

# Buncombe County Broadband Community Profile

June 2019



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Developed by Land of Sky Regional Council for Madison County  
June 2019



# SUMMARY:

Broadband is a significant innovation in communication technologies with diverse and impactful benefits such as creating jobs and transforming education. In order to maintain economic competitiveness in a technologically advancing society, Buncombe County is working to improve its needed broadband infrastructure. This area has a diverse community ranging from well-connected urban to completely unserved rural areas. Buncombe County is a desirable place to live with increasing population growth with requisite leadership focused on progressing the county forward without leaving portions of the community behind. As educational opportunities, occupational development, and services become increasingly technologically dependent, those on the wrong side of the digital divide will be left further behind. Improving broadband accessibility helps meet Buncombe County's mission to "promote a healthy, safe, well-educated, and thriving economy with a sustainable quality of life".

Broadband internet is no longer a luxury, but an essential component to education and occupational concerns tied directly to the increased pace of information dissemination. Modern education systems deliver 70% of homework through online methods. Further, students with internet access are 6-8% more likely to graduate from high school. A 1% increase in broadband service adoption is associated with a 0.3 increase in employment. Closing the digital divide is a critical component to improving the quality of life for all Buncombe County citizens particularly those transforming their opportunities through education.

The 2013-2017 American Community Survey estimates that 79% of Buncombe County households have an internet subscription, but little information is available to address connectivity concerns at the local level. This study seeks to identify comprehensive information about broadband concerns of the community in order to increase availability, adoption, and inclusivity in an effort to catalyze broadband resources for the community

# ACKNOWLEDGMENTS:

The Buncombe County Broadband Strategy Plan was a cooperative effort in the community. In particular, we acknowledge the efforts of the following people and organizations for their assistance and leadership in making Buncombe County a more digitally equitable place:

## BUNCOMBE COUNTY BOARD OF COMMISSIONERS

Brownie Newman- Chair  
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Clark Duncan- Economic Development  
Cataldo Perrone- Communications  
Max Taintor- Communications  
Dan Hasse- Communications  
Josh O'Conner- Recreational Services  
Jim Blanton- Library  
Kathy Brady- Information Technology  
Rachael Nygaard- Strategic Partnerships  
Stacey Wood- Health and Human Services

## COMMUNITY PARTNERS

Asheville Area Chamber of Commerce  
Buncombe County Schools  
City of Asheville Schools  
Land of Sky Regional Council of Government  
North Carolina Broadband Infrastructure Office  
Hunter Goosmann- ERC  
Stagg Newman- West NGN  
William Sederburg- West NGN  
Ed Katz- UNCA  
Susan Reiser-UNCA  
Terri Wells- Sandy Mush Community Center

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# BACKGROUND:

As a state, North Carolina does not currently allow local governments to treat broadband as a public utility; therefore, local and county governments have historically shied away from inserting themselves in the broadband discussion. Buncombe County recognizes that adequate broadband service is essential to its citizens and economy, and county officials have taken a more active role in recent years to entice competition and service offerings. In 2015, City of Asheville and Biltmore Forest worked with the WestNGN Phase I to assist in bringing a new provider to the region and in order to coordinate with these companies to find project viability to achieve projected goals. Currently, North Carolina has been working to amend legislation and funding potential for areas to increase broadband resources in the state. As the regional hub of Western North Carolina, Buncombe County has much of the region's mainlines for fiber assets that run through it.

Buncombe County leadership identified specific concerns regarding their broadband issues:

1. Improved Accessibility- Buncombe County has identified several unserved/underserved areas of the county that are considered unserved or underserved that need improved connectivity.
2. Digital Inclusion/Homework Gap- Students being able to complete assignments and use broadband resources to further their education.
3. Public Safety- Communications for Emergency Management teams to take care of the health and well being of the community.
4. Economic Development- Stay competitive in a technology driven economy.
5. Healthcare/Telehealth- Provide excellent healthcare for the county through digital communications.

Buncombe County is comprised of approximately 259,103 residents (362.9 people per square mile) with a median household income of \$50,040. The county's terrain is forested, and includes the Pisgah National Forest while traversed by the Blue Ridge Parkway. This includes the Great Craggy Mountains and the Blue Ridge Mountains and a section of the Eastern Continental Divide passes through it.

The State of North Carolina's Broadband Infrastructure Office performed a state-wide survey as part of a comprehensive study that identified these issues as most important: expanding broadband access, increasing adoption and digital literacy for all citizens and businesses, and developing statewide policies that enhance availability. Further, the State study cites FCC reports that show North Carolina as ranking 9th in the nation in broadband deployment with an estimated 93 percent of NC households having access to broadband. The State report also indicates that 52 of North Carolina's 100 counties have a deployment rate equal to or greater than the US average (90 percent); notably, 89 percent of North Carolina households without access live in sparsely populated areas. More specifically, the State also points out that the FCC's estimate that seven percent of North Carolinians do not have access to adequate bandwidth speeds is likely too low. Buncombe County is shown as having a broadband adoption rate of between 69% and 77% (as per White House brief). The adoption rate is derived from factors including broadband availability, income, level of education, and whether one is elderly or disabled.

# RESEARCH FINDINGS:

Digital data and insight survey results exist at the state and national level, few represent locally led granular data. As a result Buncombe County decided to pursue participating in the WestNGN Phase II demand aggregation study facilitated by Land of Sky Regional Council in 2018/2019. The survey was marketed and delivered to the community widely with specific targeting to some predicted underserved/unserved areas. The survey addressed questions related to the availability of services customers were able to acquire from local providers and identified common digital activities to which customers are most engaged.

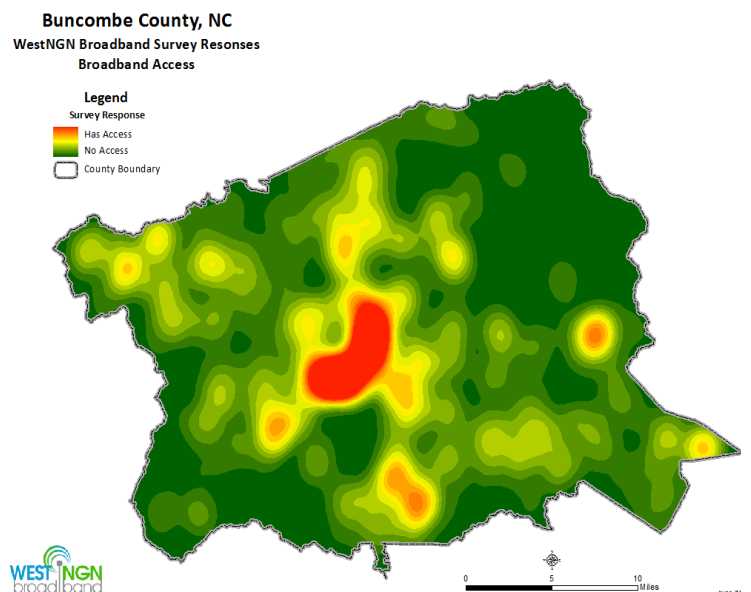
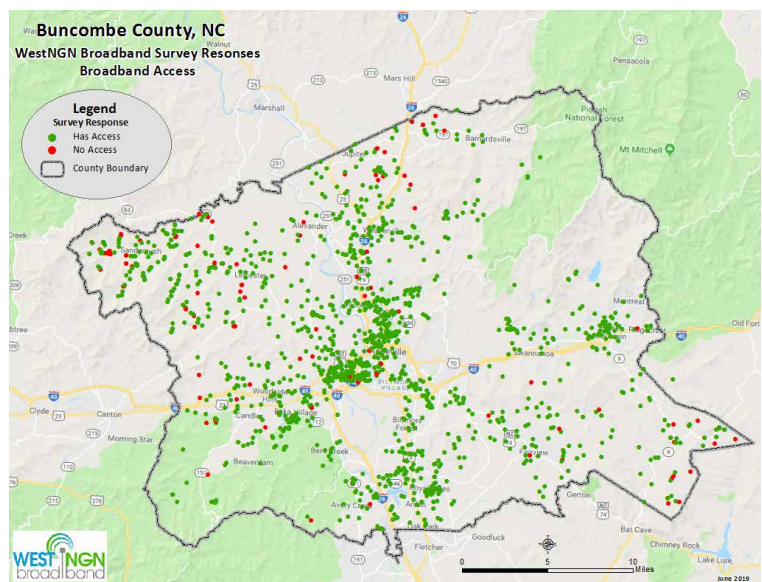
## SURVEY DEPLOYMENT:

- Paper copies and digital marketing were provided at many public spaces including libraries
- Paper copies and link to the survey were made available to every public school student
- Link to the digital survey was marketed to many non-profits and community partners
- Link to the digital survey was sent to higher education partners
- Link was distributed to industrial and commercial businesses in the county
- Buncombe County produced a comprehensive marketing plan including social media, flyers, articles, and cross departmental participation
- Some members of the community in unserved/underserved populations presented themselves to help distribute to their local geographic area
- A press release picked up by local media and announcement at Buncombe County commissioners regarding the project

These efforts resulted in 2,612 participants from the community representing approximately 2.5% of the county's population. See Appendix A for full Buncombe County survey results.

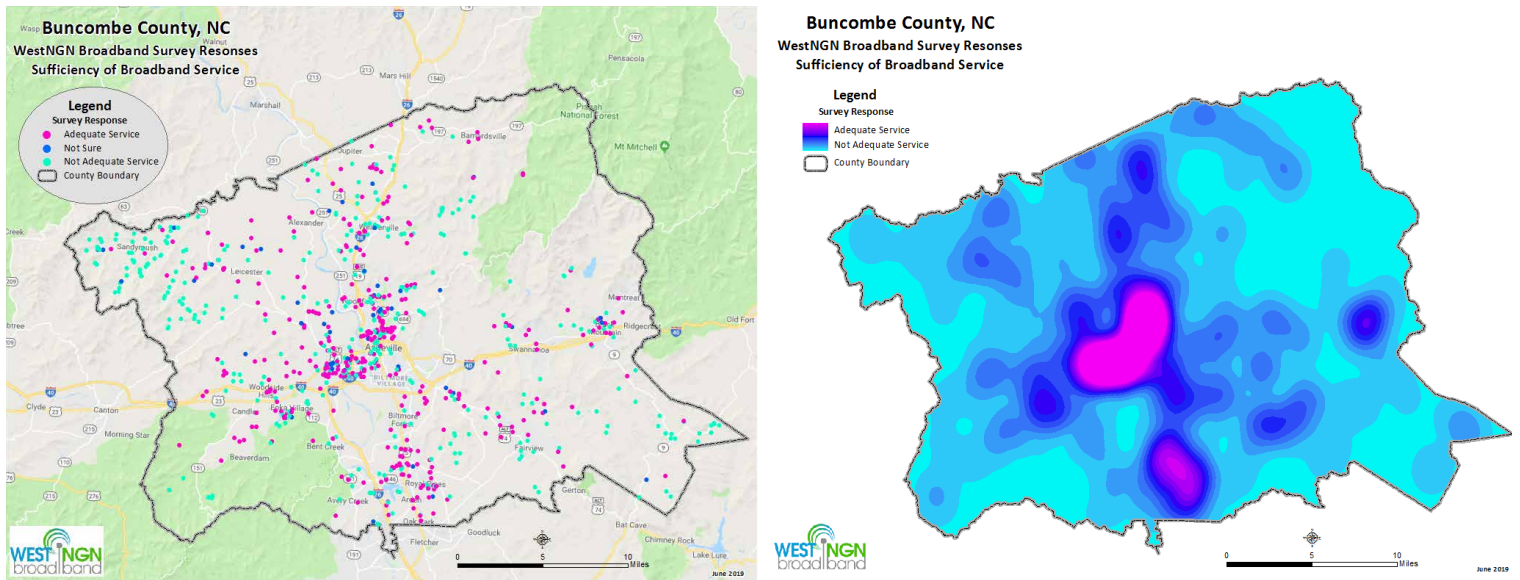
According to the survey, 9.2% of the population reports not having internet access. Due to the nature of the content of the survey it is expected that the percentage of unserved populations is over 12%.

Figures 1 and 2: 92% of Buncombe County survey responses report being considered unserved. Pockets of areas without access are sporadic around the county indicating a hybrid of true accessibility and affordability for barrier to adoption.



The more populated areas of Buncombe County are where K-12 schools, libraries, public safety, and other community organizations generally have access to higher broadband speeds. Businesses and residents located outside of the town limits in the more rural sections report having unreliable service, service unavailable or too expensive, or no choice other than satellite.

Figures 3 and 4: Over 50% of survey responses for Buncombe County show that they feel their service does not meet their broadband needs. Areas of greatest sufficiency are clustered around Downtown Asheville and Arden.



Historically, Buncombe County has been the center of telecommunications and cable services for the region with BellSouth (now AT&T) and Charter having strong regional presences in Asheville. Now, most of the region's fiber optic cable supporting local, regional, and long-haul Internet services runs through the County and interconnects in one or more of the following locations: AT&T's O'Henry central office, the Charter Asheville head end, Immedion Asheville, and the ERC Carrier Point of Presence.

Although there is a lot of fiber running through the County, there are still large portions of the County that are underserved or unserved by terrestrial or wireless service. Therefore, there remains an opportunity to expand broadband access in the County. And, as in all cases, further competitive broadband services would improve offerings and pricing. A collaborative approach towards deployment of various technologies will help Buncombe County meet the needs of its citizens.

TABLE 1: Primary service providers for Buncombe County

PROVIDER	SERVICE	BROADBAND SPEEDS (up to)
Spectrum (Charter)	Fiber optic cable cable modem	1 Gbps (1000 Mbps) 300 Mbps
AT&T	Fiber optic cable DSL	1 Gbps (1000 Mbps) 100 Mbps
Windstream	Fiber optic cable Ethernet-based	1 Gbps (1000 Mbps) 470 Mbps
RiverStreet	Fiber optic cable DSL	100 Mbps
Frontier	DSL	115 Mbps
RidgeComms	fixed wireless	100 Mbps
Skyrunner	fixed wireless	200 Mbps
Mountain Broadband	fixed wireless	
HughesNet	Satellite	25 Mbps
ViaSat	Satellite	30 Mbps

(Notes: 1. The information in the above chart was taken from broadbandnow.com (<https://broadbandnow.com/North-Carolina/Asheville?zip=28801#show=business>), 2. the Federal Communications Commission defines 'broadband' as 25 Mbps download and 3 Mbps upload), 3. the above table only captures organizations that have infrastructure in the County, and 4. the above named providers may not be able to serve all areas of the County.

NOTE: Within the framework of this document, cellular service is not being considered a satisfactory means of providing Internet service because it is most prevalent along transportation corridors and is not pervasive throughout the County.

TRESTLE ROAD

LOOKOUT TR





# RECOMMENDATIONS:

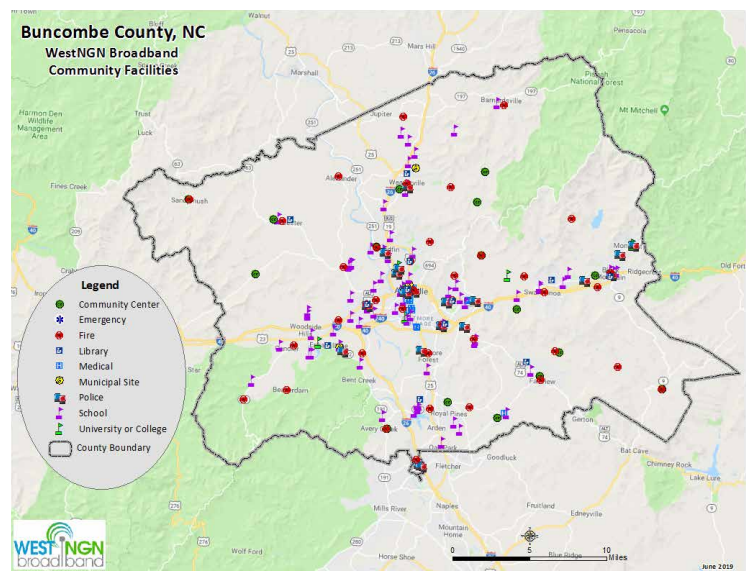
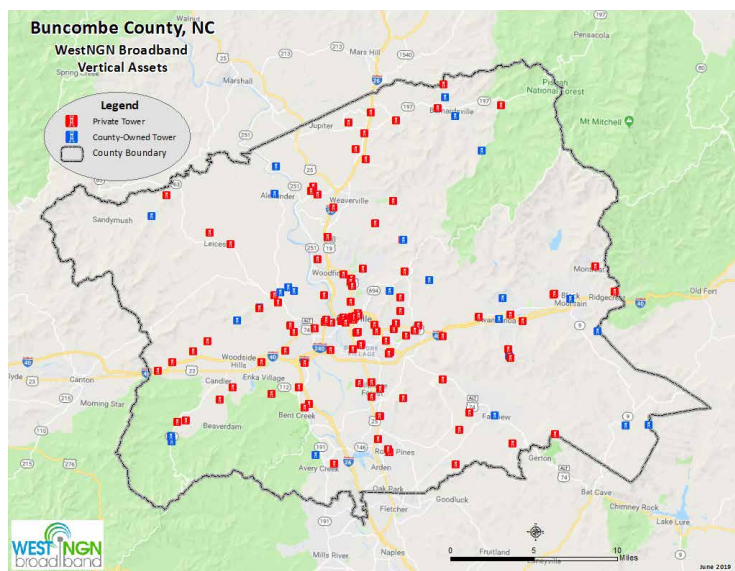
It is recommended that Buncombe County consider short-term and long-term options for the expansion of coverage as outlined below. Buncombe County is located at the hub of the Western North Carolina Region and has many of the most population dense communities. Leveraging these assets to facilitate sustainable regional deployment will facilitate improved connectivity for itself and areas outside of the county. Due to the high variations of costs for various technologies we are unable to determine a cost of deployment.

## ACCESSIBILITY:

Options for local governments to consider that may accelerate broadband deployment include:

- A. Host a provider meeting with the NC Broadband Infrastructure Office to present results, community assets, and vertical assets from the survey to both incumbent and potential new providers.
- B. There are many groups in Buncombe County interested in improving the broadband issue. Forming a Buncombe County broadband committee with various stakeholders from the community to help continue the conversation around broadband issues. It is suggested that this team work to identify progress and deficiencies in broadband access for the county. This approach will ensure that county wide efforts are being addressed on a recognized platform with public input and visibility. It will also encourage less redundancy of programming, improve viability for future funding prospects, and approve the ability to leverage additional funding.
- C. Adopting public policies that will lessen the cost of entry for new service providers, and, by offering county resources to said providers (for example, a “Dig Once” or “Build Once” policy or simplifying the permitting process - note that the State of North Carolina is considering implementing its own “Dig Once” policy. - for more information please see section 8 of North Carolina Governor Roy Cooper’s Executive Order Number 91, dated March 14, 2019 - <https://governor.nc.gov/documents/executive-order-no-91-establishing-task-force-connecting-north-carolina-promoting>).

Figures 5 and 6: Buncombe County has many Vertical and Community assets that they own and that are owed by the public sector. These assets may be able to be leveraged to help deploy broadband. See attached maps of Buncombe County Vertical Assets and Community Assets.



Pursuant to North Carolina Governor Roy Cooper’s Executive Order Number 91, dated March 14, 2019 - <https://governor.nc.gov/documents/executive-order-no-91-establishing-task-force-connecting-north-carolina-promoting> - section 5.d. speaks directly to creating recommendations to “..leverage state property and reduce barriers to the deployment of broadband infrastructure .. in partnership with ISPs.” And, in section 5.e., the order goes further to “..facilitate the use of state property and rights-of-way for broadband deployment.” This would include gaining access to State-owned vertical assets.

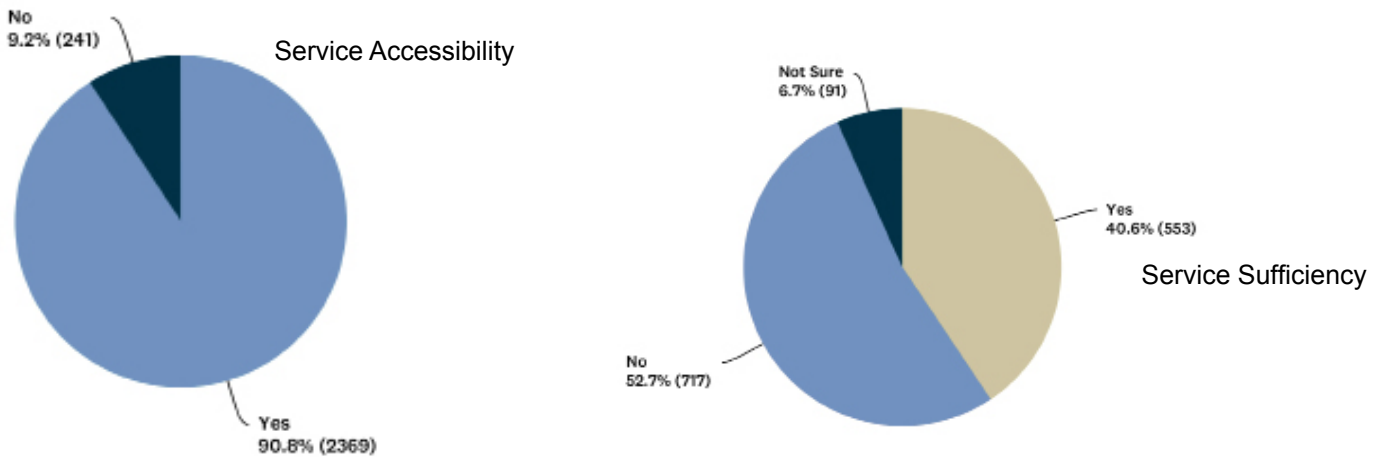
- D. Installation of strategically placed towers and connections at all anchor institutions could be beneficial to help deploy additional fixed wireless assets to the community as well as increase public safety. By creating an RFP to access these resources new providers and incumbents can increase broadband offerings to the community.
- E. A portion of Buncombe County is covered by the French Broad Electric Membership Cooperative. Working with and educating legislators about the need to change existing North Carolina laws to support rural broadband expansion. If successful, this will lower barriers to entry as well as increase infrastructure deployment. For example, the present House Bill 387 (Senate Bill 310) would allow Electric Membership Corporations (“EMC” or “EMCs”) to provide telecommunications and broadband services. See <https://www.ncleg.gov/Sessions/2019/Bills/House/PDF/H387v0.pdf> for more information.
- F. Create public/private partnerships with private and/or nonprofit providers to extend services and increase adoption.
- G. Continue to deploy and expand a County network for governmental use (including, for example, connecting government facilities via fiber optic cable and/or expanding the public safety network) and allowing service providers to lease excess strands (lessening their investment) or by performing “joint builds” to lower deployment costs for everyone.
- H. Work with providers to encourage extension or existing infrastructure to capture more customers or improve existing services such as fiber to the home. In locations where some communities may have financial resources they may be able to individually incentivize a company to improve services in their area.
- I. Utilize varying technologies such as fixed wireless and wireline to fill in the gaps of service to underserved sections of Buncombe County. As a long term solution the county could put out a Request for Proposal (RFP) to a point-to-point (or multi-point) wireless provider to create a blanket wireless solution for the entire County.

## DIGITAL INCLUSION:

Ideally every citizen who desires internet access would be able to receive it, but unfortunately there are gaps in coverage for various reasons.

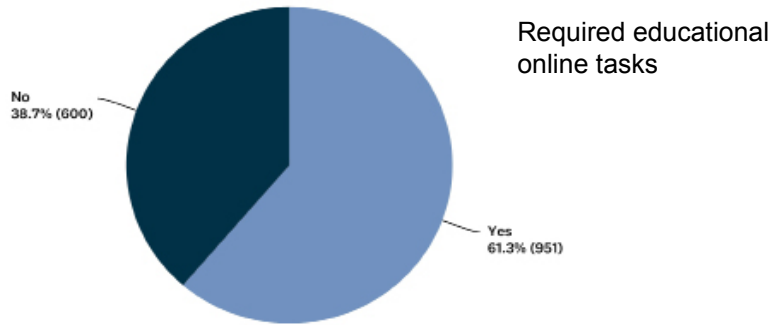
Nearly 53% of survey respondents said their service did not meet their sufficiency needs and over 9% of survey respondents don't have access at all. Buncombe County may want to consider some digital inclusion activities to help meet the needs of the community. Of survey respondents answering they don't have service “cost of service” and “service availability” ranks as the top barriers to internet adoption.

Figures 7 and 8: 92% of Buncombe County survey responses respond by having no service and nearly 52.7% of responses say service does not meet their sufficiency needs.



Buncombe County Schools already offer a 1:1 program for their students to have a device at home. These devices will be better utilized with increased adoption rates and other digital inclusion activities for the community. Over 61% of the population reported someone in their household needing to do school work or training tasks online. Buncombe Schools have also partnered with a local provider to provide hot spots with LTE data through “Project Homework” to high school students who do not have access at home.

Figure 9: 61.3% of survey responses claim someone in their household is required to perform educational tasks online.



Buncombe County has already implemented a community wifi spot in the Sandy Mush Community center that has extensive monthly visitors. This indicates this area of the county is underserved and has need for further build out, in the interim the community hot spots are good models that could be duplicated in other unserved areas. Working with the local municipalities to identify and facilitate additional locations to meet unserved areas and areas of low adoption would expand services in the community.

To help alleviate cost burdens to communities the county may consider implementing additional low cost mobile service solutions and public access locations.

1. Hot Spot-To-Go Programming- HotSpot lending programs assist with providing individuals access who can't afford regular service or do not possess consistent broadband needs. These programs are often administered by libraries, schools, non-profits, or faith-based institutions and are available for determined periods of time for free, or at a low cost.
2. Implement low cost/free mobile service solutions- School districts, public agencies, and private facilities can create additional community wifi spots to provide better coverage for unserved/underserved communities. Examples of locations include: school buses, public transportation, community centers, parks, schools, libraries, churches, downtown districts, and businesses.
3. In areas where broadband competition is viable encouraging competition in the market will help reduce cost barriers.
4. Help encourage companies to offer low cost plans to qualified customers.

Additionally- the county may consider organizing and branding this initiative locally by creating a map of these public and private locations. Locations participating in the program can get a sticker for their window/front desk that indicates participation in helping the community make sure it has broadband resources. As high quality broadband is created and marketed to these locations residents will become more familiar with the services broadband offers. This may lead to an increased demand for service as the value placed on adequate broadband rises.

## EMERGENCY MANAGEMENT:

Broadband plays a critical role in improving emergency communication systems. Upgrading broadband resources can aid in the prevention of emergencies and decrease response time in their event. Improvement will also make available a spectrum of new technologies to be utilized as avenues of communication when these situations transpire.

In 2019 Buncombe County put out an RFP to improve Emergency Responder communications for school safety through radio coverage. This practice could be duplicated to other sectors to help meet additional broadband needs in the county. The creation of additional towers in the county could help improve access to both the resident and emergency responders, especially in rural areas where fewer towers exist. And, pursuant to North Carolina Governor Roy Cooper's Executive Order Number 91, dated March 14, 2019 - <https://governor.nc.gov/documents/executive-order-no-91-establishing-task-force-connecting-north-carolina-promoting-government-agencies-across-the-state> will also be the beneficiaries of additional broadband infrastructure. Emergency management systems would be a beneficiary.

In more urban areas of the county there may be opportunities to look at SMART city technology to improve public safety and traffic concerns.



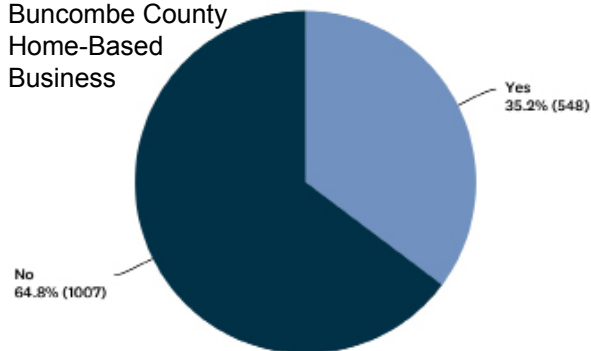
## ECONOMIC DEVELOPMENT:

Buncombe County is the metropolitan center of Western North Carolina. As such it drives much of the region's economic impact. The availability of secure, reliable, competitive, and sustainable broadband infrastructure is essential to meet citizens' needs and is a powerful catalyst for job creation that drives economic modernization. Any business or industry, small to large, rural to urban, could benefit from access to broadband. Access to broadband infrastructure is especially important to small, rural, and home based businesses because it provides a global marketplace to their location.

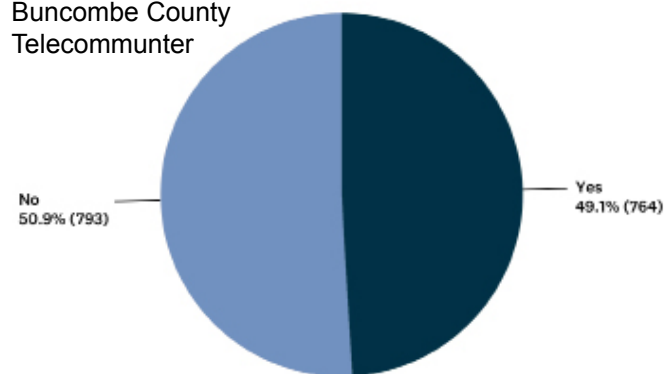
According to survey data over 35% of the population operates a home based business and almost 50% of the population telecommute for work. Broadband access can reduce overhead costs through telecommuting, directly affecting the economic health of small businesses and the local economy.

Figures 10 and 11: Business needs and potential for economic growth would be strengthened by improved broadband resources in Buncombe County. Figure 10 shows that over 35% of responses operate a home based business and over 49% say they currently telecommute to work.

Buncombe County  
Home-Based  
Business



Buncombe County  
Telecommuter



Buncombe County reports that current Economic Development sites are well covered with connectivity. Further deployment of broadband resources and redundancy in Buncombe County will increase its ability to develop more Economic Development sites and recruit more ED projects to the community. Improving and expanding fiber assets into more areas of the county will increase commercial viability in unserved areas.

## HEALTHCARE:

Increasingly, healthcare options are accessible at one's home and satellite sites. In order to support access to said services, a vibrant broadband connection is required. For example, the North Carolina Telehealth Network ("NCTN", <http://nctn.web.unc.edu/>) supports eligible healthcare providers' access to broadband services across the State through a Federal Communications Commission ("FCC") program (the Healthcare Connect Fund). See <https://www.fcc.gov/document/healthcare-connect-fund-fact-sheet> for more information.

Quality broadband is a requirement for viability of telehealth opportunities in rural areas. According to the FCC, in order to support high definition video teleconferencing the required minimum broadband speed is 6 Mbps. Buncombe County has a major hospital and many other facilities for medical treatment, but bringing specialized care to the community via telehealth will increase overall health services.

1. Bring together healthcare stakeholders to discuss how broadband speeds can work to improve the health of the community.
2. Identification of strategic sites (such as community centers, business districts, etc) that co locate with other needed service offerings could help customer participation in a variety of resources.
3. Working with healthcare providers to create a pilot program to deploy telehealth service offerings.

# FUNDING OPPORTUNITIES:

To support any recommendation, the County will need access to capital. The following groups may have grants available in support of broadband infrastructure deployment (note this list is not complete). Each respective group must be contacted to determine project eligibility:

1. USDA – please refer to footnote 4, There are community connect and reconnect grants available to eligible applicants. [www.rd.usda.gov/programs-services/community-connect-grants](http://www.rd.usda.gov/programs-services/community-connect-grants)
2. Connect America Funds (CAF) – are available to some rural areas of the county and could be available directly to the provider. See <https://www.fcc.gov/consumers/guides/connect-america-fund-phase-ii-faqs> for more information.
3. Appalachian Regional Commission (ARC) – The ARC has made funds available for rural broadband access projects. Transylvania County has participated in ARC funding for broadband. Currently, ARC projects need to be tied to Economic Development projects. [www.arc.gov/program\\_areas/index.asp?PROGRAM\\_AREA\\_ID=18](http://www.arc.gov/program_areas/index.asp?PROGRAM_AREA_ID=18)
4. The GoldenLEAF Foundation –GoldenLEAF has made funds available for economic development programs that include broadband telecommunications. [www.goldenleaf.org](http://www.goldenleaf.org)
5. State of North Carolina – the Broadband Infrastructure Office, as authorized under S.L. 2018-5, is providing grants to private providers of broadband services to facilitate the deployment of broadband service to underserved areas of the State. The Growing Rural Economies with Access to Technology (GREAT) Grant program funds eligible projects only in Tier One counties. These funds are not presently available to Buncombe County due to its status as a Tier Three county. Buncombe County officials may consider making their legislators and other state officials aware of this barrier for Tier Three counties and work to remove elements of the program that make it inaccessible to counties like Buncombe.
6. Implementation of leasing vertical and community assets to private companies could leverage additional funds to deploy additional broadband related resources to the community.
7. Building a philanthropic model of corporate and public funding to address highest needs among different barriers to adoption will increase deployment and reduce digital inclusivity concerns for the county.

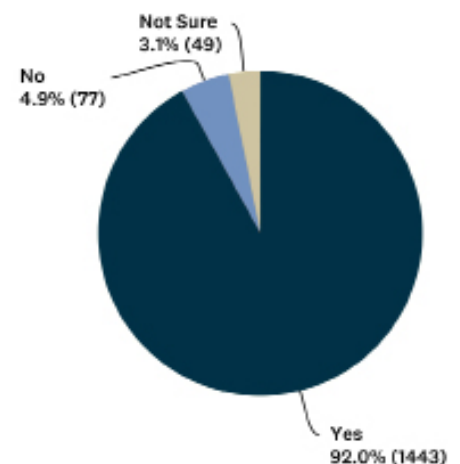
## CONCLUSION:

92% of survey responses from Buncombe County indicate that they consider internet access to be as essential as other basic services such as water, sewer, and electricity. In another question regarding a scale of importance respondents registered importance of internet access at 90 out of 100. The value of these resources from the community are very high.

Due to the high cost of implementation of fiber resources there is no fast track to closing the digital divide for Buncombe County, so helping improve connectivity access will require a collaborative approach among the communities partners. An improved and coordinated effort across the public, private, and non-profit sectors could significantly close the gap. Identification of highest priorities for the county could help play a role in leveraging funding from various resources to facilitate project implementation. This will likely require a comprehensive look at fiber, fixed wireless, and wifi/mifi improvements to close the digital divide countywide.

Telecommunication patterns follow a supply and demand model. Ensuring providers in the region receive positional awareness of the opportunities and issues is critical to improving connectivity. Through this project Buncombe County, the North Carolina Broadband Infrastructure Office, and Land of Sky Regional Council now have the data to leverage support to improve broadband resources.

Figure 12: 92% of Buncombe County survey responses say that they consider internet access to be an essential piece of infrastructure.



[1] All demographic information was taken from <https://www.census.gov/quickfacts/madisoncountynorthcarolina> and [https://en.wikipedia.org/wiki/Madison\\_County,\\_North\\_Carolina](https://en.wikipedia.org/wiki/Madison_County,_North_Carolina)

[2] Taken from the North Carolina Broadband Plan [https://www.ncbroadband.gov/wp-content/uploads/2017/02/NC-Broadband-Plan\\_2017\\_Online\\_FINAL\\_PNGs3www.pdf](https://www.ncbroadband.gov/wp-content/uploads/2017/02/NC-Broadband-Plan_2017_Online_FINAL_PNGs3www.pdf)

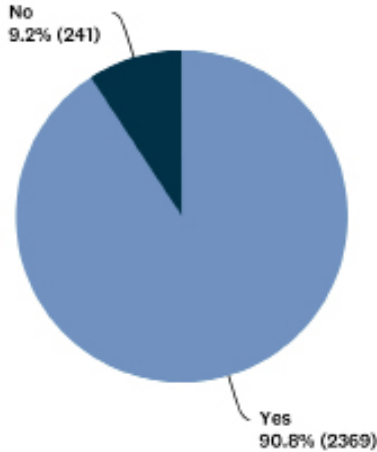
[3] The United States Department of Agriculture's (USDA) Rural Utility Service (RUS) will direct this program and rules for participation have not been released. Competition for these funds will be considerable and interested groups should start preparing now with business/technical assessments, cost analyses, engineering plans, and financial viability studies. In sum, these capital projects should be "shovel ready". <https://www.federalregister.gov/documents/2018/07/27/2018-16014/broadband-e-connectivity-pilot-program>

[4] The United State Department of Agriculture's (USDA) Rural Utility Service (RUS) will direct this program and rules for participation have not been released. Competition for these funds will be considerable and interested groups should start preparing now with business/technical assessments, cost analyses, engineering plans, and financial viability studies. In sum, these capital projects should be "shovel ready". <https://www.federalregister.gov/documents/2018/07/27/2018-16014/broadband-e-connectivity-pilot-program>

# ATTACHMENT A: BROADBAND SURVEY RESPONSES

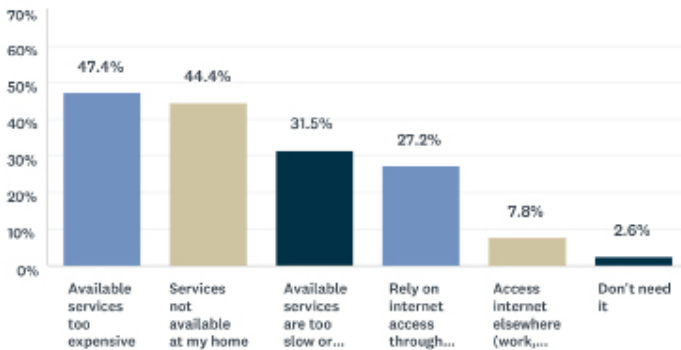
## Does your household currently have Internet access?

9.2% of Buncombe County residents claim they do not have access to Internet.



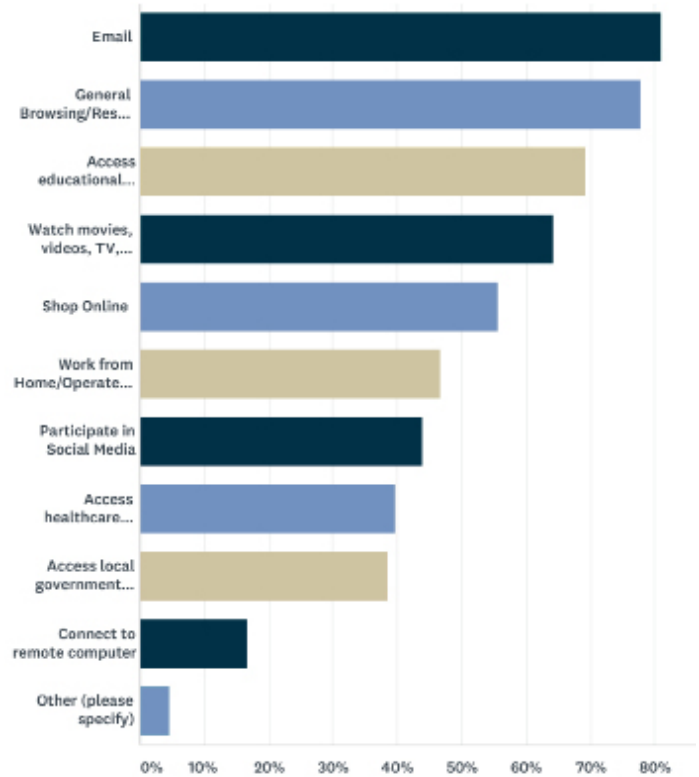
## Why doesn't your household subscribe to Internet services? (For those who do not have Internet access)

47.4% of Buncombe County residents claim cost as the most significant barrier to internet adoption. 44.4% of the survey responses claim that services are unavailable at their home. (Survey respondents were able to check all that apply)



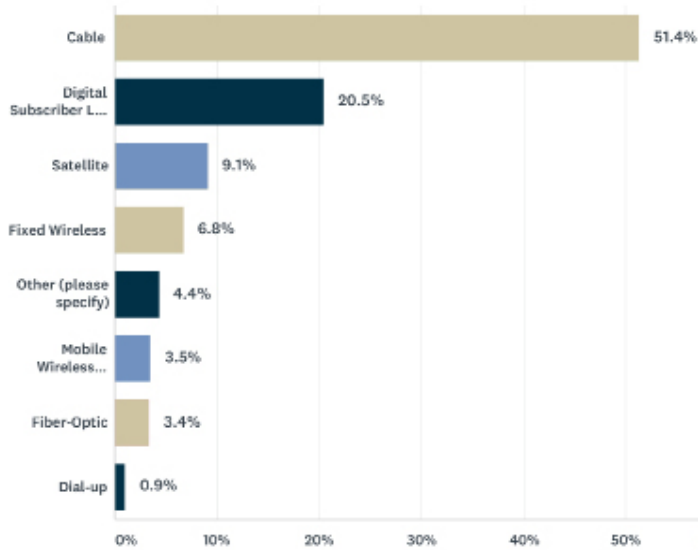
## If you could access Internet service in your home what activities would be most important to you? Select all that apply

Buncombe County residents claim Email, General Browsing/Research, and Access to Educational Materials as their top desired activities if they had access to the Internet.



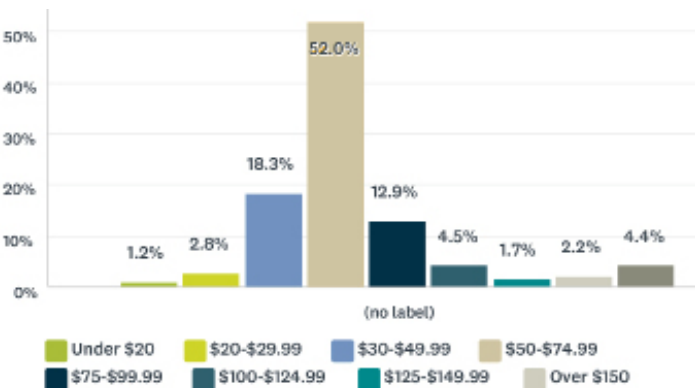
## What is the primary source of Internet service that you have at your house? (for those who do claim to have Internet access)

51.4% of survey responses claim to have Cable as their primary source of Internet. 20.5% of the responses claim DSL as their primary Internet source. Fewer responses came in as other sources such as satellite, fixed wireless, and fiber. Many people may not understand how their Internet service is delivered.



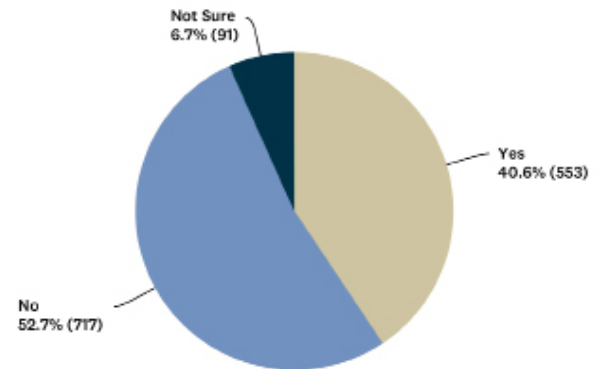
## How much does your household pay each month for Internet service, including taxes and fees? If part of a bundle or package deal, please consider only the Internet portion of your monthly bill.

Over half of survey respondents spend an average of \$50-74.99 each month on their Internet service. Over 18% claim to pay \$30-\$49.99 and nearly 13% pay \$75-\$99.99.



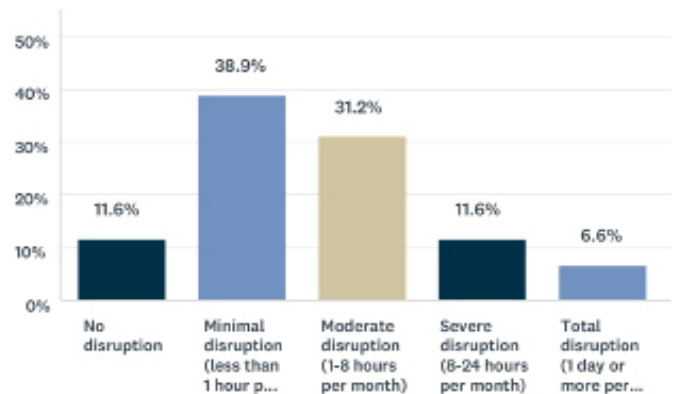
## Do you think your Internet service provider sufficiently meets the needs of your household?

Over half of the survey responses from those who have Internet service claim the service does not meet their needs, and over 6% aren't sure.



## Do you have any problems with the quality of your home Internet connection? Consider issues like service reliability, unacceptable speeds, service outages, etc. that occur during a typical month.

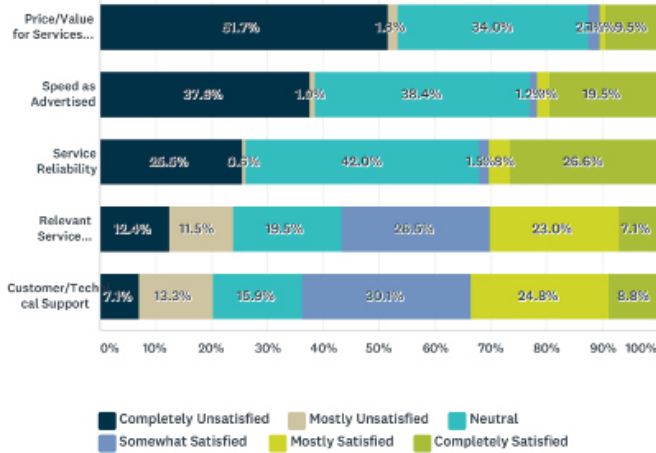
Over 70% of Buncombe County survey responses claim that service disruptions are less than 8 hours per month and 11.6% claim there are no disruptions.





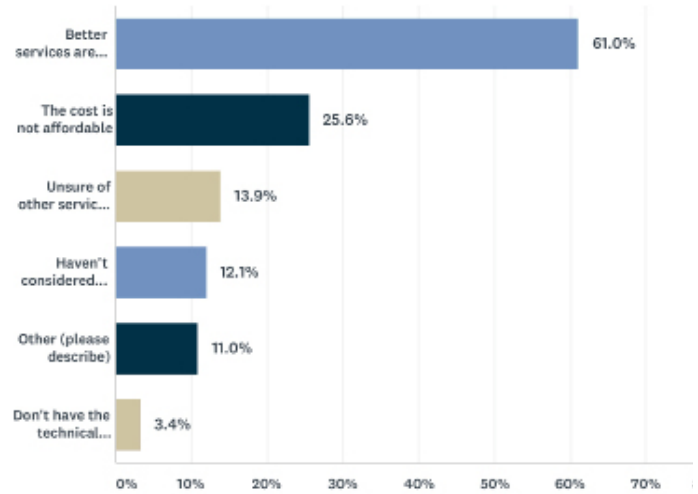
## Please rate your level of satisfaction with your home service:

Overall Buncombe County is most unsatisfied with Price/Value for services and Speed as Advertised. They are most satisfied with Customer Service and Tech Support.



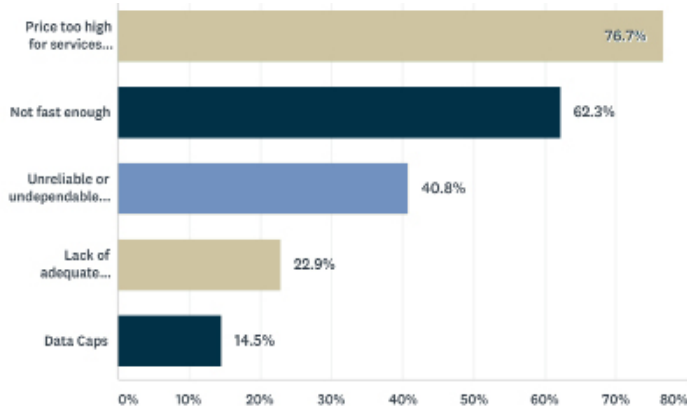
## Why haven't you upgraded your residential service?

61% of the survey responses claim that they have not upgraded their service due to a lack of better options.



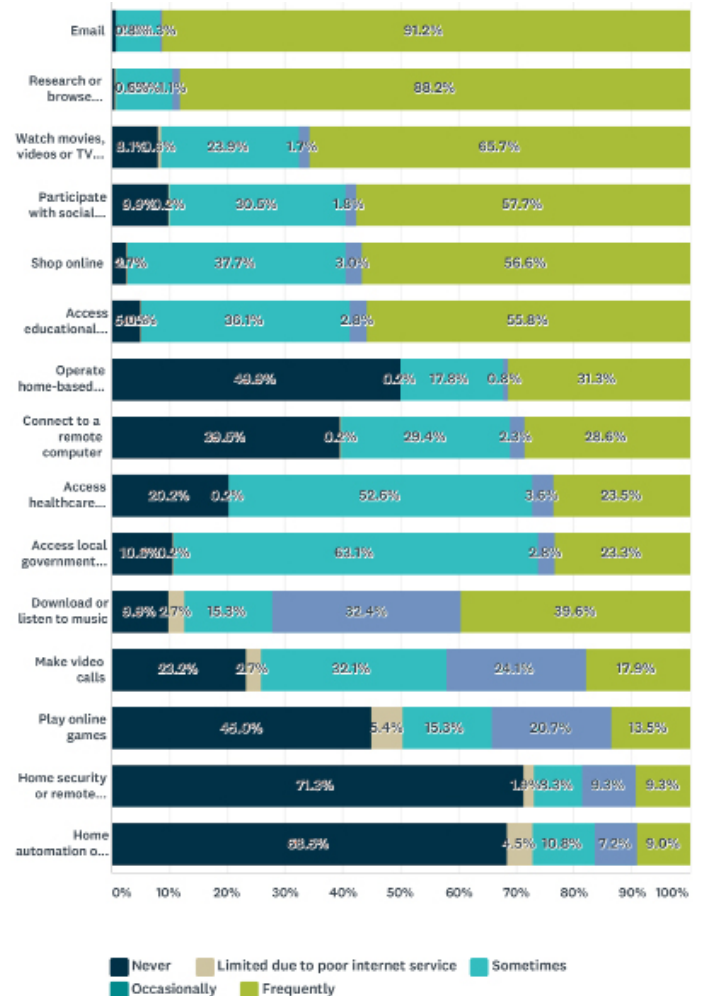
## What would you like to improve about your Internet Service?

Consistent with the previous question, nearly 78% of survey responses claim they would like for prices for the service provided to decrease. Additionally, customers expressed concerns about their speed and reliability.



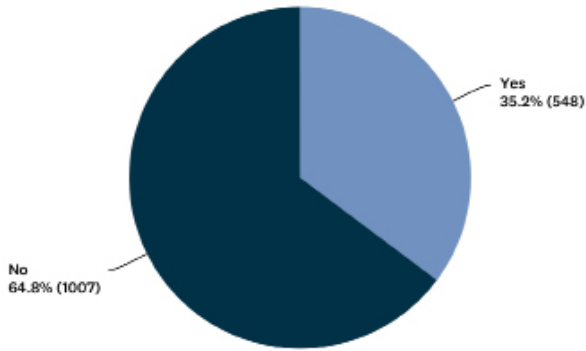
## What activities do you do through your home Internet service?

Buncombe County residents use the Internet for diverse reasons. Basic activities such as email, research, entertainment, and social media rank among the most popular.



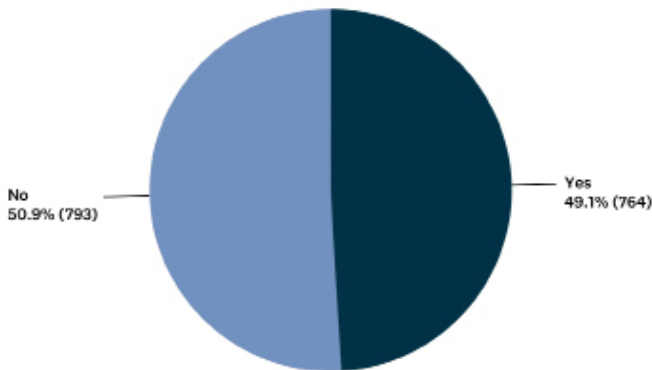
### Does anyone in your household operate a home-based business?

35.2% of survey responses claim to operate a home-based business.



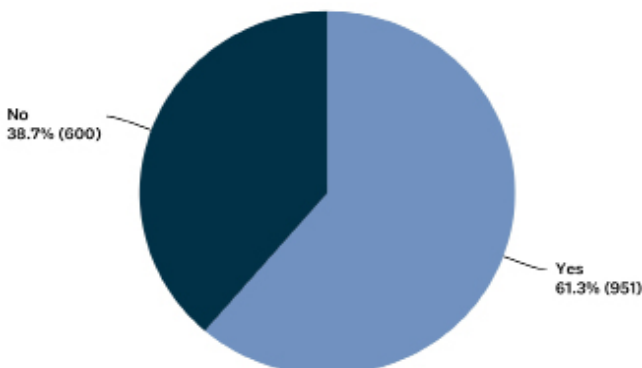
### Does any member of your household telecommute or occasionally work from home from an outside employer?

49.1% of survey responses claim to telecommute to their jobs. Based on several open ended questions at the end of the survey, the option to work from home came up as something Transylvania County residents would like to participate in.



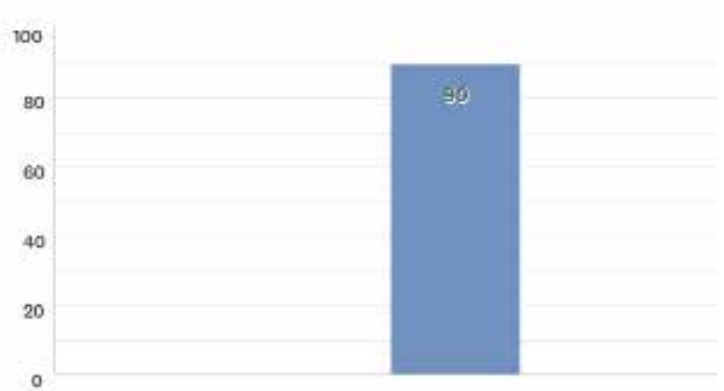
### Are any members of your household required to perform schoolwork or training tasks via the Internet?

61.3% of survey responses claim that someone in their household is required to perform schoolwork or training tasks.



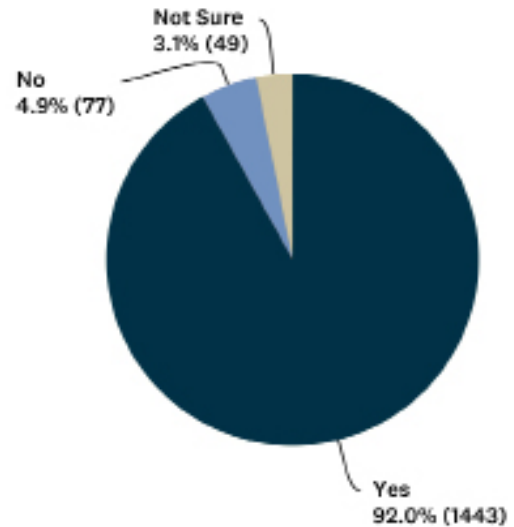
### How important is the Internet to your household?

On a scale from 1-100 Buncombe County ranks the importance of Internet access as a 90.

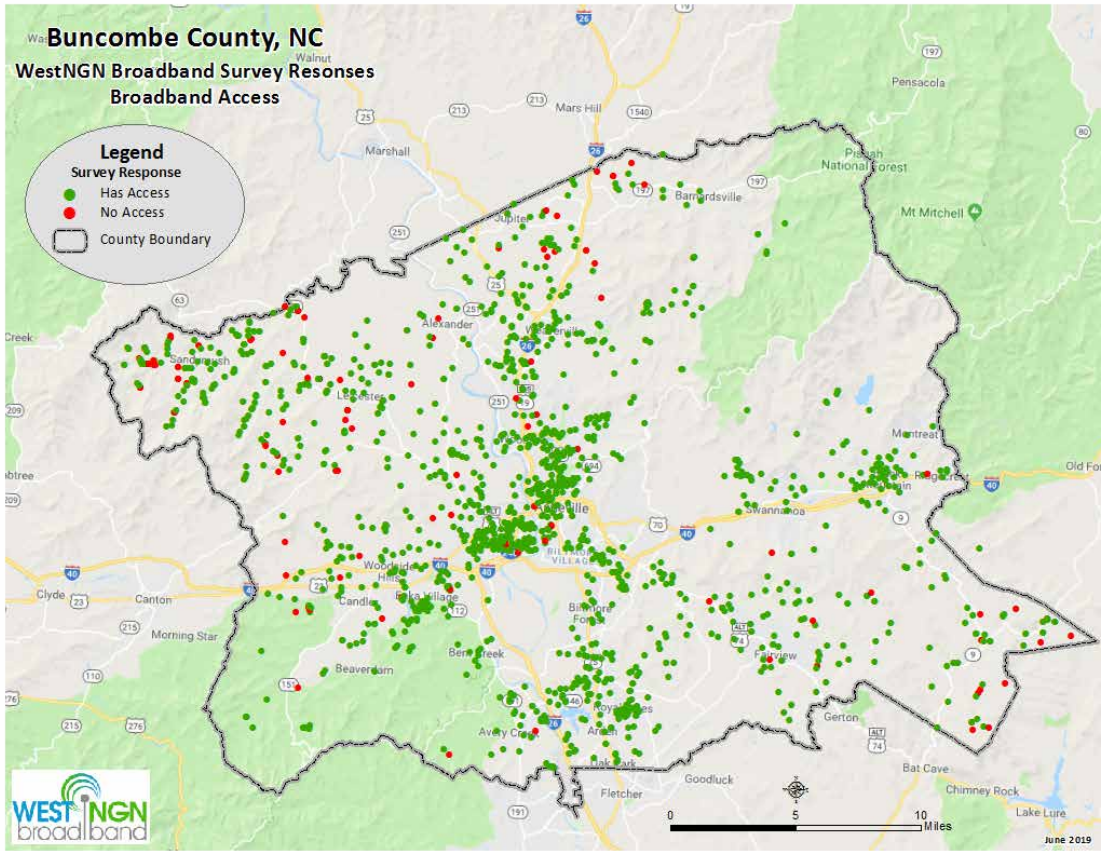


### Do you consider Internet access to be an essential service; much like water, electricity, and other utilities?

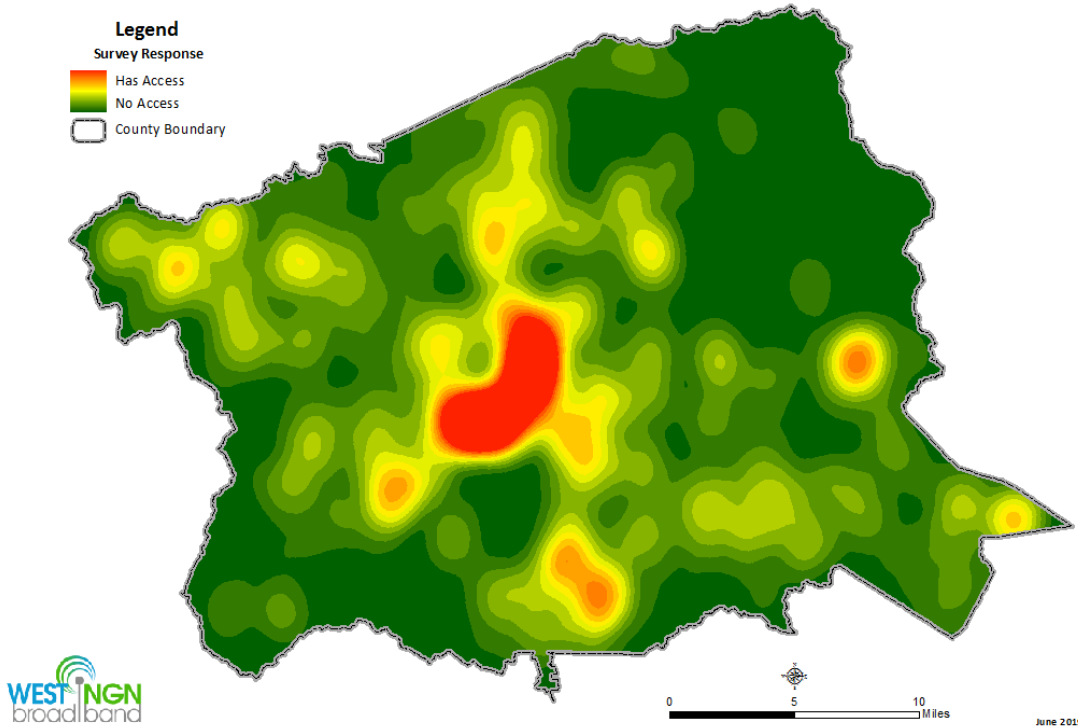
Buncombe County feels very strongly (92%) that Internet access has become a basic utility.

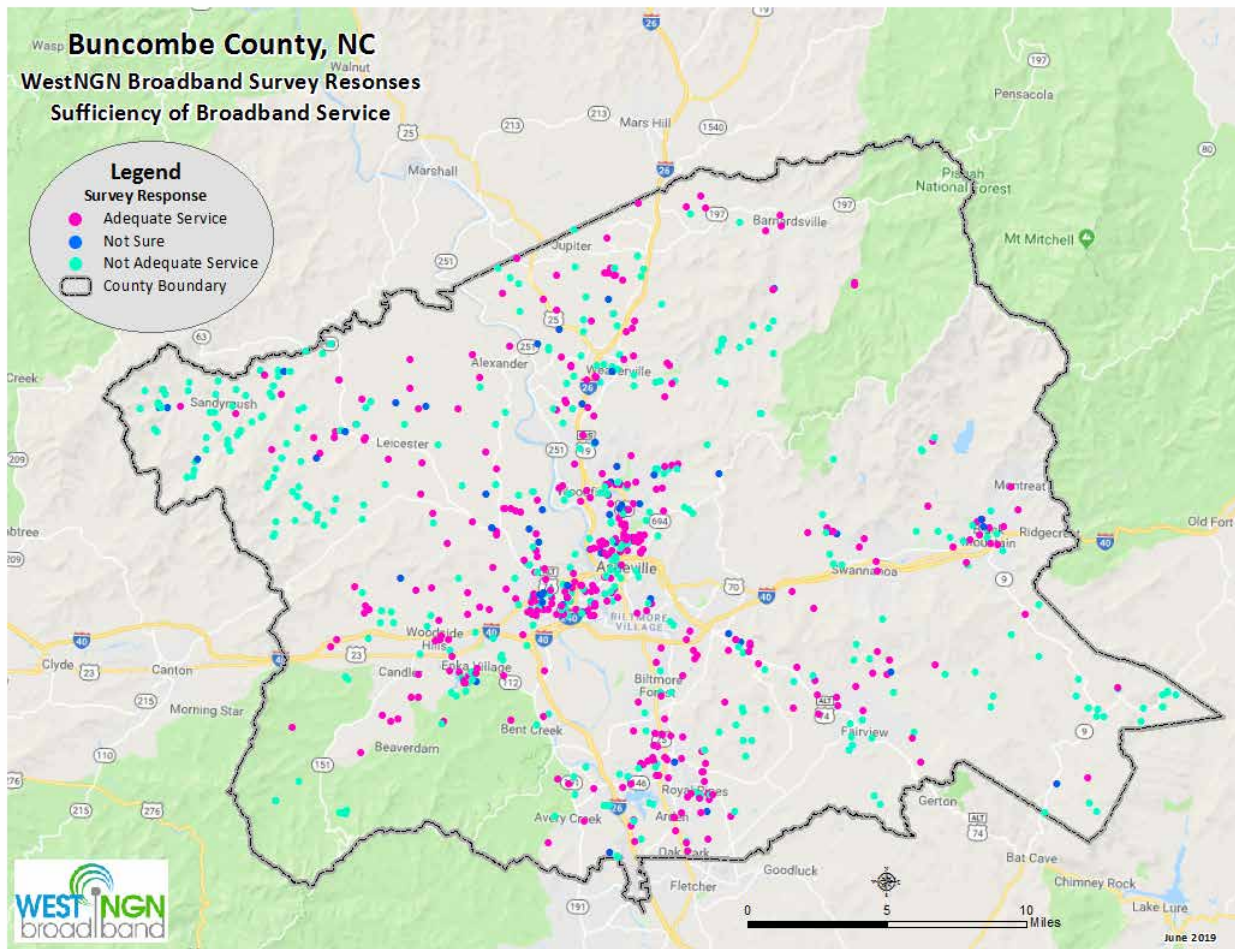


# ATTACHMENT B: MAPS

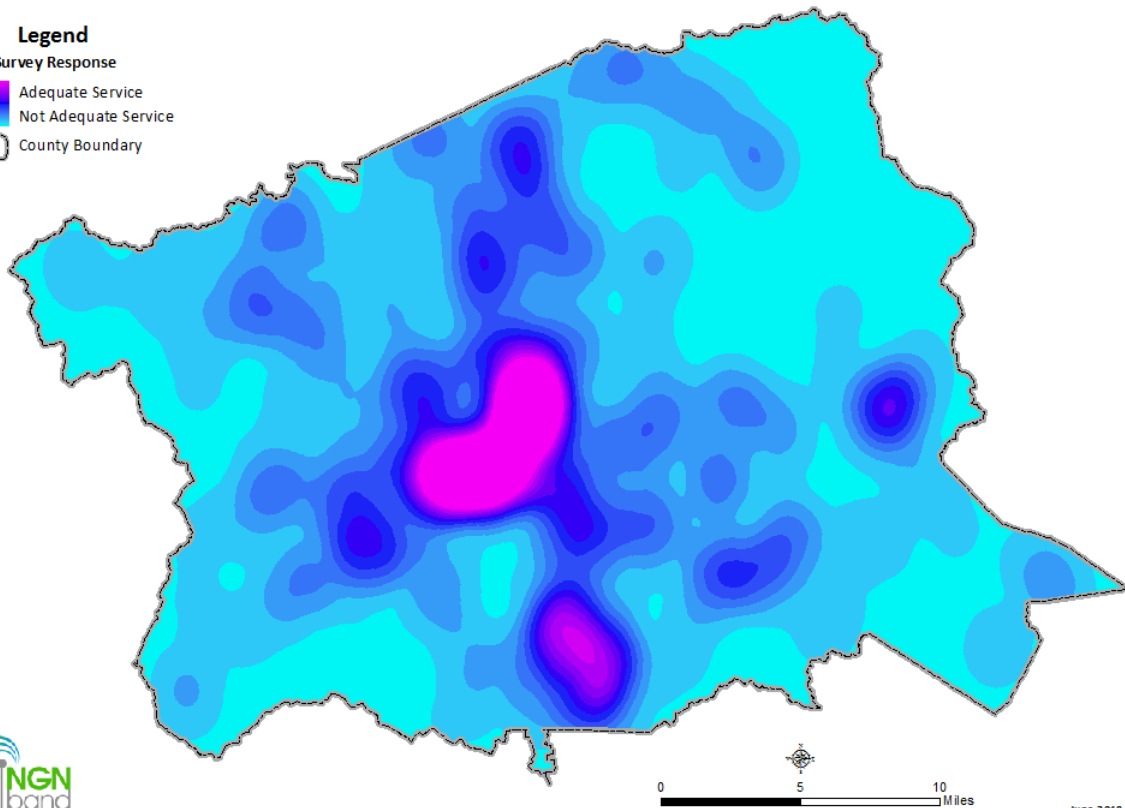
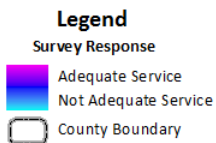


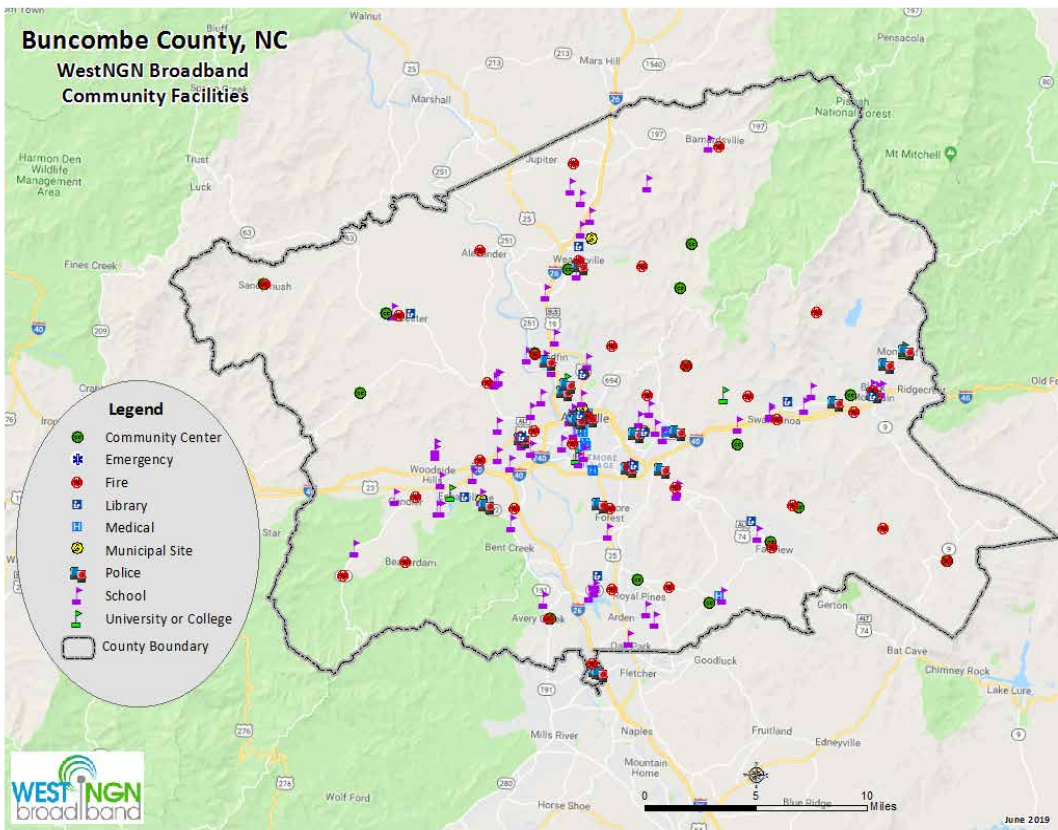
**Buncombe County, NC**  
WestNGN Broadband Survey Respones  
Broadband Access





### Buncombe County, NC WestNGN Broadband Survey Respones Sufficiency of Broadband Service





Headquarters, District IV and VII  
 Town of Weaverville Police Department  
 United States Fish and Wildlife Service - Office  
 of Law Enforcement - Asheville  
 United States Internal Revenue Service Criminal  
 Investigation Division - Asheville  
 United States Marshall Service - Asheville  
 University of North Carolina Campus Police  
 Woodfin Police Department

**School**

Carolina Day School  
 French Broad River Academy - Boys  
 Gospel Baptist Christian Academy  
 Providence Christian Academy  
 Reynolds Mountain Christ. Academy  
 Arden Christian School  
 Asheville Catholic School  
 ArtSpace Charter School  
 Asheville-Pisgah Christian School  
 Asheville High, Middle  
 Asheville School  
 Avery's Creek Elementary  
 Barnardville Elementary  
 Bell Elementary  
 Black Mountain Elementary, Primary  
 Candler Elementary  
 Cane Creek Middle  
 Christ School  
 Claxton Elementary  
 Community High School  
 Eblen Intermediate  
 Emma Elementary  
 Enka High, Middle  
 Erwin High, Middle  
 Estes Elementary  
 Evergreen Community Charter  
 Fairview Elementary  
 Francine Delany New School  
 French Broad River Academy  
 Glen Arden Elementary  
 Haw Creek Elementary  
 Hominy Valley Elementary  
 Invest Collegiate - Imagine  
 Isaac Dickson Elem School  
 Johnston Elementary  
 Koontz Intermediate  
 Leicester Elementary  
 Light of Wisdom School  
 Middle College  
 Montford North Star Academy  
 Mount Pisgah Academy  
 Nesbitt Discovery Academy  
 New City Christian School  
 New City Christian School  
 Oakley Elementary  
 Owen High, Middle  
 Pisgah Elementary  
 Publicth Buncombe Elementary, Middle, High  
 Publicth Windy Ridge Intermediate  
 ReyPubliclds High, Middle  
 Roberson High  
 Sand Hill-Venable Elem  
 School of Inquiry and Life Sciences  
 The Franklin School of InPublication  
 The Learning Community School  
 Timbersong Academy  
 Valley Springs Middle  
 Vance Elementary  
 Weaverville Elementary, Primary  
 West Buncombe Elementary  
 Williams Elementary  
 Woodfin Elementary

**Community Center**

Avery's Creek Community Center  
 Beech Community Center  
 Broad River Community Center  
 Buckeye Cove Community Center  
 Busbee Community Center  
 Cane Creek Community Center  
 Carver Community Center  
 Fairview Community Center  
 Leicester Community Center  
 Newfound Community Center  
 Ox Creek Community Center  
 Riceville Community Center  
 Sandy Mush Community Center  
 Spring Mountain Community Center  
 Weaverville Community Center  
 Woodfin Community Center

**Fire**

Asheville Fire and Rescue Station 1 - 11  
 Asheville Regional Airport Department of Public Safety  
 Barnardville Volunteer Fire Department  
 Beavertown Volunteer Fire Department of Public Safety  
 Black Mountain Fire Department - Main, 1 and 2  
 Broad River Volunteer Fire and Rescue Department  
 Incorporated  
 Buncombe County Emergency Medical Services Station 3,  
 6, 7 9  
 Enka Candler Fire and Rescue  
 Fairview Volunteer Fire Department - Main and Substation  
 French Broad Volunteer Fire and Rescue  
 Garren Creek Volunteer Fire Department  
 Haw Creek Fire and Rescue  
 Jupiter Volunteer Fire Department Incorporated  
 Leicester Volunteer Fire Department 1 and 2  
 Reems Creek Fire Department  
 Reynolds Volunteer Fire Department  
 Riceville Volunteer Fire Department  
 Skyland Fire and Rescue District 1, 2 and 3  
 Swannanoa Fire and Rescue Department - Main and Bee  
 Tree Station  
 Town of Weaverville Fire Department  
 United States Forest Service - Arden Ranger Station  
 Upper Hominy Volunteer Fire and Rescue Department  
 Incorporated - Main and Substation  
 West Buncombe Volunteer Fire and Rescue  
 Woodfin Volunteer Fire Department

**Library**

Asheville - Buncombe Library System  
 Black Mountain Branch Library

East Asheville Branch Library  
 Enka Branch Library  
 Fairview Branch Library  
 Leicester Branch Library  
 North Asheville Branch Library  
 South Asheville Branch Library  
 South Buncombe Branch Library  
 Swannanoa Branch Library  
 Weaverville - Bess Tilson Sprinkle Memorial Library  
 West Asheville Branch Library

**Medical**

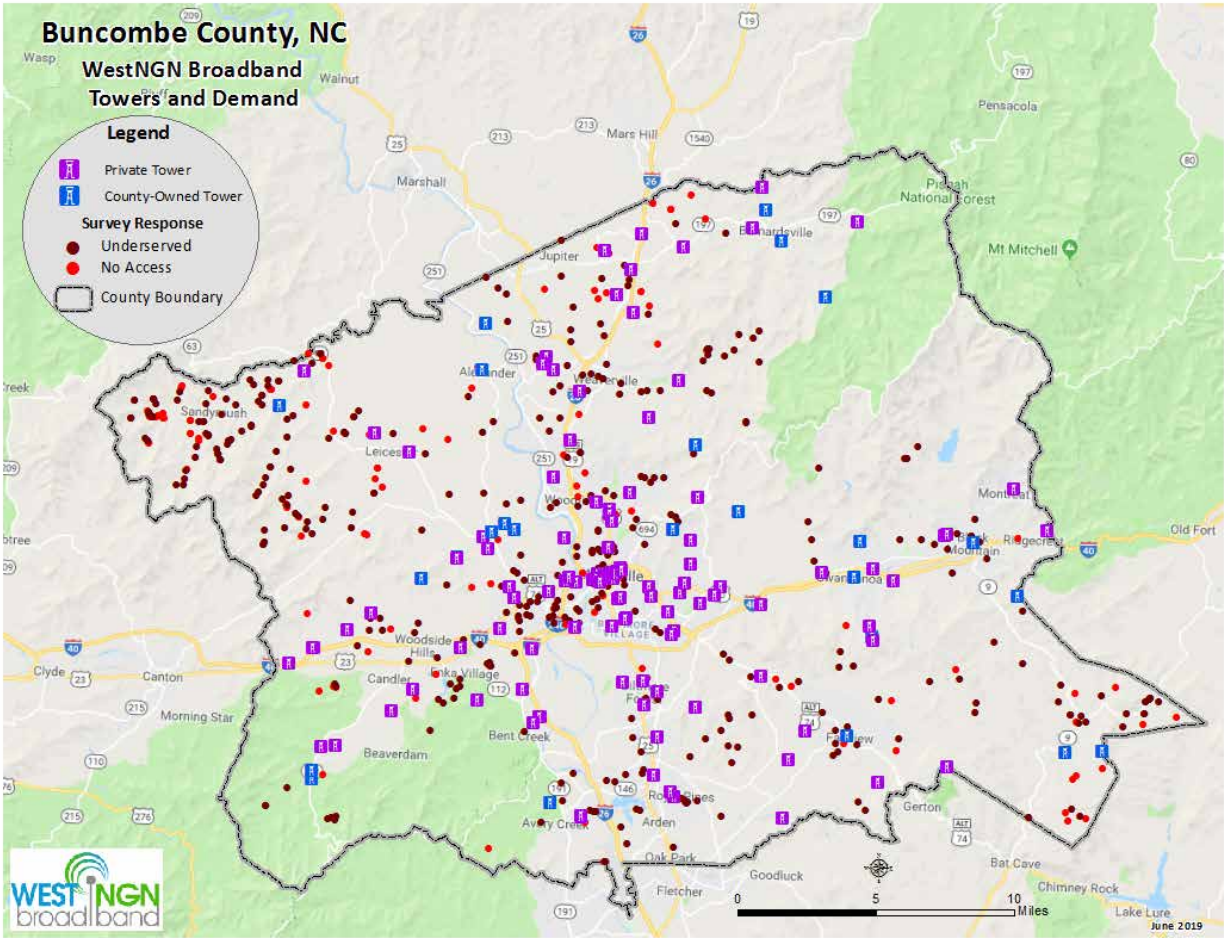
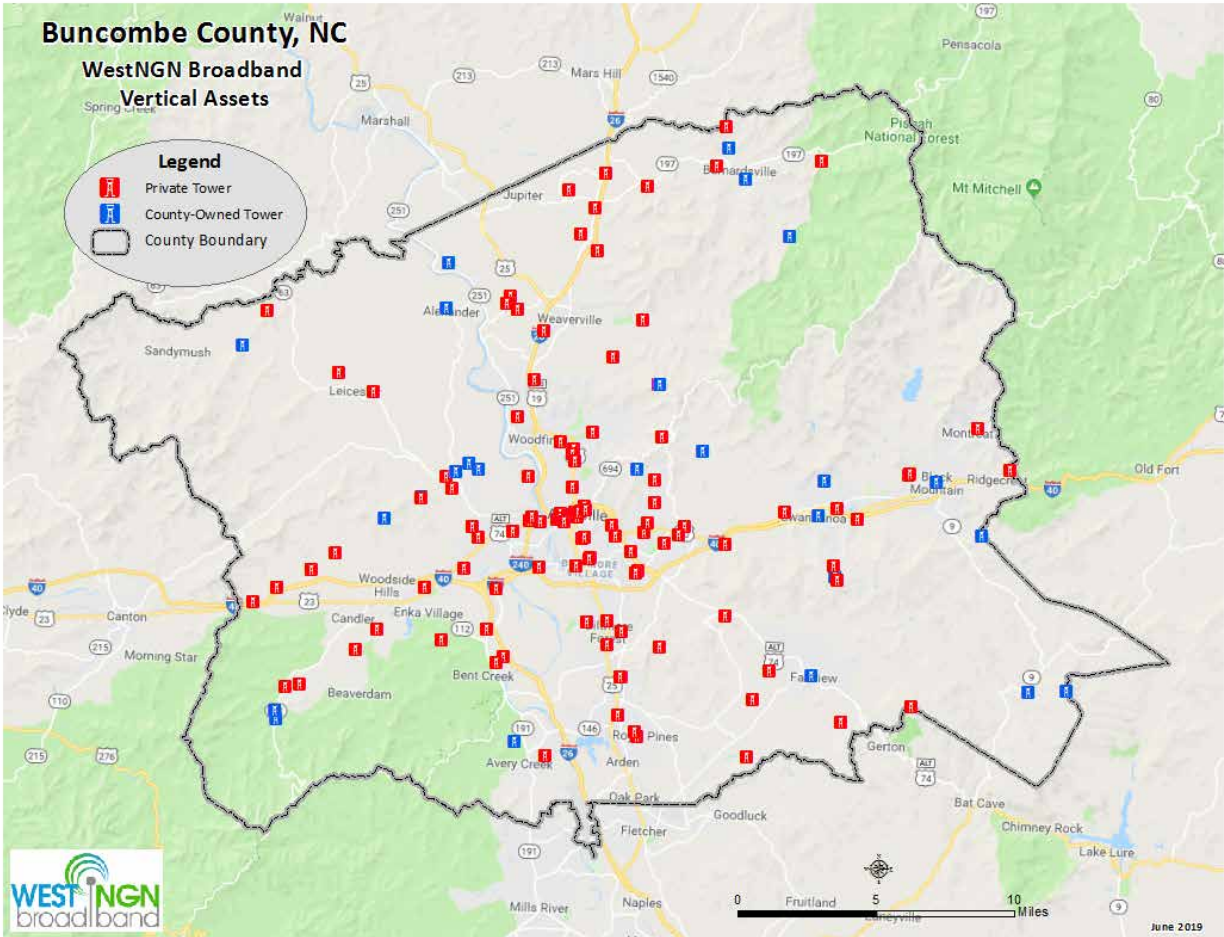
Asheville Gastroenterology  
 Black Mountain United Methodist-WIC Clinic  
 Buncombe County Dept of Health  
 Buncombe County Dept of Health - Satellite  
 Family Health Center  
 MAHEC Family Health Center  
 MAHEC Family Health Center at Cane Creek  
 MAHEC OB/GYN Specialists  
 MAHEC Women's Health Center  
 Minnie Jones Health Center  
 Mission Hospital - Memorial Campus  
 VA Medical Center - Asheville  
 Veterans Affairs Medical Center  
 Western NC Community Health  
 WNC Community Health Service

**Municipal Site**

Asheville Fire Department  
 Industries for the Blind  
 ResCare Homecare  
 Summerland Homes Inc

**Police**

Asheville Airport Police Department  
 Biltmore Forest Police Department  
 Buncombe County Sheriffs Department  
 Bureau of Alcohol Tobacco Firearms and Explosives -  
 Asheville Satellite Office  
 City of Asheville Police Department  
 East Asheville Oakley Resource Center  
 West Asheville Resource Center  
 City of Black Mountain Police Department  
 City of Montreat Police Department  
 Department of Health and Human Services Police Department  
 Montreat College - Campus Police Department  
 National Park Service - Blue Ridge Parkway Ranger Stations  
 North Carolina Division of Forest Resources - Region Three  
 North Carolina State Highway Patrol - Fletcher Satellite  
 Hanger / Asheville Duty Station office and Troop G







Buncombe County  
200 College Street  
Asheville, NC 28801  
Phone: (828) 250-4100  
[www.buncombecounty.org](http://www.buncombecounty.org)