A Framework for Broadband Availability, Access, Affordability and Adoption in Stanly County

April 2022

Table of Contents

I. Executive Summary

Digital Equity for everyone, is the goal of multiple efforts underway in Stanly County. The *Vision* behind this statement is that all residents and businesses in Stanly County will have access to robust and affordable high-speed broadband internet as well as the skills and knowledge needed to utilize it to improve their economic prospects and quality of life. The *Mission* of the Stanly County digital inclusion planning effort is the development of intentional strategies and investments needed to eliminate historical, institutional and structural barriers to access and technology use. Three principal *Values* will underpin efforts to improve digital inclusion in Stanly County:

- **Equity**: Robust, affordable digital access should be available in all areas of Stanly County and to all of its residents, regardless of their background, economic status or situation.
- **Dependability**: Broadband solutions need to be robust, sustainable, and adaptable to provide consistently high-quality broadband access now and in the future.
- **Impact**: Digital inclusion will support access and use of tools and services that empower sustainable community growth and improvement in residents' quality of life.

Thorough examination of the current broadband availability and adoption situation in Stanly County indicates the need for extensive improvement. Direct measures of availability illustrate a lack of adequate broadband-speed internet in 45 percent of census blocks in the county whose population includes approximately one-third of all Stanly County residents. Below please find five (5) specific *Goals, Strategies,* and *Action* Steps (in order of priority) recommended to address digital equity challenges in Stanly County.

Goal 1 – Leadership: Stanly County will establish structures and mechanisms to (1) ensure on-going attention and resources are focused on addressing digital equity challenges in Stanly County; and (2) prepare responses to forthcoming state and federal funding opportunities.

Actions

(1) The Stanly County Broadband Team should endorse the County digital inclusion Plan and take steps to ensure ongoing attention and resources are made available to implement aspects of the plan.

(2) The Stanly County Digital Inclusion Team should be expanded to include more stakeholders and community leaders to support outreach and engagement to residents targeted for assistance.

(3) The Stanly County Broadband and Digital Inclusion teams should collaborate in identifying priority projects in preparation for anticipated funding opportunities that specifically target digital inclusion. Potential projects could include:

- Funding a digital navigator position to provide the human capital and attention needed to facilitate collaboration, provide technical assistance, and monitor progress on this front over the next 24 months.
- Creating a strategically-located public access facility to support digital literacy training, and provide technology-rich shared and remote work facilities.
- Establishing expanded adoption of telehealth as a strategic goal for the County by providing necessary training and devices for both providers and residents.

Goal 2– Availability: Stanly County will take advantage of emerging resources and partnerships to document, expand and/or enhance broadband to (1) all unserved; and (2) underserved areas in Stanly County; and will (3) improve the precision of broadband availability maps to document eligibility to broadband funding grants and to aggregate demand data to attract prospective service providers.

Actions

1. Prioritizing use of available local American Recovery Funds to support expansion of broadband into unserved areas of Stanly County.
2. Pursuing partnerships with providers and additional external funds needed to complete extension of broadband service to all Stanly County citizens.
3. Seeking additional external funds and/or partners to address the need to upgrade existing internet service at all locations in the county to a minimum of 100 Mbps download / 20 Mbps upload.
4. Continuing outreach efforts by the County and partner organizations to increase participation in the Stanly County broadband availability survey, speed tests and in mapping efforts by the NC Broadband Infrastructure Office.
5. Preparing and sustaining maps for sharing and timely use.

Goal 3 – Affordability: Stanly County will empower strategies and partnerships to increase the ability of its residents to afford broadband services and/or the devices necessary to utilize the internet by (1) increasing knowledge of and participation of eligible households in federal broadband subsidy programs; and (2) exploring options for creating a local subsidy funding program to fill gaps not covered by federal and service provider discount programs.

Actions

1. Identifying an individual or organization to serve as de facto digital navigator who will identify and recruit participation of public agencies, non-profits and community action organizations to engage with non-adopting individuals and communities.
2. Utilizing this digital inclusion partners network over the next 6 months to mount a concerted outreach and engagement effort to encourage residents' awareness and participation in available broadband service and device subsidies.
3. Encouraging the full participation of prospective Internet Service Providers (ISPs) seeking partnership and letters of support from the County in both aspects of the Affordable Connectivity Plan – broadband subsidies and provision of low-cost devices.
4. Identifying one-time and/or continuing allocations of county resources to establish and endow subsidy grants.
5. Exploring with private benefactors and community partners possible collaborative approaches to fill shortcomings in subsidy and discount programs.

Goal 4 – Access: Stanly County will enhance digital equity through expanded access to free internet and to the devices needed to access it by (1) expanding the number of public access facilities/public Wi-Fi sites in targeted locations; (2) enhancing existing public access facilities by extending longer hours and

expanding device availability and technical assistance resources; and (3) developing local options to fill gaps in access device ownership.

Actions

1. Identifying strategic locations for additional or expanded public access and Wi-Fi sites and fully optimizing the availability of public broadband resources in Stanly County.
2. Seeking funding for expansion of the public access network through application by the County or one of its broadband partner organizations to anticipated grant programs.
3. Explore opportunities for external sponsorship by stakeholder organizations, allocation of American Recovery Program and other county and/or municipal broadband funds.
4. Proactively advocating for additional federal niche funding leveraged from programs targeting broadband in libraries, public safety, health, education, etc.
5. Engaging ISPs in the strategic provision of Wi-Fi as a condition of support and partnership in their expansion efforts.
6. Exploring partnerships with established organizations that provide low-cost and refurbished devices (computers, laptops, notebooks) and create device distribution programs.
7. Exploring the establishment of local computer refurbishment and digital literacy training programs.
8. Partnering with local government and community action organizations in a concerted outreach and engagement effort to increase awareness and uptake of the available broadband subsidy programs.

Goal 5 – Adoption: Stanly County will increase digital equity by 2027 by reducing by 50 percent the number of residents who currently do not choose to or are not able to utilize the internet by (1) creating a structure to move the needle as it relates to adoption efforts; (2) inventorying existing resources and partners to create a roadmap of available assistance; and (3) identifying and implementing options for technical assistance.

Actions

1. Creating a working group comprised of members from the existing Stanly County Broadband and Digital Inclusion teams augmented by representatives of organizations with strong ties to known low-adopting groups.
2. Securing funding to support a designated Digital Navigator to work across projects and sectors and maintain appropriate focus and momentum on digital inclusion goals.
3. Utilizing broadband survey and mapping data to visualize and locate areas of the county where demographic factors and publicly accessible broadband subscription data support targeted digital inclusion efforts.
4. Identifying options for digital literacy training and technical assistance and securing funding to address gaps and/or customize as appropriate.
5. Defining gaps and priorty solutions in anticipation of forthcoming funding opportunties.
6. Developing a comprehensive inventory of existing technical assistance in the County, including the source and level of assistance provided.
7. Exploring partnerships with organizations outside of the County that provide technical assistance as part of digital inclusion efforts; e.g., E2D in Mecklenburg County.

8. Exploring creative options with Stanly Community College and high school technical programs via the creation of service-learning opportunties to engage students in providing technical support.

Achieving the digital equity goal will require commitment and active participation of all players in Stanly County's broadband ecosystem – government, residents and businesses, non-governmental organizations and broadband service providers. Stanly County government is committing up to $2.0 million of its American Recovery Plan funds to leverage solutions to the digital gaps in the County. This plan defines targeted opportunities for the broader effort needed to make Stanly County a digitally inclusive and more competitive community.

The primary elements developed in the Stanly County digital inclusion planning effort along with the concurrent mapping effort converged on locations and actions the community itself has identified as priorities for action. Beyond this, by striving to enlarge the overlap between the competing elements of existing needs, community-identified priorities and the capacity of stakeholder partners and funding to meet the needs, a compelling and effective strategy emerges that can empower Stanly County's full participation in the digitally-intense economy.

The Convergence of a Strategy

II. Introduction

We live in a world where more aspects of daily life and commerce transpire over a digital platform. Where the ability to access and benefit from education, healthcare, employment opportunities, civic participation, public safety, entertainment and even fellowship with our faith communities takes place over the internet. Moreover, this internet interaction requires applications that must simultaneously meet high speed specifications, and more sophisticated electronics and user-friendly operations. Covid-19 only accelerated a transition already underway, and there is no going back. The bold fact is that individuals and communities lacking access to digital resources and the skills to use them will have limited prospects and the communities where they live and work will become less economically competitive. Stanly County is committed to ensuring its citizens and businesses are not excluded from the digital economy.

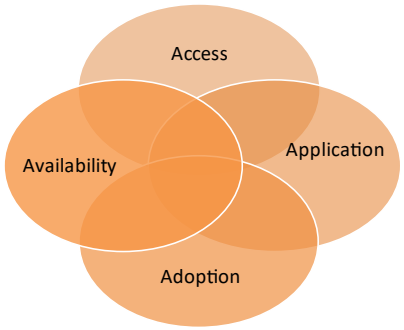
BROADBAND TRANSFORMING EVERYTHING

- Education
- Healthcare/ Telehealth
- Mental Health
- Aging-in-Place
- Job Searches
- Workforce Development
- Remote Work
- Civic Engagement
- Emergency Response
- Public Safety
- Banking
- Entertainment

Digital Inclusion for everyone, is the goal of multiple efforts underway in Stanly County. As defined by the National Digital Inclusion Alliance, digital inclusion comprises "the activities necessary to ensure that all individuals and communities, including the most disadvantaged, have access to and use of Information and Communication Technologies."[1] Elements of digital inclusion focus on, among other things, affordable broadband, digital equity, digital literacy and computer skills training, and public access to the devices and communication networks necessary to participate in the constantly evolving digital world (Figure 1).

Figure 1

Components of Digital Inclusion



The digital inclusion plan developed in the following pages along with the commitment of $1.5-$2.0 million of the County's American Recovery Plan allocation provide a strong foundation in Stanly County's

[1] See Appendix 1 for definitions related to digital inclusion that are used in this document.

quest to leverage the significant state and federal resources for enhanced broadband. Numerous federal and state grant initiatives are being implemented to address gaps in broadband availability and digital equity, as unprecedented federal, state and private funding programs are coming on line (Appendix 2). The information gathered in the development of this digital inclusion Plan along with concurrent broadband availability surveys can inspire public support and engagement to develop competitive, locally-grounded proposals for grant funding consideration. The Plan will support development of intentional strategies and investments needed to reduce and eliminate historical, institutional and structural barriers to access and technology use.

III. Vision, Mission, Values

Questionnaire responses from the Stanly County Digital Inclusion Planning Team provided input used to frame a strategy to address digital inequities in Stanly County. These summary statements include perspectives drawn from local government, the faith community, health care, higher education; and business.

Vision:
Broadband internet is vital to an increasingly broad spectrum of activities, services and resources required for citizens to fully engage in life and for communities to support sustainable, competitive economies. Stanly County holds as an organizing principle a collective vision where all residents and businesses in Stanly County have access to robust and affordable high-speed broadband as well as the skills and knowledge needed to utilize it to improve their economic prospects and quality of life.

Mission:
The vision of digital inclusion will be achieved when affordable, robust internet services, digital literacy skills, quality technical support, access to hardware and software, and opportunities to access resources and services are made available to all residents, organizations and businesses. Stanly County will provide direction and support efforts to enhance equitable digital access and information literacy and enable the use of resources, tools and services through affordable broadband internet.

Values:
Three principal values will underpin efforts to improve digital inclusion in Stanly County:

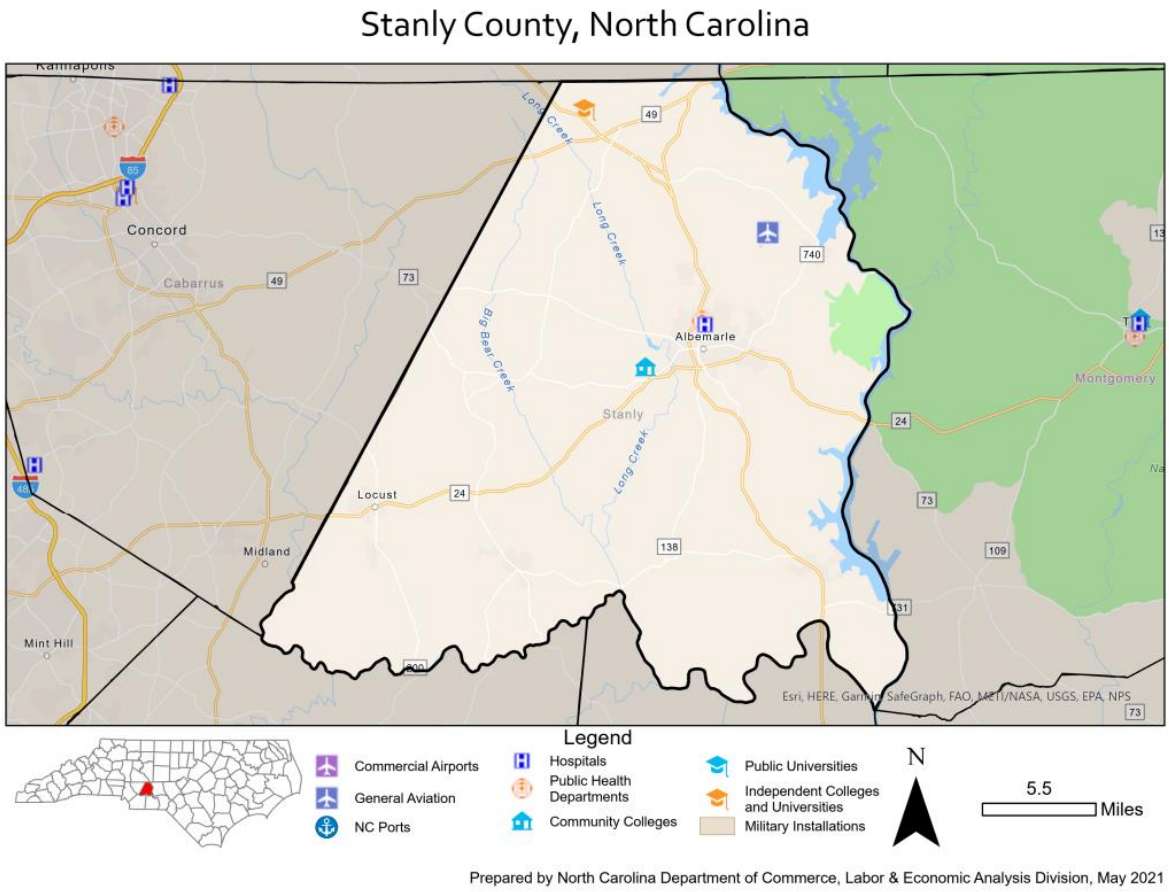
- **Equity**: Robust, affordable digital access should be available in all areas of Stanly County and to all of its residents, regardless of their background, economic status or situation
- **Dependability**: Broadband solutions need to be robust, sustainable, and adaptable to provide consistently high-quality broadband access now and in the future.
- **Impact**: Digital inclusion will support access and use of tools and services that empower sustainable community growth and improvement in residents' quality of life.

IV. About Stanly County

A. General Description

Stanly County is located in the Piedmont region of North Carolina and is a member of the nine-county Centralina Council of Government. Formed in 1841, Stanly County has grown to a current population of 62,806 individuals residing in 23,849 households located in the County's 405 square mile footprint.[2] Self-described as "Right Near It All", Stanly County offers easy access to lakes, mountains, parks and forests while being only 30 minutes from metropolitan Charlotte. Two-thirds of the County's residents reside in rural settings, including the Towns of Badin, Misenheimer, New London, Norwood, Oakboro, Red Cross, Richfield, and Stanfield. The remaining third live in the more suburban Locust or the county seat – Albemarle (Figure 2).

Figure 2



B. Economy

The North Carolina Department of Commerce annually ranks the State's 100 counties based on four factors relating to economic well-being and assigns each county to one of three tiers. This tier

[2] https://www.census.gov/quickfacts/stanlycountynorthcarolina

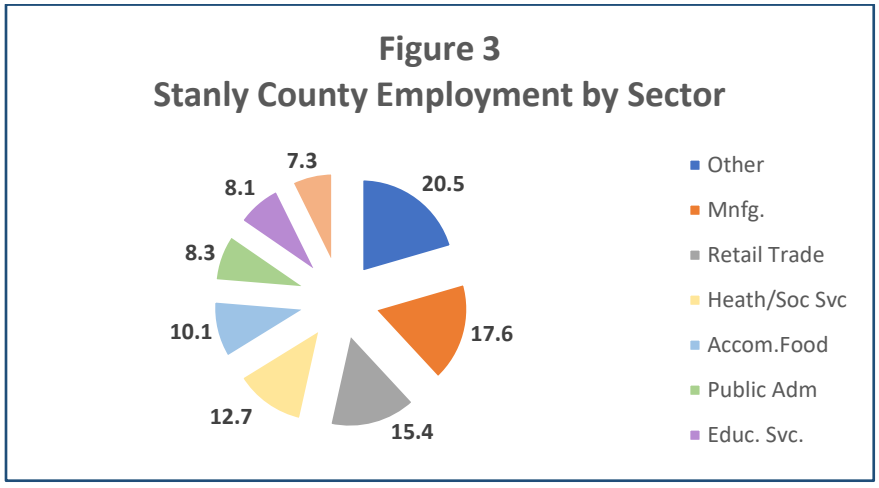
system is incorporated into various state programs to encourage economic activity in the less prosperous areas of the state; the tier rating is also used as a basis for determining qualification for state broadband funding programs. Stanly County is designated as Tier 2, which automatically qualifies the County for consideration for the NC GREAT broadband infrastructure grants. Stanly County's rank relative to other counties in the state and the composite value for the State overall is found in Table 1. Other than ranking in the lowest quartile for property tax value, Stanly County's economic well-being outperforms the State average and the majority of other counties in North Carolina.

Table 1
Stanly County Economic Tier Rankings

Economic Factor	Rank **	Stanly County	North Carolina
Property Tax Value FY 2021-2022	25	$87,301	$123,639
Population Growth July 2017-July 2020	67	1.03%	2.73%
Average per capita Income 2019	81	$58,303	$57,388
Unemployment 12 mo. Avg. Oct. 2020-Sept. Oct. 2021	71	4.58%	5.13%
Composite/Overall Rank	**66**		

** 100 = highest/best performing county of 100 counties in NC

The primary drivers in the local economy are the service and manufacturing sectors that collectively account for more than 65 percent of employment in Stanly County (Figure 3). These sectors are widely recognized as making heavy use of broadband in all areas of operation. Broadband is an increasingly important factor in the competitiveness and service delivery capacity of all sectors of the County's economy. For example, agriculture, which remains an active factor in the County economy – accounting for 37% of land use – may be especially at risk: 90 percent of farmers in a statewide survey rated broadband as "extremely" or "very" important to their operations, despite many currently lacking adequate connectivity.



Source: https://accessnc.nccommerce.com/DemoGraphicsReports/pdfs/countyProfile/NC/37167.pdf

C. Demographics

Broadband is increasingly vital to delivering necessary educational and social services to the County's students and to citizens who face digital literacy and other language challenges. Stanly County's population, compared to average factor values in North Carolina, has less wealth, lower educational attainment and poorer health and health insurance coverage (Table 2). The county is older and less diverse, although the Hispanic/Latino population increased 42 percent between 2010-2020. All of these factors correlate with lower broadband access and use and attest to the existence of digital equity challenges in the County.

Table 2
Stanly County Demographics

Factor	North Carolina	Stanly County
Population change 2010-2020	9.5%	6.78%
Poverty	12.9%	14.5%
Median Household Income	$62,843	$52,623
< High School Graduation	12.2%	14.7%
African American	22.2%	11.4%
Hispanic	9.8%	4.4%
≤ 18 years old	21.9%	21.5%
> 65 years old	16.7%	19.3%
Disabled	9.4%	10.7%
No Health Insurance	13.4%	14.6%

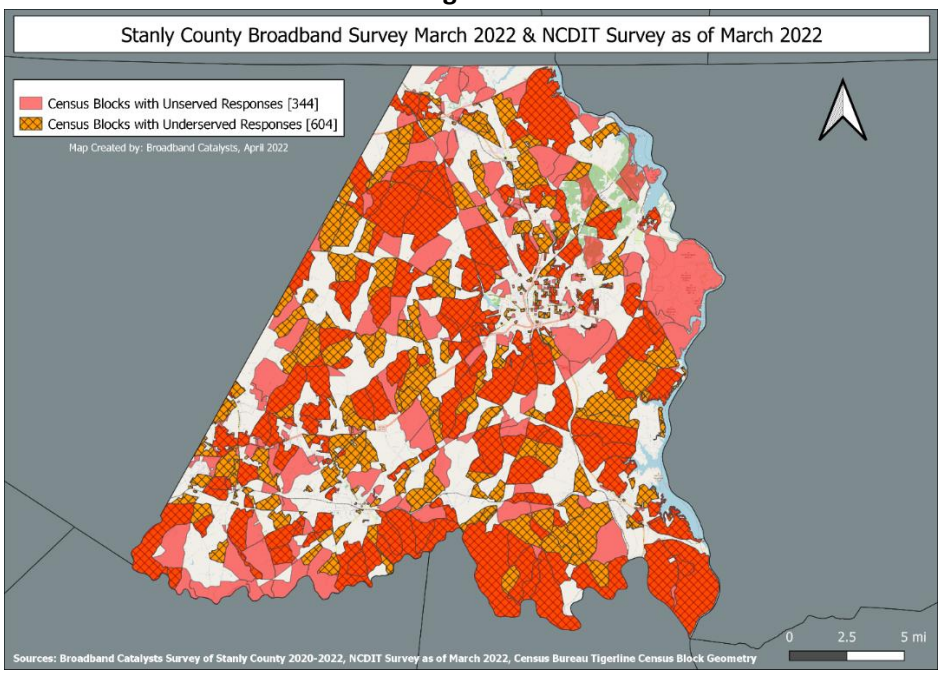
D. A History of Broadband Planning in Stanly County

Stanly County brings to this digital inclusion planning effort a long-standing awareness of the need to extend broadband into unserved and underserved communities in the County and to address gaps in the adoption and use of broadband. Highlighted efforts include:

- Funding from the Rural internet Access Authority in 2001 and its successor, the e-NC Authority, which was applied towards establishing a county broadband task force to educate and engage the public on the value of the internet; to begin documenting the status of connectivity in the County; and to identify priorities for action that resulted in the Stanly Community College receiving an e-Community Implementation Grant in 2003.
- Subsequently, in 2009, the County engaged CCG Consulting to conduct a survey and engineering study to inform strategies for extending broadband into unserved communities. While 80 percent of respondents expressed interest in internet services being provided or supported through a commercial partner, this effort was curtailed by changes in State legislation that restricted local government involvement in broadband expansion and provision.
- In 2014 Stanly County provided a letter of support for MCNC's application to the FCC's Rural Broadband Experiment CAF program to connect Stanly Community College, Stanly Public Schools Central Office and Pfeiffer University to the MCNC Research Education Network. Currently, all of these entities are on the MCNC Research Education Network through a contract with Windstream or some other incumbent provider.

- Stanly County engaged ECC in 2015 to develop a middle mile fiber route and business plan to extend fiber from MCNC in Cabarrus County to various public service radio system towers throughout the County. The middle mile fiber ring would have capacity so broadband providers could lease fiber and provide last mile service, if desired. The effort stalled due to other capital project priorities and budget constraints.
- Broadband Catalysts was engaged in late 2020 to conduct an updated and expanded county-wide survey to document actual broadband availability and quality of service in the County. This information will document eligibility for upcoming state and federal broadband infrastructure funding applications (Figure 4).
- Catalyzed by the Covid-19-induced shift to virtual delivery of educational and other services, efforts to address digital inclusion challenges gained traction in 2021. Stanly County received two awards from the Institute for Emerging Issues' Building a New Digital Economy in NC (BAND-NC)[3] grant program, including: (1) Uwharrie United Methodist Church Crossroads Connection in north Stanly County that received a grant in 2020 to identify and promote locations where students could access reliable, free Wi-Fi to support virtual learning; and (2) a grant in 2021 to Stanly County Government to underwrite the cost of this Stanly County digital inclusion Plan.
- Broadband continues to be a top-tier priority for Stanly County. In September 2020 the County created a broadband task force (Appendix 3). Broadband expansion was voted a top-three action priority by the County Commission in March, 2022. The County has set aside $1.5-$2.0 million of its ARP funding allocation to actively partner with the State and broadband providers as part of the State's GREAT and Completing Access to Broadband (CAB) grant programs.

Figure 4

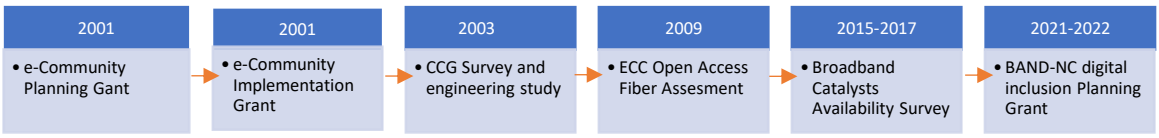


[3] BAND-NC is a partnership between the NC State Institute for Emerging Issues and the NC Broadband Infrastructure Office (BIO), supported by investments from Atlantic Telephone Membership Corporation, Corning, Duke Energy Foundation, Google Fiber, Hillsdale Fund, John M. Belk Endowment, NC Electric Cooperatives, PNC Foundation, and the Roanoke Electric Cooperative, in addition to CARES ACT funding.

The County has significant ground-truthed knowledge of the specific locations that continue to lack adequate broadband service, as well as preferred routes and assets to be utilized in extending service in the County. Further, through the BAND-NC project, Stanly County has developed knowledge of the current state of broadband access, affordability and adoption across the County. Progress has been made but, by any measure, challenges remain. The following timeline depicts major efforts to date (Figure 5).

Figure 5

Timeline of Broadband Planning Efforts in Stanly County



V. Current Situation: A Need for digital inclusion

The Federal Communications Commission (FCC) defines broadband internet as a connection that is always on with data download speeds of 25 Mbps or faster and data upload speeds of at least 3 Mbps. Locations lacking any internet service are designated *unserved*, while locations that have internet service of less than the 100 Mbps download/20 Mbps upload threshold speeds are designated *underserved.* Over the past two-year Covid-19 period there has been a wholesale shift of education, commerce, and much of healthcare to virtual applications that require even faster speeds and lower latency, exceeding the capacity of what has come to be called *basic broadband*. Communities that still lack even this basic level of service confront many hurdles, but the pending release of unparalleled funding opportunities to eligible applicants creates a compelling and time-sensitive need to document qualifying infrastructure gaps and digital equity challenges.

A rigorous assessment of the current state of digital equity in Stanly County is needed to chart the optimal path for improving broadband availability, access and adoption. There are known deficiencies and inaccuracies in publicly available data (e.g., availability data from the FCC has been shown to overstate both the availability and speed of broadband service in many locations). This creates the need to extrapolate more granular information from public data related to broadband access and adoption. More accurate data is vital for making informed decisions and developing an actionable strategy that is the basis of this Stanly County digital inclusion Plan. The following information was presented to the Stanly digital inclusion Team to inform their prioritization of actions and tactics.

A. digital inclusion – Estimating the Challenge in Stanly County

Working with the demographic profile of Stanly County and national data on broadband gaps for specific target populations, it is possible to develop a realistic estimate of the number of residents and households in various segments of Stanly County's demographic groups that would benefit from

targeted digital inclusion efforts (Table 3). These data can be used to further refine and customize the recommended actions to achieve the greatest impact by (1) framing the nature and relative scale of issues that can affect digital equity and broadband adoption; and (2) identifying priorities for potentially impactful levers for increasing broadband availability and use by specific sectors of the population. Presentations on demographics and the status of broadband availability and use in the County informed the Stanly digital inclusion Team's (Appendix 3) prioritization of digital inclusion efforts (see Section VI).

Table 3
Demographic Scale and Scope of Stanly County digital inclusion Efforts

A digital inclusion Factor	B % Stanly Population or Households	C Stanly Factor Population	D % Non-Adopters	E Potential Targets in Stanly
Poverty	14.5%	9,176	48%	4,371
< High School[1]	14.7%	12,173	25%	3,043
African American[2]	15.6%	12,918	23%	2,945
Hispanic[2]	4.4%	3,643	18%	510
Disabled Households[3]	10.4%	8,612	24%	2,067
Senior Citizens[4]	19.3%	15,982	28%	4,475
Households w/o Broadband Availability[5]	1.57%	23,859	100%	366
Households w/o Broadband Subscription[6]	17.6%	23,859	18%	4,199
Households w/o Computers or smart phones for access[7]	11.0%	2,625	83%	2,179

1. ACS (2018) found 24.8% of people with only high school education subscribe to broadband.
2. ACS (2018) reports the percentage of African Americans (87.2%) and Hispanic populations (82%) that subscribe to broadband.
3. Pew Research (2021) and ACS (2018) found 24% of disabled persons never go online.
4. ACS (2018) Pew Research (2018) found 27.5% of senior citizens do not use the internet.
5. The FCC (Jan. 2022) reports that Broadband (25 Mbps download/3 Mbps upload) is available to 98.43% of households in Stanly County.
6. Approximately 82.4% of all households in Stanly County currently subscribe to broadband internet (ACS 2016-2020 data), leaving 17.6% of households as targets for broadband adoption efforts.
7. 17% of households without computers access the internet only by smartphone (ACS 2018).

It is important to recognize these data are a compilation of estimates taken from multiple sources but they reflect the best information available from which reasonable remedial efforts can be charted. It is also important to note these are not mutually exclusive categories. For example, an elderly, minority person with a disability and low income would be included in the estimates for each of those factors,

while for another person only a single challenge category would apply. What these estimates do is: (1) suggest the number of individuals or households that could potentially benefit from an intervention tailored to specific challenges; and (2) provide a basis for understanding the level of effort and associated costs for undertaking any particular intervention.

The factor value in Column D estimates the impact that particular factor has on the ability of the affected population to use broadband. For example, the lack of a computer would appear to prevent 11 percent of affected households from accessing the internet, but the actual percentage of households affected by the lack of computer is lower, as an estimated 17 percent of households without computers use smart phones to conduct online activities. The relative scale of the different digital inclusion challenges can be approached quantitatively with entries in Column E, which provides a conservative estimate of the number of residents or households impacted by each type of digital inclusion challenge.

Based on these conservative figures and allowing for overlap in category members, at least 15 percent of Stanly County citizens have some level of difficulty accessing broadband, but the underlying reasons vary. Estimates in Table 3 suggest the dominant digital inclusion challenges in Stanly County are adoption by senior citizens, affordability and availability. Thus, the need to consider a portfolio of solutions targeted to address the particular challenges affecting different geographic locations and demographic groups.

B. Availability

Various technologies are used to deliver broadband service – Digital Subscriber Lines, Fixed Wireless, Fiber Optics, Cable, Satellite and Mobile telephone service to smart devices. These technologies differ widely in cost to deploy and on the service side in terms of speed, cost and reliability. Seven providers currently supply broadband in some form to residents and businesses in Stanly County. Most of these providers participate in one or more of the federal broadband subsidy programs – Lifeline or the Affordable Connectivity Program (ACP) to qualifying low-income households. Only two providers currently offer low-cost devices as part of their ACP participation. Information about the types and cost of service offering can be accessed by clicking on the provider's name in Table 4. FCC data on reported service in each County census block by technology type is displayed in Figure 5.

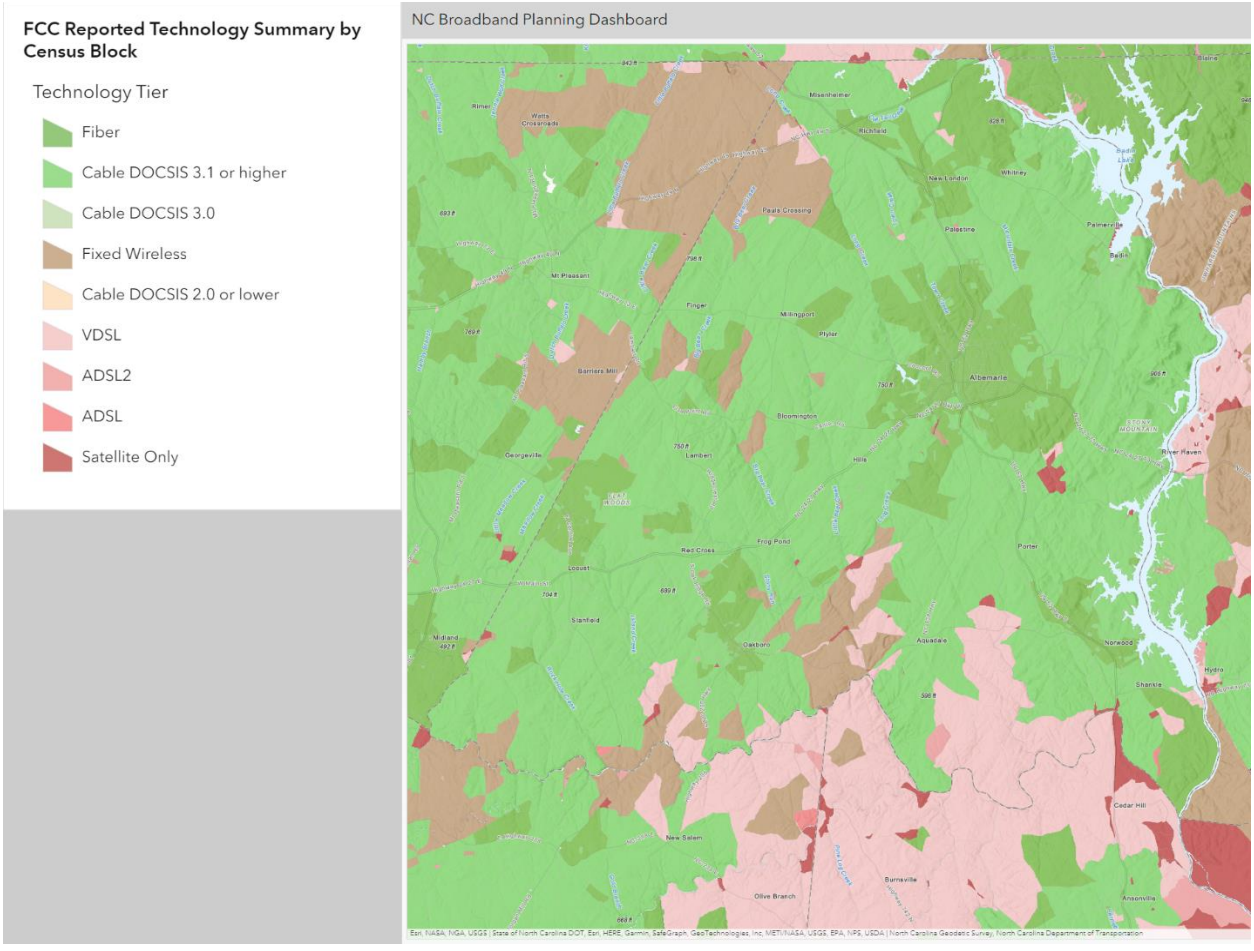
It is important to emphasize the maximum advertised speeds are not available to all subscribers/customers, and often actual speeds are less than those advertised. Costs also increase as speeds increase. DSL and cable are the two primary network technologies in the County, with Charter and Windstream frequently overlapping and generally competing with each. One measure of the service challenge confronting the County can be seen in fact that its largest, best-served communities, Albemarle and Locust, rank respectively as the 413th and 315th most connected municipalities in North Carolina (out of 552 total).[4]

[4] https://broadbandnow.com/North-Carolina/Albemarle?zip=28001

Table 4 internet Service Providers in Stanly County				
Broadband Provider	Technology type	Speed (Mbps download/ Mbps upload	Subsidy Program Participant	ACP Connection Device Offer
Charter Communications/Spectrum	Cable	940/35	Yes	Yes
Open Broadband	Fixed Wireless	200/100	Yes	
ViaSat, Inc.	Satellite	100/3		
Windstream Holdings, Inc.	ADSL	25/25	Yes	Yes
T-Mobile USA, Inc.	Fixed Wireless	25/3	Yes	
Hughes Network Systems	Satellite	25/3	Yes	
VSAT Systems, Inc	Satellite	2/1.3		

Source: https://www.fcc.gov/affordable-connectivity-program-providers#North%20Carolina

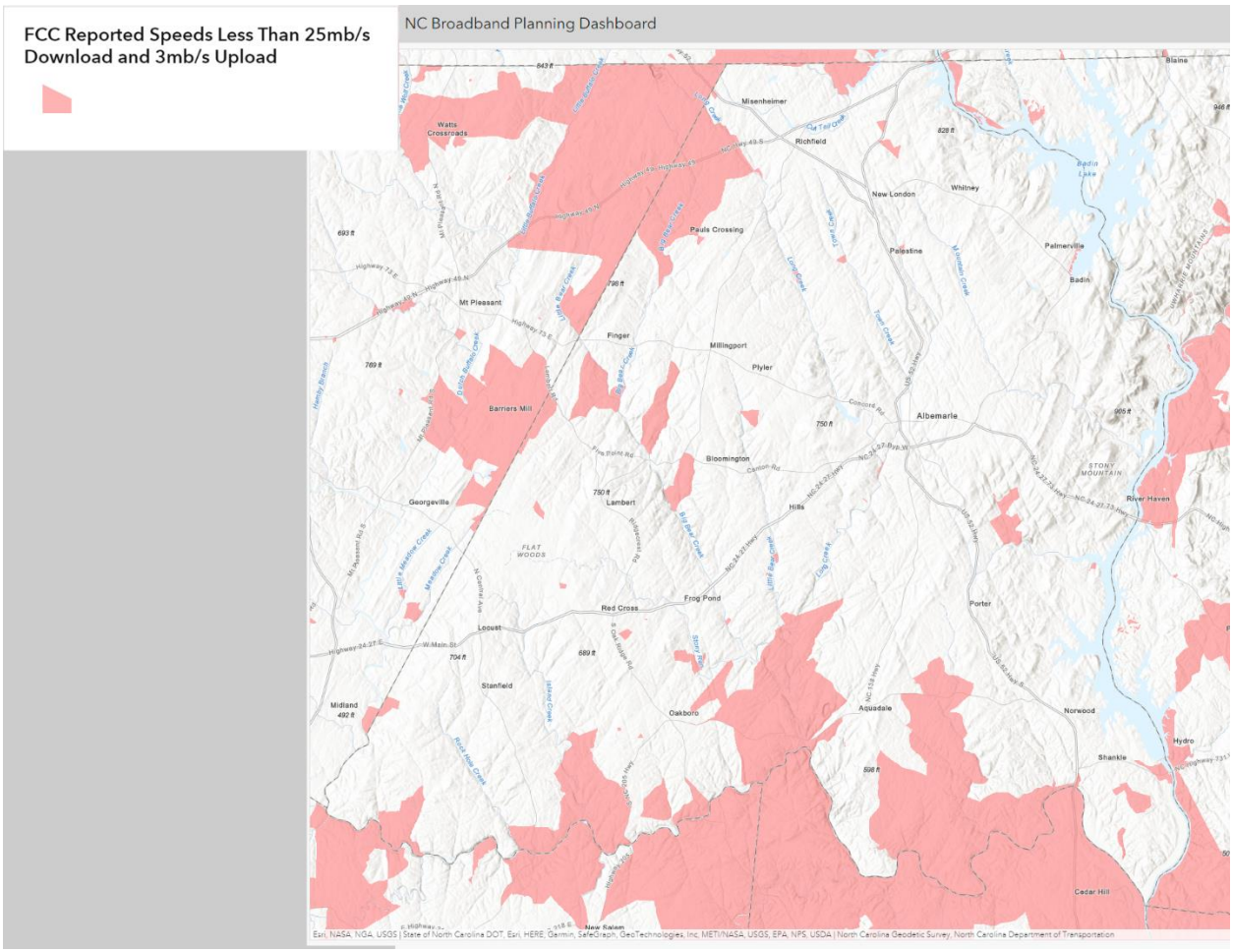
Figure 5



Source: NC OneMap – NC Broadband Planning Dashboard
https://nconemap.maps.arcgis.com/apps/dashboards/a2a18c579293438c823c247ea307c523

The FCC collects data semi-annually from broadband providers on their operations, including the number and percentage of households and business locations for which their service is available and the number and percentage of subscribers. The primary shortcoming with these metrics is the provider can count an entire census block as served if service is available to only a single premise in that census block, resulting in a documented overstatement of availability. Historically this has been the only metric for assessing availability and it is never current when it is made available to the public. A significant problem arises in that eligibility for federal and state broadband funding is determined by availability maps derived from this faulty data. A number of efforts are underway at the state and federal level to address this problem through more accurate availability maps, but they are unavailable at this time to support applications for funding. The most current Stanly County broadband availability data reported by the FCC is displayed in Figure 6.

Figure 6



Source: NC OneMap – NC Broadband Planning Dashboard
https://nconemap.maps.arcgis.com/apps/dashboards/a2a18c579293438c823c247ea307c523

The U.S. Census Bureau in its decennial census and the annual American Community Survey (ACS) collect information related to the use of computers and broadband in the home that can be used to supplement understanding of the state of digital inclusion. The FCC and ACS data for Stanly County and North Carolina are presented in Table 5, along with a third set of estimates developed by the NC Broadband Infrastructure Office (in all cases the source with the most currently available data is displayed).

Table 5
Broadband Metrics in Stanly County

	North Carolina	Stanly County
Broadband Availability 25mbps/3mbps (FCC)	95.53%	98.43% (100% urban/ 97.8% rural)
Broadband Availability 100 Mbps/20mbps (FCC)	92.5%	97.89%
Broadband Availability (Fiber (FCC)	39.7%	23.08%
Broadband Subscriptions (ACS)	83.4%	82.4%
Broadband Subscriptions (NCBIO)	67.8%	64.4%
No Internet Available (NCBIO)	15.72%	15.98%
No Computer in Household (NCBIO)	10.85%	12.1%
No Computer in Household (ACS)	9.3%	11.0%

Review of this data demonstrates the problem with using externally-derived data to report availability and to estimate adoption gaps. As reported by the FCC there are very few underserved locations in Stanly County, while NCBIO has the broadband availability gap in the County at almost 16 percent. An estimate of the access and adoption challenge is seen in the reported subscription rate, which again, varies widely depending on the source. Based on existing federal and state data, no funding through the NC GREAT grant program has been awarded for projects in Stanly County, and 15 census block groups (Figure 7) were awarded RDOF grants in the Rural Digital Opportunity Fund Phase I auction (Auction 904). Of those block groups, ten were awarded grants for low-latency gigabit wireline service (Table 6). One block group was awarded low-latency sub-gigabit connectivity to serve five households. SpaceEx Starlink satellite service was awarded in four block groups serving a total of seven locations, but these block groups are not considered served by NCDIT. In total, 394 locations were awarded wireline broadband expansion and seven locations with satellite.

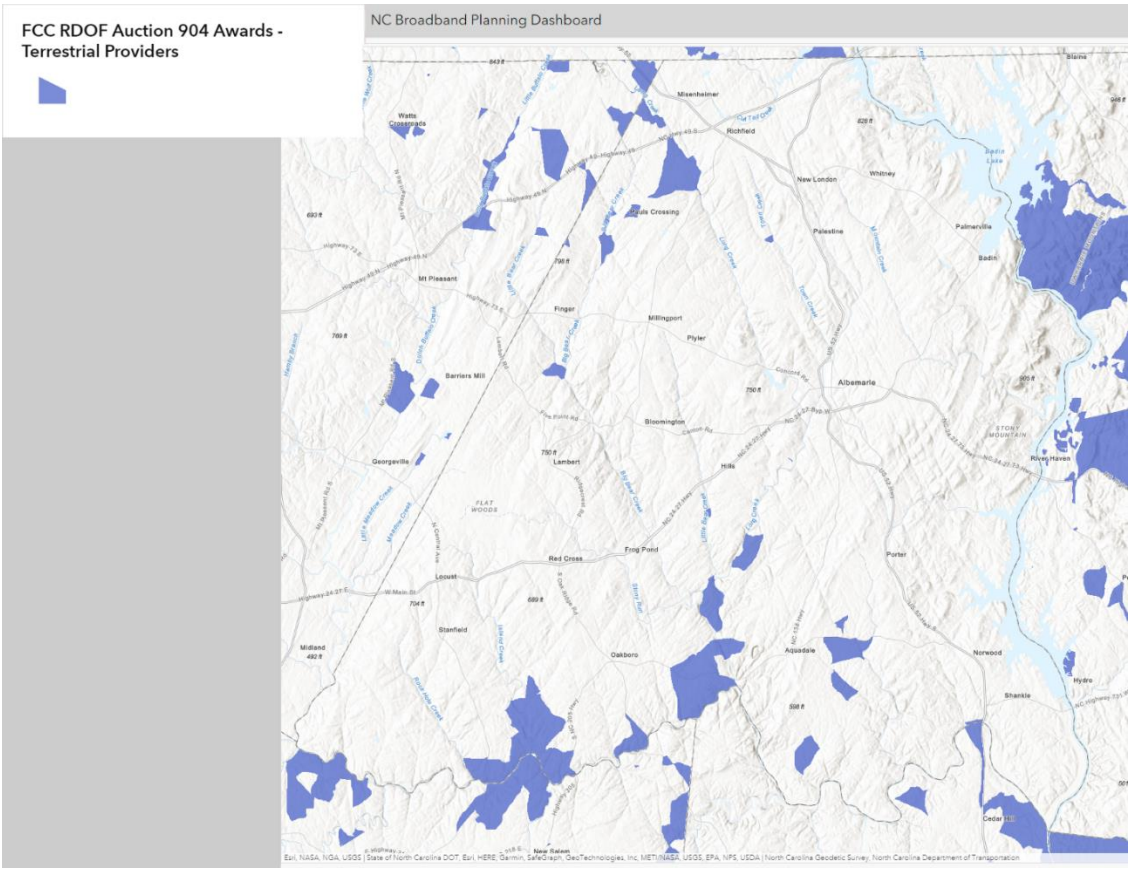
Deployments funded through RDOF are required to achieve certain milestones across an extended timeline. Based on the Auction 904: Rural Digital Opportunity Fund Fact Sheet, awardees must offer commercially at least one voice and one broadband service meeting the relevant service requirements to all locations within the awarded area in the following timeframe:

- 40 percent of the required number of locations in a state by the end of third year of support.
- An additional 20 percent by the end of the fourth and fifth years of support.
- By the end of year six, revised location totals will be announced:
    - If there are fewer locations than originally estimated by the cost model, support recipients must serve the revised number of locations by end of year six.
    - If there are more locations than originally estimated by the cost model, support recipients must serve the cost model-estimated number of locations by the end of year six and must serve the remainder of locations by the end of year eight.
    - All support recipients must serve locations newly built after the revised location total but before the end of year eight upon reasonable request.

Table 6
RDOF Wireline (Non-Satellite) Awards

Awardee	Locations	Tier	Block Group
CCO Holdings, LLC	168	Gigabit	371679309003
CCO Holdings, LLC	40	Gigabit	371679308022
Windstream Services LLC	87	Gigabit	371679301013
Windstream Services LLC	47	Gigabit	371679310003
Windstream Services LLC	22	Gigabit	371679310002
Windstream Services LLC	11	Gigabit	371679307003
Windstream Services LLC	5	Above 100/20	371679301021
Windstream Services LLC	5	Gigabit	371679307001
Windstream Services LLC	5	Gigabit	371679312021
Windstream Services LLC	3	Gigabit	371679301012
Windstream Services LLC	1	Gigabit	371679311004

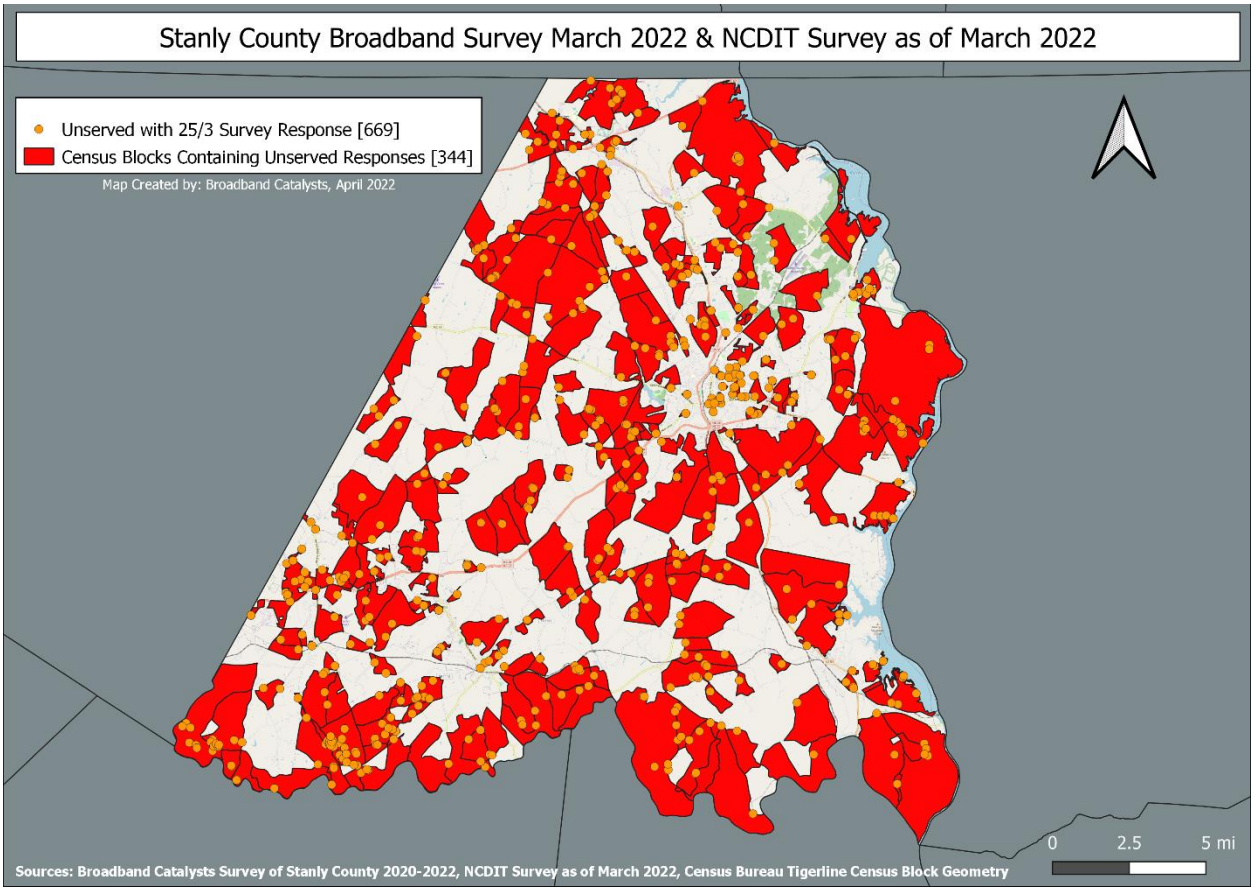
Figure 7



Source: NC OneMap – NC Broadband Planning Dashboard
https://nconemap.maps.arcgis.com/apps/dashboards/a2a18c579293438c823c247ea307c523

The importance of having an accurate assessment of the prevailing broadband situation led Stanly County Government to engage Broadband Catalysts, a broadband planning consultancy with best-practice mapping tools, to conduct a broadband availability survey (Appendix 4) and collect geo-coded speed test data used to populate and validate the ground-truthed availability map presented in Figure 8. Broadband Catalysts used data derived directly from residents' surveys and speed tests conducted by residents to project that **broadband internet service is not available for 9,418 homes and 21,648 residents** (approximately one-third of all residents) of Stanly County. These responses from actual residents are many times the FCC's reported estimate of unserved households seen in Table 5. The Stanly County Broadband Survey data provides a basis for Stanly County to advocate more strongly for its eligibility for state and federal broadband grants.

Figure 8



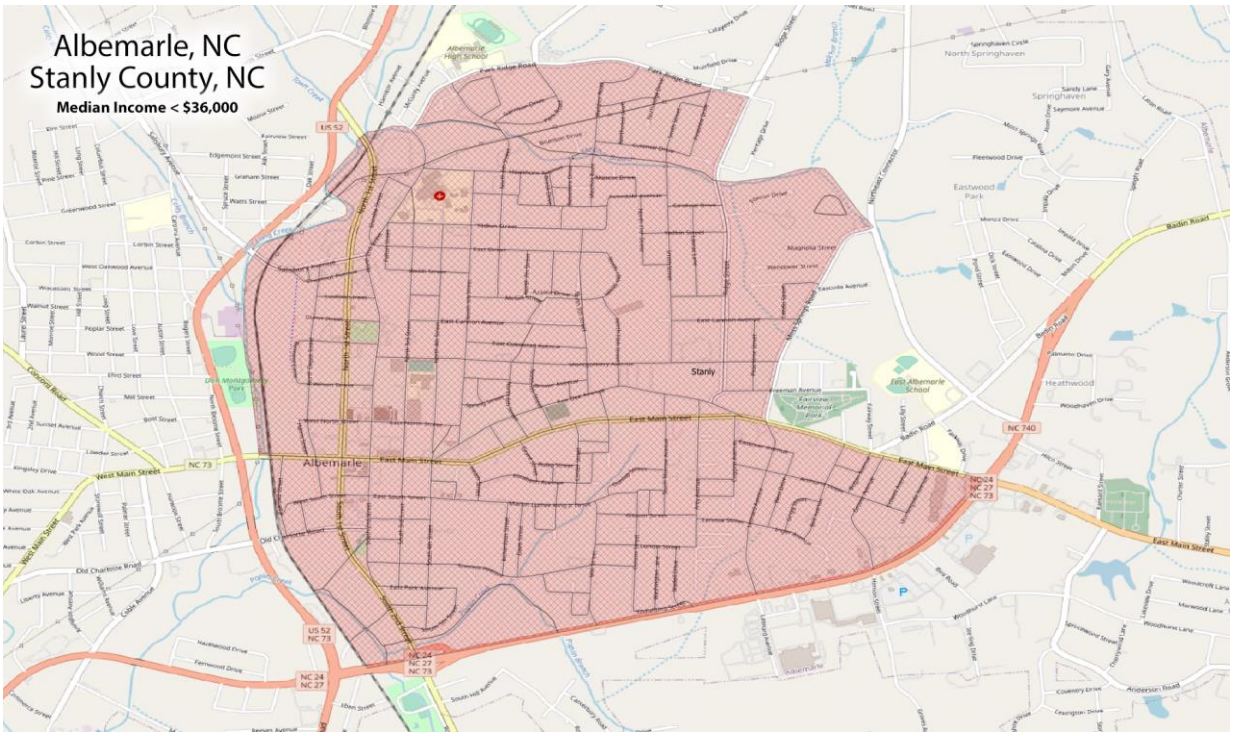
C. Access

Several factors contribute to individuals not being able to take advantage of available broadband, referred to as an *access challenge*. It can be an issue of affordability of the service and of the devices needed to access it, or the absence of sufficient public access and Wi-Fi facilities or, for some, the lack of transportation to reach public broadband sites. Resources need to be expanded to address the real digital equity challenges of residents in Stanly County who are not yet able to benefit from broadband. Access resources are available in Stanly County but they do not fully meet the need in terms of number and/or distribution. People need tailored support to help them overcome their own particular barriers, whether it is access, cost, confidence or skills. Working with the demographic profile of Stanly County and national data on broadband gaps for specific target populations it is possible to develop a realistic estimate of the number of residents and households in various segments of Stanly County's demographic groups that would benefit from targeted digital inclusion efforts (see Table 3).

(1) Affordability

A frequently used metric for affordability sets the challenge threshold as the percent of population for whom the average monthly cost of broadband ($60.00) would represent at least two percent of the total annual household income; this equates to $36,000. In Stanly County there is one tract (37167931201) that meets that threshold, with 3,050 households and more than 6,000 residents, for whom affordability could be a significant challenge to access (Figure 9).

Figure 9
Census Tracts with Annual Incomes Below $36,000



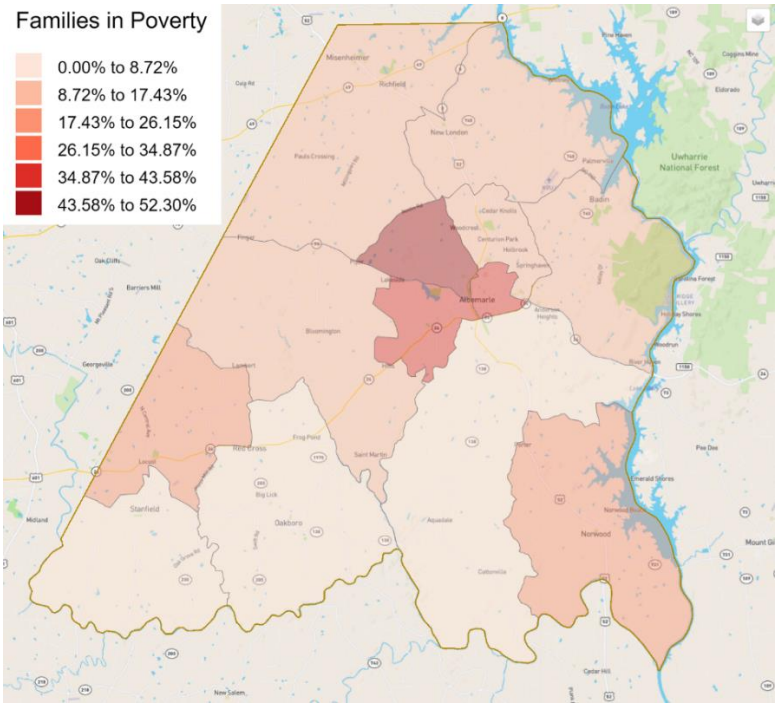
Source: American Community Survey (ACS) 2018 5-Year Estimates

Individuals and households that meet at least one of the established eligibility criteria[5] can quality for one or more broadband subsidy programs offered by the federal government and/or for one of the lower-cost service plans offered by some of the internet Service Providers (ISPs). There is the long-standing LifeLine program that provides $9.25 towards the cost of telephone (landline or mobile) and the newer Affordable Connectivity Plan (ACP) program that provides up to $30 per month towards internet access subscriptions. A significant number low-income households in Stanly County qualify for these subsidies (Figure 10) yet both of these programs are seriously underutilized in Stanly County (Table 6), in large part because almost 5,400 households that qualify for the subsidies are either unaware of the offerings or have found the registration process onerous. Some households may qualify

[5] Households/individuals who receive federal assistance through one of the following programs may qualify for LifeLine broadband subsidies: Supplemental Security Income (SSI); Food and Nutrition Services (FNS); Medicaid; Federal public housing assistance (Section 8); Veterans Pension and Survivors Benefit; Tribal specific programs.

for both types of subsidies that together can provide up to almost $40 towards monthly broadband charges. ACP eligibility criteria[6] significantly expand the pool of qualifying households in Stanly County. Digital inclusion initiatives dedicated to promoting and facilitating registration in these programs could address access challenges for many residents.

Figure 10



Source: I3 Connectivity Explorer - https://i3connect.org/demographic/family/poverty

Table 7
ACP Uptake in Stanly County[7]

Zip Code	Eligible Households	Percent Enrolled
28001	3425	47.2%
28097	748	15.9%
28124	561	20.7%
28127	798	20.7%
28128	1027	24.5%
28129	587	14%
28137	278	18%
28163	418	19.9%
Total	7,842	31.7%

[6] To qualify for ACP subsidies, households need to meet at least one of the following criteria: be LifeLine eligible; eligible for an existing ISP discount broadband ,program; have children eligible for free and reduced school lunches, have a household member who is a Pell Grant recipient; and/or have a household member who is unemployed.

[7] LISC EBB Uptake Map - https://www.lisc.org/rural/our-work/broadband-infrastructure/emergency-broadband-benefit-snapshot/

(2) Devices

Affordability challenges impact the capacity to subscribe to broadband service and to purchase a device to access the service, either in the household or at public Wi-Fi locations. Through the ACP eligible households can receive a one-time discount of up to $100 for a laptop, tablet or desktop computer (with customers required to provide a co-payment of more than $10 but less than $50). The primary shortcoming of this offering is the limited number of ISPs that choose to make the device component of the ACP available to their customers (Table 4). This shortcoming is addressed in part in Stanly County at each of the five public library locations where patrons can take advantage of on-site devices on a walk-in or reservation basis (Table 8).

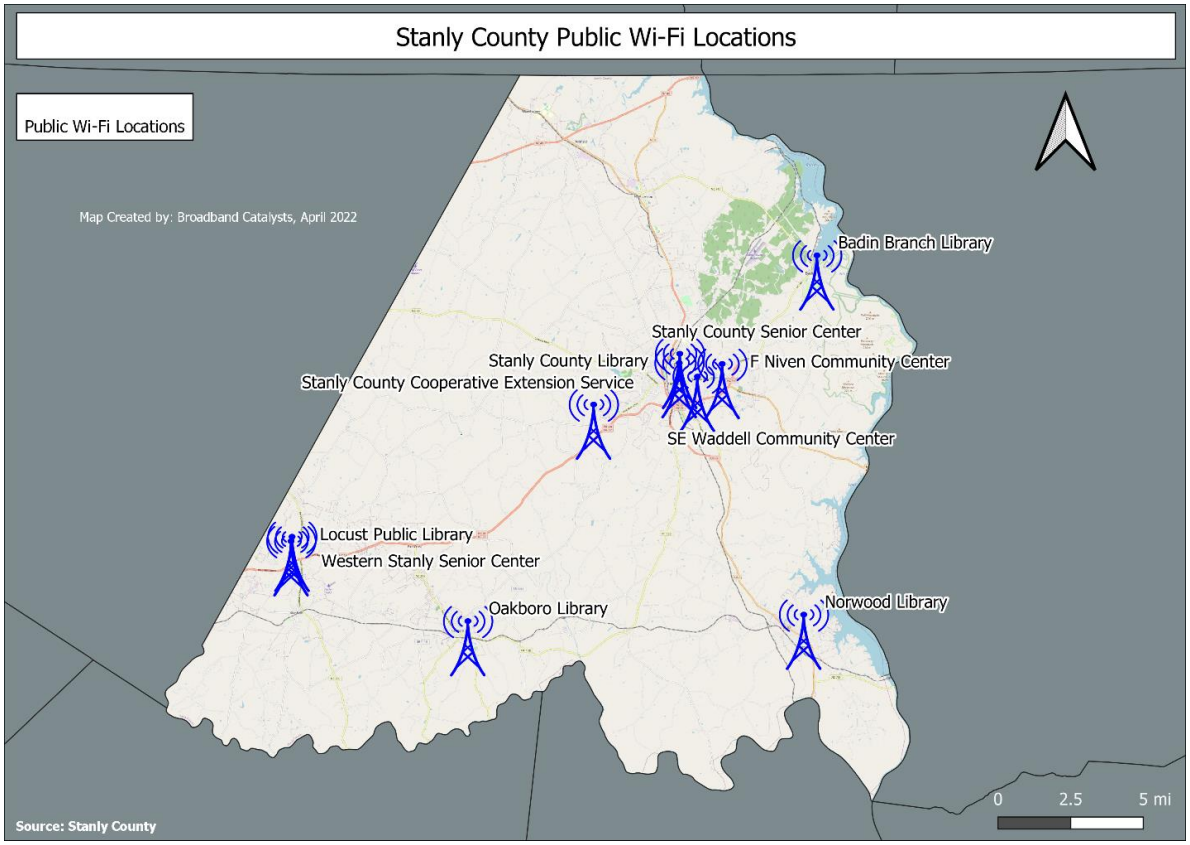
Table 8
Public Access and Free Wi-Fi in Stanly County

Wi-Fi/ Public Access Provider	Location	Availability
SE Waddell Community Center	621 Wall Street Albemarle, NC 28001	Virtual classes offered by Surry Community College, providing laptop use and programming 2 mornings each week
F Niven Community Center	18160A East Main St. Albemarle, NC 28001 (704) 984-9560	
Stanly County Library	133 East Main St. Albemarle, NC 28001 (704) 986-3755	All public library branches offer free Wi-Fi. All public library branches are not open on Sunday but maintain public internet access in parking lots 24/7
Locust Public Library	186 Ray Kennedy De. Locust, NC 28097 (704) 888-0103	
Badin Branch Library	62 Pine St. Badin, NC 28009	Limited hours; closed Wed., Fri., Sat., Sun.
Oakboro Library	214 South Main St. Oakboro, NC 28219 (704) 485-4310	Limited hours; closed Tues., Thurs.
Norwood Library	207 Pee Dee Ave. Norwood, NC 28128 (704) 474-3625	Limited hours; closed Tues., Thurs.
Stanly County Senior Center	283 North Third St Albemarle, NC 28001 (704) 986-3769	Open Mon-Fri. 8:30-5:00
Western Stanly Senior Center	213 Town Center Dr. Locust NC 28097 (980) 354-8056	Open Mon-Fr. 10:00 -4:00
Stanly County Cooperative Extension Service	26932 Newt Rd. Albemarle, NC 28001 (704) 983-3987	

Public Access and Wi-Fi

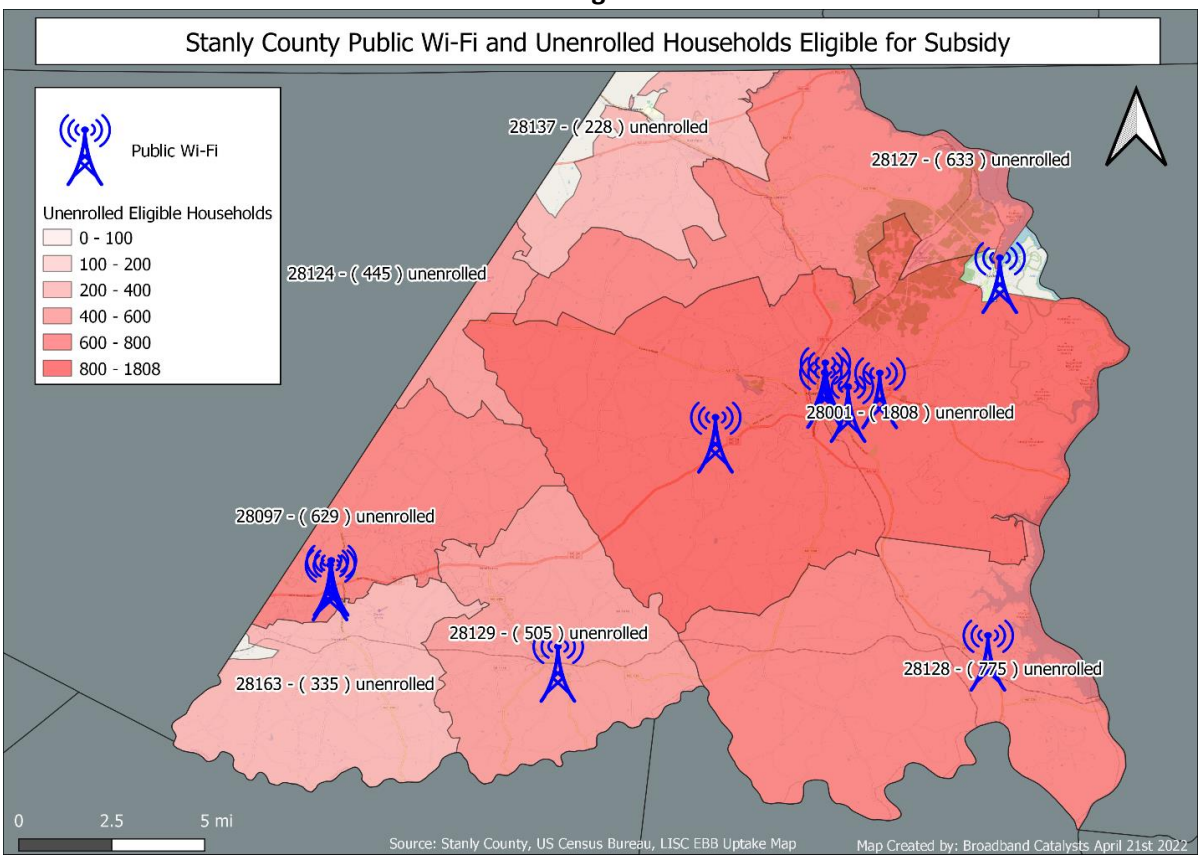
Public access sites and free Wi-Fi can address the affordability challenge for many people in Stanly County. In addition to some commercial businesses that offer on-site Wi-Fi access to patrons (e.g., restaurants and coffee shops), there are a number of public organizations in Stanly County that provide public access and/or free Wi-Fi. These include libraries and community centers whose geographically dispersed locations can address the transportation challenges that restrict broadband access for some residents (Figure 11).

Figure 11



The strategic value of accurate, locally-derived availability and resource data are demonstrated in Figure 14 which overlays subsidy eligibility and registration data with the presence of public access/free Wi-Fi resources. There is an obvious lack of public broadband access in the northern third of Stanly County where more than 1,300 low-income, subsidy-eligible households do not currently take advantage of that assistance. Stanly County can use this information to leveraged additional public access provision by providers that expand into communities with high need and low access.

Figure 12



D. Adoption

Some of the individuals identified as targets for digital inclusion action primarily face access challenges; others are non-adopters whose primary deterrent to making use of available broadband resides in their lack of interest, limited digital literacy and technical skills, difficulty with the English language, or reluctance borne of concerns over internet security. This set of factors are referred to as *adoption challenges*. Internet use does not correlate directly with ethnicity, gender or community type (rural or urban) so digital inclusion initiatives that focus exclusively on these differentiators are not considered. Factors that do directly explain lower adoption rates include level of educational attainment, income and age (almost half of non-users are older than 65 years). Direction for how to best address the access and adoption aspects of digital inclusion is taken from the data presented in Table 5. While the FCC reports that broadband is available to more than 98 percent of Stanly County households, only 82 percent subscribe, leaving 3,833 households that are not able or willing to take advantage of available broadband service (and this is a best-case estimate as the local availability surveys project non-adopters in excess of 9,400 households - see Figure 8). Based on the demographic profile of the County and best-practice intervention models and tools, promising options for addressing access and affordability challenges are described in Section V.

Resources for Increasing Digital Literacy

Stanly County has a number of resources already in place to provide assistance to residents who need help becoming digitally active. Computers and wireless broadband service are available at all public library locations, including Wi-Fi available 24/7 in the library parking lots. In addition, technical assistance in computer essentials is provided by appointment (Figure 13).

Figure 13
Technical Assistance

Half Hour Appointments now available for Basic Computer Assistance

If you need help:
•Setting up an email account
•Writing a resume or cover letter
•Completing a job application

Call 704-986-3759 to schedule an appointment

NCWORKS Career Center Albemarle, located at 944 North First Street in Albemarle (704-962-2183) provides a number of online resources to assist job seekers, including use of on-site computers and assistance in learning how to conduct online job searches, develop digital resumes and complete on-line job applications.

Senior citizens continue to account for the largest demographic group that have yet to fully adopt the internet as a resource to support their well-being. Stanly County has two senior services centers located in Albemarle and Locust where computer classes (usually free) at the beginner and intermediate levels are offered to senior citizens (Table 7).

At the other end of the age spectrum, the 4-H program at the Stanly County Cooperative Extension Offices has a Computer Science Curriculum that could help youth with digital literacy. The CES is also open to considering youth classes based on fun ways to teach digital literacy and online safety. Outreach and engagement targeting the youth could provide a pathway to enticing related adults into concurrent digital literacy programs if they are made available at CES.

E. Applications

By broadening digital equity efforts beyond availability, access and adoption considerations to include specific applications, Stanly County may be able to make progress on other important strategic goals and leverage additional resources from niche or targeted funding programs that can be applied to building the County's digital ecosystem. Examples include:

- Digital workforce training to support technical needs of local organizations and institutions
- Utilizing digital technology to enhance competitiveness of area businesses, e.g., precision farming
- Helping entrepreneurs start and grow their business
- Attract and retain remote workers, e.g., through shared work spaces
- Leverage healthcare investments and impact through expanded telehealth
- Expand and improve operations, outreach and impact of local government and non-profits

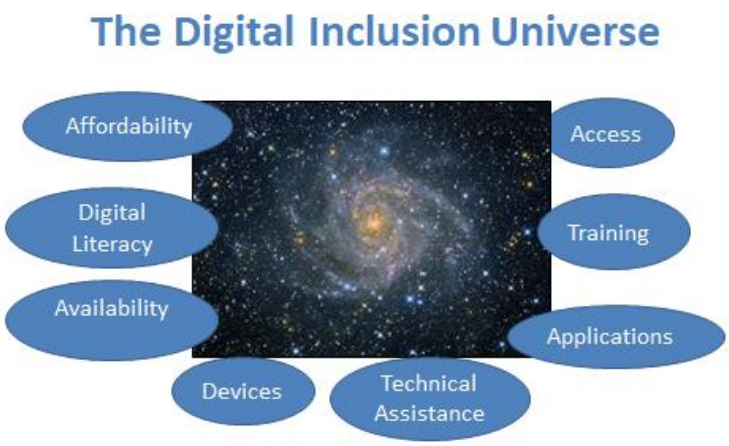
Data related to the current level of activities and resources available in these areas needs to be collected as a baseline for benchmarking against best practice results and to support related grant applications.

With forethought, efforts to build digital capacity in any area of endeavor in the County can leverage broader digital equity benefits.

VI. Strategies for Change

Phase I of the Stanly County digital inclusion planning effort focused on establishing a baseline understanding of broadband availability as the planning team began the process of identifying and inventorying resources that can be leveraged to improve access, affordability and adoption for citizens currently disenfranchised from the benefits of broadband. During Phase II the Team used this information to formulate the Guiding Principles discussed in Section III and identify goals and strategies that encompass all elements of the digital inclusion universe (Figure 14).

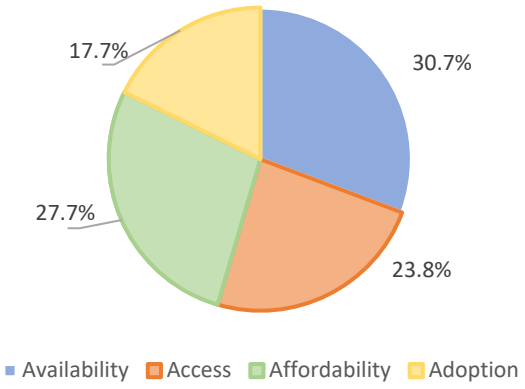
Figure 14



A. Priority Action Areas

Given the relatively small size of the planning team, a weighted scoring system was used to better distinguish between the priorities and action options (see Appendix 4 for methodology employed). Challenges to digital inclusion in Stanly County, as ranked from most to least pressing concern are: Availability, Affordability, Access and Adoption (Figure 15). Specific goals for each priority action area and strategies to achieve those goals follow.

Figure 15
Weighted Prioritizaton of digital inclusion Challenges



B. Goals and Recommended Strategies

The Plan's goals were synthesized from Stanly Digital Inclusion Team responses to the framework for action/mission/vision questionnaire. These goals reflect broad outcomes and support the achievement of the community vision statement and align with existing community goals and plans.

Goal 1 – LEADERSHIP

Stanly County will establish structure and mechanisms for ensuring on-going attention and resources are focused on addressing digital equity challenges in Stanly County.

Findings

- Covid 19 mandated the need to acknowledge everyone needs broadband access and unfortunately a large percentage of individuals and households across the County. particularly those in rural and lower-income communities do not have broadband available, cannot access or afford it or lack the skills and awareness to use it.
- Through the BAND-NC project, Stanly County took the initial steps needed to specify and prioritize the digital equity challenges confronting the County and identified and prioritized strategies for addressing the challenges. Their findings and recommendations are further developed in this section.
- Carrying forward the momentum initiated by this planning effort will require focus and the involvement of leaders drawn from a broad spectrum of stakeholder organizations to ensure Stanly County achieves the level of digital equity required for its businesses and residents to thrive and maximize the availability of broadband internet services.

Strategy 1: Ensure continued focus on all components of digital inclusion.

Actions:

(1) Stanly County Broadband Team should endorse the Stanly County digital inclusion Plan and take steps to ensure ongoing attention and resources are made available to implement aspects of the plan.

(2) The Stanly County digital inclusion Team should be expanded to include more stakeholders and community leaders to support outreach and engagement to residents targeted for assistance.

Strategy 2: Prepare to respond to funding opportunities.

Actions:

(4) The Stanly County Broadband and digital inclusion teams should collaborate in identifying priority projects in preparation for anticipated funding opportunities that specifically target digital inclusion. Potential projects could include:

- Funding a digital navigator position to provide the human capital and attention needed to facilitate collaboration, provide technical assistance, and monitor progress on this front over the next 24 months.
- Creating a strategically-located public access facility to support digital literacy training, and provide technology-rich shared and remote work facilities
- Establishing expanded adoption of telehealth as a strategic goal for the County by providing necessary training and devices for both providers and residents.

Goal 2 – AVAILABILITY

Despite considerable and long-running efforts to resolve broadband availability gaps, disparities remain. Stanly County will take advantage of emerging resources and partnerships to document, expand and/or enhance broadband to all unserved and underserved areas in Stanly County.

Findings

- There is strong support for pursuing multiple strategies to resolving availability gaps in Stanly County.
- The priority should be on addressing areas lacking broadband, followed by those for whom existing service is inadequate.
- Available funds should be used to begin addressing these gaps even as additional external resources are sought.
- There is recognition and at least modest support for continued efforts to better document availablity gaps and demand/interest through broadband mapping efforts.

Strategy 1: Expand service to all unserved areas of Stanly County.

Actions

(1) Prioritize use of available local American Recovery Funds to support expansion of broadband into unserved areas of Stanly County.

(2) Pursue partnerships with providers and additional external funds needed to complete extension of broadband service to all Stanly County citizens.

Strategy 2: Enhance existing internet service to a minimum speed of 100Mbpsdownload/20Mbps upload broadband threshold.

Action

(1) Seek additional external funds and/or partners to address the need to upgrade existing internet service at all locations in the County to a minimum of 100 Mbps download / 20 Mbps upload.

Strategy 3: Improve precision of availability maps to document the actual level of broadband service availability, to validate need and eligibility for broadband funding grants, and to aggregate broadband demand data to share with prospective service providers.

Actions

(1) Continue outreach efforts by the County and partner organizations to increase participation in the Stanly County broadband availability survey and speed tests and in mapping data collection efforts by the NC Broadband Infrastructure Office.

(2) Prepare and sustain maps for sharing and timely use as appropriate.

Goal 3 – AFFORDABILLITY

Stanly County will empower strategies and partnerships to increase the ability of its residents to afford broadband services and/or the devices necessary to utilize the internet.

Findings:

- Affordability is recognized as the second highest priority for addressing digital inclusion in Stanly County.
- Demographic analysis suggests at least 10 percent of Stanly County residents may have difficulty affording the average $60 monthly cost of broadband services.
- The overwhelming majority of eligible low-income households have yet to take advantage of available federal broadband subsidy programs – LifeLine and the Affordable Connectivity Plan.
- Federal broadband subsidies cover only a portion of monthly service charges; additional assistance may be needed to achieve digital equity in Stanly County.

Strategy 1: Increase knowledge of and participation of eligible Stanly County households in federal broadband subsidy programs.

Actions:

(1) Identify an individual or organization to serve as de facto digital navigator who will identify and recruit participation of public agencies, non-profits and community action organizations that can act from a position of trust to effectively engage with non-adopting individuals and communities.

(2) Utilize this digital inclusion partners network over the next 6 months to mount a concerted outreach and engagement effort to encourage residents' awareness and participation in available broadband service and device subsidies. Resources and toolkits to guide this effort are available through the FCC and the NC Broadband and Digital Inclusion Division.
(3) Encourage the full participation of prospective ISPs seeking partnership and letters of support from the County in both aspects of the ACP – broadband subsidies and provision of low-cost devices.

Strategy 2: Explore options for creating a local subsidy funding program to fill gaps not covered by federal and ISP discount programs.

Actions:
(1) Identify one-time and/or continuing allocations of county resources to establish/endow subsidy grants.
(2) Explore with private benefactors and community partners, e.g., United Way, the Faith Community, others, possible collaborative approaches to fills shortcomings in subsidy and discount programs.

Goal 4 – ACCESS

Stanly County will enhance digital equity through expanded access to free internet and to the devices needed to access it.

Findings:

- Public internet access facilities, free Wi-Fi locations and the availability of public-use devices accommodate a variety of users and uses. These include: remote workers; students with remote classroom and study requirements; individuals at households with inadequate or no broadband; individuals for whom broadband and/or access to devices are unaffordable, all benefit from expanded and enhanced public access offerings.
- Eleven public access facilities and plans are in place to increase the number of devices available for use onsite and available for checkout, the fact remains that demand continues to grow and services are not optimized either in terms of location or hours.
- The development of detailed maps of existing broadband infrastructure and subscription patterns overlaid with available public access and free Wi-Fi locations can be aligned with anticipated digital inclusion grants to create unique opportunities to optimize public access and device resource availability in Stanly County.

Strategy 1: Expand the number of public access facilities/public Wi-Fi sites in targeted locations

Actions:
(1) Identify strategic locations for additional or expanded public access and Wi-Fi sites and optimize availability of public broadband resources in Stanly County.

(2) Seek funding for expansion of the public access network through application by the County or one of its broadband partner organizations to anticipated grant programs.
(3) Engage ISPs in the strategic provision of Wi-Fi as a condition of support and partnership in their expansion efforts.

Strategy 2: Enhance existing public access facilities by extending longer hours and expanding resources (e.g.; acquisition of expanded staff, devices, technical assistance).

Actions:
(1) Explore opportunities for external sponsorship by stakeholder organizations, allocation of American Recovery Program and other county and/or municipal broadband funds.
(2) Proactively advocate for additional niche funding leveraged from programs targeting broadband in libraries, public safety, health, education, etc.

Strategy 3: Develop local options to fill gaps in access device ownership.

Actions:
(1) Explore partnerships with established organizations that provide low-cost and refurbished devices (computers, laptops, notebooks) and create device distribution programs. Potential partner organizations include:
- E2D
- Human I-T
- Kramden Institute
- PCs for People

(2) Explore the establishment of local computer refurbishment and digital literacy training program. A good model is the Lake Gaston Computer Club.
(3) Partner with local government and community action organizations in a concerted outreach and engagement effort to increase awareness and uptake of the available broadband subsidy programs.

Goal 5 – ADOPTION

Stanly County will increase digital equity by 2027 by reducing by 50 percent the number of residents who currently do not choose to or are not able to utilize the internet.

Findings:
- Factors that underpin digital inequities in Stanly County are diverse, creating the need for a portfolio of digital inclusion strategies and tools to effect significant improvement in the level of broadband adoptions.
- Efforts are underway and new resources in the form of federal subsidies will bring along many residents who currently do not utilize broadband because of availability and affordability issues.
- The largest challenge may be reaching those who have yet to fully benefit from broadband due to their belief it has no relevance to their lives, those who lack the digital skills or facility with computers and those who have physical challenges impeding their use of computers.
- In Stanly County the most digitally challenged groups include approximately 4,500 senior citizens, 3,000 citizens impacted by physical or mental disabilities, and 3,000 individuals with a

lower level of educational attainment. These specific groups could benefit most from targeted digital inclusion outreach and assistance.

Strategy 1: Create a structure to move the needle as it relates to adoption efforts.

Actions:

(1) Create a working group comprised of members from the existing Stanly County Broadband and Digital Inclusion teams augmented by representatives of organizations with strong ties to known low-adopting groups.
(2) Secure funding to support a designated Digital Navigator to work across projects and sectors and maintain appropriate focus and momentum on digital inclusion goals.
(3) Utilize broadband survey and mapping data to visualize and locate areas of the County where demographic factors and publicly accessible broadband subscription data support targeted digital inclusion efforts.

Strategy 2: Inventory existing resources and partners to create a roadmap of available assistance.

Actions:

(1) Identify options for digital literacy training and technical assistance and secure funding to address gaps and/or customize as appropriate.
(2) Define gaps and priorty solutions in anticipation of forthcoming funding opportunties.

Strategy 3: Identify and implement options for technical assistance.

Actions:

(1) Develop comprehensive inventory of existing technical assistance in the County, including the source and level of assistance provided.
(2) Explore partnerships with organizations outside of the County that provide technical assistance as part of digital inclusion efforts; e.g., E2D in Mecklenburg County.
(3) Explore creative options with Stanly Community College and high school technical programs via the creation of service-learning opportunties to engage students in providing technical support.

VII. Continuing the Work

The outreach, engagement, data collection and priorities for action identified in this document represent an important first step in the creation of an action plan for digital inclusion in Stanly County. This plan can fuel informed, competitive requests for expanding external digital inclusion funding to address the grounded priorities identified for the County. More broadly, enhanced digital equity is critical to achieving the County's strategic goals for education and job creation, business recruitment, health and wellness, and public safety. Digital inclusion in its fullest definition places significant emphasis on addressing gaps in availability, access, affordability and applications, and it must be deliberate in its efforts to ensure comprehensive deployment in all areas of Stanly County to foster economic and community development equity. No single sector or organization can or should

shoulder the quest for digital equity alone. It will take partnerships of local government, state agencies, educational institutions, health institutions, libraries, local businesses, and non-profit and faith organizations to adequately address broadband gaps and digital inclusion efforts.

The graphic depicted in Figure 16 captures the primary elements developed in the Stanly County digital inclusion planning effort that along with the concurrent mapping effort converge on locations and actions the community itself has identified as priorities for action. Beyond this, by striving to enlarge the overlap between the competing elements of existing needs, community-identified priorities and the capacity of stakeholder partners and funding to meet the needs, a compelling and effective strategy will emerge for empowering Stanly County's full participation in the digitally-intense economy.

Figure 16

Members of the Stanly County Digital Inclusion Planning Team can form the nucleus to which other community partners and stakeholders can be attracted to a common mission of making digital equity a reality in Stanly County. Fortunately, nearly all members of the Stanly Digital Inclusion Planning Team are willing to continue working on digital inclusion. This team can be enlarged to ensure representation of minority and disabled populations and of the smaller municipalities in the County.

APPENDIX 1

DEFINITIONS

The following definitions set a framework for group discussion, as well as plan development.[8]

Broadband Adoption - Daily access to the internet at speeds, quality, and capacity necessary to accomplish common tasks; with digital skills necessary to participate online; and on a personal device and secure convenient network.

Digital Navigators - Trusted guides who assist community members in internet adoption and the use of computing devices. (digitalinclusion.org)

Digital Literacy - The ability to use digital tools to find, evaluate, create, and communicate information, requiring both cognitive and technical skills.

Digital Divide - The gap between those who have access to technology, the internet and digital literacy training and those who do not.

Digital Inclusion - All activities that individuals and communities, including those most disadvantaged, carry out to access and use Information and Communication Technologies.

Internet Speed - The rate of data transmission for connection to the internet. These are typically referenced with Mbps, or Megabits per second. It measures how many bits (units of digital information) can be transferred each second. You will normally see speeds ranging from 10–1,000 Mbps advertised for home internet plans.

Modem (modulator-demodulator) - A modem's purpose is to convert digital information to analog signals (modulation), and to convert analog signals back into useful digital information (demodulation).

High-Speed internet- Broadband connectivity at speeds of greater than 100 Mbps upload and 100 Mbps download.

Broadband Connectivity- According to the Federal Communications Commission (FCC), broadband connectivity commonly refers to high-speed internet access that is always on and faster than the traditional dial-up access and typically at speeds higher than 25 Mbps download and 3 Mbps upload.

Digital Subscriber Line (DSL) - A wireline transmission technology that transmits data faster over traditional copper telephone lines already installed to homes and businesses.

[8] This list of definitions was borrowed from the Rockingham County Digital inclusion Plan, access 03/20/22 at https://www.rockinghamcountync.gov/files/documents/DigitalInclusionPlanOct2021v1135704000811621PM.pdf#:~:text= The%20purpose%20of%20the%20plan,fully%20in%20the%20digital%20world.

Cable Modem Service - Cable modem service enables cable operators to provide broadband using the same coaxial cables that deliver pictures and sound to your TV.

Fiber- Fiber optic technology converts electrical signals carrying data to light and sends the light through transparent glass fibers about the diameter of a human hair. Fiber transmits data at speeds far exceeding current DSL or cable modem speeds, typically by tens or even hundreds of Mbps.

Fixed Wireless- Fixed wireless broadband connects a home or business to the internet using a radio link between equipment at the customer's location and the service provider's facility.

GEO Satellite- A form of wireless broadband connecting the customer's home or business with geosynchronous satellites orbiting the earth. (HughesNet, ViaSat, etc.)

LEO Satellite- A form of wireless broadband connecting the customer's home or business with satellites orbiting the earth at high speeds and much lower orbits than geosynchronous satellites. (Starlink, Blue Origin, etc.)

Broadband over Powerline (BPL)- Uses existing low- and medium-voltage electrical power distribution networks to deliver internet connectivity equivalent to DSL or Cable Modem speeds. Use of BPL is rare due to issues with existing power infrastructure.

Resources for definition development include: www.digitalinclusion.org, www.literacy.ala.org, www.broadbandnow.com, and www.fcc.org

APPENDIX 2

FUNDING OPPORTUNITIES

The broadband and infrastructure funding arena is particularly dynamic. A good source of updates on developments and resources is the NC Broadband and Digital Inclusion Division of the NC Department of Information Technology.

State-Funded Grants

Gov. Roy Cooper's plan to close the digital divide in North Carolina invests more than $1 billion in federal American Rescue Plan Act (ARPA) funds to achieve digital equity in North Carolina by addressing infrastructure, access and digital literacy. This funding will also leverage significant private sector investment. S.L. 2021-180 provides $940 million in ARPA funding to deploy crucial last-mile broadband infrastructure to serve remaining unserved and underserved areas in North Carolina through the GREAT Program, the CAB Program, the Stop Gap Program and the Pole Replacement Program. An additional $50 million is committed for a digital literacy awareness campaign and digital literacy offerings around the state.

GREAT Grant (Funded by Federal American Rescue Plan Act)
Provides federal American Rescue Plan Act funds to broadband service providers to deploy broadband infrastructure to unserved areas of eligible economically distressed counties

Completing Access to Broadband (CAB) Grant
Creates a partnership between each participating county and NCDIT for a competitive bidding process to build infrastructure and provide service to unserved areas

Broadband Make-Ready Accelerator Grant
Provides funds to broadband service providers for eligible pole replacement costs in unserved areas

Broadband Stop Gap Solutions Program
Provides funding for solutions for households unserved or underserved with broadband following investment from the GREAT Grant Program and the CAB Program

Awareness and Digital Literacy
Provides funding for broad-based awareness campaign with targeted community-based efforts and digital literacy offerings

State Fiscal Recovery Funds
Provided funding to eligible state, local, territorial, and Tribal governments to respond to the COVID-19 public health emergency and its negative economic impacts

Capital Project Funds
Provides funding to eligible state, territories, and Tribal governments to respond to the COVID-19 public health emergency and its negative economic impacts

BAND-NC (Building a New Digital Economy in NC)
Provides technical assistance, training, and mini-grants to communities across the state to develop and implement digital inclusion plans.

Federal Grant Opportunities

- E-Rate, School and Libraries USF Program
- Farm Bill Broadband Program
- Health Innovation Funding Sources
- Rural Business Development Grants
- Telecommunications Infrastructure Loan Program

Nonprofit and Foundation Grant Opportunities

- Education SuperHighway
- ConnectHome, Connect2Compete and ConnectED Initiatives
- Golden LEAF Foundation
- internet.org
- North Carolina Capital Access Program
- Techsoup.org
- Z. Smith Reynolds Foundation

APPENDIX 3

STANLY COUNTY BROADBAND AND DIGITAL INCLUSION PLANNING TEAMS

A. Stanly County Broadband Steering Committee

Name	Position/Organization
Andy Lucas	Stanly County Manager
Chad Coble	Stanly County IT
Gerald Poplin	Uwharrie Technologies, NC IT Strategy Board
Ronnie Wichard	Mayor, Albemarle
Tommy Jordan	Stanly County Commission
Wayne Sasser	Representative NC Legislature

B. Stanly County Digital Inclusion Planning Team

Name	Position/Organization	Contact
Andy Lucas	Manager, Stanly County	alucas@stanlycountync.gov
Debbie Bennett	Stanly County Health Dept.	dbennet@stanlycountync.gov
John Enamait	President, Stanly County Community College	jenamait1211@stanly.edu
Heather Kilde	Stanly Community Christian Ministry	hkilde@sccminc.org
Kateltyn Stegall	Stanly County Cooperative Extension	knstoval@ncsu.edu
Lisa Kiser	City of Albemarle	lkiser@cityofalbemarle.gov
Melanie Holles	Stanly County Library	mholles@stanlycountylibrary.org
Michaela Vick	Stanly County Cooperative Extension	mvick@ncsu.edu
Molly Alexi	Stanly County Cooperative Extension	malexi@ncsu.edu
Pam Sullivan	Stanly County Senior Center	psullivan@stanlycountync.gov
Sandy Selvy-Mullis	Stanly County Chamber of Commerce	sandy@stanlychamber.org
Shawn Britt	Stanly County Schools	Shawn.britt@stanlycountyschools.org
Wendy Growcock	Stanly County Government	wgrowcock@stanlycountync.gov

APPENDIX 4

COMMUNITY VOICES – PROCESS FOR BROADBAND AND DIGITAL INCLUSION PLANNING

A. The Digital Inclusion Planning Process

Stanly County has a Broadband Task Force (Appendix 3) composed of local government leaders with a primary focus on addressing broadband availability gaps that leave some portions of the County without broadband service and other areas with service that is too slow and unreliable to provide access to broadband-level connectivity. Digital inclusion encompasses more than concerns with availability gaps and requires the active involvement of stakeholders representing the diverse perspectives and needs of the broader community. The digital inclusion planning process provides a platform for this diverse team to identify shared concerns and opportunities for collaborating on solutions. Ideally such a team is drawn from the business and government communities as well as from key community anchor institutions and service organizations that are in direct contact with segments of the population that are at risk of being digitally excluded (Figure 17).

Figure 17

Fourteen community leaders representing a broad array of organizations in Stanly County were recruited to join the Stanly Digital Inclusion Team (Appendix 3). The process followed in development of this plan is summarized below.

1. Initial Meeting – November 4, 2021: The Stanly Digital Inclusion Team (SDIT) met virtually and were given 1) a primer on digital inclusion; 2) a customized demographic assessment of Stanly County and the relation of the situation to digital equity challenges; 3) an assessment of current broadband availability and quality of service derived from the concurrent Broadband Catalysts mapping project. The team discussed information presented, their

perception of the situation in the County and at their organization and among its stakeholders. The subsequent planning process and timeline were presented.

2. Guiding Principles Questionnaire: SDIT members responded to a questionnaire regarding their opinions on the mission, vision and values that should drive digital inclusion efforts in Stanly County. Members also provided specific goals for achieving digital equity in the county. This information was synthesized by broadband planning consultant, Deborah Watts and returned to SDIT members for further refinement.

3. Digital inclusion Priorities Survey: SDIT members were surveyed regarding their priorities for action among the 4 elements of digital inclusion – availability, access/affordability, adoption and applications. They also ranked options for action within each of the 4 elements of digital inclusion. Their collective responses were used to develop a weighted-average score that identified the top priorities for action related to each digital inclusion element.

4. Collaborative Visioning and Priorities – December 4, 2021: The SDIT was convened for a presentation of: (1) an update of the availability mapping project reflecting additional data obtained from expanded outreach efforts including an active social media campaign (Appendix 3); (2) presentation of the final Guiding Principles statements; (3) presentation and discussion of results of the Digital Inclusion Priorities Survey. Members were also provided with the full set of survey results, analysis, and discussion to facilitate their further consideration and comment. The resulting final priorities for action are discussed in Section V of this plan.

1. Finalization of the Stanly County Digital Inclusion Plan: Members of the SDIT received a draft copy of the Plan for review, comment and acceptance in May 2022.

B. Broadband Mapping Methodology and Survey

1. Broadband Catalysts Mapping Methodology

In 2014, Broadband Catalysts developed an open-source broadband map for North America, and as part of that process realized the need for a citizen broadband survey that collected accurate location information. Toward this purpose, the original Broadband Catalysts Citizen Broadband Survey[9] with user-driven self-geocoding was developed. By utilizing the Google Maps API, survey respondents are asked for their address and then shown an aerial view of their location. The user is given the opportunity to drag a pin on the map to their actual location in order to get the most accurate location and to do our best to overcome any inaccuracies in the Google Maps API geocoder. A secondary benefit of using the Google Maps API for geocoding is that the street addresses stored in the database are in a uniform format. This survey system was used successfully as part of the EPA, USDA, ARC Cool and Connected[10]

[9] Broadband Catalysts Citizen Broadband Survey - https://www.broadbandcatalysts.com/geo-form.html
[10] Cool and Connected - https://www.epa.gov/smartgrowth/cool-connected-summary-report

program from 2016 through 2019, and it is credited with being a critical driver in the fiber-to-the-home rollout in Haleyville, Alabama.

During Cool and Connected, the need for an easily customizable survey with an integrated speed test became clear. The customizable survey need was driven by schools and other agencies who were willing to circulate broadband surveys but only under the condition that they be able to include questions of their own. The need for an integrated speed test was driven by multiple factors including the fact that many survey respondents did not know what internet speed they subscribe to, plus having speed test data gives additional, machine generated data points about network performance in regards to both speed and latency. Analysis of national public speed test data from Measurement Labs made it clear that the location data for speed tests were highly inaccurate due to the practice of geolocating the users' IP addresses. In most cases, the location reported for an IP address is not that of the end user location but instead reports the location of the router at the central office or network node. This means that all the speed tests for a given provider within as much as a seven-mile radius will all have the exact same latitude and longitude that represents the central office or network node.

Measurement Labs along with Merit Networks in Michigan and their Moonshot[11] initiative collaborated to build an open-source application with a customizable survey and integrated Measurement Labs speed test. This software, named Piecewise[12], allows organizations to collect speed test and survey data in their own private database and at the same time contribute to the nationwide public dataset. Broadband Catalysts recognized the value of this application and the role it had already played in closing the digital divide; however, the location data were still inaccurate. In order to produce the tool that solved this combination of issues, Broadband Catalysts integrated the Google Maps API self-geocoder they created in 2014 into Piecewise. These code improvements have not yet been included in the Piecewise source code.

The resulting survey tool[13] provides the desired functionality, though one issue surfaced in areas where the internet performance was so poor that the speed test would not complete, which prevents the user from submitting their response. Because of this issue, respondents were given the option to use an alternate survey instrument that worked well even in areas with poor internet performance. This alternate instrument was the original Broadband Catalysts Citizen Broadband Survey that was developed in 2014. Broadband Catalysts also provided the North Carolina Broadband Survey as an alternate way for citizens to respond; in particular this pertained to respondents who had no internet at all and needed to reply by telephone. The Broadband Catalysts survey was provided only in English, and we directed Spanish speaking respondents to the North Carolina survey when possible.

The Piecewise software provides a simple CSV export tool that exports the speed test data, survey responses, and latitude and longitude information. In our survey, we included questions that matched the North Carolina survey as closely as possible with regards to whether the respondent has access to 25Mbps download and 3Mbps upload broadband and if they are satisfied with their broadband service for the purpose of providing an apples-to-apples comparison of unserved and underserved citizen survey data.

[11] The Michigan Moonshot - https://www.measurementlab.net/blog/michigan-moonshot/
[12] Piecewise Source Code - https://github.com/m-lab/piecewise
[13] Stanly County, North Carolina Piecewise Survey - https://stanly.broadbandanalyzer.com/

The collected data were then filtered into unserved and underserved responses. Broadband Catalysts removed the personally identifying information (name and email address) from the data files before providing the results to ISPs for planning purposes. Any ISP who receives a grant or is otherwise bringing service to areas covered by the survey can request the personally identifying information with the restriction that it only be used to contact unserved or underserved households regarding new broadband internet service.

In order to provide an apples-to-apples comparison of FCC Form 477, NTIA Indicators of Broadband Need, and state collected survey responses, Broadband Catalysts generated GIS shapefiles containing the census blocks indicated as unserved or underserved by the survey responses. A spreadsheet summarizing the results with the number of unserved and underserved homes, businesses, farms, and K12 students reported, as well as the estimated total number of unserved and underserved households in the census blocks indicated to be unserved or underserved.

When combining these data with those collected by North Carolina, Broadband Catalysts analyzes the addresses to identify duplicate locations that were submitted to both surveys. For the purpose of determining the unserved or underserved status of a location that is included in both the state survey results and the Broadband Catalysts results, the record from North Carolina is used in order to ensure the address format matches the Next Generation 911 based geocoder used by the state.

Questions or requests for additional information can be sent to brian@broadbandcatalysts.com

2. Broadband Availability Survey and Speed test

Survey Questions:

Please tell us about your internet and cell phone service and needs. Note that "broadband" is defined by the FCC as high-speed internet access capable of 25 megabits per second download and 3 megabits per second upload. If you have trouble submitting this survey, please use the alternate location below. We apologize for any inconvenience. https://www.broadbandcatalysts.com/geo-form.html

Are you satisfied with your current primary internet service? **Required**

- Yes
- No
- Not sure

Are you satisfied with your current cellular phone signal, ability to send and receive text messages, and use mobile internet? **Required**

- Yes
- No
- Not sure

To the best of your knowledge, do you subscribe to the fastest speed your primary internet service provider (ISP) can provide at your location? Required

- Yes
- No
- Not sure

Are you taking this speed test using your primary internet connection? Required

- Yes
- No

Do you own a desktop computer or laptop computer? (PC, Mac, or Chromebook) Required

- Yes
- No

Do you use public Wi-Fi? Required

- Yes
- No

All fields below are optional but very helpful. Thank you for providing as much information as you can.

Name or Business Name

Email Address

Location Information - Please check all that apply

Residence

- This location is a residence

Students

- School age children live at this location (K-12)

Business

- This location is a business

Agricultural

- This location is a farm with more than $1,000 per year in agricultural revenue

Broadband internet Access Information - Please check all that apply

Served

- Broadband is available at this location

Unserved

- Broadband is not available at this location

Slow

- Broadband is consistently slower than advertised

Unreliable

- Broadband is unreliable at this location

Uncompetitive

- I would maintain multiple connections if other options were available

Expensive

☐ Broadband service at this location is too expensive

Who is your current primary internet service provider (ISP)?

What download speed does your internet service plan provide?

What upload speed does your internet service plan provide?

What are you willing to pay each month for high quality internet service? Note that lower price tiers may require eligibility for programs like Lifeline or may not be available at all. The purpose of this question is to help us understand what types of service best fit your area.

- ○ $10 per month
- ○ Up to $35
- ○ Up to $50
- ○ Up to $75
- ○ Up to $100
- ○ More than $100

If you are a business or power user, is there a higher amount you budget each month for internet service? It is especially helpful for us to know about businesses whose current communications costs are high.

Cellular phone and internet service information - Please check all that apply

Unserved-LTE

☐ Cellular data (LTE) is unreliable at this location

Unserved-Cellular

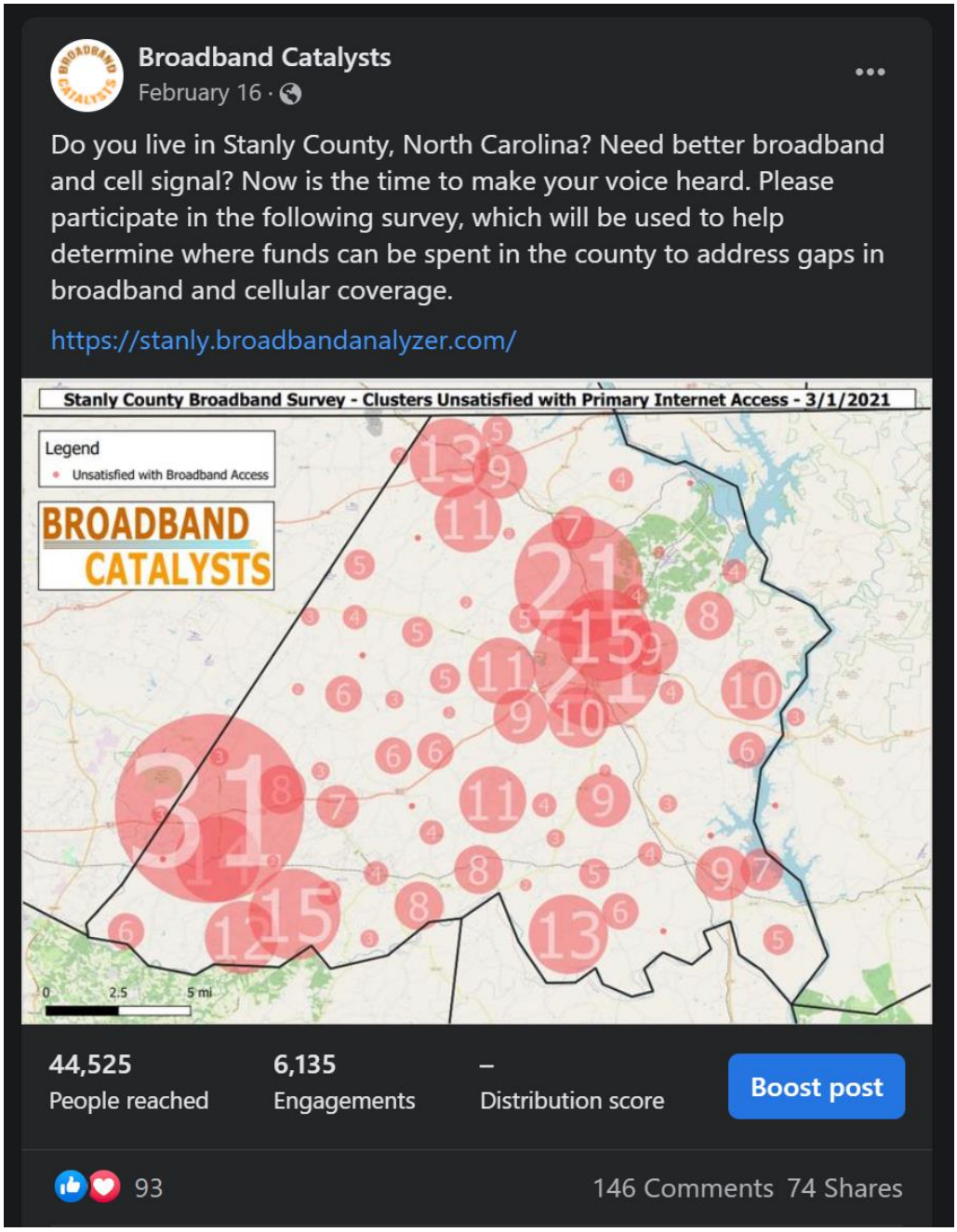
☐ Cellular voice and text messaging are unreliable at this location

Who is your current cell phone provider?

Are there any additional places in Stanly County where you think public Wi-Fi should be available?

3. Social Media Engagement

Figure 19
Stanly County Broadband Survey Social Media Outreach



Broadband Catalysts created a Facebook post to encourage Stanly County residents to participate in the Broadband Survey. This post was promoted using a Facebook Ad targeting just Stanly County residents through geofencing. A budget of $2,500 reached approximately 44,000 people and resulted in at least 1,000 additional survey responses.

ACKNOWLEDGEMENTS

The Stanly County Government would like to thank the Institute for Emerging Issues at NC State University and the Broadband Infrastructure Office at the NC Department of Information Technology for their support through the Building a New Digital Economy in North Carolina (BAND-NC) program. We appreciate the opportunity provided by sponsors of this program (the John M. Belk Endowment, the NC Electric Cooperatives, Roanoke Electric Membership Cooperative, ATMC and Duke Energy).