

# RAPPAHANNOCK'S DIGITAL DILEMMA

## Part 1 How topography, density and chance combined to limit local connection choices



BY LUKE CHRISTOPHER

Lindsey and Trey Cornwell park at Massies Corner – where, as anyone who uses a Verizon cellphone knows, you can make some calls and still be in Rappahannock County.

BY RANDY RIELAND | For Foothills Forum

### IT WASN'T SUPPOSED TO WORK OUT THIS WAY.

Five years ago, when Rappahannock County's Board of Supervisors approved a plan from AT&T to build three new cellphone towers and add antennas to two other ones owned by Sprint, it seemed as if the county was about to take a step forward in shrinking its dead zone — the sections with little or no cell phone or internet broadband service.

John McCarthy, Rappahannock's administrator for the past 28 years before his retirement last month, certainly thought so. By his estimate, AT&T's project would have provided coverage to about another 20 percent of the county's households, particularly in areas west of Sperryville and along U.S. 522 toward Culpeper.

Not everyone was happy with what AT&T had in mind. At a public hearing, some residents raised

concerns about the potential health impact of cell towers emanating radio waves. Others felt the supervisors should pressure AT&T to change the design of its towers to make them less obtrusive amidst Rappahannock's rolling beauty.

But the response was muted compared to the firestorm that had erupted 10 years earlier when Sprint first proposed erecting seven towers so tall they would need to be topped with blinking lights. After much back and forth, Sprint scaled back its plans. It replaced three of the towers with shorter "stealth" silos and another with a fake tree. It also lowered the height of the three other poles.

"The AT&T hearings were much less contentious," McCarthy remembers. "I put it down to two things — the increasing ubiquity of cell phones in people's lives and the increasing concern about late-night breakdowns on the side of the

### Coming up

*This is the first in a three-part series of reports.*

#### Part 2 (Aug. 4):

Rappahannock leaders in education, public safety, business and environment weigh in on how cellphone and internet connections have become critical to their work.

#### Part 3 (Aug. 18):

What steps could Rappahannock take to become more connected? How some other rural communities in Virginia and elsewhere are dealing with cellphone and broadband challenges.

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RAPPAHANNOCK'S  
DIGITAL  
DILEMMA

A RAPPAHANNOCK NEWS • FOOTHILLS FORUM SPECIAL REPORT



“It’s not just a convenience. Increasingly, this is going to be a concern – particularly with our aging population. This is public health and safety we’re talking about.”

JOHN MCCARTHY, FORMER RAPPAHANNOCK COUNTY ADMINISTRATOR



What matters to Rappahannock

Respondents to the Foothills Forum survey – 42 percent of county households – identified these top issues of concern:

- 1. Internet service
- 2. Cellphone coverage
- 3. Maintaining beauty of the county
- 4. Maintaining family farms
- 5. Quality of rivers

DILEMMA

From Page A1

road. The same time cell phones were becoming common, pay phones were disappearing.

“So the board gave AT&T the go-ahead. For good or ill, at the time it was felt we needed to do this.”

But those towers never happened. Faced with an antitrust lawsuit from the Justice Department, AT&T abandoned a planned merger with T-Mobile — a decision that cost the company an estimated \$4 billion in penalties it agreed to pay if the deal couldn’t be completed. Projects like the one in Rappahannock no longer made economic sense, given how relatively few customers the company would gain.

Access for fewer than half the households

The result is that today cell and broadband service in Rappahannock is not much different than it was 15 years ago. During that time, however, those services have become an increasingly essential part of daily life, whether it’s about teaching students, running a business, managing personal health or just juggling a social calendar. For residents of Rappahannock, it raises the question of how to balance a longstanding commitment to a rural identity and the risk of falling out of step with the world outside its boundaries. No one has precise figures, but McCarthy, who played a central role in efforts to

enhance those services, estimates that fewer than half of the county’s households have access to broadband, and fewer than 40 percent have cell service in their homes, a number that drops lower during the months when signals are blocked by trees full of leaves.

That limited coverage concerns a lot of home and business owners in Rappahannock, judging from the response to the recent countywide survey commissioned by the Foothills Forum and conducted by the University of Virginia’s Center for Survey Research (CSR). Internet service was the top area of concern among those who responded to the survey, with 81 percent saying it’s important. Cell service was next on the list.

Some, however, say those results should be taken with a grain of salt. “The fact that those two issues were on top may be a reflection of who responded to the survey,” said county supervisor Chris Parrish. “I think a lot of people who have been here all their lives may not have bothered to fill it out.” Added supervisor Ron Frazier: “We’re aren’t opposed to bringing in broadband. I just don’t want to use tax dollars when there’s such a split between people who want it and people who don’t.”

It’s true that the dynamics of rural cell service and broadband have changed dramatically since Sprint spent well over \$1 million of its own money to erect those stealth silos and poles 15 years ago. Private companies

Discuss the issues

Meet the reporter: Join Foothills Forum and the Rappahannock News for a special Fourth Estate Friday gathering next Friday (July 29) at 9 a.m. at Tula’s Restaurant & Bar in Washington. Reporter Randy Rieland will be on hand to discuss his reporting about cellphone and internet service in the county.

are no longer interested in making those kinds of investments, given their slight returns. Today, the onus is on local governments to pinpoint their needs, map out a strategy, and more often than not, spend public money to build at least some of the necessary infrastructure.

It’s also true that being connected — or not — is affecting daily life at an accelerating pace. “This is a very different world, and a different discussion from even just five years ago,” said Jason Brady, vice president at the Union Bank & Trust, and president of Businesses of Rappahannock. “Maybe not in Rappahannock, but outside of our beloved county; we cannot deny that any longer.”

The great challenge

“It’s becoming a basic need for public safety, health care and education,” said Katie Heritage, deputy administrator in Fauquier County (pop. 68,782), where this spring supervisors appointed a broadband advisory committee that includes county residents

and representatives of the business community, and allocated \$60,000 to develop a strategic broadband plan. Meanwhile, in Culpeper County (pop. 49,432) , a consultant hired through a \$75,000 grant from the state’s Department of Housing and Community Development, just finished a survey to get a better idea of who doesn’t have broadband access, who does, and how they see themselves using it now and in the future. In Orange County (pop. 35,385), supervisors have voted unanimously to create a county broadband authority. They’re also looking at helping to fund installation of fiber optic cable and erecting poles that could be used for the county’s public safety network, but also by wireless broadband providers, and cell phone companies, which could lease space on them.

Rappahannock (pop. 7,378), however, has long prided itself on not keeping up with its neighbors’ spiraling growth, and instead remaining a haven of unblemished charm. In truth, many of the qualities that keep the county unique also make it unappealing or particularly difficult for private service providers — low population density (only 26 people per square mile), rolling hills and protruding mountains, heavy tree cover, the absence of water towers, which are often used for mounting antennas or wireless broadband transmitters.

Even those who would benefit from more reliable broadband and cell service

worry about what else it might bring. “The lack of these things has hurt our business. We’ve lost some sales,” said Rick Kohler, who with his wife Kaye, heads up Kohler Realtors.

“But I can see how bringing these in would make it easier to live here and could end up bringing more development,” added Kohler, who’s also president of the Rappahannock League for Environmental Protection (RLEP). “There are unintended consequences to everything. If we can somehow preserve what we have and still change, that would be ideal.”

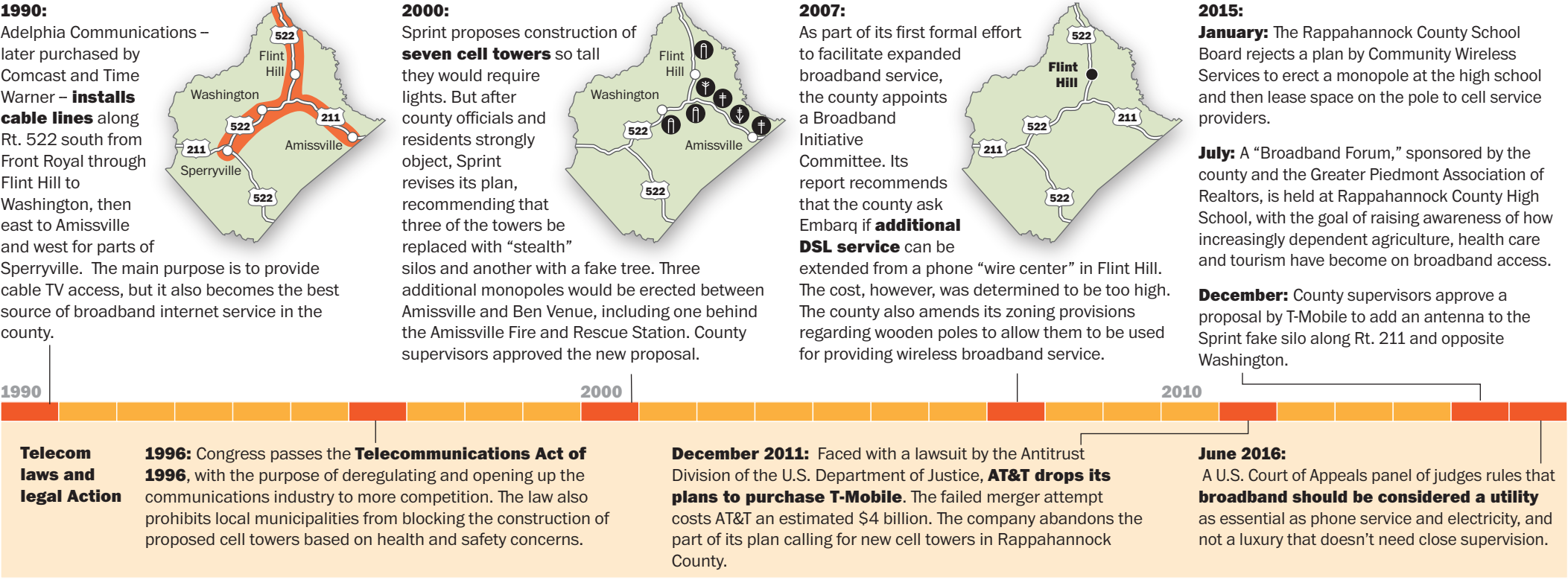
Therein lies the great challenge. But it’s doable, insists Joanne Hovis, president of CTC Technology and Engineering, a Kensington, Md., consulting firm. As someone who helps municipalities get wired, Hovis is a big believer in the positive impact of good broadband service. She says her experience has shown her it can be a valuable asset for communities wanting to build their futures around small businesses and people working from home.

“I certainly understand the hesitation about not wanting to spoil what is special about rural communities,” Hovis said. “But having decent broadband doesn’t mean the Holiday Inn is going to be moving in. It can be an alternative to the kind of growth you don’t want.”

Expanded cell and broadband service could also affect a way in which the

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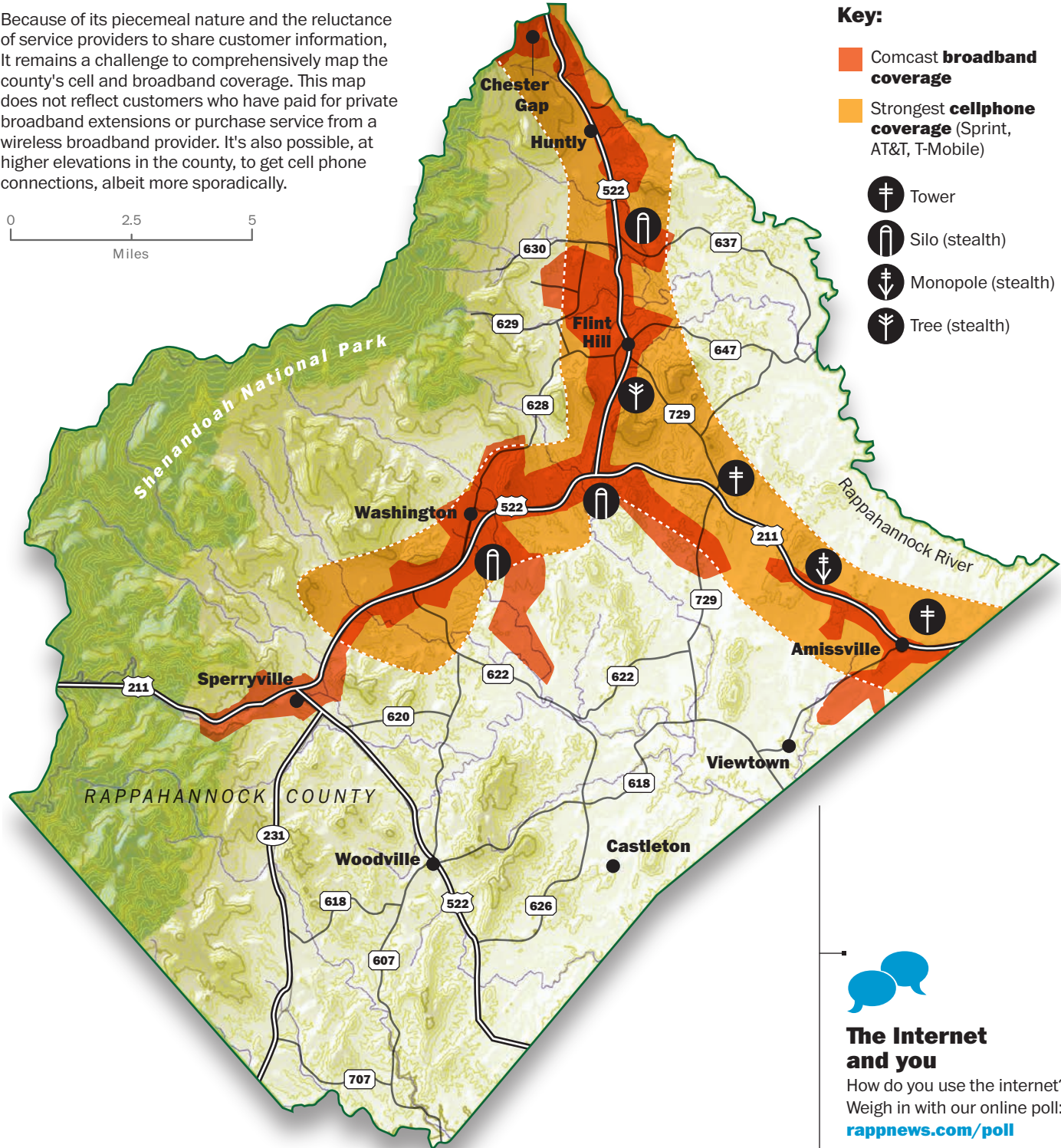
The history: Cellphone and broadband in Rappahannock





# The landscape: Spotty service

Because of its piecemeal nature and the reluctance of service providers to share customer information, It remains a challenge to comprehensively map the county's cell and broadband coverage. This map does not reflect customers who have paid for private broadband extensions or purchase service from a wireless broadband provider. It's also possible, at higher elevations in the county, to get cell phone connections, albeit more sporadically.



**The Internet and you**  
How do you use the internet?  
Weigh in with our online poll:  
[rappnews.com/poll](http://rappnews.com/poll)



**“This is a very different world, and a different discussion from even just five years ago. Maybe not in Rappahannock, but outside of our beloved county; we cannot deny that any longer.”**  
**JASON BRADY, PRESIDENT OF BUSINESSES OF RAPPAHANNOCK**

## DILEMMA

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county is already changing. Its population is getting older — the average age is now close to 40. Another broadband consultant, Andrew Cohill, whose firm, Design Nine, is based in Blacksburg, contends that expanding coverage in the county could help slow that trend. It could, he said, make Rappahannock feel more welcoming to a generation that has come to rely on the internet and cell phones for everything from following the news to getting directions to planning their social lives.

“I worked with one Virginia county and they told me they were losing all their young people,” said Cohill. “And we had all these meetings, but in the end their position was that they wanted young people to stay, but they didn’t want to change. I told them to pick one. Because you’re not going to have both.”

A case in point: Efforts to hire an intern for the Rappahannock News were complicated by the fact that students lost interest when they were told they would likely have limited cell phone service during the summer.

## ‘Nibbling around the edges’

Perhaps no one appreciates the social, economic and political complexities of Rappahannock’s situation more than McCarthy, the longtime county administrator. He has dealt with the clear disinterest of the big service providers, the skittishness about investing public money in communications infrastructure — particularly given how quickly the technology can change — and the difficulty of getting grants because of Rappahannock’s relatively high average income compared to other rural counties. He also understands how strongly people here feel about preserving the county’s natural beauty, and their anxiety over what embracing more technology could do to that delicate balance.


Still, he admits he is frustrated that for a decade and a half now, the county has been able to only “nibble around the edges” in addressing its cell phone and broadband issues. And he worries about

another aspect of the aging populace. As a member of the Fauquier Hospital Board of Trustees, McCarthy has seen impressive advances in emergency medicine, how, with a reliable internet connection, EMTs can send critical medical data directly to a doctor in an ER, and then be guided to begin treatment in the ambulance.

“The benefits of being able to provide that kind of treatment are obvious,” said McCarthy. “We’re not talking about your kid being able to spend eight hours a night playing World of Warcraft.”

“It’s not just a convenience. Increasingly, this is going to be a concern — particularly with our aging population. This is public health and safety we’re talking about.”

*Randy Rieland was a newspaper and magazine writer and editor for more than 20 years, including 12 years as senior editor for The Washingtonian magazine. He also has more than 20 years of experience in digital media, including serving as SVP of Digital Media for the Discovery Channel. He and his wife, Carol, have owned a home off Tiger Valley Road for more than 10 years.*



**FOOTHILLS FORUM**

**What is the Foothills Forum?**

Foothills Forum is an independent, nonpartisan nonprofit supported by the Rappahannock County community tackling the need for more fact-based, in-depth coverage of countywide issues. The group has an agreement with Rappahannock Media, owner of the Rappahannock News, to present this series and other reporting projects.

More at [foothills-forum.org](http://foothills-forum.org), including:

- An archive of past news coverage of cellphone and broadband issues in Rappahannock
- Links to the April series examining results of the Foothills Forum Survey and a PDF of the full report
- The media agreement between Foothills Forum and Rappahannock Media

**“I see this as an opportunity to get our county to come together, to help change a tragedy into an opportunity, to give a guy hope.”**  
**— Russ Collins**

## JENKINS

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\$150,000 of medical costs for Jenkins, who was preparing this week to begin a month of rehabilitation at Inova’s Mount Vernon Hospital in Alexandria.

“That isn’t very much in today’s world,” said Collins, who estimated that Jenkins’ recovery could take a year or more, “particularly when somebody’s got a spinal injury.”

Spieker said the company’s members decided this week to sponsor the effort to raise funds to help Jenkins “rebuild his life” — including funds for medical and physical therapy treatments, alterations to his home and vehicle to allow him to get around, and possibly to continue his education.

“This is what he has chosen to do, to help people,” said Collins. “If he isn’t able to be an EMT, he could certainly be a nurse, and we should help with that.”

The company asks that anyone who wishes to donate send a check to WVFR at 10 Firehouse Lane, Washington, VA 22747, with “Gary Jenkins” in the

memo field — or call the fire hall at 540-675-3615. An online-donation option is in the works, Collins said.

“I see this as an opportunity,” Collins added, “to get our county to come together, to help change a tragedy into an opportunity, to give a guy hope. Gary was undergoing training to become a paramedic [he had already achieved the initial EMT-I certification], to help people in the county, and now he’s going to have to rebuild his life, and we hope the county can give him some help.”

Asked if the county’s coverage was adequate for its emergency responders, all of whom are still volunteers, Rappahannock County Administrator Debbie Keyser said Wednesday that the policy had “certainly been used over the years for payouts, and always was adequate — but this is quite an extraordinary circumstance. We’ll have to take another look at it.”

Jenkins’ is the first serious line-of-duty injury in more than 30 years to a fire or rescue volunteer in Rappahannock County, according to several sources.

## COURT

From Page A1

ed) and one year of supervised probation. His license was suspended for a year, but he can apply for a restricted license for limited uses. Akre also must have an ignition interlock device installed on his vehicle and complete the state’s alcohol awareness and safety program, VASAP.

Before sentencing, Judge Charles B. Foley admonished Akre. “You and I both know this isn’t the first time you’ve driven while intoxicated,” said Foley. “It’s just the first time you’ve been caught.”

When Valarie Lynn Barnes, 53, of Sperryville appeared before the judge on charges of a second DWI offense, Foley said, “This is not your first offense, so the price of poker goes up.” In a plea bargain, the charge was amended to a first offense of DWI and Barnes was sentenced to 180 days in jail, with all but 10 days suspended. Foley suspended Barnes’ license for a one year and ordered her to complete VASAP.

Barnes also pleaded guilty to a third-time offense of driving with a revoked or suspended license. She pleaded guilty to an amended charge of attempting to drive under a revoked or suspended license. She was sentenced to 180 days in jail, with all but 10 days suspended, one year of supervised probation, and another 90 days’ suspension of her license.

Foley granted her request to delay reporting to the Rappahannock Shenandoah Warren Regional Jail, but denied her request to serve her sentence on weekends. Barnes must report to RSW July 29.

Theodore James Shuck, 36, of Amissville, was arraigned on a third-time charge of driving on a revoked or suspended license, and operating an uninsured vehicle, both misdemeanors; and having no valid safety inspection, an infraction. His case was continued to Sept. 13.

Jennifer Dianne Perez, 38, of Stanley, was arraigned on a charge of failure to appear in court on May 3. On that date, she was arraigned in absentia for DUI and eluding or disregarding police. The case was continued to Sept. 13.

**ALCOHOL-RELATED CASES TOP JULY 12 DOCKET**

In district court July 12, Dwaine Lynn Edwards, 52, of Middletown, was arraigned on a first offense of DWI, drinking and driving with an open container in his vehicle, and reckless driving by speeding. He was clocked at 84 mph in a 55 mph zone. His case was continued to Aug. 16.

Melinda Ashley Hinson, 40, of Rixeyville pleaded guilty to a first offense of DWI. She was sentenced to 90 days in jail, all suspended. Her license was suspended for 12 months and she was ordered to complete the VASAP program.

Cheyenne Summer Baldwin, 18, of Rixeyville, was arraigned on a charge of underage possession of alcohol. The case was continued to Aug. 9.

Sarah Mia Grisham, 35, of Washington, was arraigned on a charge of public swearing and intoxication. Her case was continued to Sept. 6.

Shaylee N. Severson, 24, of Capon Bridge, West Virginia, pleaded guilty to a fourth offense of driving with a suspended license. She was sentenced to 180 days in jail, with 150 days suspended and supervised probation for six months. Her license was suspended for six months. On the same day she was arraigned for the fourth incidence, she was sentenced for a third incidence of driving with a suspended license. At that time, she was sentenced to 10 days in jail, 12 months of unsupervised probation and a 90-day suspension of her license.

Ethan Cody Newcamp, 22, of Castleton, was back in court to be arraigned on speeding, driving on a suspended license, and a probation violation, his second related to his Oct. 7, 2014 sentencing for reckless driving resulting in an accident. At that time, he was sentenced to 12 months in jail, all suspended, and 12 months of unsupervised probation. On July 21, 2015, he pleaded guilty to violating his probation and was sentenced to 12 months in jail with 11 months suspended, and 12 months of supervised probation.

Disposition on the current charges has been continued to Aug. 6.





BY LUKE CHRISTOPHER

**"If a deputy is in a dead zone and he needs help, he can't call out on his radio, he can't call out on his cellphone and he may not be able to get into a house to use a phone. It's an issue," said Sheriff Connie Compton, right, with Lt. Janie Jenkins, as an emergency call came into the dispatch center.**

## RAPPAHANNOCK'S DIGITAL DILEMMA

# More smoke, less signal

**Part 2 In lieu of cell and broadband connectivity, students, visitors, responders and workers plug into some creative solutions**

BY RANDY RIELAND | *For Foothills Forum*

In Rappahannock County, there's always a workaround.

It's the sheriff's deputies knowing where they need to drive if they have to make a cell phone call while on duty. Or it's the kids without a broadband connection at home heading over to the parking lot outside the county library so they can use its Wi-Fi to do their homework. Or it's B&B owners telling their guests to confirm any reservations, directions or last-minute details of their visits here before they enter the county.

People here take pride in that resourcefulness, in knowing how and where to get connected to the digital world when they need to. They've had to learn that because the level of cell phone and broadband coverage in the county hasn't changed that much during the past 15 years. And yet, as more and more of the functions of daily life require those connections, they worry that it could get harder to do their jobs or run their businesses without consistent and reliable cell phone or broadband access.

See **DILEMMA, Page A6**

### More inside

**Voices at the table:** A packed gathering last Friday morning hashed out the county's connectedness dilemma.

*Highlights on Page A4.*

### Coming up

**Part 3 (Aug. 18):** What steps could Rappahannock take to become more connected? How some other rural communities are dealing with cellphone and broadband challenges.



DILEMMA

From Page A1

E-books and e-learning

Take education. Perhaps as much as any field, its future is tied to internet access. Most education innovations now are largely dependent on students being able to get online, not just to do research, but also to work collaboratively. And most states, including Virginia, are soon expected to begin replacing traditional textbooks with e-books accessible online.

“The outside world is moving even faster,” acknowledges Rappahannock County High School Principal Mike Tupper. “We talk all the time about giving our students 21st-century skills. People think that means technology, but it’s more than that. You have to learn to work and communicate in a team environment. That also means learning to work together on the internet.”

That said, both Tupper and the county schools superintendent, Dr. Donna Matthews — who estimates that at least 40 percent of the county’s students don’t have broadband internet at home — believe the district has done a good job of compensating for the gaps in access. Students without it at home are allowed to spend more time in the school library to do work requiring an internet connection. Tupper also points out that more students these days have smart phones, so they’re able to make use of Wi-Fi hotspots to finish assignments.

“I’m not sure I would call the lack of broadband coverage a liability,” said Matthews. “But we do have to get creative with how we do things.”

School board member Larry Grove, a former high school principal, worries that the situation puts Rappahannock students at a disadvantage. “Not having broadband at home definitely can be an obstacle kids have to get over,” he said. “As a school board member, I believe our kids should have every benefit that kids have in Fairfax, Arlington and Fauquier, and when it comes to broadband, they don’t. It’s not a level playing field.”

Deputies and dead zones

Public safety officials in the county have some of the same concerns about not being able to stay on top of the technological advances in their field.

“If we had broadband throughout the county, we could use mobile data terminals in the cars. But we can’t do that,” explained Sheriff Connie Compton. Mobile data terminals are in-car computers that have been found to make police work more efficient and safer. Adds Maj. John Arstino, the deputy sheriff: “Take the case of a deputy making a stop on the side of the road and maybe they have to deal with an unusual situation. If they had broadband, they could pull their phone out, get online and actually read the law. Then they know they can trust their decision instead of winging it.”

The sheriff said she appreciates the tension between the appeal of technology and its cost. She also knows how not having reliable connections affects what can and can’t be done. She saw it recently during the week-long effort in May to find missing 80-year-old Sperryville hiker Wallace Anderson, when searchers had trouble communicating with each other. Anderson’s body was found in Shenandoah National Park.

Compton and her deputies know all the spots where they can pick up cell service. In police work, though, there are times when looking for good reception isn’t an option. “If a deputy is in a dead zone and he needs help, he can’t call out on his radio, he can’t call out on his cell phone and he may not be able to get into a house to use a phone,”



PHOTOS BY LUKE CHRISTOPHER

“We’re a small community, but we have the same type of emergencies that other places have...This county’s a jewel, and I don’t want it to change. But these things have become basics. Being emergency manager, I get texts and emails constantly. That’s the way life is now.”

RICHIE BURKE, EMERGENCY SERVICES/MANAGEMENT COORDINATOR



Superintendent Dr. Donna Matthews estimates that at least 40 percent of the county’s students don’t have broadband internet at home.

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LARRY GROVE, SCHOOL BOARD MEMBER

she said. “It’s an issue.” Richie Burke, the county’s emergency services/management coordinator, can relate. “It makes you add an extra layer to what you have to do,” he said. “It makes you think that if I really need to make a call, I

need to drive here or I need to drive there. Sometimes, you don’t have that luxury. We’re a small community, but we have the same type of emergencies that other places have. “This county’s a jewel,” Burke added, “and I don’t

want it to change. But these things have become basics. Being emergency manager, I get texts and emails constantly. That’s the way life is now.”

Medical coverage

When it comes to health emergencies, particularly for an aging population like Rappahannock’s, a broadband connection can make a big difference in the speed and quality of treatment, noted Dr. Karen Rheuban, director of the University of Virginia’s Center for Telehealth. She has seen the practice of telemedicine — the diagnosis and treatment of patients remotely, by phone or computer — improve dramatically in recent years. It has particularly benefitted people who live far from a hospital or a doctor’s office. She estimates, in fact, that through telemedicine, her center will help Virginians avoid driving a total of a million miles this year.

“If someone has a stroke, we can have a video connection to the neurologist back in the ER as soon as the patient gets into the ambulance, or even when they’re still in their home,” Rheuban explained. “Or maybe it’s an elderly patient

with a wound. It’s one thing for them to describe it over the phone and then have a home health nurse come out and take a look. But if you can transmit an image, and get feedback immediately from a nurse or doctor, the care could be of a far higher quality.”

Everyday access

Even for taking care of more ordinary personal business, from filing taxes to filling out college or job applications, an internet connection has become more essential. A lot of people without broadband service end up doing that business at the Rappahannock County Library.

“It’s assumed now that everyone can go online and do those things,” says David Shaffer, the library’s director. “Say someone’s looking for a job and they hear about an opening at Applebee’s in Warrenton. So they go there, but they’re told they need to apply online. And this is where they end up to do the application. I probably see that more than anything else.”

Shaffer says the library once had two computers available for visitors to access the internet. Now it has five. “They’re pretty much always in use,” he said. “I’ve seen a real change from when it was kind of neat that we had a couple of computers with internet connections to now it being essential. And, there are the people who park outside after hours to use our internet connection.”

Others likewise have become very aware of the escalating value of a good broadband connection. “I’ve been doing real estate since 2002 and the clients’ requirements for cell phone service and broadband internet have increased by 300 percent,” said Cheri Woodard, of Cheri Woodard Realty. “It went from not being a big deal to now being much more important to people.”

“One of the first questions a lot of people ask now is ‘Does the house have high-speed internet?’” said Kaye Kohler, of Kohler Realtors.

It’s reached the point, according to Woodard’s son, realtor Adam Beroza, that if a property on the market has a Comcast internet connection, it will be called out in the listing. He acknowledges that not everyone in the county feels the same need for reliable cell and broadband service.

“It depends on what your situation is,” he said. “Are you getting more concerned about your health? Then

Radio Waves and Health  
Cellphones and cancer?  
There’s no definitive answer

When AT&T proposed erecting new cell towers in the county back in 2011, some opponents raised concerns about how the structures could affect the health of people living near them and the students at Rappahannock High School. It’s not that the supervisors could have used that as a reason for rejecting the plan, for The Telecommunications Act of 1996 prohibits local governments from blocking cell towers solely for health reasons.

But what does science say? Can extended exposure to radio signals increase a person’s risk of developing cancer, infertility or other health problems?

There’s no definitive answer. Few studies have specifically addressed cellphone towers and health risks to humans; more of the research has focused on the risk of holding cell phones up to your head. Reputable organizations — the National Institute of Environmental Health Sciences, the World Health Organization, the Food and Drug Administration and the American Cancer Society — say scientific evidence does not link cell towers to health issues. At the same time, the International Agency for Research on Cancer has classified radio frequency waves as “possibly carcinogenic to humans.” The overall consensus is that more research is needed.

The American Cancer Society notes

that human exposure to radio waves from cell phone tower antennas is limited for several reasons. First, the energy level of those waves is relatively low, compared with the type of radiation known to increase cancer risk. Plus, the antennas are mounted high above ground level, and the signals are transmitted intermittently, rather than constantly.

A recent study on rats by the federal government’s National Toxicology Program, however, provided some evidence of a cancer risk, albeit it is more relevant to cell phone use than cell tower exposure. The research found that rats exposed to radio frequency (RF) radiation for a total of nine hours a day over two years were more likely to develop a specific type of brain or heart cancer than those that weren’t. Also, the more exposure they received, the greater the chance of developing a tumor.

The study also produced some odd results. The cancer risk increased only in male rats, and not female rats. And, the male rats exposed to the cell phone signals actually lived longer than the rats that weren’t exposed.

➤ ON RAPPNEWS.COM: We’ve provided links to more research and information on the health effects of cell tower radiation on the Rappahannock News website at bit.ly/2attyCz.

— Randy Rieland



The RappNews Poll  
The need for reliable broadband

In which of these areas do you think the need for reliable broadband is most critical in Rappahannock County? (You can select more than one.)

- \_\_\_ Public Safety
- \_\_\_ Education
- \_\_\_ Tourism
- \_\_\_ Maintaining home value
- \_\_\_ Health care
- \_\_\_ Local business

Go to [rappnews.com/poll](http://rappnews.com/poll) to vote



**What is the Foothills Forum?** Foothills Forum is an independent, nonpartisan nonprofit supported by the Rappahannock County community tackling the need for more fact-based, in-depth coverage of countywide issues. The group has an agreement with Rappahannock Media, owner of the Rappahannock News, to present this series and other reporting projects.

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these services are important to you. Are you younger and hoping to telecommute? Then they can be extremely important. Not having cell service for a weekend for tourists might seem quaint and quirky. Probably annoying sometimes, too. But it's a whole 'nother thing when you're trying to run a business and there's a problem at your company and they can't reach you."

Woodard doesn't believe the lack of connectivity in parts of the county has had a big impact on real estate values. Still, she recommends that people without broadband service see if they can get it before they try to sell their homes. "It is harder to sell properties to younger consumers if they don't have these services," she said. "You just can't be selling to 60- and 70-year-olds — although we are seeing older people getting more concerned about this, too."

Agriculture and tourism

Perhaps the dependence on digital technology, however, is strongest among local businesses and tourist destinations, for whom it has become increasingly vital. That's even true of the one most responsible for Rappahannock's pastoral identity — agriculture. Today, there are all kinds of mobile apps designed to help farmers. As Mike Peterson, founder of Heritage Hollow Farms, explained, a pasture-mapping app provides an aerial view of a farm and records the daily movements of livestock so a farmer can closely track grazing patterns. Another app keeps detailed records of each cow and calf, including the weight of each animal.

"You have all of this in real time instead of making a note of how a calf looks and having to go back to the office to check records, and then head back to the field," said Peterson. He and his wife, Molly, lease land for their livestock in several locations, so it's the kind of tool that could make them much more efficient. Also, he says, being without cell service when he's out in the field with animals much of the day raises safety issues.

Since many of the customers for their beef, pork and lamb come from outside Rappahannock, they also appreciate how the county can befuddle visitors. "We're young farmers and we have a small business that we think is the kind of thing that can keep people coming out here," said Molly. "But these days people don't plan ahead what they're going to do when they get here," said Molly. "So when they do, they can't find places. Or, they don't know what's here and can't find out on their phones."

Or, maybe they come out to Rappahannock and then want to let their friends know about it — usually without much success. "People take pictures of themselves having fun and they want to share photos with their friends," said Mary Ann Dancisin, general manager of Narmada Winery. "They've become so used to instant communication. But they usually can't get on



**"Not having cell service for a weekend for tourists might seem**

**quaint and quirky... But it's a whole 'nother thing when you're trying to run a business and there's a problem at your company and they can't reach you."**

**ADAM BEROZA, CHERI WOODARD REALTY**

social media out here so their friends may never hear about us. It definitely has a negative impact."

It's a common refrain of those whose livelihoods largely depend on the habits and memories of strangers. During the past decade, for better or worse, behaviors have changed, expectations are different. It's certainly something Gary Aichele has learned during the past three years he and his wife, Wendy, have owned the Gay Street Inn in Washington.

"A lot of people don't do much homework any more before they get in the car," said Aichele, who's also a member of the Washington Town Council. "They don't look at maps. They rely on their phones. The truth is there's no one who needs to come here to stay with us. It's a choice. So what drives the economy of Rappahannock? Hundreds and hundreds of people making choices about how they spend their money. They don't have to come here. They can go to Luray. They can go to Winchester. They can go to Frederick, Maryland.

"My experience is that the economy here is pretty fragile," he added. "The idea that we can assume that things will go on in Rappahannock as they have in the past is, I think, naïve and dangerous. I think the county's well-being hinges on a fairly subtle and complicated mix of doing everything we can to keep farmers farming because that's what creates the landscapes, but also doing everything we can to have as many entrepreneurs and small businesses doing as well as they can."

It's one of the more vexing challenges faced by Debbie Keyser, the county's new administrator. She's a big believer in the potential of tourism as a revenue booster. Right now, she points out, only 5 percent of the county's income comes from retail sales, lodging and tourism; all of the rest is generated through property taxes. That, Keyser says, is not a healthy balance.

And yet, there's always that anxiety about tipping things too far.

"We need to find a way to keep this type of lifestyle as the world changes around us," she said. "But to keep Rappahannock the same green community, I do believe we need better services to help with tourism. It's becoming vital to our economic health."

**"My experience is that the economy here is pretty fragile. The idea that we can assume that things will go on in Rappahannock as they have in the past is, I think, naïve and dangerous."**

**GARY AICHELE, who serves on the Washington Town Council and owns the Gay Street Inn with his wife Wendy**



BY LUKE CHRISTOPHER

The Next Generation  
To be young, and offline, in Rappahannock

By JULIA FAIR  
Rappahannock News staff

Emily Little was shocked that she had cell service when she moved onto a college campus. She grew up in Rappahannock County, where very little of that has been available.

The 22-year-old Little noticed how often her fellow students used their cell phones and laptops to check if classes have been cancelled, to turn in assignments and to stay in touch with their peers through social media accounts.

Out of necessity, millennials in Rappahannock have developed other habits.

Across the U.S., about 51 percent of 18- to 29-year-olds check their smartphone a few times an hour for a variety of reasons, according to a 2015 smartphone usage survey conducted by Gallup Panel, a research-based consulting company.

In its county-wide survey last winter, the Foothills Forum found that broadband internet access and cell phone coverage were the top two topics of concern identified by community members — and of most concern among respondents in the 18-to-34 age group.

"I'm very used to not having cell phone service," Little said, adding that her family only got satellite internet a year ago.

Now that she commutes an hour and a half to Mary Washington College in Fredericksburg from her Rappahannock home, Little finds ways around the lack of resources to complete her school work.

"I've adapted my sleep schedule, unfortunately," Little said.

The internet provider at her house has a data cap, but it offers unlimited data from midnight to 5 a.m. When it nears midnight, Little said the service speeds up, making it a good opportunity to upload any assignments due the next day.

When an assignment needs to be turned in by midnight, Little finds herself driving 25 minutes to Culpeper to use the Wi-Fi at the local library or coffee shop.

Little added that she's also started to email her professors in advance to warn them about her internet connection dilemma, opening the dialogue for them to confirm that they've received her assignments.

Aside from school work, all college students try to find time to hang out with friends. In Rappahannock, Little said, that also takes a little more effort.

"I know a lot of people communicate with apps like Whatsapp or Kik that run off of Wi-Fi and not cell service," Little said.

She also takes advantage of the Facebook Messenger app, which acts as a texting tool, to keep in touch with her boyfriend when he's on the way to her house, Little said.

While Little is at work at the Thornton River Grille, she said she gets more cell phone service because of a cellular-over-the-web signal booster at the restaurant.

"[The boosters] feed off of the Wi-Fi and they boost any sort of residual signal you might have," Little said. "With that booster I get three bars of 3G and I can make a call from there."

She added that she, along with the many in Rappahannock, uses a Sprint phone because of the carrier's cell towers spread around the county.

Next to the Thornton River Grille is Rudy's Pizza, where a few more millennials work their day jobs, but also work around the sparse internet and cell service.

John Strew, 19, lives in Madison, but drives to Rappahannock for his job at Rudy's. He has AT&T as a cell provider, so he has to find other forms of communication.

"Most of the time it's Facebook Messenger or Snapchat because you have to use Wi-Fi," Strew said.

Planning ahead is essential to staying in touch with his peers, he said.

"It's kind of painful when you think about the cell service out here," said Cory Massey, Strew's co-worker, who grew up in Rappahannock.

When he was at Rappahannock County High School, Massey said, there was almost no way to do his homework at home because his family had dial-up.

"I work off of a hot spot now but back then there was nothing," he said.

At the time, Massey did all of his work at school or the library.

He added that he hopes the future of Rappahannock includes more cell service.

"It can be very very beneficial to the county," Massey said. "It doesn't have to be perfect cell service, you just need cell service for the kids."

*Julia Fair's internship with the Rappahannock News is underwritten by the Foothills Forum.*

SUPERVISORS

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for its EMS cost-recovery program, a two-year-old effort by the county to seek reimbursement from Medicare and other insurers for ambulance trips from Rappahannock County to other medical facilities. The program has been troublesome enough over the last year to cause volunteer fire and rescue companies in Amissville and Washington, and possibly Flint Hill, to seek their own vendors to process the claims.

Beebout's point was that the current vendor, Medical Accounts Receivable Systems (MARS), which recently bought out the county's previous vendor Fidelis, "is ineffective and needs to be replaced." Beebout said he believed the company was missing out on an unknown number of claims, "and it's hard to tell because they don't give us any records."

Warren County, which has a similar EMS cost recovery program, recently switched from MARS to another vendor for similar reasons, Beebout said.

Beebout said SVRS and volunteer rescue squads at Castleton and Chester Gap "would like to stay with the county," a reference to the independent claim-submitting status of the Amissville and soon Washington companies, adding that "switching vendors" would help make that likely.

(The board discussed the matter of EMS Cost Recovery vendors in closed session following its public session Monday, a discussion legally kept private because it involves contract negotiations.)

Deborah Reina of Amissville appeared before the supervisors, as she has several times over the last three years, to renew her efforts to persuade the county to regulate noise — including, in her case, noise created by neighbors' dogs, and gunfire. "We have been deprived of the opportunity to have a normal life," Reina said, noting that she and her husband spent their retirement savings to build a house, which they are unable to sell, in part because of the noise in their neighborhood of smaller-lot homes on Hackley's Mill Road. The noise and lack of sleep have caused both her and her husband medical problems.

"I just want to appeal to your compassion, your sympathy, one more time," Reina said. "I was raised that if you do the right thing, you would be rewarded. But apparently some people don't live that way anymore."

After a long discussion later Monday, during which County Attorney Peter Luke again reiterated the difficulties faced by the county, not so much to craft a noise or "nuisance" ordinance but to enforce it, the supervisors decided to schedule a public session this fall. The public hearing would not be tied to a vote on any noise ordinance, but would give the public a chance to air their views on such regulation — much as last winter's hearing on the "idea" of regulating future residential lighting to preserve Rappahannock's "dark skies."

Deak Deakins of Rock Mills rose to criticize the board, "for which I have had the utmost respect over the last 32 years," for ignoring his requests, at five board meetings since January, that they consider reducing the speed limit along U.S. 522 through the village of Woodville from 35 to 25, as it is in the village of Sperryville and the town of Washington.

Deakins' daughter and young grandchildren live along the road, down which he says vehicles speed routinely every day. He called out Stonewall-Hawthorne Supervisor Chris Parrish, who Deakins said responded in an "insensitive" way, saying in an email that "a child hit by a car doing 25 would suffer the same injuries as a car doing 35."

"The first thing I would

like to do is apologize to Mr. Deakins," Parrish later said, as the board heard from County Administrator Deborah Keyser that VDOT had determined that the speed limit, reduced to 35 through the village from the 55 mph limit to the north and south, was adequately slow, after conducting a study.

Keyser said VDOT suggested the county create and maintain "Children At Play" signs at either end of the village, and the supervisors asked her to start the process of creating the signs.

Board of Zoning Appeals member David Konick pointed out that the adaptive use provisions in the current zoning ordinance included an arbitrary date, 1940, as a reference point for the age of buildings that could be considered for "adaptive uses," or uses different than their original purpose, such as old mills — or, in the most recent case, the F.T. Valley Store, which received a zoning permit earlier this summer that would enable its owner to reopen it as a service station.

"But what is proposed . . . really enlarges the adaptive use provision of the zoning ordinance in a way that I think is really bad. The adaptive use thing was a very narrow, limited thing for existing structures at the time the zoning ordinance was originally adopted," Konick said. He said the zoning ordinance was meant primarily as a hedge against unwanted change on behalf of existing property owners; not, as he interpreted County Luke's proposed amendment, to encourage development.

Luke later disagreed; the supervisors voted unanimously to pass the amendment on to the planning commission, with a specific request that it be considered during the next 90 days along with other proposed zoning changes and revisions of the county's comprehensive plan.

Jock Nash of Washington said he shared Konick's views on the adaptive use revision. "It's almost like the Amendment That Ate the Code. It can be very mischievous. For example, on the street that I live on, Clark Lane, there was a man named Gary Harvey who years ago went and built a home with 14 bathrooms, violated all the regulations . . . and then ran an illegal B&B for which he was punished. And now another owner has taken it over and it's failed. And here's a perfect example of somebody's who's built a huge white elephant and now the county has got to figure out what to do with it."

Nash also mentioned "right next door," a building permit for the Parma B&B, "which still has 10 bathrooms and 10 bedrooms, and they say that the owner is going to live there. But I understand that on Mitchell Mountain you have two different projects by the same owner, building these monstrosities, and we don't know what they're going to be used for."

The "adaptive use" amendment will cause "all kinds of problems," Nash said.

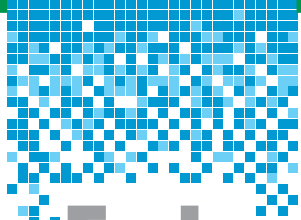
"And I would like it, if you are going to come up with an amendment, that first of all, tell us what the evil to be remedied is," Nash said. "And then give us some explanation of how the amendment is different — you have here three and a half pages of typewritten code that's going to replace two sentences."

Page Glennie, an Amissville resident who has delivered sharply critical remarks at most supervisors meetings in 2016, most having to do with the county's volunteer fire and rescue management policies and financial structure, rose to read from prepared remarks:

"Gentlemen, once again you have forced the Fire Levy Board to approve only some of the allowed opera-

See **SUPERVISORS, Page A8**





# Embrace change? No. Adapt to it? Possibly.



BY LUKE CHRISTOPHER

**OUTBACK BROADBAND** Piedmont Broadband's Steven Bohannon (left) and Matt Shoemaker prepare to fire the Big Shot, a giant slingshot that fires a tethered weight over a high branch to set the climbing rope they'll need to service a customer's radio – which is 100 feet up in a poplar tree in Tiger Valley.

## Part 3 A look at possible next steps – and some already being taken, here and elsewhere – toward improving rural connectivity

BY RANDY RIELAND | *For Foothills Forum*

**A** little more than a year ago, close to 100 people showed up at Rappahannock County High School, hoping to get a glimpse of the county's future.

They were there for an event billed as a "Broadband Forum," and onstage was an impressive lineup of federal, state and county officials. One speaker after another expounded on how important a broadband connection to the internet had become, how it's now integrated into farming and health care, business and education.

Todd Haymore, Virginia's secretary of agriculture and forestry, went so far as to suggest that broadband access could be the key to the county being able to maintain its rustic quality of life.

It was a clear message — and yet more than one member of the audience left that night with the feeling that they'd been to a play missing its second act.

"They were telling us what we already knew," remembers Monica Worth, who runs her own communications firm, Voice, from her home in Sperryville. "People came there looking for solutions."

But the path to solutions in the rural broadband universe is seldom straight or well-marked. In communities where providing broadband access is complicated by hilly, wooded terrain, the onus is now largely on local governments — with limited funds and expertise — to make it happen. Private companies are no longer willing to invest heavily in infrastructure for so few potential customers.

See **DILEMMA**, Page A6



A RAPPAHANNOCK NEWS • FOOTHILLS FORUM SPECIAL REPORT

DILEMMA

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This creates a particularly thorny dilemma for a place like Rappahannock. In a countywide survey commissioned by the Foothills Forum and conducted by the University of Virginia’s Center for Survey Research, broadband and cellphone coverage were identified as the top two areas of concern for the respondents. But any new infrastructure would likely require at least some public funding. And, there remains a wariness here about anything that could be associated with change.

“You have several factors of demographics in the county,” noted county supervisor Chris Parrish of Stonewall-Hawthorne district. “The ones who are very eager to get broadband are the ones who can use it for their work. And they’re, by and large, fairly recent arrivals to the county. On the other hand, you have a bunch of people who have been here their whole lives and their families have been here for a long time and they don’t use the internet. And they’re having a pretty hard time paying their real estate taxes as it is. They are certainly not interested in sacrificing their lifestyle for people who need something they don’t need.”

Rural electron-ification

There are clear parallels with the push for rural electrification back in the 1930s, when 90 percent of America’s farms didn’t have electricity. Power companies weren’t much interested in wiring rural areas — it was seen as a huge waste of money — and even argued that most farmers didn’t want or need electricity. The void was filled by rural electric cooperatives, locally owned nonprofits that used loans from the Rural Electrification Administration — a federal agency created by President Franklin Roosevelt — to build power networks in sparsely populated communities.

Today, a small but growing number of electric cooperatives in the United States are taking on broadband access as part of their 21st-century missions, with the hope that it will help slow the flow of young customers from rural communities. So far, however, only one Virginia electric cooperative, BARC Electric, has made a firm commitment. It wants to install high-speed fiber-optic cable to as many as 4,000 customers’ homes in Rockbridge County and the city of Lexington, in conjunction with a major upgrade of its communications network to its substations and meters. That’s an expensive proposition — the cooperative will use a \$17 million loan from the U.S. Department of Agriculture Rural Utilities Service program — but as CEO Michael Keyser pointed out, BARC, as a cooperative, can take as long as 30 years to pay it back, instead of the much shorter time frame facing for-profit companies.

Still, BARC’s board of directors didn’t want to go ahead until it had clear evidence that a sizeable percentage of its customers would actually pay for broadband service. So, in the spring of 2015, the cooperative asked customers who wanted to subscribe to sign up online. It took only a few months to reach the goal of 1,550 interested households. Today, the number is about 1,700.

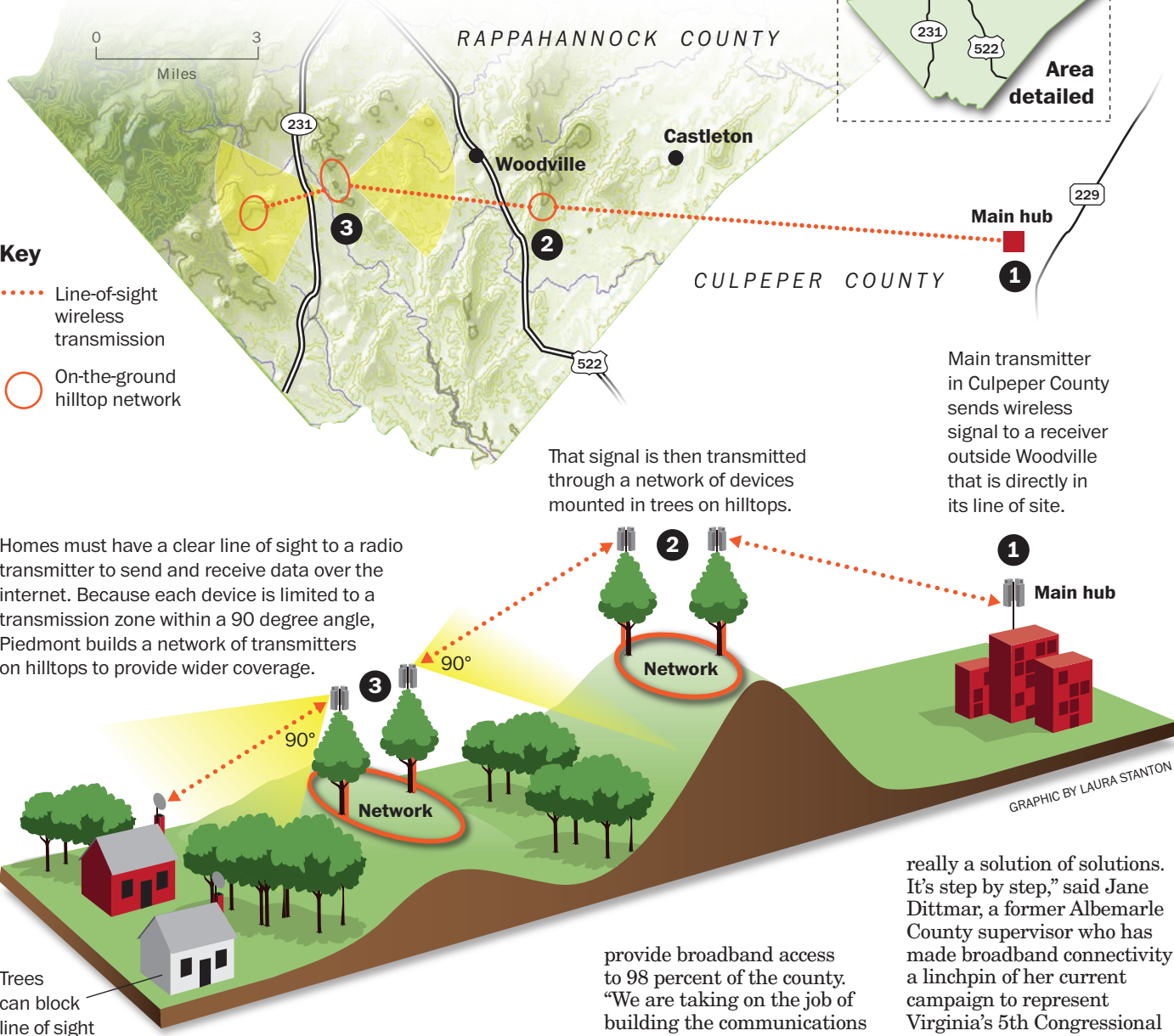
“It didn’t surprise me how quickly we reached our goal,” said Keyser, “because I know how desperate our customers are for high-speed internet.”

The onus on local governments

More often, though, it’s been local governments that have started to take on the challenge of moving the digital ball forward. A few weeks ago, Design Nine, a consulting firm hired by Culpeper County using a \$75,000 state grant, finished up a survey of residents and businesses to determine

How point to multipoint broadband works

Piedmont Broadband provides most of the fixed wireless broadband service in Rappahannock County. The example below shows how the company positions equipment on higher elevations, allowing it to relay radio signals carrying the internet around the hilly terrain.



how they use the internet and what their needs might be in the future. One early observation noted by consultant Andrew Cohill is that “we’re seeing more and more people trying to work from home on a part-time or full-time basis.”

A similar Design Nine survey was launched in late June in Fauquier County, which appointed its first broadband advisory committee last spring. So far, the county has committed \$60,000 to the consulting

to county administrator Bryan David, they’ve “made broadband connectivity their number one priority.” Last spring, the supervisors created a county broadband authority and appointed themselves to it because, David noted, “as stewards of the county, they want to have direct oversight.”

For starters, the county is putting up close to \$700,000 to tap into a 33-mile fiber optic network the Orange County School Board plans to install with the help of a grant from the FCC that covers about 70 percent of the

provide broadband access to 98 percent of the county. “We are taking on the job of building the communications highway to our citizens,” said David, who has 25 years’ experience as a rural county administrator. “It’s tough and very complicated. But education and public safety are two of the most core services of any rural county.

“I understand the risk aversion of governing bodies in rural counties,” he added. “They’re absolutely hardwired to do that, for a lot of good reasons. But we’re getting to the point where not being connected is committing your community to a trend that’s not on a positive slope. There is no steady state in a local

really a solution of solutions. It’s step by step,” said Jane Dittmar, a former Albemarle County supervisor who has made broadband connectivity a linchpin of her current campaign to represent Virginia’s 5th Congressional District. “You’re not going to work with just one company and you’re not going to have just one way of delivering the service.”

Because installing fiber optic cable to rural homes can be both onerous and prohibitively expensive, the most popular alternative is fixed wireless broadband — an internet signal transmitted through radio waves from a core source, such as a fiber optic connection, and relayed through a series of elevated radios to a dish on a person’s home. But that can be a tricky business in a place like Rappahannock where hills and heavy tree cover often get in the way, and summer thunderstorms can damage equipment.

Rich Shoemaker, owner of Piedmont Broadband in Amissville, is painfully aware of how challenging it can be to get broadband into remote areas. Having access to hilltops is key because it allows the radio signal to be bounced down to homes at lower elevations. Currently, Shoemaker says Piedmont has its equipment on about a dozen different hilltops, enabling it to provide high-speed service to about 330 customers.

He says the company’s business is growing more quickly these days—he hopes to have 400 customers by next spring—but since each installation is unique, often requiring receivers to be mounted high in trees, it is growth that tends to be incremental. To keep expanding, Piedmont will need access to more privately owned hilltops.

“Maybe one thing the county could do is give those people with hilltop land a tax break if they allow broadband equipment to be installed there,” suggests Shoemaker.

Shoemaker and his son Matt have started working with local real estate agents to determine if service can be provided to homes without broadband before they go on the market. “What I think you’re going to see,” he said, “is that some of these properties which were valuable because they were up the side of a mountain and had a nice stream and could use satellite to get TV, well, now they can’t get good internet, and those places may start to drop in value.”

The only other wireless broadband company doing business in Rappahannock is Virginia Broadband, based in Culpeper. But it has only a



BY ROGER PIANTADOSI/RAPPAHANNOCK NEWS

On the forthcoming county broadband committee:  
“If we put certain people on there, they’re going to say everyone wants broadband. Or, if you put other people on there, they’ll say there’s not a need for broadband. What are the qualifications of putting someone on a committee like this?”

RON FRAZIER, JACKSON DISTRICT SUPERVISOR

firm to assess broadband needs and develop a strategy for how and where to build out a network. Last week, Cohill told the advisory committee that, based on a preliminary estimate, a seven-year buildout of an extensive broadband network in Fauquier could ultimately cost more than \$24 million. That debt could be paid off in 15 years, he said, although that would be contingent on more than 50 percent of the households signing up for the service. In Madison County, meanwhile, the board of supervisors voted last month to form its own broadband committee.

But those initiatives amount to toe-dipping compared to the plunge being taken by Orange County’s supervisors, where, according

overall cost. At the same time, the county is overhauling its “functionally obsolete” public service radio system. That will involve erecting a network of towers—perhaps as many as 15—that the county would own. That infrastructure, David explained, would be able to house public safety antennas, but also the equipment of private wireless broadband providers—they would be charged service fees, but not rent—and also antennas of cellphone companies, which would lease the space.

It’s a major undertaking, particularly considering that each tower could cost \$150,000, but David said it’s viewed as a long-term investment that leverages the FCC grant to enable Orange County to ultimately

economy where you’re neither growing nor contracting. Find me one example.”

But tackling broadband and cellphone issues on that scale is still more exception than rule, and David concedes that without the FCC grant, Orange County would be taking a more gradual approach. That’s what usually makes the most sense for rural governments—first, identifying the sections of a county with the greatest need and demand, and then developing a cost-effective plan for building or using existing infrastructure in phases, often with one or more private partners.

No magic fix

It’s also clear that, at least for the foreseeable future, there is no magic fix. “It’s



The RappNews Poll  
Mission control

The board of supervisors will consider next month formation of a broadband committee for the county. If the committee is created, what do you think its main goals should be?

\_\_\_ Determine where the greatest needs for broadband are in the county

\_\_\_ Determine how many households would subscribe to broadband service if were to be provided

\_\_\_ Determine how much comprehensive broadband would cost and how it might be financed, including researching available grants

\_\_\_ Explore the possibility of collaborating with neighboring counties

\_\_\_ Identify potential private partners

Weigh in online at [rappnews.com/poll](http://rappnews.com/poll)



What is the Foothills Forum?

Foothills Forum is an independent, nonpartisan nonprofit supported by the Rappahannock County community tackling the need for more fact-based, in-depth coverage of countywide issues. The group has an agreement with Rappahannock Media, owner of the Rappahannock News, to present this series and other reporting projects.

More at [foothills-forum.org](http://foothills-forum.org), including:

- An archive of past news coverage of cellphone and broadband issues in Rappahannock

- Links to the April series examining results of the Foothills Forum Survey and a PDF of the full report

- The media agreement between Foothills Forum and Rappahannock Media



DILEMMA

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relative handful of customers in the county. Back in 2008, it did have serious discussions with county officials about a proposal to install a ring of seven 120-foot-high wooden towers in Rappahannock, a project that, according to former county administrator John McCarthy, might have provided broadband access to as much as 85 percent of the county. The plan, said McCarthy, was for Rappahannock to invest about \$270,000 in the infrastructure; the cost, he says, would have been covered in five years through lease payments from Virginia Broadband. But when Piedmont’s Rich Shoemaker objected to this proposed deal without competitive bidding, and said his company could provide service without public funding, the project was dropped.

Using ‘TV white space’

A common fear of local officials is that they’ll invest in a technology that goes out of date in a few years. People hear about a Google plan to encircle the Earth with high-altitude, broadband-serving balloons, or Facebook using drones for the same purpose, and they are tempted to think that either or both, or maybe something else, will be the answer. But those projects are still in their early stages and, at least initially, will likely be focused on providing internet service to third-world countries, not a community 80 miles west of Washington, D.C.

One technology that does show some promise, however, is wireless broadband that makes use of what’s known as “TV white space.” These are the unused radio frequencies of the old analog TV broadcast bands. They served as buffer zones to prevent broadcasters from interfering with each other’s signals. For years, companies like Google and Microsoft aggressively lobbied the FCC to make those frequencies available to transmit internet data. Finally, in 2010, the federal agency gave the go-ahead.

It requires different equipment than other wireless broadband, and it has taken a few years to develop and get approved by the FCC. Now, though, broadband networks using TV white space are being rolled out in several U.S. communities, including one in Garrett County, Maryland. It’s being managed by Declaration Networks Group (DNG) a firm based in



“Broadband is complex. It’s necessary. And it’s expensive. It’s overwhelming to local elected officials. Typically, they have a hard time having the conversation on what they want broadband in their communities to look like because they really don’t know.”

**SANDIE TERRY,**  
vice president of  
broadband for the Center  
for Innovative Technology

Vienna, Va.

The Garrett County project is relevant to Rappahannock County since the terrain is so similar — rugged, hilly and heavily wooded. Advocates of using TV white space say it’s well-suited for rural areas because it has a greater range than more conventional wireless broadband. Also, it relies on lower radio frequencies, which makes it more effective at transmitting signals over hills and through tree cover.

Still, it requires installing antennas on structures at least 100 feet tall, such as a water tower or an emergency service tower, and then augmenting that with a network of “community masts” about the size of utility poles. Those are topped by radios that transmit the signals to homes and businesses. In Garrett County, according to DNG co-founder Barry Toser, the local government is covering the cost of building that network with an investment of \$750,000 over three years, together with a matching grant from the Appalachian Regional Commission. So Garrett County will own the infrastructure, but DNG, as the private partner, will run the business and is required to meet certain milestones in signing up customers.

A downside to utilizing TV white space, however, is that because the equipment is still new, it can cost at least twice as much as what’s used for other wireless broadband networks. So DNG is actually building a hybrid system

in Garrett County, using both TV white space and more conventional wireless broadband. “TV white space is not always the first option,” said Toser. “We use it when it’s the best solution.”

A cellphone option?

By contrast, cellphone technology hasn’t changed all that much since the Sprint towers went up almost 15 years ago. Still, there are ways to compensate for spotty coverage. More and more local residents and businesses are spending \$100 to \$200 for a microcell, such as Sprint’s Airave or AT&T’s MicroCell. The device boosts a mobile phone signal by acting like a mini cell tower, using a broadband connection to route calls through the internet. Unfortunately, they don’t work if your internet relies on a satellite connection.

That obviously doesn’t help during a dreaded late-night breakdown on the side of a dark road. But there may soon be a remedy for that grim situation. According to Rich Biby, a communications expert and founder of AGL Magazine about the wireless industry, cellphone companies have begun migrating to a common technology, known as LTE, that will make it technically possible to provide service for customers of all carriers. It would be done through the use of small base stations along a highway. These devices would be attached to 60-foot high poles roughly a mile to a mile and a half apart. This approach would face some serious hurdles — including getting roaming agreements from the big cellphone companies — but Biby thinks it has potential as a public-private partnership. “This is the kind of technological solution that could work in Rappahannock in the future,” he said.

Unraveling the broadband tangle

There are those in Rappahannock who might find that presumptuous, who aren’t convinced that any “technological solution” should be part of the county’s future. This is a place that has neither the resources nor the focus on economic development of an Orange or Culpeper County; in fact, it has shaped its identity around not following the lead of its fast-growing neighbors. Rappahannock is also facing other issues that can feel more pressing. “We have a fire and rescue service that needs more volunteers because of our aging population,” said county supervisor Mike Biniek of Piedmont district. “There’s a question of whether we need to up the salaries of our sheriff’s deputies and our teachers so we can be more competitive.”

Sandie Terry understands how daunting and complicated the digital dilemma can seem to local officials. She’s vice president of broadband for the state-affiliated Center for Innovative Technology, and she spends a lot of her time these days helping rural counties unravel the broadband tangle.

“Broadband is complex. It’s necessary. And it’s expensive,” Terry said. “It’s overwhelming to local elected officials. Typically, they have a hard time having the conversation on what they want broadband in their communities to look like because they really don’t know. And they hire a consultant who does a plan. But what if they don’t really have the conversation about their community until after they’ve paid a consultant to do a plan. Then it’s a little too late.”

Terry says she encourages local communities to first make a serious assessment of not just who has access and who doesn’t, but also where the greatest needs are, and how broadband coverage fits in with the goals of how a county wants to evolve. It’s also important, she says, to clearly gauge demand and focus on how to raise the community’s “digital literacy.” “Do we want to get broadband to all these homes so that people are entertained? No, we want to get broadband to those homes

so those people can improve their lives,” Terry said. “Well, guess what — if we don’t show them how they’re going to do that, they’re not going to subscribe to the service because they don’t see the benefit.”

Terry’s a big believer in public-private partnerships, but contends that doing a comprehensive assessment, plus identifying what a community can bring to the table — infrastructure assets, grant opportunities, simplifying the permit process — can give local officials more leverage when they go looking for partners. That level of knowledge can likewise benefit a county when it goes in search of grants.

“You see counties go after grant money and then they decide what they want to build,” she said. “Instead, figure out what you need and what your goals are, and then figure out what funding is available.”

Hitting the reset button

That notion of communities taking the initiative in mapping their digital strategies would seem to resonate with at least some of those who left last summer’s Broadband Forum disappointed.

“I think the next step is to put together a plan,” said Adam Beroza, of Cheri Woodard Realtors. “We need to know what we may have to invest and what we would get back. We can’t really have a rational discussion about this without a roadmap that says this is how we get there.”

Adds Gay Street Inn owner Gary Aichele: “What is the vision for 25 years out for this remaining a viable county? I’m a realist. When a community loses control of its future, there will be forces that have been waiting, who will come in, and then you lose all control. There are

The whole series

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always forces that will push to develop unless there’s something strong enough to hold them back.”

County supervisor John Lesinski of Hampton district acknowledges that it may be time for the county to hit a reset button. “The overarching feeling here is that we keep things the way they are. I agree with that, but I think this technology allows you to do that. It doesn’t have to be an either-or choice.

“We as a board need to be proactive and study our options and involve the community. And I feel we need to do it sooner rather than later.”

Earlier this month, county administrator Debbie Keyser took a first step by asking the supervisors to consider the creation of a broadband committee. It’s on the agenda to be discussed at their September meeting.

“I don’t see what a broadband committee can

hurt,” said Chris Parrish. “If there are knowledgeable people who want to volunteer at no cost to the county to discuss opportunities for broadband, there’s no harm in that.”

“I’m not totally opposed to this, but it depends on who you put on the committee,” added supervisor Ron Frazier of Jackson district. “If we put certain people on there, they’re going to say everyone wants broadband. Or, if you put other people on there, they’ll say there’s not a need for broadband. What are the qualifications of putting someone on a committee like this?”

For his part, Lesinski feels it’s important that it be made up of citizens. “We’ve got smart minds in the county and it’s got to come from a citizen’s group as to how we go about broadband, if we go about it at all.

“I would hope the citizens committee would look at everything from how feasible it is to what would it cost,” Lesinski said, “and what’s the best way to go about this, given how quickly the technology is changing. We can take advantage of all that’s being learned around us.

“Although,” he added, “we are in a unique situation.”

That is really the heart of the matter. There are lessons to be learned from how other rural counties in Virginia deal with a pace of change few could have foreseen. But Rappahannock is its own place, with its own wary view of the future. Ultimately, many questions will be asked in the coming months, but one will be behind them all.

Can a community adapt and not change?

➤ **Editorial:** We must find a unique solution to Rappahannock’s connectivity challenges. Page A4

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