live in the more rural areas.” The audience had a laugh at the notion that Rectortown had any “less rural” areas.

A game-changing solution: bringing broadband to Fauquier

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Hill is now a business park and housing development.

The big tower, with vertical wires that make it look like an inverted, skinny guitar, carries the internet. “Everything we do is done on the internet,” says Rob Boucher, president and CEO, says the two other buildings in the park.

Blaze also laid branch fiber lines throughout the business park. Blaze fiber runs underground through the Vint Hill business park. Titania Solutions Group, a contractor that provides to meet its goal of universal broadband service has changed his life. “I still have expensive for us,” he said. He said the drive to Ashburn, a global internet hub.

Blaze also laid branch fiber lines to Ashburn, a global internet hub.

By Christopher Connell
PIEDMONT JOURNALISM FOUNDATION

When radio engineer Allen Boaz Jr. moved from North Carolina to Bedford County, Virginia, years ago, to consult for Roanoke radio stations, he couldn’t get internet to check his email; even his pager didn’t work.

“After the homes are connected, residents and customers in The Plains, at-dors and customers in The Plains, at-tended the meeting and vouched for er’s concerns, he also promised not to pinch myself and ask, ‘Is this real?’”

“Allaying one prospective customer’s concerns, he also promised not to dig up her shrubs or do other damage to the property.”

Roy Perry, one of Schoch’s neighbors and customers in The Plains, attended the meeting and vouched for the quality of the broadband service High Mountain installed last year.

“We had a much smaller cluster of homes -- about 22 -- so it was more expensive for us,” he said. He said the service has changed his life. “I still have to pinch myself and ask, ‘Is this real?’”

Bedford County created a Broad-band Authority a decade ago. Boaz, now retired, is its chairman. (Fauquier’s Broadband Authority was estab-lished in 2017.)

It took a while, but rural Bedford -- similar to Fauquier County in size, population and density -- is well on its way to solving the paucity of broadband for its 78,000 residents. Each county is more than half the size of Rhode Island, and both have half as many people per square mile.

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An additional 70 people have signed up since that meeting, according to Schoch.

Schoch said that the fiber cable is fiber to Ashburn, a global internet hub.

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