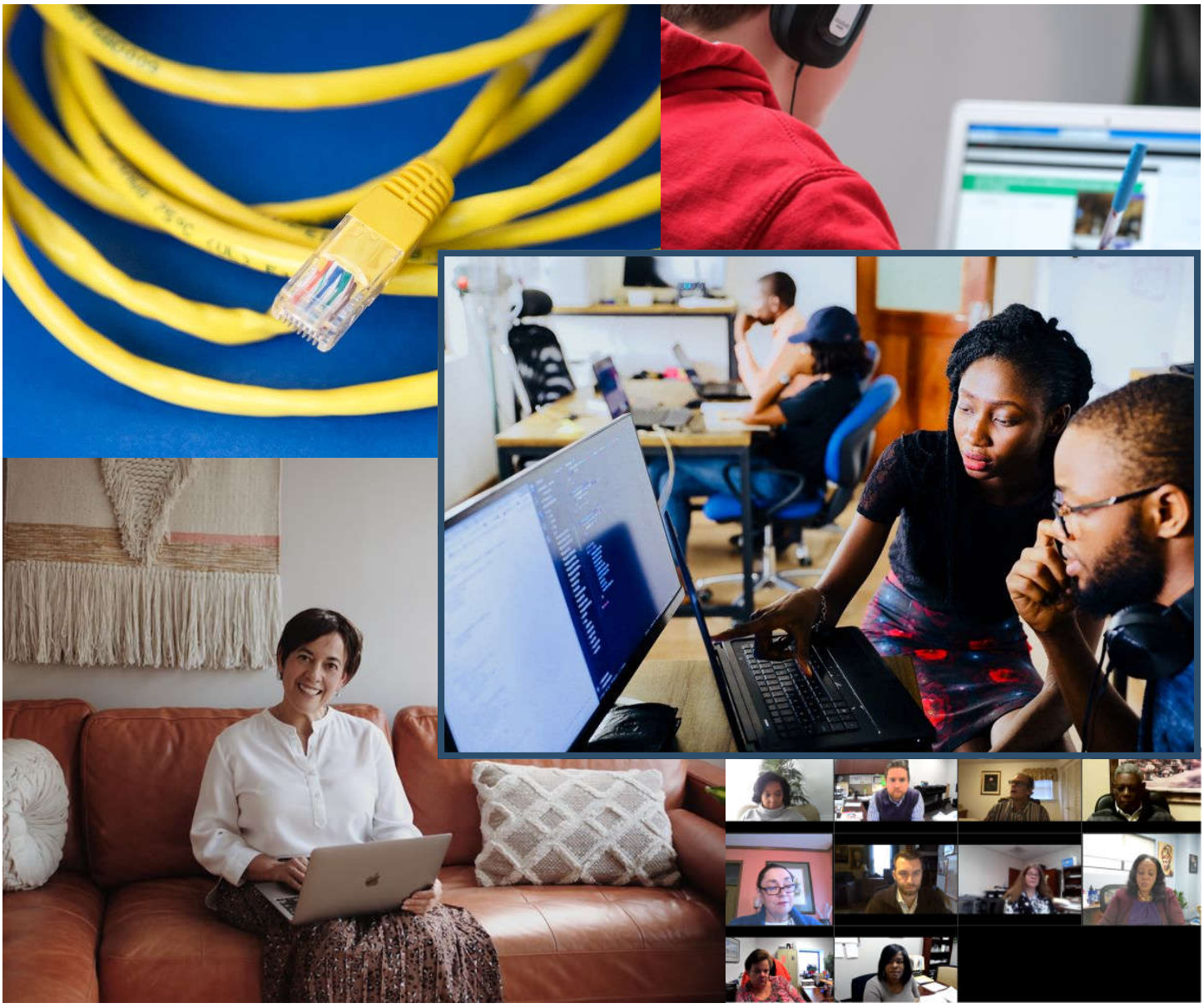
Upper Coastal Plain Digital Inclusion Plan

Prioritized Action Plans to Bring Digital Equity to Edgecombe, Halifax, Nash, Northampton and Wilson Counties



UPPER COASTAL PLAIN COUNCIL OF GOVERNMENTS

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Introduction

A Framework for Digital Inclusion in the Upper Coastal Plain Region of North Carolina

In recognition that broadband infrastructure and the resources and capabilities it can support is increasingly vital for competitive and sustainable communities, Upper Coastal Plain Council of Governments and the regional Broadband Task Force (BBTF) it administers has supported the principle that digital equity be achieved throughout the five member counties of the Upper Coastal Plain. For this reason, the BBTF supported the development of digital inclusion plans for Edgecombe, Halifax, Nash, Northampton and Wilson Counties. Synthesis of these plans with EDA-funded infrastructure planning efforts underway led to delineation of the following framework to guide efforts to make digital equity a reality in the Upper Coastal Plain region:

Vision

All residents and businesses in the Upper Coastal Plain region have the knowledge and tools to fully participate in the digital economy and society.

Mission

To empower all providers, community leaders, local governments, organizations, and other stakeholders seeking to solve digital inclusion challenges across the Upper Coastal Plain region with the network, tools, and information needed to reach their goals.

Plan Objectives

To serve as each county's unique digital inclusion plan that includes a thoughtful regional outlook and approach. Each county may take ownership of their respective County Profile section and implement, expand upon, or otherwise alter however they and their stakeholders see fit.

To serve as a resource for stakeholders across the Upper Coastal Plain region in addressing broadband availability, access, and adoption challenges.

To encourage local governments and Internet service providers, who are already working to expand broadband connectivity to the region's underserved areas, to also focus on broadband affordability, access, adoption, and other digital inclusion priority areas deliberately.

To provide a starting point for regional stakeholders to develop digital inclusion strategies and programs.

Goal of this Plan

To create a foundation for collaboration to leverage scale effects and resources needed to address broadband infrastructure and digital inclusion need across the region. Each county developed goals to address each aspect of Digital Inclusion and tactical action objectives correlating with the priorities they identified. We can reference these here and point to the individual county sections and perhaps address the goals and objectives for the region overall in this section.

Section 1

Upper Coastal Plain BAND-NC Planning Process

In developing an implementable digital inclusion plan with adequate focus on each county's unique digital inclusion needs and strategies, UCPCOG, with oversight from the BBTF, led a 4-month planning process in partnership with broadband consultant, Deborah T Watts of Broadband Catalysts (project team). The project team worked closely with BBTF members to establish five informal steering committees, one for each county. The five Digital Inclusion Teams (DIT) originally included eight-to-twenty members but were all open to any interested digital inclusion stakeholders. The project team convened each DIT twice, once in November 2020 to brainstorm digital inclusion strategies and to gain a better understanding of the county's digital inclusion landscape and again in January 2021 to prioritize digital inclusion strategies and solutions. There were ten virtual meetings total, not including two regularly scheduled BBTF meetings. Between the November brainstorming meetings and the January prioritization meetings, DIT members responded to a prioritization survey to rank digital inclusion strategies.

The BAND-NC planning process in UCP counties highlighted aspects of digital inclusion that could be accomplished at the community and county level as well as others that could benefit from the involvement and support by the Upper Coastal Plain Council of Governments (UCPCOG). Findings that are pertinent across the counties and discussion of potential undertaking that might best be accomplished at the regional level comprise Section 4.

Digital inclusion plans for the individual counties are in Section 5. Included for each county are:

- DIT findings of digital inclusion-related needs and assets
- Analysis of demographics and broadband statistics
- Priorities goals and actions.

Appendices include supporting documentation, survey templates and results, a resource list and a pro forma estimate of the relative costs of digital inclusion initiatives.

Section 2

About the Upper Coastal Plain Region

The Upper Coastal Plain (UCP) region is made up of five counties: Edgecombe, Halifax, Nash, Northampton, and Wilson. These contiguous counties are geographically located in the upper coastal plain area in northeastern North Carolina. The UCP region was designated by the North Carolina legislature in 1972 when the UCP Council of Governments, one of 16 councils of government regions in the state, was established. The UCP region borders Virginia to the north and stretches approximately 50 miles east to west and 65 miles north to south, totaling 1.7 million acres. The region shares a 40-mile border with Virginia, is within 50 miles of the nearest inlets to the Atlantic Ocean, 100 miles of the Outer Banks, and 25 miles of the State Capitol in Raleigh. There are 41 municipal governments in the region, the smallest of which is Speed (population: 79) and the largest of which is Rocky Mount (population: 54,548). The region-wide population is approximately 300,000.

According to the U.S. Bureau of Economic Analysis data, the region-wide median per capita income is $40,493, 71.68% of the U.S. per capita income of $56,490. All five counties are designated by the North Carolina Department of Commerce as Tier 1 economically distressed, the most distressed of three tier designations. According to Bureau of Labor Statistics data, the region's 24-month average unemployment rate in December 2020 was 6.99, compared to a US rate of 5.84. According to Census Bureau data: there are 119,740 total households in the region, 65.8% of which are Family Households and 29.9% are Living Alone. The average household size is 2.4. 46.7% of residents are age 45 or older and 22.2% are under 18. 46.7% are White Alone, 46.1% are Black Alone, 2.4% are Two or More Race Demographics do not just describe the UCP Region; they are intrinsically tied to why the region faces serious digital inclusion challenges.

Section 3

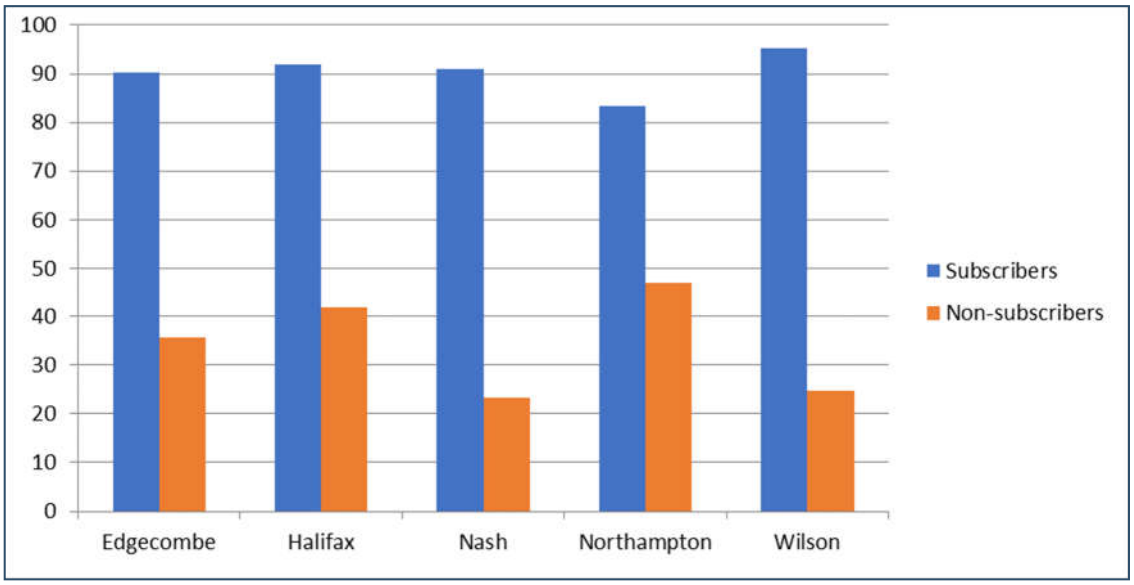
Upper Coastal Plain Context for Digital Inclusion

In April 2019, the UCP Council of Governments (UCPCOG) formed the Upper Coastal Plain Broadband Task Force (BBTF), a group of local government leaders from across the UCP region focused on better understanding and addressing the region's broadband challenges and opportunities. The creation of the BBTF was recommended in UCPCOG's Comprehensive Economic Development Strategy and has met bimonthly since April 2019. Upon receiving a grant from the U.S. Department of Commerce Economic Development Administration (EDA), the BBTF's primary focus was on a regional broadband initiative with the goal of expanding broadband connectivity in the region's unserved or underserved areas through mapping broadband assets and establishing strategic local government partnerships.

As the EDA-funded regional broadband initiative began to address the need for broadband availability, it became clear that the challenges across the UCP region are broader than just a lack of adequate infrastructure. The Federal Communications Commission (FCC) collects data at the Census tract level that compares broadband availability and adoption rates[1]. While there is reason to expect that the FCC's estimate of broadband availability depicted in Figure 1 may overstate actual availability, there is greater confidence in the percentage of the population in each UCP county that currently subscribes to broadband. Comparison of availability and subscription percentages in Figure 1 offers a conservative estimate of the degree of digital inclusion challenge confronting each UCP county.

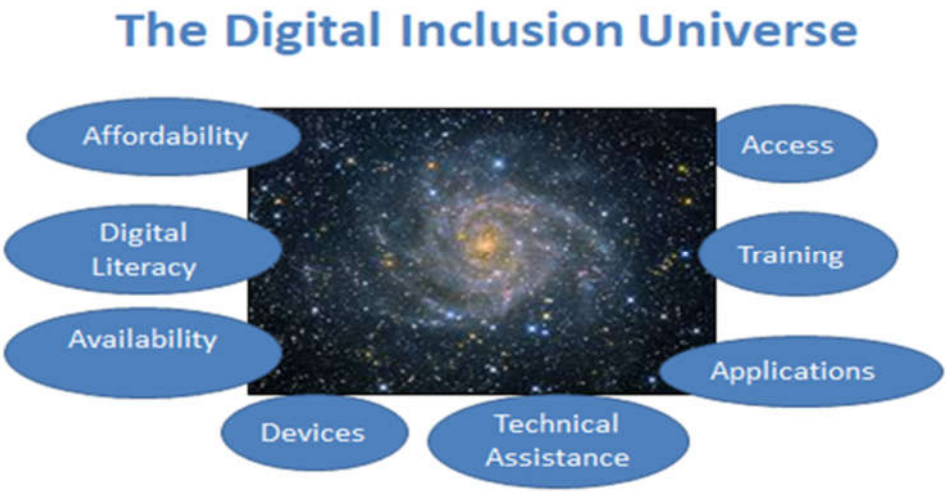
Figure 1

Comparisons of UCP Broadband Availability & Adoption



The BBTF sought a deeper understanding of the region's broadband challenges. The opportunity to do so presented itself through the Institute for Emerging Issues' Building a New Digital Economy in NC (BAND-NC) program. The BBTF encouraged UCPCOG to apply for a BAND-NC grant to take a regional approach to developing a digital inclusion plan for each county. This plan is the BBTF's approach to leveraging a more comprehensive broadband strategy that addresses all aspects of digital inclusion – adoption, access, and availability – for each county and for the region overall.

Digital Inclusion is defined by the National Digital Inclusion Alliance as "the activities necessary to ensure that all individuals and communities, including the most disadvantaged, have access to and use of Information and Communication Technologies." Elements of digital inclusion focus on, among other things, digital equity, digital literacy, and access to the devices and communications networks necessary to participate in the constantly evolving digital world.

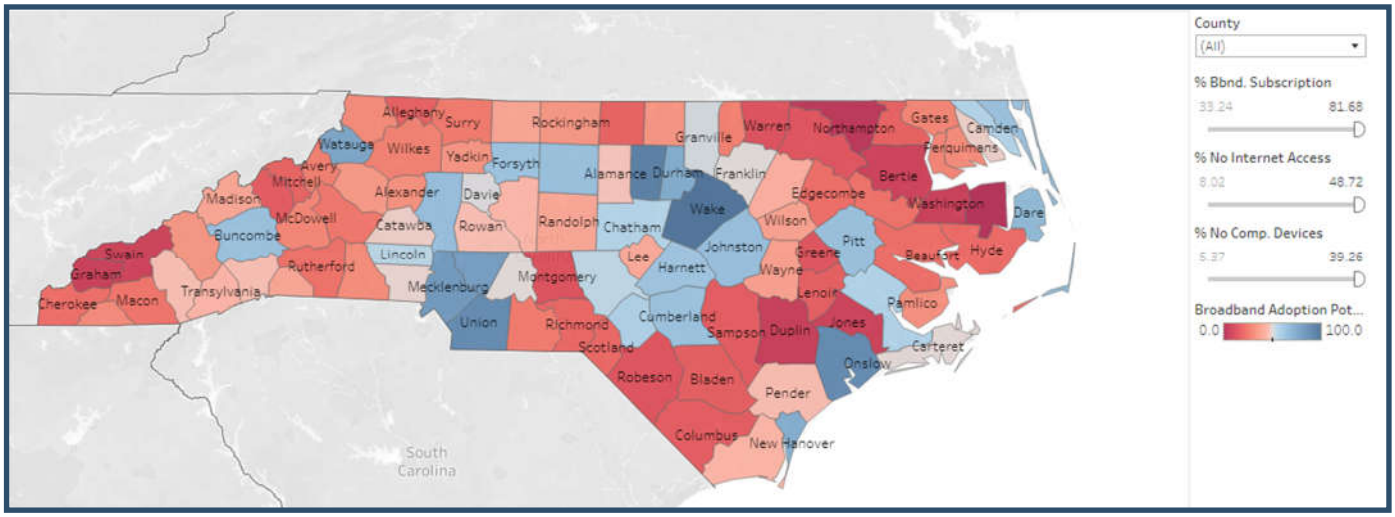


Documenting the Need for Digital Equity in the Region

The need to document that state of digital inclusion at the local level to drive smarter remedial strategies is clear. Based on 1,732 North Carolina Broadband Survey responses collected across the UCP region, 288 (16.6%) had no wireline Internet and 48 (2.8%) reported having no Internet at all. Of the 47,748 responses statewide, 13,521 respondents (28.3%) have no wireline Internet and 2,501 (5.2%) reported having no Internet at all. For those with internet access in the UCP region, 63.4% pay over $80 per month for Internet only. The median download speed for respondents with Internet service was only 20Mbps and the median upload speed was only 4Mbps. 59% of respondents with Internet access were under the FCC threshold of 25 Mbps 3 Mbps Upload (25/3).

Further evidence that a serious digital inclusion challenge confronts all five UCP counties is taken from analysis on broadband adoption conducted by the NC Broadband Infrastructure Office (NCBIO). A striking and perhaps surprising example is Wilson County which has a Broadband Adoption Potential of 37.9, ranking 48th out of NC's 100 counties. Wilson County's ranking is much lower than expected (at least at face value) because large portions of Wilson County's population has access to the City of Wilson's Greenlight Community Broadband, an affordable, reliable, municipally owned fiber-to-the-premises network. Given that Greenlight customers can subscribe to 50Mbps download and upload speeds for only $39.95/ month, Wilson County's ranking is clear evidence that digital inclusion is a separate issue from affordable broadband access and expansion. Even with that level of service and affordability, digital inclusion issues exist in many traditionally under-resourced, minority neighborhoods and must be addressed with unique, strategic, and targeted solutions.

Broadband Adoption Potential in North Carolina Counties



Nash County has a Broadband Adoption Score of 42.5, Edgecombe 22.6, Halifax 15.0 and Northampton at 2.3 (the second lowest adoption score in the state). The large range of Broadband Adoption Scores shows that each county faces unique challenges and must find tailored digital inclusion solutions. To paint a clearer picture, former Enfield Town Manager Montre' Freeman was featured in WRAL's Documentary, Disconnected[2] in early 2020, incidentally around the same time the COVID-19 pandemic added further urgency to the issue. The documentary provides viewers with a closer look at the telehealth and education challenges posed by not only a lack of broadband access, but a lack of digital inclusion. Most of the small towns in the UCP region are majority-minority communities of longstanding and persistent poverty, facing higher than usual challenges in education,

underemployment, transportation, health, and healthy food access. All of these challenges directly and negatively impact digital equity. Enhancing digital inclusion is paramount to realizing broadband's capacity for creating community wealth, health, and stability.

The scale of the digital inclusion challenge confronting UCP counties can be seen in the UCP broadband and demographic data and analysis summarized in Figure 2. Three primary points can be taken from this information:

- Estimates of broadband availability show sizeable areas where the infrastructure is unavailable.
- Even when broadband is available, there are significant barriers to uptake.
- Solving the region's broadband challenges will require attention to gaps in both availability and adoption.

Understanding and identifying solutions to these challenges is what BAND-NC is all about.

Section 3 Endnotes:

1: While there are acknowledged issues with the methods used and accuracy of data used to this point efforts are underway to improve accuracy and usefulness by encouraging citizens to become involved in data collection. https://www.fcc.gov/document/fcc-reaches-out-collect-consumer-broadband-availability-experiences

2:WRAL Documentary: Disconnected, Capitol Broadcasting Company, 03/19/2020, https://www.wral.com/wral-documentary-disconnected/18999023/

Figure 2 Summary Upper Coastal Plain Region Broadband and Demographic Statistics

	N.C.	Edgecombe	Halifax	Nash	Northampton	Wilson
Population	10,488,054	51,472	50,010	94,298	19,483	81,801
% Broadband Access (25/3mbps	95.24	90.34	91.87	90.99	83.4	95.06
% Internet access < broadband speeds	3.96					
No Internet Providers	0.8	1.31	0.94	1.33	3.6	.36
% Broadband Subscription	80.7	64.3	58.1	76.6	52.9	75.3
Percent not Subscribing	19.3	35.7	41.9	23.4	41.1	24.7
Households without Computers	10.9	23	21.5	14.6	19.6	19.7
% Unemployment (12/20) *	6.2	9.9	8.6	7.5	6.8	7.7
% Poverty	13.4	12.7	13.3	12.1	12.5	14.7
Age >65	16.7	22.5	21.4	19.0	27.0	18.7
< High School Education	12.1	18.9	21.4	14.4	19.6	19.7
% African American	22.2	57.8	53.8	41.3	57.2	40.5
% Hispanic	10.8	5.0	3.1	7.4	2.6	9.8
Limited English	10.9	4.6	3.4	6.4	2.5	11.8
% Disabled	12.3	13.1	12.1	14.6	10.8	9.4
% No Health Insurance	13.4	12.7	13.3	12.1	12.6	14.7
Municipalities		Conetoe, Leggett, Macclesfield, Pinetops, Princeville, Speed, Tarboro, Whitakers	Enfield, Halifax, Hobgood, Littleton, Roanoke Rapids, Scotland Neck, Weldon	Bailey, Castalia, Dortches, Middlesex, Momeyer, Nashville, Red Oak, Rocky Mount, Sharpsburg, Spring Hope	Conway, Garysburg, Gaston, Jackson, Lasker, Rich Square, Seaboard, Severn, Woodland	Black Creek, Elm City, Lucama, Saratoga, Sims, Stantonsburg, Wilson

Section 4

Digital Inclusion: A Regional Summary and Perspective for Action

The initiative of the UCPCOG and BBTF, in recognizing and augmenting the region's EDA broadband infrastructure planning grant by seeking and securing the money and technical assistance needed to help all member counties to initiate truly comprehensive broadband planning, provides the best evidence of the value a regional approach can bring to addressing broadband gaps of all sorts. As a result of these efforts, all five counties have made significant progress towards understanding the status of their broadband availability, access, and adoption. All have prioritized needs and actions to remedy identified gaps and in doing so they and the region as a whole are better prepared to respond to unprecedented funding that will soon become available. This includes the $10 billion American Recovery Plan Act, an additional $7 billion allocated to the FCC's E-Rate program to help schools and libraries support virtual learning, and its Emergency Connectivity Fund for broadband subsidies to low-income households.

In managing the BAND-NC process, collecting and synthesizing data from all 5 counties, the UCPCOG and BBTF are positioned to understand the bigger picture of common needs, opportunities for collaboration and leveraging scale economics, sharing best practices, and supporting the developing of communities of broadband-enhanced practice in telehealth, smart cities, e-commerce, precision agriculture, public safety, and virtual education and workforce training. Identifying and nurturing opportunities for collaboration is especially important in rural areas challenged by all of the factors that correlate with digital inequities. And while each county's digital inclusion plan reflects their unique sets of assets, needs and opportunities, there was significant congruence in their priorities that create promising opportunities for collaboration. Summary highlights across the five county digital inclusion plans follow.

Regarding priority concerns, there was significant agreement (Figure 3) in order of priority, and cost of addressing: broadband availability, access and adoption.

Figure 3

DIT Priorities

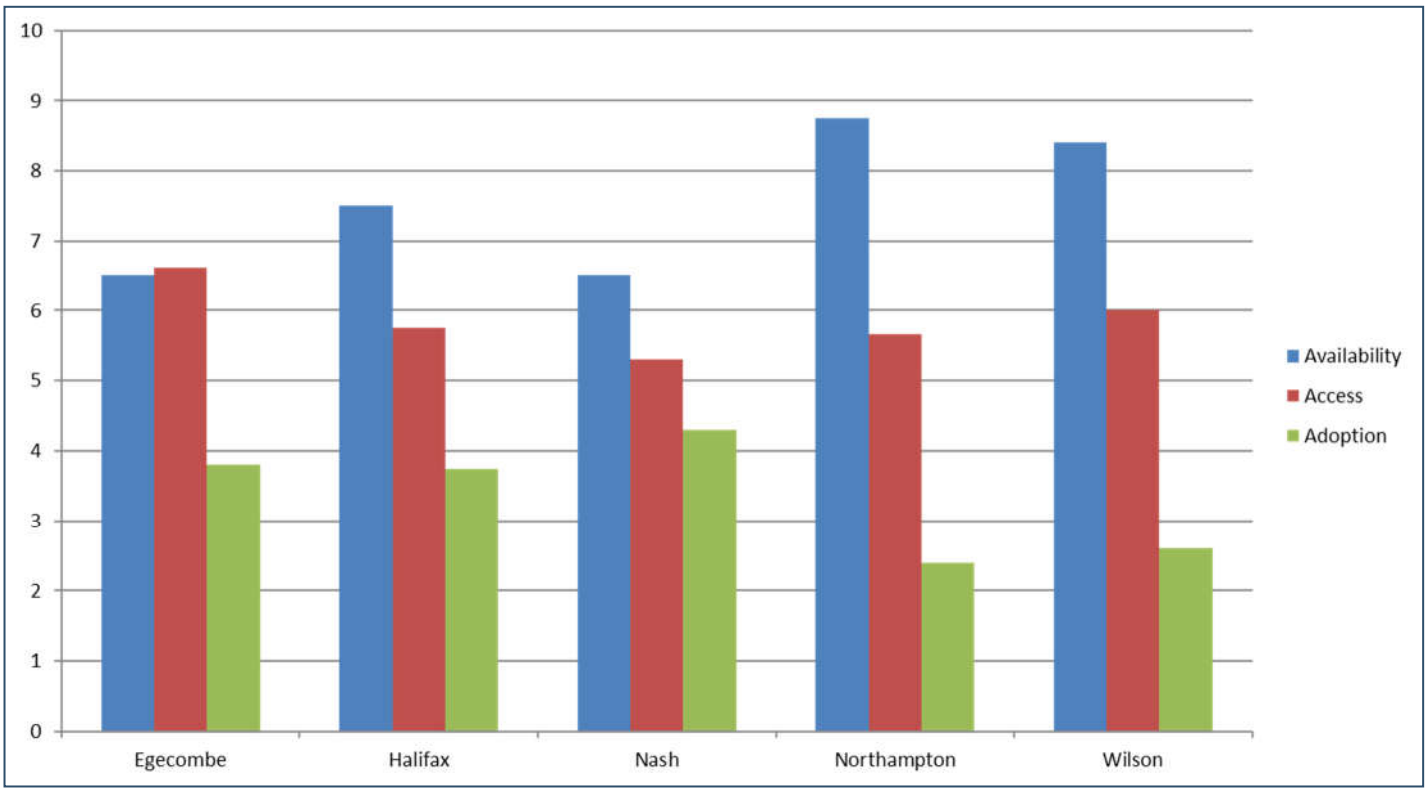
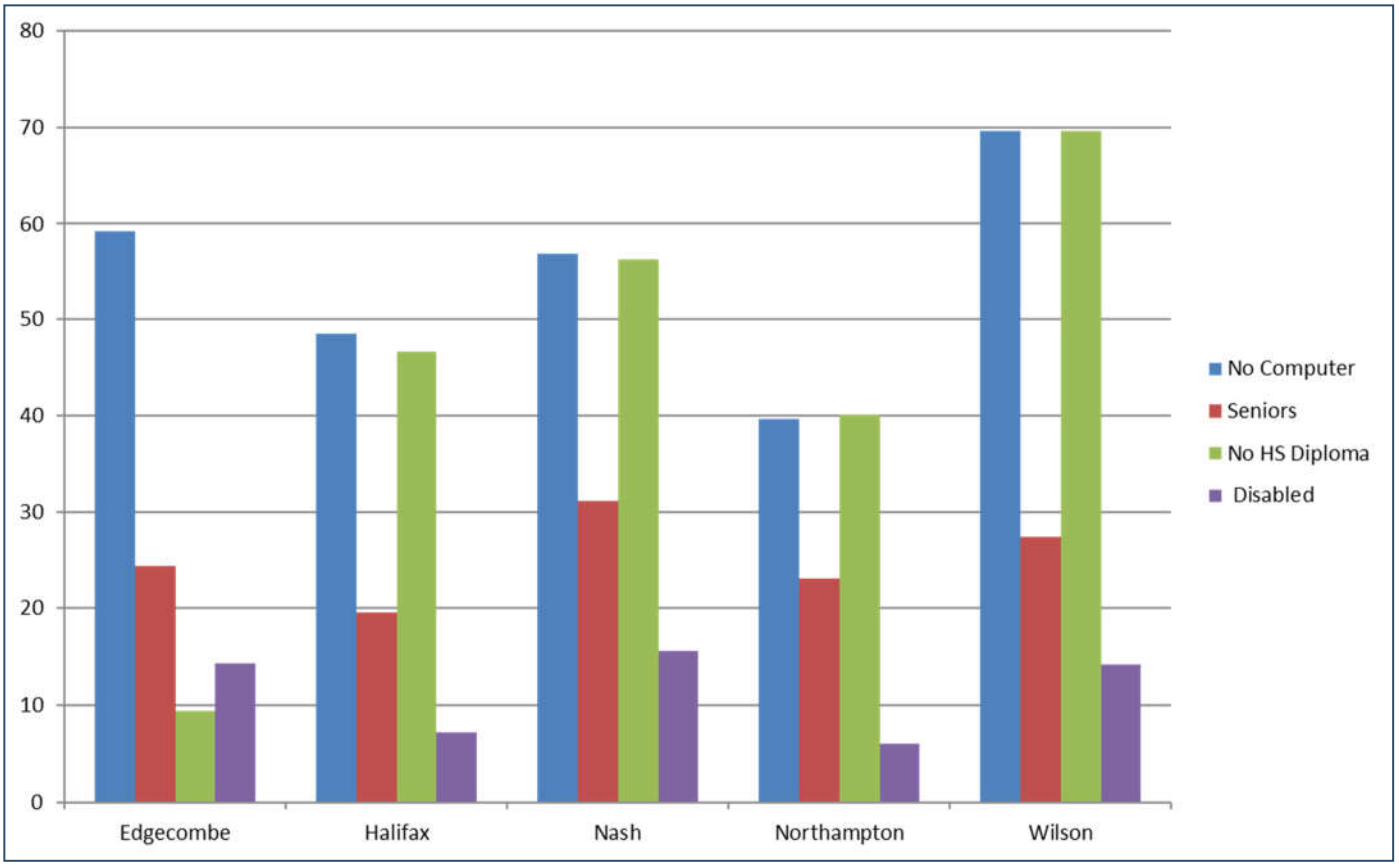


Figure 4 provides insights into the demographic group in each county that represent the most individuals who do not currently subscribe to broadband. The reasons for their being nonadopters vary and point to the need for specific digital inclusion strategies for each target population. While the size of the each target group varies by county, the types of targets are consistent and point to opportunities for collaboration across the region to address the specific needs for each group. For example, there is a significant amount of nonadopters who lack a computer or access device, creating an opportunity for a regional or multi-county computer refurbishment effort to help these individuals become broadband users, thereby making the market more attractive to prospective ISPs.

Figure 4

Digital Inclusion Targets



Recognizing what can be the overwhelming financial and legal challenges to solving local broadband infrastructure gaps, the county DITs focused on the most promising and/or pressing needs relative to access and adoption challenges. Figure 5 lists the options offered most frequently.

Figure 5

Highlighted Suggestions to Address Broadband Access and Adoption Issues

Customized training for senior citizens, entrepreneurs, local government officials, etc.
Computer donation and refurbishment programs.
Subsidy programs and assistance in registering for existing programs.
Increased awareness of resources and issues through a common user-friendly portal, supplemented with hard copies and personal outreach to engage nonadopters.

Partnerships are increasingly important to achieving digital inclusion goals of all types. Further, while there are specific and important local digital inclusion partners in each county, there are a number of potential partners who might be attracted to participate in and/or support digital inclusion efforts in the individual counties or the region (Figure 6).

Figure 6

Prospective Digital Inclusion Partners

Duke Foundation
Golden LEAF
Institute for Emerging Issues Faith Communities Initiative
Kate B. Reynolds Foundation
Institute for Emerging Issues BAND-NC Initiative
Internet service Providers (Cloudwyze, Roanoke Connect, Greenlight, etc.)
NC Broadband Infrastructure Office
NC Cooperative Extension Service
NC State Library System
UCP COG and all member counties
U.S. Economic Development Administration
Vidant Healthcare
Z. Smith Reynolds Foundation

Potential Digital Inclusion Roles for the UCP COG and BBTF

Strategies that play to the UCPCOG and BBTF's strengths and promote digital inclusion across the region that emerged from the BAND-NC digital inclusion planning process include the following:

Tracking and Responding to Funding Opportunities: among the many challenges highlighted by the Covid-19 pandemic are the already existing deep and diverse issues resulting from the lack of adequate broadband. Beyond infrastructure, digital inequities arising from individuals lacking financial and technical resources, skills and knowledge to use broadband add to the costs of the pandemic and severely hamper prospects for recovery. Truly significant resources earmarked through the American Rescue Plan Act (ARP) legislation that will be available in mid-2021 includes $10 billion for capital projects, including broadband infrastructure for states, localities, territories and tribal governments to address broadband gaps, with additional broadband infrastructure funds expected through the pending American Jobs Act. The FCC has also allocated an additional $7 billion for its Emergency Connectivity Fund and E-Rate program to help schools and libraries support virtual learning. This one-time funding will allow communities to make critical investments in broadband infrastructure and addressing digital inequities.

The allocation of these funds to specific purposes and their distribution through multiple existing and new agencies/offices makes it difficult to stay fully aware of emerging opportunities. This is particularly true for small municipal and rural county governments that have all the responsibilities of local government but limited staff and budgets. The solution for better rural broadband cannot lie with the local government alone - it has to involve the broader community extending in some cases to regional-scale efforts to be effective. This points to two important and familiar COG value adds: tracking and distributing timely information to appropriate stakeholders and originating regional Requests for Proposals to leverage scale investments in broadband infrastructure, such as secured the EDA broadband infrastructure plan that is in process.

Facilitating collaboration and stakeholder engagement: Similar needs and congruent priorities were revealed through the regional BAND-NC planning projects, creating several options for the UCPCOG and BBTF to leverage resources to facilitate opportunities to develop stakeholder partnerships, provide technical assistance and promote targeted learning communities. The options for facilitated learning and partnerships are many: telehealth education; computer refurbishment; train-the-trainer programs to develop a network of local digital navigators; e-government and digital literacy skills for local government officials.

Improved flow of information: Better data on the actual state of digital inclusion is needed to guide smarter broadband policies and investments, while citizens need information on the availability of broadband resources and assistance that is current, comprehensive, and user-friendly. Best-practice models for broadband information portals could serve both purposes. This is an example of a regional project that the UCPCOG and the BBTF could lead to both increase collection of broadband data needed for infrastructure grants and attract prospective Internet Service Providers and to develop common broadband portal templates to promote the full spectrum of digital inclusion resources available throughout the UCP region.

Computer refurbishment and donations: Across the entire region there are large numbers of households that do not have a computer or any access device, precluding digital literacy training, job searches, virtual education, telehealth and access to the economics of e-commerce. Leadership from the UCPCOG and BBTF with county DITs could explore options for partnering with each other, local high school and community college Computer and Information Technology or Cybersecurity programs/students and external organizations (such as the Lake Gaston Computer Club) to create regional sources of refurbished computers and technical assistance.

Closing Points: A short list of issues that should guide any and all digital inclusion effort in UCP counites and the region warrant repetition:

- Every county in the region needs better broadband infrastructure and more people capable of using it. The region is characterized by serious digital inequities that will continue to impede economic development, community sustainability and quality of life until addressed.
- There is growing awareness of this problem and commitment to addressing it.
- The need for comprehensive broadband availability data is time sensitive and needed for all five counties.

- Shared priorities and common approaches to improving access creates opportunities for cross-border and regional collaborations to extend Wi-Fi, technical assistance, and training.
- Unique demographic aspects create the need for specific approaches to reach different categories of non-adopters,
- No single approach or organization can solve these challenges, everyone is a stakeholder in the future of the region.
- Broadband is absolutely critical to empowering a better future.

Section 5

Edgecombe County Digital Inclusion Plan

Edgecombe County resembles many rural communities regarding the challenges to ensuring its citizens and businesses have the broadband resources needed to fully engage in modern life. The Covid-19 pandemic places additional urgency on solving these problems. Edgecombe County ranks 73rd out of 100 counties in North Carolina for broadband adoption, pointing to the scale of the challenge. Existing efforts and involvement of leaders in this BAND-NC Digital Inclusion project speak to the attention and energy being given to addressing this need.

The Edgecombe County Digital Inclusion Team (DIT) met twice to discuss the state of broadband in the County and what to do about it. The first meeting focused on describing the existing situation, including challenges and assets related to the three aspects of digital inclusion: availability, access and adoption. Members' responses to a subsequent survey identified their individual priority digital inclusion goals and related options for action. Members addressed needs and opportunities at three levels – for the county overall, for their organization and for the region. A weighting process described earlier combined individual responses into a collective framework for action. A second meeting allowed group discussion and refinement of these collective goals and priorities to create the first digital inclusion plan for Edgecombe County. The following sections summarize (I) the DIT's key findings; (II) demographic analysis providing additional insights on digital inclusion challenges and solutions; and (III) DIT's recommendations for action.

I. DIT Findings on Needs and Assets

Discussions at DIT meetings included shared insights, anecdotal stories and concerns that provided a grounded context for efforts to make the county more digitally equitable. Discussion highlights follow:

- Broadband infrastructure is inadequate, especially in southern Edgecombe County.
- Better and deeper availability data is needed to document eligibility for broadband grants.

- The Town of Sharpsburg is uniquely challenged as its municipal boundary lies in 3 counties, lacks schools, a library, or other community anchor institutions often found in small communities.
- Some service organizations are working to extend digital literacy educations and telehealth and public safety services, but stakeholders' ability to access and us these applications are stymied by transportation and other digital inclusion challenges.
- An informal county-level broadband planning group exists but has not been active.

II. Demographic Analysis for Digital Inclusion

Presentations on demographics and the status of broadband availability and use in the county informed DIT prioritization of digital inclusion efforts. 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. In Figure 7, the scale of the factor reflected in Column D provides the number of Edgecombe residents for whom the indicated factor applies. The scale of digital inclusion opportunity/challenge is derived in Column E by estimating the share of residents included in Column D who currently do not have and/or use broadband at home.

As an example of how the data might be used, FCC data finds that Internet is unavailable at any speed for only 1.31 percent of Edgecombe County residents (Column D), or fewer than 700 people. An additional, much larger number of people have Internet access but not at broadband speeds (25 mbps download/3 mbps upload). Together, these figures provide a clearer, if still conservative picture of the scale of the broadband availability challenge in Edgecombe County. These FCC-derived numbers undercount the actual availability challenge, leading to DIT's recommendation to collect more accurate ground-truthed availability data[3].

Direction for how to best address the access and adoption aspects of digital inclusion is also taken from the data presented in Figure 7. While the FCC estimates that broadband is available to more than 90 percent of Edgecombe County citizens, only 64 percent of those individuals subscribe to broadband. The majority of these nonsubscribers also lack a computer, which opens up options for computer

refurbishment programs, loaner devises, and equipment subsidies as tools for increasing broadband adoption in many households.

The data in Figure 7 also provides direction for other, more demographically-targeted strategies to increase adoption among the estimated share of citizens in each category who are not broadband users (Column E). For example, Edgecombe County has a relatively large share of seniors and those with less than a high school education. For both groups, efforts to increase digital literacy could significantly increase their interest and capacity to adopt broadband and gain access to telemedicine, online education services, workforce training and employment opportunities. Extrapolating from Edgecombe County demographics and available broadband adoption data, the sectors that constitute the largest digital inclusion challenge/opportunity in absolute numbers are households without computers, senior citizens and those lacking proficiency in English. The large share of African Americans in the county points to the importance of engaging leaders in that community as partners in digital inclusion efforts.

Figure 7

Summary Digital Inclusion Statistics for Edgecombe County

A	B North Carolina	C Edgecombe	D Factor Population	E Target Population
Population	10,488,054	51,472		
% Broadband Access (25 mbps download/3 mbps upload	95.24	90.34	46,500	10,972 [a]
% Internet access < broadband speeds	3.96	8.35	4,278	4,298
% No Internet Providers	0.8	1.31	675	675
% Broadband Subscription	80.7	64.3	29,890	
% Not Subscribing	19.3	35.7	16,601	16,601
%Households without Computers	10.9	23	11,839	9,826 [b]
% Unemployment (12/20) *	6.2	9.9	5,096	
% Poverty	13.4	12.7	6,537	
Age ≥65 [c]	16.7	22.5	11,581	4,053
< High School Education [d]	12.1	18.9	9,728	1,556
% African Americans [e]	22.2	57.8	29,751	4,463
% Hispanics	10.8	5.0	2,574	360
Limited English	10.9	4.6	2,368	2,368
% Disabled [f]	12.3	13.1	6,743	1,551
% No Health Insurance	13.4	12.7	6,536	

a) Approximately 90% of households in Edgecombe County currently subscribe to broadband Internet, leaving 10% of households as targets for broadband adoption efforts

b) 17% of households without computers choose to access the Internet only by smartphone and are not promising targets for digital inclusion efforts to provide computers

c) Pew Research (2018) found 35% of senior citizens do not use the Internet

d) Statista Research (2019) found 16% of people with only high school education use the Internet

e) The percentage of African Americans (85%) and Hispanic (86%) populations adopting broadband reflects national averages as specific data for Edgecombe County is not available.

f) 23% of disabled persons respond to Pew Research Survey that they never go online.

III. Edgecombe County DIT Goals & Recommended Actions

Prioritization ranks for the full set of needs and actions to improve digital inclusion in Edgecombe County identified by the DIT are found in Appendix 04. Options receiving the highest score formed the basis for actions described below.

Goal 1

Improve access to broadband throughout Edgecombe County

Access refers to the capacity to take advantage of available broadband infrastructure. It presumes an interest in using broadband that is challenged by the absence of a means of do so that arises from the lack of computers or other access devices, no public access facilities or Wi-Fi, and/or an affordability challenge. Improving broadband access was the highest digital inclusion priority (weighted average 6.6/10 points)

Action 1: Increase the number of public Wi-Fi zones

Action 2: Increase the number and distribution of public access centers in targeted low-adoption areas, in part by expanding the capacity and operating hours of existing public access centers.

Action 3: Increase the number and distribution of public access centers in targeted low-adoption areas, in part by expanding the capacity and operating hours of existing public access centers.

Action 4: Increase awareness and uptake of available/emerging broadband subsidy programs by eligible households. Reaching the diverse demographic segments that do not take advantage of available subsidies will require multiple organizations engaged in outreach.

Goal 2

Deploy/Upgrade broadband infrastructure throughout Edgecombe County

Availability refers to the presence of physical infrastructure, including all supporting technology needed to deliver Internet service at broadband speeds. Various technologies accomplish this, including fiber optics, cable, certain types of DSL (using existing telephone lines and modems) and hybrid fiber-fixed wireless options[4].

The inherently high costs of deploying broadband infrastructure is exacerbated in Edgecombe County by its low population densities, large numbers of economically challenged households and North Carolina's legislative limits on local public infrastructure funding. Access to available federal and state infrastructure grants is restricted by some underserved areas of the County being deemed ineligible by inaccurate availability maps. Other areas of the county have Internet access, but at non-broadband speeds that cannot support critical interactive applications delivering education, telehealth and public safety services. Availability was identified as a high priority for action (6.5/10points), ranking only marginally below Access.

Action 1: Secure the capacity to support on-line learning and address the homework gap. Sustainable resources are needed to ensure all K- 12 students have broadband Internet connectivity at home and devices to use it.

Action 2: Gather data on the actual level of available service to drive smarter public policy and investments. The FCC and the NC Broadband Infrastructure Office (NCBIO) report that broadband Internet (25mbps download/3mbps upload) is available to more than 90 percent of households in Edgecombe County. Anecdotal evidence strongly suggests that this figure is overstated. Accurate availability data can be gathered through survey and speed tests provided on the NC BIO website.

Action 3: Make Edgecombe County more attractive to Internet Service Providers and other partners by harmonizing and optimizing laws, regulations and permitting processes and fees and providing access to vertical assets. The County should collaborate with the UCPCOG to gather data needed to complete accurate availability maps and a regional plan for funding broadband infrastructure.

Action 4: Edgecombe County Government's website provides a portal that informs citizens of developments and potential broadband funding opportunities. This portal could link citizens to speed tests that document the status of broadband service at their location. This information is essential for potential providers and to counter inaccurate data that can block federal and state broadband grants.

Goal 3

Increase Broadband Adoption across all demographic segments of Edgecombe County

Adoption represents a tricky, often under-valued tool for addressing digital inequality in that while effective approaches are relatively inexpensive, they can be labor and time intensive and have success determined by the really difficult challenge of changing human behavior. The DIT rated Adoption as a relatively distant (3.8/10 points) third priority for action. The adoption challenge is larger than the priority rank suggests as more than 35 percent of households for whom broadband is available (approximating 15,000 people as per FCC data) do not subscribe to the service. In addition to affordability and lack of computers, the primary reasons for non-adoption include lack of digital skills, language difficulties, and/or a perceived lack of relevance. While there is strong overlap in the approaches and resources needed to address adoption challenges, their delivery needs to be customized to the targeted individuals and demographic sectors.

Action 1: Provide digital literacy/skills instruction using approaches that overcome trust and transportation challenges by engaging churches, community non-profits, senior centers, the Cooperative Extension Service and others as partners to provide training in locations that are convenient and familiar to the target populations.

Action 2: Address the relevance issue by customizing digital training to the needs and interests of targeted populations. For example, offer skills training focused on telemedicine for senior citizens, job skills and employment searches for young adults who have not finished high school, target parents for basic skills training related to online learning needs of students, and providing English as a second language and digital literacy in Spanish for language-challenged citizens.

Action 3: Create an information portal directing citizens to digital inclusion resources. Lack of knowledge about available assistance can stymie adoption. The County's broadband information portal should be expanded to include information directing citizens to sources of technical assistance, subsidies and digital literacy training.

IV. Organization-specific priorities and actions

Members of the DIT were asked to consider their organization's specific digital inclusion-related mission, goals, and operations and to rank prioritized options for action. Results did not deviate significantly from those identified as priority actions for the county, but greater emphasis was given to expanding the distribution of public access centers in underserved areas and increasing the capacity and hours of operation for existing centers.

V. County Digital Inclusion Team Members

Member	Organizational Affiliation
Arlane Gordon Bray	Edgecombe County Schools
Kayla Cannon	Town of Conetoe
Stevie Cox	Town of Sharpsburg
Katelyn Edmonson	Edgecombe Community College
Dolores Faison	Town of Speed
Bobbie Jones	Town of Princeville
Shoneca Kent	Edgecombe County Cooperative Extension
Tabetha Summerlin	Edgecombe County
Ralph Webb	Edgecombe County Board of Commissioners

Despite an expedited pace and the need to convene in virtual format, the level of interest and quality of input from DIT participants provided a strong base for continued attention to improving digital equity in the County. Representation of county and municipal governments was strong but the discussion could have benefited from broader representation from other stakeholder organizations.

The number and nature of challenges identified by the planning group supports continued, formal attention to improving digital equity. It is recommended that a formal Digital Inclusion Task Force be established by the County and that its membership include interested members of the original DIT group expanded to include opinion leaders with strong connections to groups targeted for digital inclusion and/or representing sectors that can use broadband to deliver education, workforce training, healthcare, public safety and other services to targeted stakeholder groups.

At a minimum, the digital inclusion planning efforts from this point forward should involve leaders from the following Edgecombe County sectors:

Utility Cooperatives

Libraries

Local/Municipal Governments

K-12 Schools

Community Colleges/Universities

Healthcare

Non-profit Organizations

Social Services

Senior Centers

Business Community

Faith Community

Local Internet Service Providers

Cooperative Extension Services

Section 5 Endnotes:

3: Demographic data presented in this table is largely sourced from the US Census American Consumer Survey, the NC Department of Commerce, and the NC Broadband Infrastructure Office. Broadband adoption statistics were largely obtained from reports published by Pew Internet Research Center.

4: Satellite technologies also deliver Internet access but local governments are unable to directly pursue this option through public-private partnerships such as can be employed with terrestrial Internet Service Providers to increase availability.

Section 6

Halifax County Digital Inclusion Plan

Halifax County resembles many rural communities regarding the challenges to ensuring its citizens and businesses have the broadband resources needed to fully engage in modern life. The COVID-19 pandemic places additional urgency on solving these problems. Halifax County ranks 87th out of 100 counties in North Carolina for broadband adoption, pointing to the scale of the challenge. Existing efforts and involvement of leaders in this BAND-NC Digital Inclusion project speak to the attention and energy being given to addressing this need.

The Halifax County Digital Inclusion Team (DIT) met twice to discuss the state of broadband in the County and what to do about it. The first meeting focused on describing the existing situation, including challenges and assets related to the three aspects of digital inclusion: availability, access, and adoption. Members' responses to a subsequent survey identified their individual priority digital inclusion goals and related options for action. Members addressed needs and opportunities at three levels – for the county overall, for their organization and for the region. A weighting process described earlier combined individual responses into a collective framework for action. A second meeting allowed group discussion and refinement of these collective goals and priorities to create the first digital inclusion plan for Halifax County. The following sections summarize (I) the DIT's key findings; (II) demographic analysis providing additional insights on digital inclusion challenges and solutions; and (III) DIT's recommendations for action.

I. DIT Findings on Needs and Assets

Discussions at DIT meetings included shared insights, anecdotal stories and concerns that provided a grounded context for efforts to make the county more digitally equitable. Discussion highlights follow:

- Broadband infrastructure is inadequate with many people including students, depending on mobile/cell phone access to connect to the Internet. Better data is needed to understand how widespread the use of smart phones is and the availability of cell service and its adequacy.
- Seniors and the organizations that serve them are increasingly aware of the value of bringing this group online. Tablets are being distributed to some but access

costs and the need for digital literacy training point to the need for subsidies and a train-the-trainer approach to increase digital equity among senior citizens.

- Sustaining hotspots and devices for students beyond Covid-19 programs is a concern.
- Three geographically-distributed Community Education Centers are significant assets for digital inclusion, providing public access and convenient sites for potential digital literacy classes.
- Wi-Fi Zones exist in Roanoke Rapids but are needed in other communities.
- The BAND-NC process is seen as a catalyst for needed ongoing digital inclusion planning.

II. Demographic Analysis for Digital Inclusion

Presentations on demographics and the status of broadband availability and use in the county informed DIT prioritization of digital inclusion efforts (Figure 8). 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. The scale of the factor reflected in Column D provides the number of Halifax residents for whom the indicated factor applies. The scale of digital inclusion opportunity/challenge is derived in Column E by estimating the share of residents included in Column D who currently do not have and/or use broadband at home.

As an example of how the data might be used, FCC data finds that Internet is unavailable at any speed for less than one percent of Halifax County residents (Column D), or fewer than 500 people. An additional, much larger number of people (3,696) have Internet access but not at broadband speeds (25 mbps download/3 mbps upload). Together these provide a clearer, if still conservative picture of the scale of the broadband availability challenge in Halifax County. These FCC-derived numbers undercount the actual availability challenge, pointing to the value of collecting more accurate ground-truthed availability data[5].

Direction for how to best address the access and adoption aspects of digital inclusion is taken from the data presented in Figure 8. While the FCC estimates that broadband is available to more than 90 percent of Halifax County citizens, only 58 percent of those individuals subscribe to broadband. This means that there are more than 19,000 people in Halifax County who do not subscribe to available broadband.

Almost half of nonsubscribers also lack a computer, which points to the importance of service and equipment subsidies, computer refurbishment programs and loaner devices as tools for increasing broadband adoption in many households.

The data in Figure 8 also provides direction for other, more demographically-targeted strategies to increase adoption among the estimated share of citizens in each category who are not broadband users (Column E). For example, Halifax County has a large number of individuals with less than a high school education and a large share of senior citizens. For both groups efforts to increase digital literacy could significantly increase their interest and capacity to adopt broadband and gain access to telemedicine, online education services, workforce training and employment opportunities. Extrapolating from Halifax County demographics and available broadband adoption data, the sectors that constitute the largest digital inclusion challenge/opportunity in absolute numbers are households without computers, those with limited educational attainment and senior citizens. The large share of African Americans in the county points to the importance of engaging leaders in that community as partners in digital inclusion efforts.

Figure 8

Summary Digital Inclusion Statistics for Halifax County

A	B North Carolina	C Halifax	D Factor Population	E Target Population
Population	10,488,054	50,010		
% Broadband Access (25 mbps download/3 mbps upload	95.24	91.87	45,944	4,066 [a]
% Internet access < broadband speeds	3.96	7.19	3,596	3,596
% No Internet Providers	0.8	0.94	470	470
% Broadband Subscription	80.7	58.1	26,693	0
% Not Subscribing	19.3	41.9	19,251	19,251
% Population without Computers	10.9	21.5	10,752	9,354 [b]
% Unemployment (12/20) *	6.2	8.6	4.301	
% Poverty	13.4	13.3	6,651	
% >65 years old	16.7	21.4	10,702	3,746
< High School Education [d]	12.1	21.4	10,702	8,990
% African Americans [e]	22.2	53.8	26,905	4,036
% Hispanics	10.8	3.1	1,550	217
Limited English	10.9	3.4	1,700	
% Disabled [f]	12.3	12.1	6,051	1,392
% No Health Insurance	13.4	13.3	6,651	

a) Approximately 58% of households in Halifax County currently subscribe to broadband Internet, leaving 42% of households as targets for broadband adoption efforts

b) 17% of households without computers choose to access the Internet only by smartphone and are not promising targets for digital inclusion efforts to provide computers

c) Pew Research (2018) found 35% of senior citizens do not use the Internet

d) Statista Research (2019) found 16% of people with only high school education use the Internet

e) The percentage of African Americans and Hispanic populations adopting broadband reflects national as specific data for Halifax County is not available.

f) 23% of disabled persons respond to Pew Research Survey that they never go online.

III. Halifax County DIT Goals & Recommended Actions

Prioritization ranks for the full set of needs and actions to improve digital inclusion in Edgecombe County identified by the DIT are found in Appendix 05. Options receiving the highest score formed the basis for actions described below.

Goal 1

Deploy/Upgrade broadband infrastructure throughout Halifax County

Availability refers to the presence of physical infrastructure, including all supporting technology needed to deliver Internet service at broadband speeds. Various technologies accomplish this, including fiber optics, cable, certain types of DSL (using existing telephone lines and modems) and hybrid fiber-fixed wireless options[6]. The inherently high costs of deploying broadband infrastructure is exacerbated in Halifax County by its low population densities, large numbers of economically challenged households and North Carolina's legislative limits on local public infrastructure funding. Access to available federal and state infrastructure grants is restricted by some underserved areas of the County being deemed ineligible by inaccurate availability maps. Areas of the county that have non-broadband Internet access cannot support critical interactive applications delivering education, telehealth and public safety services. Federal estimates have approximately 4,000 Halifax County residents lacking broadband but the highest priority given availability by the DIT (7.5/10 points) suggests it is a greater concern. DIT suggestions for addressing availability, in rank order, follow:

Action 1: Gather data on the actual level of available service to drive smarter public policy and investments. The FCC and the NC Broadband Infrastructure Office (NCBIO) report that broadband Internet (25 mbps download/3 mbps upload) is available to more than 90 percent of households in Halifax County. Anecdotal evidence strongly suggests that this figure is overstated. Accurate availability data can be gathered through survey and speed tests provided on the NC BIO website.

Action 2: Secure the capacity to support on-line learning and address the homework gap. Sustainable resources are needed to ensure all K- 12 students have broadband Internet connectivity at home and devices to use it.

Action 3: Make Halifax County more attractive to Internet Service Providers and other partners by harmonizing and optimizing laws, regulations and permitting processes and fees and providing access to vertical assets. The County should collaborate with the Upper Coastal Plain Council of Government to gather data needed to complete accurate availability maps and a regional plan for funding broadband infrastructure.

Goal 2

Improve access to broadband throughout Halifax County

Access refers to the capacity to take advantage of available broadband infrastructure. It presumes an interest in using broadband that is challenged by the absence of a means to do so that arises from the lack of computers or other access devices, no public access facilities or Wi-Fi, and/or an affordability challenge. Improving broadband access was emphasized in the DIT discussions, resulting in numerous suggestions for action. (Weighted average 5.75/10 points)

Action 1: Increase the number of public Wi-Fi zones

Action 2: Increase the number and distribution of public access centers in targeted low-adoption areas, in part by expanding the capacity and operating hours of existing public access centers.

Action 3: Increase awareness and uptake of available/emerging broadband subsidy programs by eligible households. Reaching the diverse demographic segments that do not take advantage of available subsidies will require multiple organizations engaged in outreach.

Goal 3

Increase Broadband Adoption across all demographic segments in Halifax County

Adoption represents a tricky, often under-valued tool for addressing digital inequality in that while effective approaches are relatively inexpensive they can be labor and time intensive and have success determined by the really difficult challenge of changing human behavior. The DIT rated Adoption as a relatively distant (3.75/10 points) third priority for action. The adoption challenge is larger than the priority rank suggests as almost 42 percent of households for who broadband is available (more than 19,000 individuals as per FCC data) do not subscribe to the service. In addition to affordability and lack of computers, the primary reasons for non-adoption include

lack of digital skills and/or a perceived lack of relevance. While there is strong overlap in the approaches and resources needed to address adoption challenges, their delivery needs to be customized to the targeted individuals and demographic sectors.

Action 1: Provide digital literacy/skills instruction using approaches that overcome trust and transportation challenges by engaging churches, community non-profits, senior centers, the Cooperative Extension Service and others as partners to provide training in locations that are convenient and familiar to the target populations. The Halifax Community Education Centers are a major resource for this action.

Action 2: Address the relevance issue by customizing digital training to the needs and interests of targeted populations. For example, offer skills training focused on telemedicine for senior citizens, job skills and employment searchers for large share of the population who have not finished high school, target parents for basic skills training related to online learning needs of students, and providing English as a second language and digital literacy in Spanish for language-challenged citizens.

Action 3: Target the economic development potential of digital inclusion by expanding digital literacy and e-commerce training for small business and entrepreneurs.

IV. Organization-specific priorities and actions

Members of the DIT were asked to consider their organization's specific digital inclusion-related mission, goals, and operations and to rank prioritized options for action. Results did not deviate significantly from those identified as priority actions for the county but greater emphasis was given to expanding access through increasing the number of Wi-Fi zones and the availability of public access centers in underserved areas and increasing the capacity and hours of operation for existing centers. DIT members also recognized the role their organizations have in increasing awareness and uptake of available subsidy programs.

V. County Digital Inclusion Team Members

Member	Organizational Affiliation
Holly Barcelo	Town of Halifax
Frederick Bunch	Halifax County Government
T Buffalo	Halifax Community College
Christina Caudle	Main Street Roanoke Rapids
Dr. Eric Cunningham	Halifax County Schools
Ellen Eller	Town of Littleton
Renee Elis	Town of Hobgood
Montre' Freeman	Town of Enfield
Rose Lewis	Halifax Council on Aging
Mozine Lowe	Center 4 Energy Education
Cathy Scott	Halifax County Economic Development
Christina Wells	Halifax County Government
Chester Williams	A Better Chance, A Better Community (ABC2)

Despite an expedited pace and the need to convene in virtual format, the level of interest and quality of input from DIT participants provided a strong base for continued attention to improving digital equity in the County. Diverse representation including local government, business interests, and education and aging services ensured inclusion of the interests and perspectives of many digital inclusion stakeholders.

The number and nature of challenges identified by the planning group supports continued, formal attention to improving digital equity in the County. It is recommended that a formal Digital Inclusion Task Force be established by the County and that its membership include interested members of the original DIT group expanded to include opinion leaders with strong connections to groups targeted for digital inclusion and/or representing sectors that can use broadband to deliver education, workforce training, healthcare, public safety and other services to targeted stakeholder groups.

At a minimum, the digital inclusion planning efforts from this point forward should involve leaders from the following Halifax County sectors:

Utility Cooperatives

Libraries

Local/Municipal Governments

K-12 Schools

Community Colleges/Universities

Healthcare

Non-profit Organizations

Social Services

Senior Centers

Business Community

Faith Community

Local Internet Service Providers

Cooperative Extension Services

Section 6 Endnotes:

5: Demographic data presented in this table is largely sourced from the US Census American Consumer Survey, the NC Department of Commerce, and the NC Broadband Infrastructure Office. Broadband adoption statistics were largely obtained from reports published by Pew Internet Research Center.

6: Satellite technologies also deliver Internet access but is local governments are unable to directly pursue this option through public-private partnerships such as can be employed with terrestrial Internet Service Providers to increase availability.

Section 7

Nash County Digital Inclusion Plan

Nash County resembles many rural communities regarding the challenges to ensuring its citizens and businesses have the broadband resources needed to fully engage in modern life. The COVID-19 pandemic places additional urgency on solving these problems. Nash County ranks 42nd out of 100 counties in North Carolina for broadband adoption, making it better positioned than most counties but digital equity remains a challenge. Existing efforts and involvement of leaders in this BAND-NC Digital Inclusion project speak to the attention and energy being given to this addressing this need.

The Nash County Digital Inclusion Team (DIT) met twice to discuss the state of broadband in the County and what to do about it. The first meeting focused on describing the existing situation, including challenges and assets related to the three aspects of digital inclusion: availability, access and adoption. Members' responses to a subsequent survey identified their individual priority digital inclusion goals and related options for action. Members addressed needs and opportunities at three levels – for the county overall, for their organization and for the region. A weighting process described earlier combined individual responses into a collective framework for action. A second meeting allowed group discussion and refinement of these collective goals and priorities to create the first digital inclusion plan for Nash County. The following sections summarize (I) DIT's key findings; (II) demographic analysis providing additional insights on digital inclusion challenges and solutions; and (III) DIT's recommendations for action.

I. DIT Findings on Needs and Assets

Discussions at DIT meetings included shared insights, anecdotal stories and concerns that provided a grounded context for efforts to make the county more digitally equitable. Discussion highlights follow:

- Broadband infrastructure is inadequate in urban communities and some rural locations (including Bailey and Middlesex) lack broadband altogether. Better data is needed to understand how widespread the use of smart phones is and the availability of cell service and its adequacy.

- Access for students at both public and private schools remains a pressing issue, with persisting waiting lists for hotspots. Sustaining hotspots and devices for students beyond Covid-19 programs is a concern. Digital literacy training is needed to equip parents to better support their children's on-line studies.
- Limited Wi-Fi service exists but it could become a more important resource as support is pending to fund 10-12 additional Wi-Fi locations.
- Interest in providing digital inclusion resources for small businesses and entrepreneurs is strong but current offerings are limited. Cloudwyze, Inc. and Nash County are exploring use of a vacant building downtown for public access and e-business skills training and Nash Community College Small Business Center. Current offerings are limited by the impact of Covid-19 on the ability to offer 1:1 digital training for older clients and by the Center's having only 2 laptops for client/pubic use.
- Seniors and the organizations that serve them are increasingly aware of the value of bringing this group online. Demand for online services is increasing but too many seniors lack devices and the digital skills to use them. The Nashville Senior Center has 8 public access computers and 2 additional units in the Center's library. The Nashville and Bailey Centers are equipped with rooms appropriate for telemedicine consultation and technical assistance for this purpose is available.
- Train-the-trainer efforts supported by Cloudwyze, Inc. and Kramden Institute of Durham, NC are planned for 2021 to bring digital literacy classes and resources to Nash County's senior centers.
- There currently exists no source of public information on available broadband issues and resources in Nash County.
- Local government officials also need digital literacy training to take advantage of programs that makes laptops available for monthly installment payments of $20.

II. Demographic Analysis for Digital Inclusion

Presentations on demographics and the status of broadband availability and use in the County informed DIT prioritization of digital inclusion efforts (Figure 9). 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. The scale of the factor reflected in Column D provides the number of Nash residents for whom the indicated factor applies. The scale of digital inclusion opportunity/challenge is derived in Column E by estimating the share of residents included in Column D who currently do not have and/or use broadband at home.

As an example of how the data might be used, FCC data finds that Internet is unavailable at any speed for 1.33 percent of Nash County residents (Column D), or approximately 1,254 individuals. An additional, much larger number of citizens (7,242) have Internet access but not at broadband speeds (25 mbps download/3 mbps upload). Together these provide a clearer, if still conservative picture of the scale of the broadband availability challenge in Nash County. These FCC-derived numbers undercount the actual availability challenge, pointing to the value of collecting more accurate ground-truthed availability data[7].

Direction for how to best address the access and adoption aspects of digital inclusion is taken from the data presented in Figure 9. While the FCC estimates that broadband is available to more than 90 percent of Nash County citizens, only 77 percent of individuals with available broadband subscribe to the service. This means that there are more than 20,000 citizens of Nash County who do not subscribe to available broadband. More than half of nonsubscribers also lack a computer, which points to the importance of service and equipment subsidies, computer refurbishment programs and loaner devices as tools for increasing broadband adoption in a large number of households.

The data in Figure 9 also provides direction for other, more demographically-targeted strategies to increase adoption among the estimated share of citizens in each category who are not broadband users (Column E). For example, Nash County has a large number of individuals with less than a high school education and a large share of senior citizens. For both groups efforts to increase digital literacy could significantly increase their interest and capacity to adopt broadband and gain access to telemedicine, online education services, workforce training and employment opportunities. The relatively large number of persons with disabilities suggests the need for user-adapted devices and customized technical assistance programs. Almost 1,000 of Nash County's 7,000 Hispanic residents are estimated to be nonadopters and in need of Spanish language-based digital inclusion services.

Extrapolating from Nash County demographics and available broadband adoption data, the sectors that constitute the largest digital inclusion challenge/opportunity in absolute numbers are households without computers, those with limited educational

attainment and senior citizens. The large share of African Americans in the county points to the importance of engaging leaders in that community as partners in digital inclusion efforts.

Figure 9

Summary Digital Inclusion Statistics for Nash County

A	B North Carolina	C Nash	D Factor Population	E Target Population
Population	10,488,054	94,298		
% Broadband Access (25 mbps download/3 mbps upload	95.24	90.99	85,802	0
% Internet access < broadband speeds	3.96	7.68	7,242	7,242
% No Internet Providers	0.8	1.33	1,254	1,254
% Broadband Subscription [a]	80.7	76.6	65,724	0
% Not Subscribing	19.3	23.4	20,078	20,078
% Households without Computers [b]	10.9	14.6	13,768	11,427
% Unemployment (12/20) *	6.2	7.5	7,072	
% Poverty	13.4	12.1	11,410	
Age ≥ 65 [c]	16.7	19	17,917	6,271
< High School Education [d]	12.1	14.4	13,579	11,406
% African Americans [e]	22.2	41.3	38,945	5,841
% Hispanics	10.8	7.4	6,978	977
Limited English	10.9	6.4	6,035	
% Disabled [f]	12.3	14.6	13,768	3,167
% No Health Insurance	13.4	12.1	11,410	

a) Approximately 77% of households in Nash County currently subscribe to broadband Internet, leaving 23% of households as targets for broadband adoption efforts
b) 17% of households without computers choose to access the Internet only by smartphone and are not promising targets for digital inclusion efforts to provide computers
c) Pew Research (2018) found 35% of senior citizens do not use the Internet
d) Statista Research (2019) found 16% of people with only high school education use the Internet
e) The percentage of African Americans and Hispanic populations adopting broadband reflects national as specific data for Nash County is not available.
f) 23% of disabled persons respond to Pew Research Survey that they never go online.

III. Nash County DIT Goals & Recommended Actions

Prioritization ranks for the full set of needs and actions to improve digital inclusion in Nash County identified by the DIT are found in Appendix 06. Options receiving the highest score formed the basis for actions described below.

Goal 1

Deploy/Upgrade broadband infrastructure throughout Nash County

Availability refers to the presence of physical infrastructure, including all supporting technology needed to deliver Internet service at broadband speeds. Various technologies accomplish this, including fiber optics, cable, certain types of DSL (using existing telephone lines and modems) and hybrid fiber-fixed wireless options[8]. With large urban and rural populations and significant populations of individuals in the different categories of nonadopters, Nash County requires broad and diverse approaches to digital inclusion. The inherently high costs of new or upgraded infrastructure is exacerbated in Nash County's large numbers of economically challenged households and North Carolina's legislative limits on local public infrastructure funding. Access to available federal and state infrastructure grants is restricted by some underserved areas of the County being deemed ineligible by inaccurate availability maps. Areas of the county that have non-broadband Internet access cannot support critical interactive applications delivering education, telehealth and public safety services. The DIT identified gave Availability as the highest priority for concern (7.3/10 points) and offered the following suggestions for action.

Action 1: Secure the capacity to support on-line learning and address the homework gap. Sustainable resources are needed to ensure all K- 12 students have broadband Internet connectivity at home and devices to use it. Sustaining hotspots and devices for students beyond Covid-19 programs is a concern (6.7/10 points).

Action 2: Gather data on the actual level of available service to drive smarter public policy and investments. The FCC and the NC Broadband Infrastructure Office (NCBIO) report that broadband Internet (25 mbps download/3 mbps upload) is available to more than 90 percent of households in Nash County. Anecdotal evidence strongly suggests that this figure is overstated. Accurate

availability data can be gathered through survey and speed tests provided on the NC BIO website (6.5/10 points).

Action 3: Encourage local governments to advertise (through Requests for Proposals or other means) for improved or expanded broadband service (3.2/10 points).

Goal 2

Improve access to broadband throughout Nash County

Access refers to the capacity to take advantage of available broadband infrastructure. It presumes an interest in using broadband that is challenged by the absence of a means of do so that arises from the lack of computers or other access devices, no public access facilities or Wi-Fi, and/or an affordability challenge. Improving broadband access was emphasized in the DIT discussions, resulting in numerous suggestions for action. (Weighted average 5.3/10 points).

Action 1: Increase the number of public Wi-Fi zones (6.75/10 points).

Action 2: Increase the number and distribution of public access centers in targeted low-adoption areas, in part by expanding the capacity and operating hours of existing public access centers (3.7/10 points).

Action 3: Increase awareness and uptake of available/emerging broadband subsidy programs by eligible households. Reaching the diverse demographic segments that do not take advantage of available subsidies will require multiple organizations engaged in outreach (3.7/10 points).

Goal 3

Increase Broadband Adoption across all demographic segments of Nash County

Adoption represents a tricky, often under-valued tool for addressing digital inequality in that while effective approaches are relatively inexpensive they can be labor and time intensive and have success determined by the really difficult challenge of changing human behavior. The DIT rated Adoption as a the third priority for action (4.3/10 points). In addition to affordability and lack of computers, the primary reasons for non-adoption include lack of digital skills and/or a perceived lack of relevance. While there is strong overlap in the approaches and resources needed to address adoption challenges, their delivery needs to be customized to the targeted individuals and demographic sectors.

Action 1: Provide population-focused digital skills training at locations and in formats customized to their needs (5/10 points).

Action 2: Provide training on computer safety and security issues (3.7/10 points)

Action 3: Actively engage the Faith Community as partners in digital inclusion outreach and service delivery (2.8/10 points).

IV. Organization-specific priorities and actions

Members of the DIT were asked to consider their organization's specific digital inclusion-related mission, goals, and operations and to rank prioritized options for action. While DIT's recommended an overall focus on Availability and Access they turned to Adoption as the top priority for actions by their own organizations. In rank order they suggested partner organizations might have a larger role in providing focused digital skills training, in providing training on computer safety and security, and in actively engaging the Faith Community in digital inclusion.

V. County Digital Inclusion Team Members

Member	Organizational Affiliation
Jacob Ferry	Nash County Government
Dawn Finch	Town of Bailey
Natasha Hampton	City of Rocky Mount
Jacquelyn Lewis	Cloudwyze. Inc.
Patsy McGhee	Nash County Government
Tierra Norwood	Nash Community College Small Business Center
Esterine Gary Pitt	Town of Whitakers
Tremain McQueen	Nash County Public Schools
Chris Utesch	Cloudwyze, Inc.
Ashley Winstead	Nash County Senior Services
James Alston	Town of Castalia
Martha Lucas	Town of Momeyer
Mysha Wynn	Project Momentum
Kelly Skinner	UCPCOG
Mary Marlin	Upper Coastal Plain Area Agency on Aging

Despite an expedited pace and the need to convene in virtual format, the level of interest and quality of input from DIT participants provided a strong base for continued attention to improving digital equity in the County. Diverse representation including local government, business interests, and education and aging services ensured inclusion of the interests and perspectives of many digital inclusion stakeholders.

The number and nature of challenges identified by the planning group supports continued, formal attention to improving digital equity in the County. It is recommended that a formal Digital Inclusion Task Force be established by the County and that its membership include interested members of the original DIT group expanded to include opinion leaders with strong connections to groups targeted for digital inclusion and/or representing sectors that can use broadband to deliver education, workforce training, healthcare, public safety and other services to targeted stakeholder groups.

At a minimum, the digital inclusion planning efforts from this point forward should involve leaders from the following Nash County sectors:

Utility Cooperatives

Libraries

Local/Municipal Governments

K-12 Schools

Community Colleges/Universities

Healthcare

Non-profit Organizations

Social Services

Senior Centers

Business Community

Faith Community

Local Internet Service Providers

Cooperative Extension Services

Section 7 Endnotes:

7. Demographic data presented in this table is largely sourced from the US Census American Consumer Survey, the NC Department of Commerce, and the NC Broadband Infrastructure Office. Broadband adoption statistics were largely obtained from reports published by Pew Internet Research Center.

8. Satellite technologies also deliver Internet access but is local governments are unable to directly pursue this option through public-private partnerships such as can be employed with terrestrial Internet Service Providers to increase availability.

Section 8

Northampton County Digital Inclusion Plan

Northampton County resembles many rural communities regarding the challenges to ensuring its citizens and businesses have the broadband resources needed to fully engage in modern life. The COVID-19 pandemic places additional urgency on solving these problems. Northampton County ranks 99th out of 100 counties in North Carolina for broadband adoption, pointing to the true scale of the challenge. Existing efforts and involvement of leaders in this BAND-NC Digital Inclusion project speak to the attention and energy being given to addressing this need.

The Northampton County Digital Inclusion Team (DIT) met twice to discuss the state of broadband in the County and what to do about it. The first meeting focused on describing the existing situation, including challenges and assets related to the three aspects of digital inclusion: availability, access and adoption. Members' responses to a subsequent survey identified their individual priority digital inclusion goals and related options for action. Members addressed needs and opportunities at three levels – for the county overall, for their organization and for the region. A weighting process described earlier combined individual responses into a collective framework for action. A second meeting allowed group discussion and refinement of these collective goals and priorities to create the first digital inclusion plan for Northampton County. The following sections summarize (I) the DIT's key findings; (II) demographic analysis providing additional insights on digital inclusion challenges and solutions; and (III) DIT's recommendations for action.

I. DIT Findings on Needs and Assets

Discussions at DIT meetings included shared insights, anecdotal stories and concerns that provided a grounded context for efforts to make the county more digitally equitable. Discussion highlights follow:

- Broadband infrastructure is inadequate with many people including students, depending on mobile/cell phone access to connect to the Internet. Better data is needed to understand how widespread the use of smart phones is and the availability of cell service and its adequacy; Cellular dead zones prevent some students from using their hotspots to connect with school.
- Roanoke Electric is expanding its fiber footprint proximate to the Town of Lasker,

- Sustaining hotspots and devices for students beyond Covid-19 programs is a concern.
- Schools are important digital inclusion partners. They provide digital literacy and technical assistance to students and parents now and could expand this service by engaging students in service-learning projects around digital inclusion.
- Public access and digital literacy training is currently available at Halifax Community College, Roanoke Chowan Community College and the library in Jackson.
- Transportation challenges places emphasis on brining resources to the people.
- The Lake Gaston Computer Club is an excellent potential partner for refurbished devices, technical assistance and digital literacy training assistance.
- Telehealth resources and usage are limited but Vidant Health is actively promoting telehealth and could be a partner in expanding uptake of this service.

II. Demographic Analysis for Digital Inclusion

Presentations on demographics and the status of broadband availability and use in the county informed DIT prioritization of digital inclusion efforts (Figure 10). 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. The scale of the factor reflected in Column D provides the number of Northampton residents for whom the indicated factor applies. The scale of digital inclusion opportunity/challenge is derived in Column E by estimating the share of residents included in Column D who currently do not have and/or use broadband at home.

As an example of how the data might be used, FCC data finds that Internet is unavailable at any speed for 3.6 percent (700 individuals) of Northampton County residents (Column D), a figure more than four times the average in North Carolina. An additional, much larger number of people (2,533) have Internet access but not at broadband speeds (25 mbps download/3 mbps upload). Together these provide a clearer, if still conservative picture of the scale of the broadband availability challenge in Northampton County. These FCC-derived numbers undercount the actual availability challenge, pointing to the value of collecting more accurate ground -truthed availability data[9].

Direction for how to best address the access and adoption aspects of digital inclusion is taken from the data presented in Figure 10. While the FCC estimates that broadband is available to more than 83 percent of Northampton County citizens, only 53 percent subscribe to broadband, meaning 8,000 individuals in the County do not subscribe to available broadband. Forty percent of nonsubscribers also lack a computer, pointing to the importance of service and equipment subsidies, computer refurbishment programs and loaner devices as tools for increasing broadband adoption in many households.

Data presented in Figure 10 also provides direction for other, more demographically-targeted strategies to increase adoption among the estimated share of citizens in each category who are not broadband users (Column E). For example, among the factors that correlate strongly with nonadoption, Northampton County has a large number of individuals with less than a high school education and a large share of senior citizens. For both groups, efforts to increase digital literacy could significantly increase their interest and capacity to adopt broadband and gain access to telemedicine, online education services, workforce training and employment opportunities. Extrapolating from Northampton County demographics and available broadband adoption data, the sectors that constitute the largest digital inclusion challenge/opportunity in absolute numbers are households without computers, those with limited educational attainment and senior citizens. The large share of African Americans in the county points to the importance of engaging leaders in that community as partners in digital inclusion efforts.

Figure 10

Summary Digital Inclusion Statistics for Northampton County

A	B North Carolina	C Northampton	D Factor Population	E Target Population
Population	10,488,054	19,483		
% Broadband Access (25 mbps download/3 mbps upload	95.24	83.4	16,249	0 [a]
% Internet access < broadband speeds	3.96	13	2,533	2,533
% No Internet Providers	0.8	3.6	701	701
% Broadband Subscription	80.7	52.9	10,307	0
% Not Subscribing	19.3	47.1	7,988	7,988
% Households without Computers [b]	10.9	19.6	3,819	3,170
% Unemployment (12/20) *	6.2	6.8	1,325	
% Poverty	13.4	12.5	2,436	
Age >65 [c]	16.7	27	5,260	1,841.
< High School Education [d]	12.1	19.6	3,819	3,208
% African Americans [e]	22.2	57.2	11,144	1,672
% Hispanics	10.8	2.6	507	71
Limited English	10.9	2.5	487	
% Disabled [f]	12.3	10.8	2,104	484
% No Health Insurance	13.4	12.6	2,455	

a) Approximately 53% of households in Northampton County currently subscribe to broadband Internet, leaving 47% of households as targets for broadband adoption efforts

b) 17% of households without computers choose to access the Internet only by smartphone and are not promising targets for digital inclusion efforts to provide computers

c) Pew Research (2018) found 35% of senior citizens do not use the Internet

d) Statista Research (2019) found 16% of people with only high school education use the Internet

e) The percentage of African Americans and Hispanic populations adopting broadband reflects national as specific data for Northampton County is not available.

f) 23% of disabled persons respond to Pew Research Survey that they never go online.

III. Northampton County DIT Goals & Recommended Actions

Prioritization ranks for the full set of needs and actions to improve digital inclusion in Northampton County identified by the DIT are found in Appendix 07. Options receiving the highest score formed the basis for actions described below.

Goal 1

Deploy/Upgrade broadband infrastructure throughout Northampton County

Availability refers to the presence of physical infrastructure, including all supporting technology needed to deliver Internet service at broadband speeds. Various technologies accomplish this, including fiber optics, cable, certain types of DSL (using existing telephone lines and modems) and hybrid fiber-fixed wireless options[10]. The inherently high costs of deploying broadband infrastructure is exacerbated in Northampton County by its low population densities, large numbers of economically challenged households and North Carolina's legislative limits on local public infrastructure funding. Access to available federal and state infrastructure grants is restricted by some underserved areas of the County being deemed ineligible by inaccurate availability maps. Areas of the County that have non -broadband Internet access cannot support critical interactive applications delivering education, telehealth and public safety services. Federal estimates have approximately 3,200 Northampton County residents lacking broadband and availability concerns dominated DIT discussions and their choice for prioritized action (8.75/10 points). DIT suggestions for addressing availability, in rank order, follow:

Action 1: Gather data on the actual level of available service to drive smarter public policy and investments. The FCC and the NC Broadband Infrastructure Office (NCBIO) report that broadband Internet (25 mbps download/3 mbps upload) is available to 83percent of households in Northampton County. Anecdotal evidence strongly suggests that even this low figure is overstated. Accurate availability data can be gathered through survey and speed tests provided on the NC BIO website (7.4/10 points).

Action 2: Secure the capacity to support on-line learning and address the homework gap. Sustainable resources are needed to ensure all K- 12 students

have broadband Internet connectivity at home and devices to use it (4.6/10 points).

Action 3: Encourage County/local governments to advertise through Requests for Proposals or other means for improved/expanded Internet connectivity. The County should collaborate with the Upper Coastal Plain Council of Government to gather data needed to complete accurate availability maps and a regional plan for funding broadband infrastructure (2.9/10 points).

Goal 2

Improve access to broadband throughout Northampton County

Access refers to the capacity to take advantage of available broadband infrastructure. It presumes an interest in using broadband that is challenged by the absence of a means of do so that arises from the lack of computers or other access devices, no public access facilities or Wi-Fi, and/or an affordability challenge. Improving broadband access was emphasized in the DIT discussions, resulting in numerous suggestions for action. (Weighted average 5.66/10 points)

Action 1: Increase the number of public Wi-Fi zones (4.9/10 points).

Action 2: Increase awareness and uptake of available/emerging broadband subsidy programs by eligible households. Reaching the diverse demographic segments that do not take advantage of available subsidies will require multiple organizations engaged in outreach (2.5/10 points).

Action 3: Add public access centers in targeted underserved communities (2.1/10 points).

Goal 3

Increase Broadband Adoption across all demographic segments in Northampton County

Adoption represents a tricky, often under-valued tool for addressing digital inequality in that while effective approaches are relatively inexpensive they can be labor and time intensive and have success determined by the really difficult challenge of changing human behavior. The DIT rated Adoption as a relatively distant (2.4/10 points) third priority for action. The adoption challenge is larger than the priority rank suggests as more than 47 percent of households for who broadband is available (almost 8,000 individuals as per FCC data) do not subscribe to the service. In addition to affordability and lack of computers, the primary reasons for non-adoption

include lack of digital skills and/or a perceived lack of relevance. While there is strong overlap in the approaches and resources needed to address adoption challenges, their delivery needs to be customized to the targeted individuals and demographic sectors.

Action 1: Provide digital literacy/skills instruction using approaches that overcome trust and transportation challenges by engaging churches, community non-profits, senior centers, the Cooperative Extension Service and others as partners to provide training in locations that are convenient and familiar to the target populations (5/10 point).

Action 2: Expand telemedicine education and assistance (4/10 points).

Action 3: Address the relevance issue by customizing digital training to the needs and interests of targeted populations. For example, offer skills training focused on telemedicine for senior citizens, job skills and employment searchers for large share of the population who have not finished high school, target parents for basic skills training related to online learning needs of students (2.75/10 points)

IV. Organization-specific priorities and actions

Members of the DIT were asked to consider their organization's specific digital inclusion-related mission, goals, and operations and to rank prioritized options for action. Results did not deviate significantly from those identified as priority actions for the county but greater emphasis was given to expanding access through increasing the number of Wi-Fi zones (5/10 points) and the availability of public access centers (3.1/19 points). DIT members also recognized their organizations role in providing digital literacy and skills instruction (3.4/10 points).

V. County Digital Inclusion Team Members

Member	Organizational Affiliation
Roy Bell	Town of Garysburg
Marcus Bost	Vidant Health
Pam Brett	Albemarle Regional Library
Dick Collier	Northampton TDA/Town of Lasker
Judy Collier	Northampton County Chamber/Town of Lasker
Sondra Dickens	Small Business Owner
Monica Edmondson	Northampton Early College
Carol Ferguson	Town of Severn
Stephen Flythe	Town of Lasker
Doug Hughes	UCPCOG Board of Directors
Geraldine Langford	Town of Seaboard
Rev. Dawn Daly Mack	Rural Health Group, Northampton NAACP
Donielle McDermott	Town of Woodland
Rev. Joshua Pair	UCPCOG Board of Directors
Rob Lenahan	Lake Gaston Computer Club
Sallie Surface	Choanoke Area Development Association
Rhonda Taylor	Northampton County Government
Corey Tyler	Northampton County Schools
Frank Williams	Northampton County Government

Despite an expedited pace and the need to convene in virtual format, the level of interest and quality of input from DIT participants provided a strong base for continued attention to improving digital equity in the County. Diverse representation including local government, business interests, and education and aging services ensured inclusion of the interests and perspectives of many digital inclusion stakeholders.

The number and nature of challenges identified by the planning group supports continued, formal attention to improving digital equity in the County. It is recommended that a formal Digital Inclusion Task Force be established by the County and that its membership include interested members of the original DIT group expanded to include opinion leaders with strong connections to groups targeted for digital inclusion and/or representing sectors that can use broadband to

deliver education, workforce training, healthcare, public safety and other services to targeted stakeholder groups.

At a minimum, the digital inclusion planning efforts from this point forward should involve leaders from the following Northampton County sectors:

Utility Cooperatives	Social Services
Libraries	Senior Centers
Local/Municipal Governments	Business Community
K-12 Schools	Faith Community
Local Internet Service Providers	Healthcare
Non-profit Organizations	Cooperative Extension

Section 8 Endnotes:

9. Demographic data presented in this table is largely sourced from the US Census American Consumer Survey, the NC Department of Commerce, and the NC Broadband Infrastructure Office. Broadband adoption statistics were largely obtained from reports published by Pew Internet Research Center.

10: Satellite technologies also deliver Internet access but is local governments are unable to directly pursue this option through public-private partnerships such as can be employed with terrestrial Internet Service Providers to increase availability.

Section 9

Wilson County Digital Inclusion Plan

Wilson County resembles many rural communities regarding the challenges to ensuring its citizens and businesses have the broadband resources needed to fully engage in modern life. The COVID-19 pandemic places additional urgency on solving these problems. Wilson County ranks 48th out of 100 counties in North Carolina for broadband. Wilson County has competitive advantage in Greenlight Community Broadband (Greenlight) which has deployed affordable fiber infrastructure in the majority of the county. The fact that almost 25 percent of the population does not subscribe to the service emphasizes the need for a concerted digital inclusion campaign. The involvement of leaders in this BAND-NC Digital Inclusion project speaks to the attention and energy being given addressing this need.

The Wilson County Digital Inclusion Team (DIT) met twice to discuss the state of broadband in the County and what to do about it. The first meeting focused on describing the existing situation, including challenges and assets related to the three aspects of digital inclusion: availability, access and adoption. Members' responses to a subsequent survey identified their individual priority digital inclusion goals and related options for action. Members addressed needs and opportunities at three levels – for the county overall, for their organization and for the region. A weighting process described earlier combined individual responses into a collective framework for action. A second meeting allowed group discussion and refinement of collective goals and priorities to create the first digital inclusion plan for Wilson County. The following sections summarize (I) the DIT's key findings; (II) demographic analysis providing additional insights on digital inclusion challenges/solutions; and (III) DIT's recommendations for action.

I. DIT Findings on Needs and Assets

Discussions at DIT meetings included shared insights, anecdotal stories and concerns that provided a grounded context for efforts to make the county more digitally equitable; highlights follow.

- Availability in Wilson County is a case of haves and have nots. Greenlight affords Wilson County the unique competitive advantage of fiber broadband offered in a

variety of speed/price options to maximize uptake. In response to Covid-19, Greenlight now offers subsidized service through the FCC's Lifeline program and has extended service to public housing locations. Yet service outside of the City of Wilson in the towns of Saratoga, Sims and Stantonsburg is inadequate.

- More resources are needed for digital literacy training taken to the student to circumvent transportation challenges and made more relevant through focus on specific high-value applications, such as telehealth and e-commerce. Options, including the Sims Community Center, (with its recently upgraded broadband), senior centers and churches were suggested as good locations to host training.
- Connectivity for education is challenging on multiple fronts—while schools have fiber service, students may not have service at home; hotspots do not work in all locations; and parents need digital literacy training to navigate virtual education.
- Telehealth exemplifies specialized applications for which training resources need to be developed. Such specialized training could be an effective portal for delivering more comprehensive digital literacy instruction.
- Digital literacy training focused on economic development also needs to be a focus that engages multiple partners to reach farmers, entrepreneurs and small businesses with e-commerce training and business/e-agriculture applications.

II. Demographic Analysis for Digital Inclusion

Presentations on demographics and the status of broadband availability and use in the county informed DIT prioritization of digital inclusion efforts (Figure 11). 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. The scale of the factor reflected in Column D provides the number of Wilson residents impacted by the indicated factor. The scale of digital inclusion opportunity/challenge is derived in Column E by estimating the share of residents included in Column D who currently do not have and/or use broadband at home.

As an example of how the data might be used, FCC data finds that Internet is unavailable at any speed for 0.36 percent (294 individuals) of Wilson County residents (Column D), a figure less than half of the average in North Carolina. An additional, much larger number of people (3,733) have Internet access but not at broadband speeds (25mbps download/3mbps upload). Together these provide a clearer, if still conservative picture of the scale of the broadband availability

challenge in Wilson County. Altogether, less than 5 percent of Wilson County residents do not have access to broadband at home. Direction for how to best address the access and adoption aspects of digital inclusion is taken from the data presented in Figure 11. While the FCC estimates that broadband is available to more than 95 percent of Wilson County citizens, only 75 percent of those individuals subscribe to broadband, meaning there are more than 20,000 individuals in Wilson County who do not subscribe to available broadband. More than 60 percent of nonsubscribers also lack a computer, pointing to the importance of service and equipment subsidies, computer refurbishment programs and loaner devices as tools for increasing broadband adoption in many households.

The data provided in Figure 11 also provides direction for other, more demographically-targeted strategies to increase adoption among the estimated share of citizens in each category who are not broadband users (Column E). For example, among the factors that correlate strongly with nonadoption, Wilson County has a large number of individuals with less than a high school education and a large share of senior citizens. For both groups, efforts to increase digital literacy could significantly increase their interest and capacity to adopt broadband and gain access to telemedicine, online education services, workforce training and employment opportunities. Extrapolating from Wilson County demographics and available broadband adoption data, the sectors that constitute the largest digital inclusion challenge/opportunity in absolute numbers are households without computers, those with limited educational attainment and senior citizens. The large share of African Americans in the county points to the importance of engaging leaders in that community as partners in digital inclusion efforts.

Figure 10

Summary Digital Inclusion Statistics for Wilson County

A	B North Carolina	C Wilson	D Factor Population	E Target Population
Population	10,488,054	81,801		
% Broadband Access (25 mbps download/3 mbps upload	95.24	95.06	77,760	0 [a]
% Internet access < broadband speeds	3.96	4.58	3,733	3,733
% No Internet Providers	0.8	.36	294	294
% Broadband Subscription	80.7	75.3	58,553	
% Not Subscribing	19.3	24.7	19,207	19,207
%Households without Computers	10.9	19.7	16,115	13,375 [b]
% Unemployment (12/20) *	6.2	7.7	6,299	
% Poverty	13.4	14.7	12,025	
Age >65 [c]	16.7	18.7	15,110	5,289
< High School Education [d]	12.1	19.7	15,918	13,371
% African Americans [e]	22.2	40.5	32,724	4,909
% Hispanics	10.8	9.8	8,016	1,122
Limited English	10.9	11.8	9,535	
% Disabled [f]	12.3	9.4	7,595	2,732
% No Health Insurance	13.4	14.7	11,877	2,732

a) Approximately 75% of households in Wilson County currently subscribe to broadband Internet, leaving 25% of households as targets for broadband adoption efforts

b) 17% of households without computers choose to access the Internet only by smartphone and are not promising targets for digital inclusion efforts to provide computers

c) Pew Research (2018) found 35% of senior citizens do not use the Internet

d) Statista Research (2019) found 16% of people with only high school education use the Internet

e) The percentage of African Americans (85%) and Hispanic populations (86%) adopting broadband reflects Statista Research (2019) found 16% of people with only high school education use the Internet national averages as specific data for Wilson County is not available.

f) 23% of disabled persons respond to Pew Research Survey that they never go online.

III. Wilson County DIT Goals & Recommended Actions

Prioritization ranks for the full set of needs and actions to improve digital inclusion in Wilson County identified by the DIT are found in Appendix 08. Options receiving the highest score formed the basis for actions described below.

Goal 1

Deploy/Upgrade broadband infrastructure throughout Wilson County

Availability refers to the presence of physical infrastructure, including all supporting technology needed to deliver Internet service at broadband speeds. Various technologies accomplish this, including fiber optics, cable, certain types of DSL (using existing telephone lines and modems) and hybrid fiber-fixed wireless options[11]. The inherently high costs of deploying broadband infrastructure is exacerbated in Wilson County by its low population densities and large numbers of economically challenged households. Wilson has a significant advantage as the only North Carolina county not subject to legislative limits on local public infrastructure funding. Areas of the County that have non-broadband Internet access cannot support critical interactive applications delivering education, telehealth and public safety services. Federal estimates have approximately 4,000 Wilson County residents lacking broadband and, while availability concerns did not dominate DIT discussions, it emerged as the highest digital inclusion priority (8.4/10 points). DIT suggestions for addressing availability, in rank order, follow:

Action 1: Secure the resources to support on-line learning and address the homework gap. Sustainable resources are needed to ensure all K- 12 students have broadband Internet connectivity at home and devices to use it (7/10 points).

Action 2: Encourage County/local governments to advertise through Requests for Proposals or other means for improved/expanded Internet connectivity. The County should collaborate with the Upper Coastal Plain Council of Government to gather data needed to complete accurate availability maps and a regional plan for funding broadband infrastructure (4.8/10 points).

Action 3: Gather data on the actual level of available service to drive smarter public policy and investments. The FCC and the NC Broadband Infrastructure Office (NCBIO) report that broadband Internet (25 mbps download/3 mbps

upload) is available to 83% of households in Wilson County. Anecdotal evidence strongly suggests that even this low figure is overstated. Accurate availability data can be gathered through survey and speed tests provided on the NC BIO website (3.8/10 points).

Goal 2

Improve access to broadband throughout Wilson County

Access refers to the capacity to take advantage of available broadband infrastructure. It presumes an interest in using broadband that is challenged by the absence of a means of do so that arises from the lack of computers or other access devices, no public access facilities or Wi-Fi, and/or an affordability challenge. Improving broadband access was emphasized in the DIT discussions, resulting in numerous suggestions for action. (Weighted average 6/10 points) .

Action 1: Add public access centers in targeted underserved communities (6/10 points).

Action 2: Increase the number of public Wi-Fi zones (2/10 points).

Action 3: Increase awareness and uptake of available/emerging broadband subsidy programs by eligible households. Reaching the diverse demographic segments that do not take advantage of available subsidies will require multiple organizations engaged in outreach (1.8/10 points).

Goal 3

Increase Broadband Adoption across all demographic segments in Wilson County

Adoption represents a tricky, often under-valued tool for addressing digital inequality in that while effective approaches are relatively inexpensive, they can be labor and time intensive and have success determined by the really difficult challenge of changing human behavior. The DIT rated Adoption as a relatively distant (2.6/10 points) third priority for action. The adoption challenge is larger than the priority rank suggests as approximately 25 percent of households with available broadband (more than 19,000 individuals as per FCC data) do not subscribe to the service. In addition to affordability and lack of computers, the primary reasons for non-adoption include lack of digital skills and/or a perceived lack of relevance. While there is strong overlap in the approaches and resources needed to address adoption

challenges, their delivery needs to be customized to the targeted individuals and demographic sectors.

Action 1: Address the relevance issue by customizing digital training to the needs and interests of targeted populations. For example, offer skills training focused on telemedicine for senior citizens, job skills and employment searchers for large share of the population who have not finished high school, target parents for basic skills training related to online learning needs of students (7/10 points).

Action 2: Provide digital literacy/skills instruction using approaches that overcome trust and transportation challenges by engaging churches, community non-profits, senior centers, the Cooperative Extension Service and others as partners to provide training in locations that are convenient and familiar to the target populations (3.4/10 points).

Action 3: Expand telemedicine education and assistance (2.4/10 points).

IV. Organization-specific priorities and actions

Members of the DIT were asked to consider their organization's specific digital inclusion-related mission, goals, and operations and to rank prioritized options for action. The focus of suggested action was on public access—adding public access centers to serve targeted underserved communities (4.4/10 points); expanding the number of public Wi-Fi zones (3.10 points); and expanding capacity at existing public access centers (2.0/10 points).

V. County Digital Inclusion Team Members

Member	Organizational Affiliation
Kesha Atkinson	Wilson County Government
Michael Bell	City of Wilson
Miranda Boykin	Town of Sims
Cameron Cochran	Wilson Forward
Terrance Cox	Greenlight Community Broadband
Kellianne Davis	City of Wilson
Paul Dunham	Sims United Methodist Church
Kendra Faulkner	Wilson Community College
Tirence Horne	UCPCOG
Sherry Lucas	Wilson County Government
Tiffany Purdy	Wilson County Government
Catharine Rice	NC Broadband Matters
Coley Hunt Rhodes	Town of Stantonsburg
Gene Scott	Greenlight Community Broadband
Brittany Smith	Greenlight Community Broadband
Grady Smith	Town of Elm City
Renee Turner	Wilson County Schools

Despite an expedited pace and the need to convene in virtual format, the level of interest and quality of input from DIT participants provided a strong base for continued attention to improving digital equity in the County. Diverse representation including local government, business interests, and education and aging services ensured inclusion of the interests and perspectives of many digital inclusion stakeholders.

The number and nature of challenges identified by the planning group supports continued, formal attention to improving digital equity in the County. It is recommended that a formal Digital Inclusion Task Force be established by the County and that its membership include interested members of the original DIT group expanded to include opinion leaders with strong connections to groups targeted for digital inclusion and/or representing sectors that can use broadband to deliver education, workforce training, healthcare, public safety and other services to targeted stakeholder groups.

At a minimum, the digital inclusion planning efforts from this point forward should involve leaders from the following Wilson County sectors:

Utility Cooperatives

Libraries

Local/Municipal Governments

K-12 Schools

Local Internet Service Providers

Non-profit Organizations

Social Services

Senior Centers

Business Community

Faith Community

Healthcare

Section 9 Endnotes:

11. Satellite technologies also deliver Internet access but is local governments are unable to directly pursue this option through public-private partnerships such as can be employed with terrestrial Internet Service Providers to increase availability.

Appendix 1

Broadband Planning Teams: Inclusion as the Foundation of Digital Equity

The BAND-NC project was a successful catalyst for Digital Inclusion planning in the UCP region, as evidenced by their 5 distinct digital inclusion plans. Digital Inclusion Teams (DIT) in Edgecombe Halifax Nash, Northampton and Wilson counties examined the current status of local broadband availability, access and adoption and delivered prioritized needs and suggestions for action that can serve as the foundation for the deeper level of planning each county will need to optimize their success in securing needed broadband resources. In every case, members of the county DITs expressed interest in continued engagement in local broadband planning. Teams differed in composition, reflecting the local organizations and individuals who were successfully recruited to this effort. In total, their composition reflected the broader range of perspectives and outreach potential identified as a best practice model for continued broadband planning at a county level. At the regional level, it will be important that the UCP Broadband Task Force continues to reflect the many broadband stakeholders in all 5 member counties.

Figure 12
Community Sectors Partnering for Digital Inclusion.

Inclusivity needs to be the guiding principle in composing a broadband planning team. A best practice planning team would include stakeholders with a role in providing or promoting the use of broadband the broader community who have deep and direct connection to the community in need of digital inclusion assistance. Suggestions for members of future broadband planning efforts offered by the 5 DITs, augmented by suggestions from leading broadband assistance organizations follows:

Businesses/Chambers of Commerce

Cooperative Extension Service

Faith Community

Financial Institutions

Foundations

Health Care-

K-16 Schools

Libraries

Local Internet Service Providers

Local/municipal government

NC Works/workforce training

Public Safety

Non-Profits

Senior Centers

Social Services

Utility Cooperatives

Appendix 2

Broadband and Digital Inclusion Planning Resources

Broadband and Digital Inclusion Planning

Appalachian Regional Commission Broadband Primer *and Toolkit*

National Digital Inclusion Alliance *The Digital Inclusion Coalition Guidebook*
NC Broadband Infrastructure Office *Community Broadband Planning Book*

NC Cooperative Extension Broadband Access and Education

U.S. *Department* of Commerce National Telecommunications Information Administration (NTIA) Planning a Community Broadband Roadmap: A Toolkit for Local and Tribal Governments

Computer Refurbishment, Digital Navigator Training and Digital Literacy Support

Kramden Institute

Lake Gaston Computer Club
PCsforPeople

Rural LISC *Digital Navigator Support*

American Recovery Plan Broadband Funds

Note that (1) program allocations and specific guidelines for stimulus and recovery funds Is very fluid; and (2) close scrutiny is required to identify the full spectrum of funding related to broadband infrastructure scattered through a wide spectrum of federal programs. The following resources are suggested as good reference points for frequent updates on developments in this arena.

Benton institute for Broadband and Society *American* Rescue Plan*: Broadband and the Social Safety Net*

Federal Communications Commission: *Recovery Act Broadband Initiatives*
The National Law Review *Broadband Support for State and Local Governments under the American Recovery Act of 2021*

The White House *Fact Sheet: the American Jobs Act*

Appendix 3

Connected Community Broadband Planning Checklist

What does being connected mean and why does it matter?

Is your community networked to actively participate in the digital economy? Is affordable, robust broadband being leveraged to create jobs and promote your community to valuable tourism and business prospects? Are local assets being tapped to deliver broadband services that support small and entrepreneurial businesses and attract teleworkers? Do your citizens and businesses have access to high-quality, web-based education, health, public safety and government services? Is the Internet a powerful billboard that markets your community to the world? Does Wi-Fi attract people to spend more time and money in a revitalized downtown? Downtown Wi-Fi can be an important piece of the digital puzzle, revitalizing existing downtown and protecting the environment by helping to preserve open spaces and farmlands. But Wi-Fi is only one component of a much more complex, multi-dimensional connectivity strategy that small communities need to become more sustainably competitive, cool and connected through broadband. The following checklist provides planning assistance to help your community members develop strategies and an action plan for using broadband to create walkable, connected and economically vibrant main streets and small town neighborhoods that improve human health and the environment.

What does strategic broadband planning involve?

Broadband Internet is a dynamically developing phenomenon that cuts across business and service sectors. To become and remain competitive in this environment, communities must develop the capacity to be vigilant, flexible and responsive to opportunities and challenges presented by broadband. Strategic broadband planning involves developing a current, accurate and comprehensive understanding of existing broadband availability, including the identity of providers, technologies employed, level and speed of service and plans for upgrades and expansion. This level of service needs to be assessed against current and anticipated business, institutional and residential demand and gaps identified. Community assets that can be leveraged to improve the business case for expanded service need to be inventoried. Creative options for funding necessary infrastructure builds need to be identified and explored.

How does Wi-Fi fit in the broadband planning puzzle?

Wi-Fi is part of a broader public access issue, supporting education and digital literacy, disaster relief and public safely monitoring, and supporting business development, community marketing and tourism. Strategically-placed public access services can be used in neighborhood revitalization efforts, workforce development and economic access to services and resources. Wi-Fi is never a stand-alone asset but rather necessarily employed in the context of existing or planned network systems.

COMMUNITY BROADBNAD PLANNING CHECKLIST		
Getting Organized	**Yes**	**No**
Does your community have an established, informed task force or group focused on exploring options for improving broadband availability and use?		
Does your local government have a chief technology/ information officer/manager?		
If your community has a broadband planning group (BPG), is the group inclusive of diverse segments of the local population and does its membership adequately represent important stakeholder groups, for example: leaders from government, healthcare, education, business, economic development, philanthropic and faith organizations?		
Are there established outreach mechanisms to engage stakeholder interest and involvement in broadband planning?		
Are there educational and learning opportunities for planning group members to acquire knowledge and skills required for developing goals and proposals related to developing and implementing comprehensive broadband planning for the community?		
Does the BPG have a name that can be used in news releases and other media?		
Has the BPG been officially sanctioned by local community elected officials?		
Does the BPG have sufficient startup funds to cover operating costs, i.e. $7,500 to $10,000?		

	Yes	No
Getting Informed: Assessing Broadband Access and Demand in the Community		
Can your BPG define the local broadband availability situation with specificity?		
Does the BPG have access to accurate and comprehensive data on existing broadband service, including providers, levels of service, technologies utilized, availability and speed?		
Is the broadband availability data available in a mapped format to facilitate planning? (For assistance in broadband availability mapping see http://www.broadbandcatalysts.com/)		
Does the local community (city, county or region) have geographic information specialists that might be available to help with data mapping?		
Do broadband service providers in your area have plans to address unserved or under-served areas?		
Are local governments involved in the First net (national inter-operational network for first responders for public safety?		
Can your BPG define the current and anticipated demand for broadband service?		
Has a survey been conducted to assess business and residential demand for improved broadband services/ speeds? (See attached sample survey)		
Has there been an assessment of high-speed broadband needs/costs for educational institutions– k-12 (including traditional and virtual public schools, charter schools and home schools) and higher education?		
Has there been an assessment of high-speed broadband needs/costs for public safety and first responders in the community?		
Has there been an assessment of high-speed broadband needs/costs for healthcare institutions in the community?		
Has there been an assessment of high-speed broadband needs for local government (municipal, count, regional)?		
Has there been an assessment of business and/or citizen interest in and/or use of expanded Wi-Fi?		
Has there been an assessment of the potential in your community for tourism-related enterprises that are strongly dependent on broadband, i.e., Airbnb, bed and breakfasts, etc.?		
Has there been an assessment of the potential for agritourism in your community?		
Has the BPG synthesized the community, county and regional assessment to develop specific goals to guide efforts to improve broadband access and use?		

	Yes	No
Leveraging the Community's Assets		
Has the BPG developed an inventory of available physical and regulated assets that could be leveraged to reduce barriers and help make the business case for expanding/improving broadband services, i.e., towers and other high structures, rights-of-way, planned public infrastructure projects (such as water, sewer, gas, highway), land acquisition for economic or housing development, municipally-owned utilities, etc.?		
Is there an existing common network that aggregates demand in serving your community anchor institutions, i.e. schools, libraries, public safety, and local government facilities?		
Is there a non-profit health care network in the community that is funded by the FCC Universal Service Telehealth Network Fund?		
Has an assessment been conducted of the community's relevant soft assets, i.e., IT professionals, mapping expertise, existing public-private partnerships, financial strength?		
Facilitating Public Wi-Fi and Possible Fixed-Wireless Service		
Has existing Wi-Fi services at local businesses, libraries and other public places been inventoried with respect to availability, transmission speeds and coverage as well as gaps to determine the overall coverage needs and what speeds are needed for that coverage area?		
Is there an existing state-funded highway patrol network that has local towers?		
Have existing assets that could be used to provide line-of-sight access to potential Wi-Fi locations been identified, i.e. church steeples, tall buildings or towers?		
Is there existing infrastructure (fiber or non-fiber) that could provide needed backhaul to service the Wi-Fi identified in the availability assessment?		

	Yes	No
Attracting Broadband Investment		
Information gathered by the BPG can be used to determine the type and locations of service needed to address existing broadband gaps and goals for expanded access. Is your community prepared to move forward to secure the resources needed to become more sustainably competitive through broadband?		
If the community cannot self-finance the identified broadband investment is it prepared to pursue grants and/or loans from appropriate public and/or private sources? (See *Funding Resources Guide* (updated quarterly) at www.broadbandcatalysts.com.		
Is the community prepared to approach current Internet Service Providers (ISPs) to discuss options for partnering to address costs and service issues and goals identified by the BPG process?		
Is the community prepared to distill the information gathered through the broadband planning process to issue an informal Request for Information or a more formal Request for Proposal to search more broadly for potential service solutions?		
Does your broadband plan directly consider options for leveraging use of public facilities/resources or high-density markets to ensure provision of access to low-income citizens and businesses? (see www.fcc.gov for current broadband support programs offered by the Federal Communications Commission)		
Growing the Market for Broadband – Building Demand		
Increasing access is only part of the equation for a connected and thriving community; broadband adoption and use must be encouraged too. Has your BPG conducted an assessment of digital literacy among citizens and businesses?		
Does a plan exist to conduct a campaign targeting public awareness and training on Internet use for citizens? (for further assistance see (1 https://www2.ntia.doc.gov/files/toolkit_042913.pdf (2013) and (2) https://www.nado.org/wp-content/uploads/2016/10/ARCBroadbandPlanningPrimerToolkit.pdf		
Does a plan exist to engage the Chamber of Commerce and other business associations to provide training needed to enhance the adoption and use of the Internet by small and entrepreneurial businesses in the community?		

Appendix 4

Edgecombe County BAND-NC Group

Prioritization Survey Summary Sheet

Please rank the three Digital Inclusion themes, defined above, in terms of needed attention in your county:

Selection	Weighted Average
Access	6.6
Availability	6.5
Adoption	3.8

Considering your **county's digital inclusion needs**, please rank the following priorities to improve access and adoption:

Selection	Weighted Average
Expand number of public Wi-Fi zones	5.7
Add public access centers in targeted, underserved communities	4.8
Develop computer refurbishment offerings (increasing the availability/ affordability of computers/ devices through such programs)	2.5
Expand awareness of subsidy programs that address broadband affordability	2.3
Provide digital literacy/skills instruction	0.8
Create an information portal directing citizens to digital inclusion resources	0.8
Expand existing public access centers (e.g., increase hours and number of devices at libraries, senior centers, etc.)	0

Considering your **organization's specific mission, goals, and operations**, please rank the following priorities to improve access and adoption:

Selection	Weighted Average
Add public access centers in targeted, underserved communities	5
Expand existing public access centers (e.g., increase hours and number of devices at libraries, senior centers, etc.)	2.8
Expand awareness of subsidy programs that address broadband affordability	2.8
Expand number of public Wi-Fi zones	2.8
Provide digital literacy/skills instruction	2.8
Develop computer refurbishment offerings (increasing the availability/ affordability of computers/ devices through such programs)	0.3
Create an information portal directing citizens to digital inclusion resources	0.3

Please rank the following priorities to improve adoption and digital skills:

Selection	Weighted Average
Bring trainings to the learners to counter transportation challenges	4.2
Population focused digital skills trainings e.g. Seniors, Parents of remote learners	3.7
Actively engage the Faith Community	3.7
Expand small business/ entrepreneurship training on e-commerce, maximizing computer/internet benefits	2.3
Increase capacity and training for local governments	1.7
Provide training on computer safety and security issues	1.2
Expanded telemedicine education, assistance	0.3

Please rank the following priorities to improve availability:

Selection	Weighted Average
Seek funding/resources to ensure all K-12 students have adequate internet connectivity at home	6.5
Gather data on the actual level of available service to inform local leaders of the community's true connectivity issue	6
Encourage local governments to advertise (through RFP or other means) for improved or expanded internet connectivity	3.7
Harmonize permitting and fees (to enhance appeal to potential internet service providers)	0.8

What are your top digital inclusion priorities? (You may choose from a list provided in a previous question or share something else)

Seek funding /resources to ensure all K-12 have adequate internet and connectivity at home

Making sure we show the community exactly where we are and what the possibilities are for Edgecombe County with adequate broadband.

Expand broadband access to underserved communities including rural areas; gather data on actual level of available service; bring training and access to residents who are without adequate transportation; offer affordable rates of internet access

Access to high speed internet is vital for economic development in rural parts of Nash, Edgecombe and Wilson Counties. It is the only way that we will be able to recruit new businesses to this area.

Weighted Values	
First Priority	10
Second Priority	5
Third Priority	2
No Selection:	0

Appendix 5

Halifax County BAND-NC Group

Prioritization Survey Summary Sheet

Please rank the three Digital Inclusion themes, defined above, in terms of needed attention in your county:

Selection	Weighted Average
Availability	7.5
Access	5.75
Adoption	3.75

Considering your **county's digital inclusion needs**, please rank the following priorities to improve access and adoption:

Selection	Weighted Average
Expand number of public Wi-Fi zones	4.63
Add public access centers in targeted, underserved communities	3.5
Expand awareness of subsidy programs that address broadband affordability	3.125
Expand existing public access centers (e.g., increase hours and number of devices at libraries, senior centers, etc.)	1.86
Provide digital literacy/skills instruction	1.75
Create an information portal directing citizens to digital inclusion resources	1.25
Develop computer refurbishment offerings (increasing the availability/affordability of computers/devices through such programs)	.875

Considering your **organization's specific mission, goals, and operations**, please rank the following priorities to improve access and adoption:

Selection	Weighted Average
Expand number of public Wi-Fi zones	4.88
Expand existing public access centers (e.g., increase hours and number of devices at libraries, senior centers, etc.)	4.38
Add public access centers in targeted, underserved communities	4.25
Expand awareness of subsidy programs that address broadband affordability	2
Provide digital literacy/skills instruction	1.25
Develop computer refurbishment offerings (increasing the availability/affordability of computers/devices through such programs)	0.25
Create an information portal directing citizens to digital inclusion resources	0

Please rank the following priorities to improve adoption and digital skills:

Selection	Weighted Average
Bring trainings to the learners to counter transportation challenges	5
Population focused digital skills trainings e.g. Seniors, Parents of remote learners	2.88
Expand small business/entrepreneurship training on e-commerce, maximizing computer/internet benefits	2.13
Expanded telemedicine education, assistance	2
Provide training on computer safety and security issues	1.88
Actively engage the Faith Community	1.75
Increase capacity and training for local governments	1.25

Please rank the following priorities to improve availability:

Selection	Weighted Average
Gather data on the actual level of available service to inform local leaders of the community's true connectivity issue	6.75
Seek funding/resources to ensure all K-12 students have adequate internet connectivity at home	5.25
Harmonize permitting and fees (to enhance appeal to potential internet service providers)	2.75
Encourage local governments to advertise (through RFP or other means) for improved or expanded internet connectivity	1.88

What are your top digital inclusion priorities? (You may choose from a list provided in a previous question or share something else)

Smart Phones as a means of internet connection. Community inter-generational digital training

I would like to see a public WiFi zone in each municipality. I believe we need to implement a subsidy program to make internet service affordable, especially for families with school-age children. I believe that we should offer expanded hours for public access centers (such as libraries) and ensure that each municipality has at least one public access center. We need hard numbers about availability in each community, so we know which households have it or don't, which want it or don't, which can afford it or cannot.

Availability

That the people of Halifax County are able to utilize the infrastructure that is already in place by Century Link without having to pay large fees

Availability, Affordability and Training

You are welcome to share any other thoughts on your digital inclusion priorities here:

My perspective is that policymakers should not be prescriptive in addressing the challenge of achieving broadband access for underserved and unserved areas. Equally, a data-driven approach to bridge the divide can ensure that funds are directed to truly UNSERVED areas.

COVID has brought to light and made an emergency out of a situation that those of us in rural communities have already known is critical. Sadly, we are doing our best to catch-up, but COVID makes us unable to use certain resources like public libraries to the fullest extent possible.

To truly be successful in a first world country one has to have good digital access

Weighted Values	
First Priority	10
Second Priority	5
Third Priority	2
No Selection:	0

Appendix 6

Nash County BAND-NC Group

Prioritization Survey Summary Sheet

Please rank the three Digital Inclusion themes, defined above, in terms of needed attention in your county:

Selection	Weighted Average
Availability	7.3
Access	5.3
Adoption	4.3

Considering your **county's digital inclusion needs**, please rank the following priorities to improve access and adoption:

Selection	Weighted Average
Expand number of public Wi-Fi zones	6.75
Add public access centers in targeted, underserved communities	3.7
Expand awareness of subsidy programs that address broadband affordability	3.7
Expand existing public access centers (e.g., increase hours and number of devices at libraries, senior centers, etc.)	2.5
Develop computer refurbishment offerings (increasing the availability/affordability of computers/devices through such programs)	1.2
Provide digital literacy/skills instruction	1.2
Create an information portal directing citizens to digital inclusion resources	0

Considering your **organization's specific mission, goals, and operations**, please rank the following priorities to improve access and adoption:

Selection	Weighted Average
Add public access centers in targeted, underserved communities	5
Expand existing public access centers (e.g., increase hours and number of devices at libraries, senior centers, etc.)	3.3
Develop computer refurbishment offerings (increasing the availability/ affordability of computers/ devices through such programs)	3
Expand awareness of subsidy programs that address broadband affordability	2
Expand number of public Wi-Fi zones	1.2
Provide digital literacy/skills instruction	0.5
Create an information portal directing citizens to digital inclusion resources	0.3

Please rank the following priorities to improve adoption and digital skills:

Selection	Weighted Average
Population focused digital skills trainings e.g. Seniors, Parents of remote learners	5
Provide training on computer safety and security issues	3.7
Actively engage the Faith Community	2.8
Expand small business/ entrepreneurship training on e-commerce, maximizing computer/internet benefits	2.5
Expanded telemedicine education, assistance	1.8
Bring trainings to the learners to counter transportation challenges	0.8
Increase capacity and training for local governments	0

Please rank the following priorities to improve availability:

Selection	Weighted Average
Seek funding/resources to ensure all K-12 students have adequate internet connectivity at home	6.7
Gather data on the actual level of available service to inform local leaders of the community's true connectivity issue	6.5
Encourage local governments to advertise (through RFP or other means) for improved or expanded internet connectivity	3.2
Harmonize permitting and fees (to enhance appeal to potential internet service providers)	0.6

What are your top digital inclusion priorities? (You may choose from a list provided in a previous question or share something else)

Expand small business/entrepreneurship training on e-commerce, maximizing computer/internet benefits, Seek funding/resources to ensure all K-12 students have adequate internet connectivity at home, Develop computer refurbishment offerings (increasing the availability/affordability of computers/devices through such programs)

Gather data on the actual level of available service to inform local leaders & then increase availability!

While all three focus areas are important, I believe Availability is the biggest priority to tackle. Internet service is established, or in motion, then the other programs are vital. Making internet affordable is essential, but if the price is affordable but the service unobtainable, there has been no real improvement to the student/citizen/business.

Availability - reliable internet connectivity

Access

Weighted Values	
First Priority	10
Second Priority	5
Third Priority	2
No Selection:	0

Appendix 7

Northampton County BAND-NC Group

Prioritization Survey Summary Sheet

Please rank the three Digital Inclusion themes, defined above, in terms of needed attention in your county:

Selection	Weighted Average
Availability	8.9
Access	5.8
Adoption	2.3

Considering your **county's digital inclusion needs**, please rank the following priorities to improve access and adoption:

Selection	Weighted Average
Expand number of public Wi-Fi zones	4.3
Provide digital literacy/skills instruction	3.3
Expand existing public access centers (e.g., increase hours and number of devices at libraries, senior centers, etc.)	3
Add public access centers in targeted, underserved communities	2.1
Develop computer refurbishment offerings (increasing the availability/affordability of computers/devices through such programs)	1.8
Expand awareness of subsidy programs that address broadband affordability	1.7
Create an information portal directing citizens to digital inclusion resources	0.2

Considering your **organization's specific mission, goals, and operations**, please rank the following priorities to improve access and adoption:

Selection	Weighted Average
Expand number of public Wi-Fi zones	4.7
Add public access centers in targeted, underserved communities	3.9
Provide digital literacy/skills instruction	3
Create an information portal directing citizens to digital inclusion resources	1.9
Expand awareness of subsidy programs that address broadband affordability	1.1
Expand existing public access centers (e.g., increase hours and number of devices at libraries, senior centers, etc.)	1
Develop computer refurbishment offerings (increasing the availability/ affordability of computers/ devices through such programs)	0.4

Please rank the following priorities to improve adoption and digital skills:

Selection	Weighted Average
Bring trainings to the learners to counter transportation challenges	5
Expanded telemedicine education, assistance	3.6
Population focused digital skills trainings e.g. Seniors, Parents of remote learners	3.6
Provide training on computer safety and security issues	1.9
Expand small business/ entrepreneurship training on e-commerce, maximizing computer/internet benefits	1.9
Actively engage the Faith Community	0.7
Increase capacity and training for local governments	0

Please rank the following priorities to improve availability:

Selection	Weighted Average
Gather data on the actual level of available service to inform local leaders of the community's true connectivity issue	7.1
Seek funding/resources to ensure all K-12 students have adequate internet connectivity at home	5.2
Encourage local governments to advertise (through RFP or other means) for improved or expanded internet connectivity	2.5
Harmonize permitting and fees (to enhance appeal to potential internet service providers)	1.9

What are your top digital inclusion priorities? (You may choose from a list provided in a previous question or share something else)

Increase the broadband infrastructure
Availability
Getting Access to the Internet for residents of the county.
Availability to rural areas that don't have broadband
Having the connectivity available in the county is the top priority. If the connectivity/broadband is available, then there will be increase interest in having access and adopting the tools and acquiring the hardware and skills.
Literacy, education, telemedicine
Availability
Seek funding and any and all resources to ensure that all student have internet at home.

You are welcome to share any other thoughts on your digital inclusion priorities here:

For the County and its residents to move forward in education, to compete for economic development opportunities, and to ensure resources to provide a good quality of life for all, all there-availability, access, and adoption-have to occur throughout the County and be inclusive of all residents.
We need to make sure all our citizens have internet accessibility

Weighted Values	
First Priority	10
Second Priority	5
Third Priority	2
No Selection:	0

Appendix 8

Wilson County BAND-NC Group

Prioritization Survey Summary Sheet

Please rank the three Digital Inclusion themes, defined above, in terms of needed attention in your county:

Selection	Weighted Average
Availability	6.6
Access	6.4
Adoption	4

Considering your **county's digital inclusion needs**, please rank the following priorities to improve access and adoption:

Selection	Weighted Average
Add public access centers in targeted, underserved communities	6
Provide digital literacy/skills instruction	2.9
Expand awareness of subsidy programs that address broadband affordability	2.7
Expand existing public access centers (e.g., increase hours and number of devices at libraries, senior centers, etc.)	2
Expand number of public Wi-Fi zones	1.4
Develop computer refurbishment offerings (increasing the availability/ affordability of computers/ devices through such programs)	1
Create an information portal directing citizens to digital inclusion resources	1

Considering your **organization's specific mission, goals, and operations**, please rank the following priorities to improve access and adoption:

Selection	Weighted Average
Provide digital literacy/skills instruction	3.8
Add public access centers in targeted, underserved communities	3.1
Expand number of public Wi-Fi zones	2.9
Expand awareness of subsidy programs that address broadband affordability	2
Develop computer refurbishment offerings (increasing the availability/ affordability of computers/ devices through such programs)	2
Create an information portal directing citizens to digital inclusion resources	1.7
Expand existing public access centers (e.g., increase hours and number of devices at libraries, senior centers, etc.)	1.4

Please rank the following priorities to improve adoption and digital skills:

Selection	Weighted Average
Population focused digital skills trainings e.g. Seniors, Parents of remote learners	7.1
Expanded telemedicine education, assistance	3.9
Bring trainings to the learners to counter transportation challenges	2.4
Actively engage the Faith Community	1.4
Provide training on computer safety and security issues	1.1
Expand small business/ entrepreneurship training on e-commerce, maximizing computer/internet benefits	1
Increase capacity and training for local governments	0

Please rank the following priorities to improve availability:

Selection	Weighted Average
Seek funding/resources to ensure all K-12 students have adequate internet connectivity at home	7.1
Gather data on the actual level of available service to inform local leaders of the community's true connectivity issue	4.9
Encourage local governments to advertise (through RFP or other means) for improved or expanded internet connectivity	4
Harmonize permitting and fees (to enhance appeal to potential internet service providers)	1

What are your top digital inclusion priorities? (You may choose from a list provided in a previous question or share something else)

Expand access/education/training to aging community (seniors)

More broadband options to ensure access and to lower costs, training for senior citizens on computer/internet safety and telehealth, ensure K-12 students have access necessary for online learning.

Better actual infrastructure- Internet availability and quality is an issue.

Availability and Access

Availability of infrastructure in areas not currently served

You are welcome to share any other thoughts on your digital inclusion priorities here:

In our area, we have very limited options so our residents and business owners have trouble getting or staying online, and they pay a high price for the terrible service because there are no other options and providers know this. I would love to educate our aging population on computer/ internet safety issues so they would feel comfortable with online banking and telehealth, which would be especially helpful during this pandemic when they are afraid to go out in public.

Weighted Values	
First Priority	10
Second Priority	5
Third Priority	2
No Selection:	0

Appendix 9

Acknowledgements

The Upper Coastal Plain Council of Governments and the Upper Coastal Plain Broadband Task Force 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) to work with local Digital Inclusion Teams to develop digital inclusion plans for Edgecombe, Halifax, Nash, Northampton and Wilson Counties.

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