

Connecting Carteret

A PLAN FOR DIGITAL INCLUSION



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Executive Summary

Recognizing the critical and growing importance of affordable, high-speed broadband to Carteret County's economy and the attractiveness of the County as a place to live, work, and visit, the Carteret County Economic Development Foundation, a 501(c)(3) nonprofit charitable corporation (the "Foundation"), made digital inclusion its highest programmatic priority in 2020. The Foundation successfully applied for a \$5,000 Building a New Digital Economy in North Carolina (BAND-NC) grant from the NC State University Institute of Emerging Issues to help enable the Foundation to develop a digital inclusion plan for Carteret County, making it the first rural North Carolina county (and second NC county after Mecklenburg) to have a comprehensive county-wide plan addressing digital inclusion and broadband adoption.

Using the BAND-NC grant and other Foundation funding, the Foundation hired Deborah Watts, a principal with Broadband Catalysts and a leader in North Carolina's rural broadband efforts ("Watts"), as project manager to develop this plan, captioned *Connecting Carteret—A Plan for Digital Inclusion* (the "Plan"). Watts was assisted by a Broadband Steering Committee of community leaders and staff from the Carteret County Economic Development Department.

Over the last half of 2020, Watts conducted individual and focus group interviews and worked closely with the Steering Committee to assess the current status of broadband (defined as 25 megabits per second download and 3 megabits per second upload speeds) availability, access, and adoption in Carteret County. This research found that most Carteret County residents have access to broadband, although there are several areas in less populated regions of the County that lack access to broadband in the home. Many of these same rural areas lack good cellular service also, further limiting the ability of families in those areas to access the Internet. Lack of broadband access creates a digital divide that has profound negative consequences for unserved and underserved households, which problems were amplified by COVID-19.

Even where broadband is available in the County, the research showed that many households have not adopted (subscribed to service) broadband services. The factors are many, but the most prominent obstacles are cost (of subscriptions and/or devices), lack of computer skills (digital literacy), language barriers, or a belief that Internet access is not necessary. For many of these non-adopters, the lack of convenient public access centers and public Wi-Fi is an added hurdle making it difficult or impossible to receive digital services. Populations with the lowest level of adoption include seniors, low-wealth communities, remote rural households, and non-English speaking families.

A different issue was identified in other areas, including Bogue Banks, where broadband is available and widely subscribed. Municipal leaders there, and in other areas of the County, are increasingly concerned that the lack of very high speed (gigabit) Internet service at affordable

prices will make Carteret County less attractive to tourists, second home owners, businesses, and remote workers compared to other coastal areas that provide affordable gigabit service. This has significant economic implications for local government revenues and for the ability of County workers to have jobs, which will only get worse in the future if action is not taken.

This Plan includes an inventory of the County's broadband assets, including physical infrastructure, public Wi-Fi access locations, and remote access tools, as well as a list of organizations that provide a range of digital services in Carteret County. The research shows, however, that these efforts are fragmented, and there is a need for a more coordinated and public/transparent strategy to expand digital access in the future if all County residents are to be provided an opportunity to realize the economic and social benefits available in an increasingly digital society. The Plan includes 14 specific recommendations that are needed to make Carteret County a leader in rural connectivity, which if implemented will help the County ensure a more prosperous future for its citizens, businesses, and local governments.

The 14 recommendations are grouped into four categories and presented below:

Leadership, Sustainability and Community Building

1. The Foundation, in conjunction with the Economic Development Department staff, should sustain its digital inclusion leadership role by coordinating countywide broadband activities in the future.
2. Partners in digital inclusion efforts should publicize and share their efforts and success stories to enhance public awareness of the needs for, and benefits of, digital inclusion.
3. The Broadband Steering Committee should evolve—with new partners—into the Connected Carteret Coalition for Digital Inclusion (“CCCDI”), under the auspices of the Foundation, with staffing provided by the Economic Development Department. CCCDI would be responsible for monitoring progress, coordinating digital initiatives, and facilitating collaboration among key stakeholders.
4. The County should have a central portal and primary contact organization for both online and hard copy access to digital resources in the County, which resources should be bilingual.

Availability

5. Carteret County should create and maintain/update a map showing locations in the County where broadband is unavailable, which data is necessary to recruit Internet Service Providers (ISPs) and to pursue grants and other construction financing.
6. Bogue Banks municipalities should form a coalition to develop a joint strategy and plan to secure affordable gigabit-to-the-home/business access on Bogue Banks.

Access

7. Public Wi-Fi access locations should be expanded in the County, and existing sites should be enhanced.
8. County stakeholders should work to increase access to devices through innovative partnerships and computer refurbishment programs.
9. County agencies and other organizations should expand awareness of, and assist clients with access to, programs offering subscription subsidies and reduced cost devices to qualifying low-income families and seniors.

Adoption

10. Carteret County, through the Department of Aging Services, should expand digital literacy training for senior citizens.
11. A CCCDI subcommittee should coordinate efforts to enhance and expand digital literacy instruction for County citizens.
12. CCCDI, in collaboration with Carteret Community College and NCWorks, should prioritize workforce development training and skills development to create a large pool of Information and Computer Technology (ICT) workers to meet the growing demand for those workforce skills and to provide more citizens with basic digital skills.
13. Carteret County Department of Social Services and Carteret County Partnership for Children should develop a digital literacy program targeted to English-as-a Second-Language populations in the County, the largest group of which are Hispanic.
14. Carteret County Schools should undertake a comprehensive study to determine gaps in digital access from students in the public schools and take actions to help close the “homework gap” among families with varying levels of broadband adoption.

Each of these recommendations, if implemented, will help improve digital inclusion in Carteret County. Many require only modest investments, while others are expensive. Not all can be undertaken immediately, but with strong leadership and a broad community commitment this Plan can be fully implemented. Carteret County can become a model for rural digital inclusion, and the County can leverage its successes to enhance its economy and improve prosperity for County citizens.

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Introduction

Broadband has now joined water and electricity as a utility without which we can't survive--or at least prosper—in the 21st century. And its critical importance is growing exponentially as more and more essential activities of daily life migrate to a digital platform accessible only through the Internet. This increasing reliance on the Internet has been made even more acute by the global coronavirus pandemic, which has transformed many activities that were formerly done in face-to-face exchanges into virtual and remote interactions. Those who lack broadband Internet are being left behind.

Carteret County (the “County”) leaders recognized the increasing importance of Internet access in 2018 with the creation of a broadband committee under the auspices of the Carteret County Chamber of Commerce. The committee met on an *ad hoc* basis for approximately 18 months to better understand the existing broadband infrastructure in the County and to begin a dialogue about how the County could address its deficiencies.

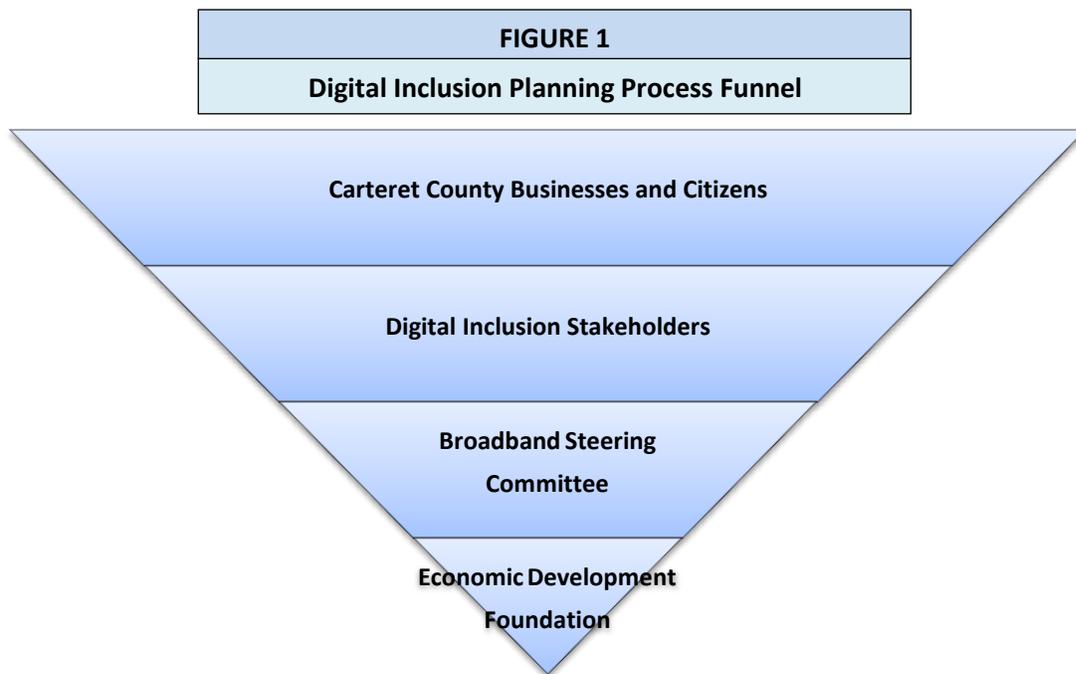
Presenters included representatives of the North Carolina Broadband Infrastructure Office, MCNC, North Carolina State University, and Internet service providers. From these presentations the committee learned that there was a significant disparity in broadband access and adoption across the county, with some areas being serviced with fiber and high (gigabit)- speeds at reasonable costs, while other areas of the County had no, or limited, Internet service (and in a few pockets no cellular service). Even where service was available, the cost of service was unaffordable to many.

The Chamber committee was constrained by a lack of staff and funding resources, and committee activities were suspended following the COVID-19 stay-at-home order. Fortunately, the Carteret County Economic Development Foundation (the “Foundation”), a 501 (c) (3) nonprofit corporation, recognized the close alignment between competitive, robust broadband Internet and the economic and social success of Carteret County citizens, businesses, educational institutions and organizations. The Foundation Board of Directors established broadband improvements as their top priority for 2020.

Beyond the issue of broadband availability, the Foundation board understood the need to ensure that everyone also has the skills and equipment needed to participate in the unfolding digital future. This comprehensive understanding of a digitally inclusive community that gives attention to all three aspects of the broadband equation—availability, access and adoption— led the Foundation to respond when the Institute of Emerging Issues at N.C. State University announced its BAND-NC (Building a New Digital Economy in North Carolina) grant program in July 2020. The Foundation applied for and received a \$5,000 grant in summer 2020 to develop a Carteret County Digital Inclusion Plan (the “Plan”).

With the grant and additional funds provided by the Foundation, the Foundation board engaged Deborah Watts (“Watts”), a principal with Broadband Catalysts and an expert on rural broadband issues in North Carolina, as consultant and project manager to develop the Plan. With staff support from the Carteret County Economic Development Department and with the guidance of a Broadband Steering Committee representing a diverse group of County stakeholders (Appendix 1), the Carteret County Digital Inclusion Plan effort was initiated. During the period August-December 2020, the Steering Committee met five times. Watts interviewed all Steering Committee members and leaders from numerous organizations throughout the County, and she conducted multiple focus group meetings with key stakeholders (Appendix 2). In addition, these meetings and efforts by the Steering Committee promoted the completion of a survey developed by the North Carolina Broadband Infrastructure Office (“NCBIO”) that maps broadband availability and speed across the Carteret County landscape. The response rate for the survey increased more than 21 percent over the September baseline as a result of outreach associated with this planning effort.

Inclusivity framed every aspect of this planning process, best depicted as an information and idea gathering funnel that widened and became more inclusive of the breadth of voices and needs around connectivity that span Carteret County (Figure 1). The findings and recommendations developed in the following pages reflect the synthesis of needs and action identified by stakeholders as necessary for Carteret County to become more digitally inclusive.



Watts and the Steering Committee worked closely to conduct the research, outreach and engagement efforts that constituted this planning effort. The product of these efforts presented in the following pages begins with *Defining Digital Inclusion* (Chapter 1), which provides a basis for understanding the importance and far-reaching impact of this Plan. This overview presents (1) a brief discussion on the role of broadband in all aspects of social, civic and economic life; and (2) the importance of creating place- and population-specific digital inclusion efforts to ensure that everyone in the County can access and benefit from digital resources and opportunities.

Chapter 2, *A Framework for a Connected Future*, synthesizes input from the many stakeholders who contributed their thoughts, frustrations and aspirations around the state of connectivity in Carteret County with the strategic considerations of the Broadband Steering Committee into statements reflecting the Vision, Mission, Values and Goals that should guide efforts to enhance digital inclusion in Carteret County.

The Context for Broadband in Carteret County – An Overview (Chapter 3) describes the geographic, demographic and economic factors that frame the context of needs and opportunities for improving broadband availability and use in Carteret County.

Chapter 4, *Broadband in Carteret Today: An Asset Inventory*, provides an asset inventory that characterizes the current state of broadband in Carteret County, including: available broadband services; existing and planned resources for equipment and/or Internet access that are available for use by the public; and resources providing technical assistance and digital literacy training.

Chapter 5, *Needs Inventory: What We Need to Know and Do*, discusses gaps identified in what is currently available to support digital inclusion, as well as gaps in information required to (1) develop a more precise picture of where broadband infrastructure is missing and where existing infrastructure needs to be enhanced; and (2) develop a comprehensive understanding of the scale and nature of digital literacy programming needed to address gaps in digital literacy skills for non-adopters in the County.

Chapter 6, *Partners for Digital Inclusion*, is a short chapter that identifies many of the organizations and agencies that can play a significant role in improving the availability, access and/or adoption elements of digital inclusion. Profiles of these entities are provided in Appendix 7.

Chapter 7, *Implementation: Achieving Digital Inclusion in Carteret County*, distills the inventory of physical infrastructure and other assets in the County, as well as deficiencies and challenges in access, adoption, device availability and digital literacy/training to arrive at a list of priority implementation actions. These short- and long-term priority actions range from no-cost recommendations to construction projects that require investments of millions of dollars.

The Plan is a public document, and it is being shared with all Carteret County local governments and other interested parties. The rapidly evolving nature of broadband technologies, and the exploding number of applications they support that cross every economic and social sector, underscores the view that this Plan should be treated as a living, dynamic document that will need to be updated and revised as projects are implemented and as infrastructure evolves and expands in the County.

Chapter 1 Defining Digital Inclusion

Today the Internet is established as the platform over which an ever-increasing share of social, civic and economic transactions take place. Broadband refers to any one of several Information and Communications Technologies (“ICT”) that enable Internet access that is always on and that supports data downloads speeds of at least 25 Mbps (megabits per second) and data upload speeds of 3 Mbps. As the number of transactions and the complexity of content transferred over the Internet continues to grow at astounding rates, broadband has emerged as the standard deemed necessary to fully benefit from the many resources, tools, services and opportunities delivered by the Internet to households and businesses worldwide. Too many people, including some in Carteret County, that lack access risk being deprived of basic needs, such as digitally-mediated education, employment, commerce and civic and cultural participation and access to essential services and other benefits, including health and social services (Appendix 4).

The reasons for such digital inequity are many, but they tend to fall into a few discrete but related categories, including: (1) lack of robust infrastructure; (2) affordability/lack of competition in the market center; (3) lack of equipment, including access to devices and/or the digital skills, including language skills, to use them; and (4) the perceived lack of relevance. Digital inequality is most prevalent among senior citizens, low wealth households, the less educated, ethnic minorities (including those for whom English is a second language), and people with disabilities. Carteret County has significant numbers of individuals in each of these groups who might be the focus of targeted digital inclusion (Figure 2). Extrapolation from the nationally established percent of nonadopters in each category reveals the expected number of individuals in each group in Carteret County that might be targeted for strategic digital inclusion efforts. In every category the challenge is real, but also approachable. This table also provides further strategic guidance by pointing to categories and by extension particular types of efforts that could yield the greatest return on effort. For example, Carteret County’s especially large share of senior residents suggests strongly that there is a need to expand the scope and scale of digital inclusion programming relevant to older citizens.

FIGURE 2

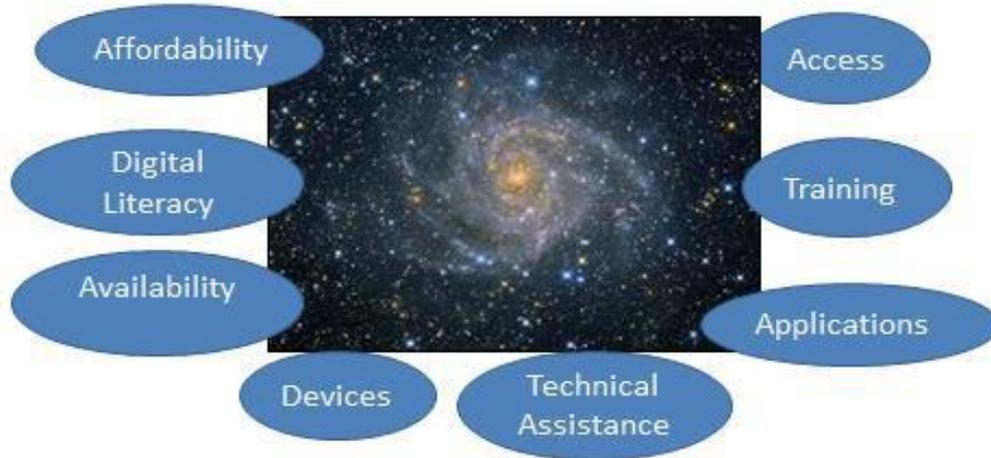
Where and How to Focus Digital Inclusion Efforts in Carteret County

Digital Divide Factor	North Carolina	Carteret County	Number in Carteret County	Digital Inclusion Targets
Age (% > 65 years)	16.7%	25.7 %	17,855	4,820
African American	22.2%	5.6 %	3,890	584
Latino	9.8%	4.4 %	3,057	428
Income (% Poverty) (US Census SAIPE)	13.6%	9.8 %	6,808	3,064
≤ High School Education	12.2%	8.9 %	2,642	766
Households w/o Computer	10.9%	9.8 %	1,969	1,969
Households w/o Broadband	19.3%	17.6 %	3,244	3,244

The costs of digital inequity are borne by the excluded individuals and by the communities that are affected by the loss of full participation of everyone. The goal must be *digital equity* wherein everyone in the community can access and effectively use the information technology needed to be active in the digital economy and society. *Digital Inclusion* is the means of making this vision real through a portfolio of activities to ensure that all excluded individuals and communities, including the most disadvantaged, have access to and use ICT (Figure 3).

FIGURE 3

The Digital Inclusion Universe



Carteret County overall and the communities that comprise it have distinct digital equity challenges arising from the specifics of the local geography, demography and economy, but they share with communities everywhere fundamental needs around broadband:

- For high-speed infrastructure with the requisite bandwidth to carry Internet traffic and connect households to businesses and community institutions;
- To help people learn to navigate technology and applications (e.g., telemedicine, job searches, distance learning) and provide a safe environment for doing so;
- To maintain public options for those who are unable, can't afford, need temporary access, or for whom it doesn't make sense to maintain private access;
- To remove barriers to access for people with disabilities or facing other obstacles to access, and;
- To address the special needs and requirements of key sectors that drive the local economy.

Chapter 2 A Framework for a Connected Future

Input from the many stakeholders who contributed their thoughts, frustrations and aspirations regarding connectivity in Carteret County were melded with the strategic considerations of the Broadband Steering Committee into the following statements reflecting the Vision, Mission, Values, Goals and Objectives that should guide efforts to enhance digital inclusion in the County.

A. Vision Statement

Every citizen and organization in Carteret County will have affordable access to the knowledge and information required to engage in the social, economic, political and cultural activities needed to thrive and realize their full potential.

B. Mission Statement

Digital inclusion is achieved when affordable, robust Internet services, digital literacy skills, quality technical support, access to hardware and software, and opportunities to access resources and services are made available to all residents, organizations and businesses. Carteret County will provide direction and support to efforts that enhance digital access and information literacy and enable the use of resources, tools and services available through broadband Internet.

C. Values

- Digital inclusion is essential to sustainable economic and workforce development, civic participation, education, healthcare, and public safety.
- All members of the community benefit from robust, affordable Internet access and use.
- Building a digitally inclusive community requires participation and support from all sectors: community-based organizations, business, government, education, non-profits and faith-based organizations.

D. Goals

1. Alignment with existing community goals and plans (including community and economic development goals and plans)

Carteret County will become widely recognized as a leading digital community that is fueled by a shared vision and common goals for enhancing broadband connectivity in support of widespread economic growth and prosperity and community development. Efforts in support of this goal will:

- Sustain and attract businesses, visitors, and full-time residents, including remote workers, retirees, skilled professionals and tradespeople, and others desiring a coastal lifestyle;
- Enhance the expansion of existing businesses and support an entrepreneurial ecosystem;
- Deliver leading-edge virtual education and workforce training opportunities;
- Deliver access to cultural opportunities for citizens and visitors; and

- Promote wellbeing through expanded access to telehealth and tele-mental and behavioral health services.

2. Digital Inclusion Specific Goals

Carteret County will support efforts to provide affordable broadband access to all residents and businesses and to support services to allow all residents and businesses to take advantage of this access through:

- Creating platforms and processes for digital inclusion advocacy and collaboration;
- Expanding availability and quality of Internet services, while making access affordable to all who desire to use it;
- Increasing understanding and usage of digital communications technology, tools and resources, especially among underserved communities and populations, which will include digital literacy training, education and technical support; and
- Expanding access to reliable and affordable Internet-access devices.

E. Objectives

Carteret County will pursue a holistic approach to digital inclusion that supports development of the “Connected Carteret” ecosystem through specific efforts to enhance broadband/bandwidth availability, access and adoption throughout the County. Objectives supporting that approach will include the following, for which concrete metrics of success will be developed.

1. Availability

- a) Increase the number of Internet Service Providers (“ISPs”) and types of connectivity technology operating in Carteret County, which is expected to result in lower costs and improved service and satisfaction
- b) Extend service (Internet and cellular) to unserved and underserved rural communities
- c) Enhance service to all parts of the County currently served, including high-demand Bogue Banks communities

2. Access

- a) Increase the number, scale and geographic span of public access facilities and Wi-Fi
- b) Create opportunities for expanded distribution of devices

3. Adoption

- a) Develop options and availability for customized digital literacy instruction, with a targeted focus on seniors and ESL populations
- b) Increase the number and network of digital navigators (including trained staff and volunteers)

F. Action Steps

Specific suggestions for implementing these goals and achieving these objectives are presented in Chapter 7 of this Plan. The next chapter profiles the characteristics of Carteret County that set the context for identifying priority actions to more fully leverage the benefits of broadband for everyone in the County.

Chapter 3 The Context for Broadband in Carteret County – An Overview

A. Carteret County Geography

Carteret County, also known as “The Crystal Coast,” is a large county located on the central North Carolina coast. It is the third largest county in North Carolina by total area, but 834 of the total 1,341 square miles of the County are water. The remaining 506 square miles of land stretch from the White Oak River separating Carteret and Onslow counties to Cedar Island—at the end of a peninsula extending east into Pamlico Sound, and where one boards the ferry to Ocracoke (Figure 4).

FIGURE 4

Carteret County Map



In addition to its linear, horizontal geography, the County has a number of unique land features that impact its development patterns and telecommunications infrastructure. Of the County’s 331,355 non-water acres, almost 53,000 acres in the western half of the County are contained within the federally owned Croatan National Forest. An additional 52,414 acres of the County

are either publicly owned or are held in conservation/land trust ownership, and 14,419 acres are owned by the U.S. government for use by the Department of Defense.

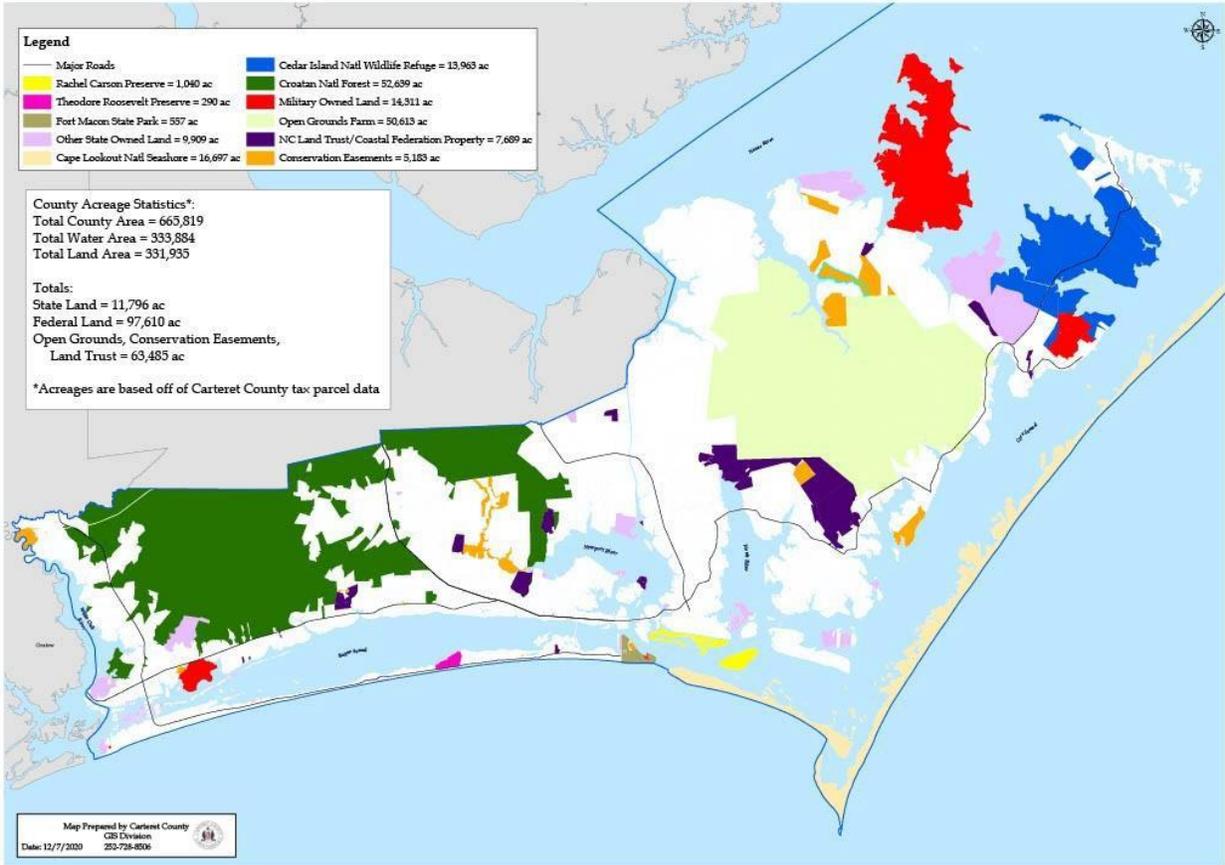
Carteret County is also home to Open Grounds Farm, which at 50,651 acres is the largest farm east of the Mississippi River. It is privately owned by an Italian company, and its use is currently dedicated to growing soybeans and corn. The satellite image below clearly shows Open Grounds Farm in the “Down East” region of the County, separating the U.S. 70/NC 12 corridor at the eastern edge of the County from the Merrimon Road corridor extending north from Beaufort (Figure 5).

FIGURE 5
Carteret County Satellite View Map



In summary, of Carteret County’s total acreage, 160,904 acres, or 24.2%, of the county’s total area, is potentially available for development. Of the County’s 331,355 acres of land, approximately 48.6% is theoretically available for development. These figures assume that Open Grounds Farm remains in agriculture or is otherwise not developed. These figures also include areas of the County that are not available for development due to other features— including the presence of wetlands, low elevations and/or poor soils not able to support on-site wastewater treatment, areas under conservation easements, or smaller tracts that are publicly owned. The map below shows areas of the County exceeding 250 acres that are not subject to future development, as well as Open Grounds Farm (Figure 6).

FIGURE 6
Carteret County Land Use Map



The sounds and other water bodies, combined with the large percentage of County real estate that is publicly owned or otherwise not available for development, have resulted in wide population dispersion, with many small, rural communities that are relatively isolated. This creates challenges for telecommunications service providers—both cellular and Internet—because of the economics of providing expensive infrastructure to service low-density rural areas.

B. Carteret County Demography

Many of these isolated and relatively small communities face multiple telecommunications challenges, including poor cellular service and a lack of broadband service. While these obstacles have existed for many years, the damage resulting from Hurricanes Florence (2018) and Dorian (2019) exacerbated the challenge. The full impact of the deficiencies was exposed in 2020 as a result of the coronavirus pandemic, when schools closed, many workers were forced to work remotely, and in-person medical and social services were curtailed. COVID-19 presented the perfect storm for many Carteret County residents, particularly for lower income

families and those where one or more adults became unemployed. Without cellular service or affordable broadband, many Carteret families faced considerable challenges or were unable to (or faced significant challenges to) work, learn, or receive essential services.

Currently, Carteret County has a permanent population of approximately 70,000 residents, with approximately 57 percent residing outside of the County’s incorporated municipalities. In the future, it is likely that a greater percentage of the County’s new residential population will concentrate in the incorporated towns due to the availability of municipal utilities and higher elevations. The estimated 2019 population of the eleven Carteret County towns is shown in Figure 7. Ten percent of Carteret county residents are members of ethnic minorities (5.6% African American; 4.4% Latino), and they are dispersed among the towns and the unincorporated areas of the County.

FIGURE 7	
Carteret County Municipalities’ Population	
Municipality	Population
Atlantic Beach	1511
Beaufort	4403
Bogue	710
Cape Carteret	2067
Cedar Point	1308
Emerald Isle	3700
Indian Beach	121
Morehead City	9680
Newport	4559
Peletier	723
Pine Knoll Shores	1326

Source: World Population Review, 2020

Carteret County’s historical development patterns favor smart growth, since large areas of the County are not developable, which reduces sprawl. Most of Carteret County’s projected population growth is and will continue to be concentrated along existing roadway corridors: U.S. 70, NC 24, NC 58, and NC 101. Because only three municipalities in Carteret County have municipal sewer utilities (Newport, Morehead City and Beaufort), and the Bogue Banks beach communities are mostly built-out, it is likely that much of the residential growth and business growth in the future will be concentrated in those three towns.

The County’s permanent resident population, however, does not tell a complete story. As a very popular tourism destination, the County is home to a very large second home population, and many of those condominiums and cottages are owned as investment properties that are

rented to vacationers—many on a weekly rental basis. Nearly half (48%) of Carteret County’s tax base is contained on the Bogue Banks barrier island (containing the towns of Atlantic Beach, Emerald Isle, Indian Beach, Pine Knoll Shores, and the unincorporated community of Salter Path), and a significant percentage of that property is owned by non-permanent residents. Although broadband is available throughout Bogue Banks, surveys reveal that many customers are dissatisfied with their service. Moreover, bandwidth is limited due to aging infrastructure, and current speeds are far slower than what will be required to make Carteret County competitive for home purchasers (primary residents, second home owners, and investment buyers) and visitors in the future. For those reasons, several Bogue Banks communities are exploring options to extend fiber to Bogue Banks to provide gigabit speeds at prices below those of the incumbent provider.

Carteret County’s historical growth rate has been incremental, averaging less than 1 percent annually. However, the growth rate is expected to increase significantly over the next decade as U.S. 70 becomes new I-42. This projected accelerated growth will likely drive interest from new Internet Service Providers evaluating entry into the Carteret County market. Unfortunately, even with an accelerated population growth, broadband economics may not warrant new providers or expanded service in the county’s more isolated rural areas without public subsidies or other incentives.

Carteret County’s median age is 48, which is almost 10 years older than the North Carolina average of 38.6. This is because roughly 40 percent of the County’s population is 55 years of age and older (16.4% are 55-64 and 23.6% are 65+). The County’s large senior population results primarily from the County’s popularity as a retirement destination. Carteret County is a magnet for retirees seeking a temperate coastal location, and the County’s recent designation as a Certified Retirement Community by the State of North Carolina has enhanced Carteret County’s reputation as a retirement location. The County’s disproportionately older demographic exacerbates the County’s digital divide, however, because many seniors— particularly those in the most senior age brackets and in lower income brackets—are generally less digitally literate and more reluctant to embrace digital technologies.

Recognition that a significant share of sustainable growth will depend on the presence of skilled workers and a more age-balanced population led the Carteret County Economic Development Foundation to actively promote the County as an attractive option for teleworkers and families in the urban centers of the state. The success of this outreach received an assist in recent months from COVID-19, which has caused an influx of new permanent residents into Carteret County, including many remote workers and their families. These new residents are coming with an expectation that the Internet infrastructure will meet their needs, creating additional pressure on addressing infrastructure gaps.

C. Carteret County Economy

Although Carteret County's economy is heavily reliant on the tourism industry and the service sectors that support it, the County's economy is far more diversified than many coastal North Carolina counties. Nearby Marine Corps facilities at Cherry Point and Camp Lejeune are huge economic drivers in Carteret County, and the Fleet Readiness Center at Cherry Point, which is the largest manufacturing facility east of I-95, is the largest employer of Carteret County residents. Carteret County, home to the Duke, UNC-Chapel Hill, NC State and NOAA laboratories, has one of the largest concentrations of marine scientists and researchers in the country. The County is also home to the Port of Morehead City and multiple manufacturing companies, including several boatbuilding and boat component manufacturers.

The North Carolina Department of Commerce has classified Carteret County as a Tier 3 county in 2021, ranking as the 13th most prosperous county in the state. The State uses four metrics in its economic distress rankings (with Carteret's 2021 ranking for each): Adjusted Property Tax Base Per Capita FY 2020-2021 (97th), Population Growth July 2016-July 2019 (49th), Median Household Income 2018 (82nd), and Unemployment 12 Month Average October 2019- September 2020 (80th). In large part because of the county's very high property tax base per capita, Carteret County has enjoyed the state's lowest property tax rate since 2017 (currently \$.33/\$100). The change in Carteret County's economic tier status from Tier 2 in 2020 to Tier 3 in 2021 directly impacts the County's prospects for broadband expansion, because eligibility for the NC GREAT broadband infrastructure subsidy grants in Fiscal Years 2021-2022 are currently limited to unserved areas of Tier 1 and Tier 2 counties, although there are indications that the State of NC may use 2020 tiers to award NC GREAT grants in 2021.

A weakness in the County's economy is average wage rates. Because the tourism economy is seasonal and many of the service jobs that support the industry are in lower wage occupations, such as food and beverage, retail, and housekeeping, the County's average 2020 annual private sector wage was \$33,002, ranking it 80th lowest among the State's 100 counties. This does not include public sector employers, and it only includes employers physically located in Carteret County. Consequently, the higher wage civil service jobs at Cherry Point and its Fleet Readiness Center, which are federal jobs in neighboring Craven County, are not factored into the average annual private sector wage figure.

The juxtaposition of relative high household incomes and low wages is common in resort and tourism areas. Income includes not only earned wages but also income from all sources, and many residents of destination communities have income from many sources, including pensions, Social Security, and investment income. Conversely, many lower income workers and families rely entirely on earned income. Average wages are not used in the State's economic distress rankings, while median household income is, creating a distorted picture of the economies of many resort and vacation destination counties.

The low average wage in Carteret County contributes to disparities in digital access. Survey results show that even where broadband access is available, many low-income residents are unable to afford Internet subscriptions. This challenge is even more acute in rural areas of the County where lower income residents face access barriers (often to both broadband and cellular service), as well as financial constraints that limit their ability to afford telecommunications services.

Chapter 4 Broadband in Carteret County Today: An Asset Inventory

The following chapter characterizes the current state of broadband in Carteret County, including: available broadband services; existing and planned resources for equipment and/or Internet access that is available for use by the public; and resources providing technical assistance and digital literacy training. It is important to note that this is a work-in-progress that will expand substantially as outreach and engagement efforts continue and build on the energy imparted by the Carteret County BAND-NC planning effort.

This asset inventory is composed of information obtained from various sources, including the Federal Communications Commission (“FCC”), the American Community Survey, the NC Broadband Infrastructure Office, the Carteret County GIS Department, and Internet Service Providers. An active outreach and engagement effort added hard data, opinions and insights of more than 50 Carteret County leaders and broadband stakeholders (Appendices 1 and 2).

A. Availability

1. Broadband Assets: Mobile and Fixed Broadband

While the vast majority of Carteret County has access to both mobile and fixed broadband Internet, there remain several locations where the service is slow (below broadband speed thresholds) or sporadic. A limited number of known, mostly rural and remote locations do not currently have broadband service at all. Anecdotal evidence suggests that the number of households that lack service or are underserved exceeds numbers reported by the FCC and used in NC Broadband Infrastructure Office reports¹. Broadband coverage maps depicting the availability of slower (10/1) and broadband (25/3) speed tier service in Carteret County can be found in Appendices 5 and 6. These maps show that there are small, scattered unserved and underserved areas in Carteret County and one much larger contiguous area lacking broadband service in Northern Carteret County. The collective message in these “official” maps is that there are very few locations in Carteret County that would be eligible for federal broadband infrastructure grant programs.

Figure 8 summarizes estimates describing broadband availability and uptake in Carteret County².

¹ NC Broadband Infrastructure *NC One Map* <https://www.nconemap.gov/pages/broadband>. Accessed 01-02-21

² 2019 American Community Survey data from Census Report Table B28011. Accessed 12-30-20 at <https://censusreporter.org/topics/computer-internet/>

FIGURE 8	
Broadband Status in Carteret County	
<u>Carteret County Broadband Statistics</u>	<u>Percent</u>
No Internet Access	8.6%
Internet Access without Subscription	2.3%
Internet Subscription	89.1%
• Dialup Only	0.2%
• Broadband of Any Type ³	88.2%
• Cellular Data Plan	80.2%
• Cellular Data Plan Only	9.9%
• Broadband by Fiber, Cable, DSL	75.7%
• Satellite	5.9%
Some Computing Device	92.3%
Smart Phone Only	7.7%
No Computing Device	6.8%

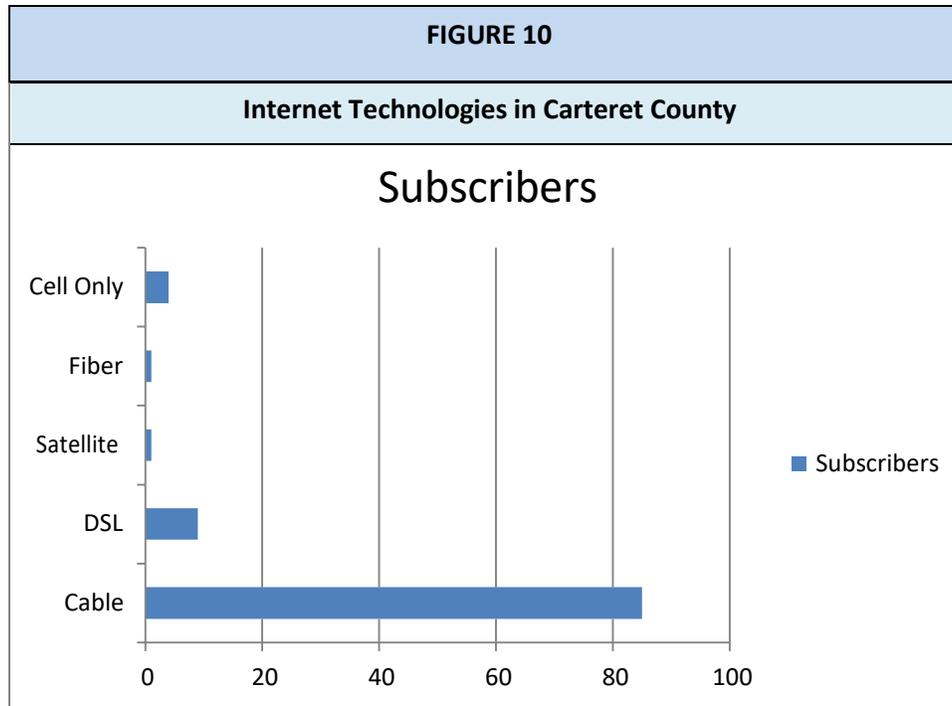
Three primary factors have been identified as detracting from the Internet service profile of Carteret County: (1) few providers resulting in limited competition which may be reflected in higher cost to the consumer; (2) the almost total absence of retail fiber broadband services; and (3) the lack of hybrid or fixed wireless offerings (see Figure 9). The type of technology and the speed it offers increasingly matters, especially as faster upload speeds and bandwidth are needed to support interactive virtual education, telehealth and remote work applications being adopted by a growing percentage of the population.

³ The Federal Communications Commission defines broadband Internet as the transmission of wide bandwidth data over a high-speed connection equaling at least 25 megabits per second download and 3 megabits per second upload via multiple types of technologies, including fiber optics, wireless, cable, DSL and satellite

FIGURE 9				
Household and Business Internet Providers in Carteret County				
Mobile Internet/Cell Providers		Fixed Internet Providers		
Provider	Maximum Advertised Speeds	Provider	Technology Type	Maximum Advertised Download
AT&T		CenturyLink	DSL and HLS	100 Mbps
T-Mobile		CenturyLink Fiber	Fiber	1000 Mbps
Verizon		Earthlink	DSL	80 Mbps
		Spectrum	Cable	940 Mbps
		ViaSat	Satellite	35 Mbps
		HughesNet	Satellite	25 Mbps

It is important to emphasize that the maximum advertised speeds are not available to all subscribers/customers, and often actual speeds are less than those advertised. Costs also increase as speeds increase. DSL and cable are the two primary network technologies in the County, with CenturyLink and Spectrum frequently overlapping and generally competing with each other (Figure 10). One measure of the service challenge confronting the County can be seen in fact that its largest, best served community, Morehead City, ranks as the 430th most connected municipality in North Carolina (out of 552 total) ⁴.

⁴ <https://broadbandnow.com/North-Carolina/Morehead-City>



Source: NC Broadband infrastructure Office Survey

Carteret County has significant assets relevant to improving infrastructure, including:

- MCNC Fiber backbone Point-of-Presence in Morehead City that serves government and other community anchor institutions. Dark fiber is available for lease by MCNC to commercial ISPs;
- Conterra Networks fiber that provides services to Carteret County Public Schools and is exploring providing last mile service to business and institutional customers. Conterra is also open to leasing dark fiber to ISPs that want to provide residential Internet service;
- Recent move by CenturyLink/Lumen Technologies, Inc. to provide fiber-backed fixed wireless service to a new community and business in Beaufort;
- A significant number of vertical assets and utility poles, including those owned by Carteret Craven-Electric Cooperative (“CCEC”), which is open to partnering to expand broadband infrastructure;
- Recently-permitted cell tower on Merrimon Road in northeastern Carteret County (currently an area with very limited coverage) that will be aggressively marketed to potential cell and Internet service providers by Vertical Bridge; and
- Active conversations with ISPs that are presently exploring potential partnerships to expand into the County.

Some idea of how Carteret County citizens perceive the status of broadband and how they actually access it is offered in their responses to the NC Broadband Infrastructure Office's Broadband Survey. Although limited (to date) to 423 responses, the results highlighted below, provide useful insights:

- There is very little choice of service for broadband (see Figure 9)
- Dissatisfaction with current service is high: 30 percent Dissatisfied versus 13 percent Extremely Satisfied
- Many have service that does not qualify as broadband: 4 percent have no Internet and 31 percent have service with speeds of less than 25 Mbps download/ 3 Mbps upload
- The cost of mediocre service is high: 41 percent pay more than \$100/month⁵

These results and others in the survey present a picture of a good market that would be open to new broadband providers and technologies that could offer a better service proposition.

B. Access

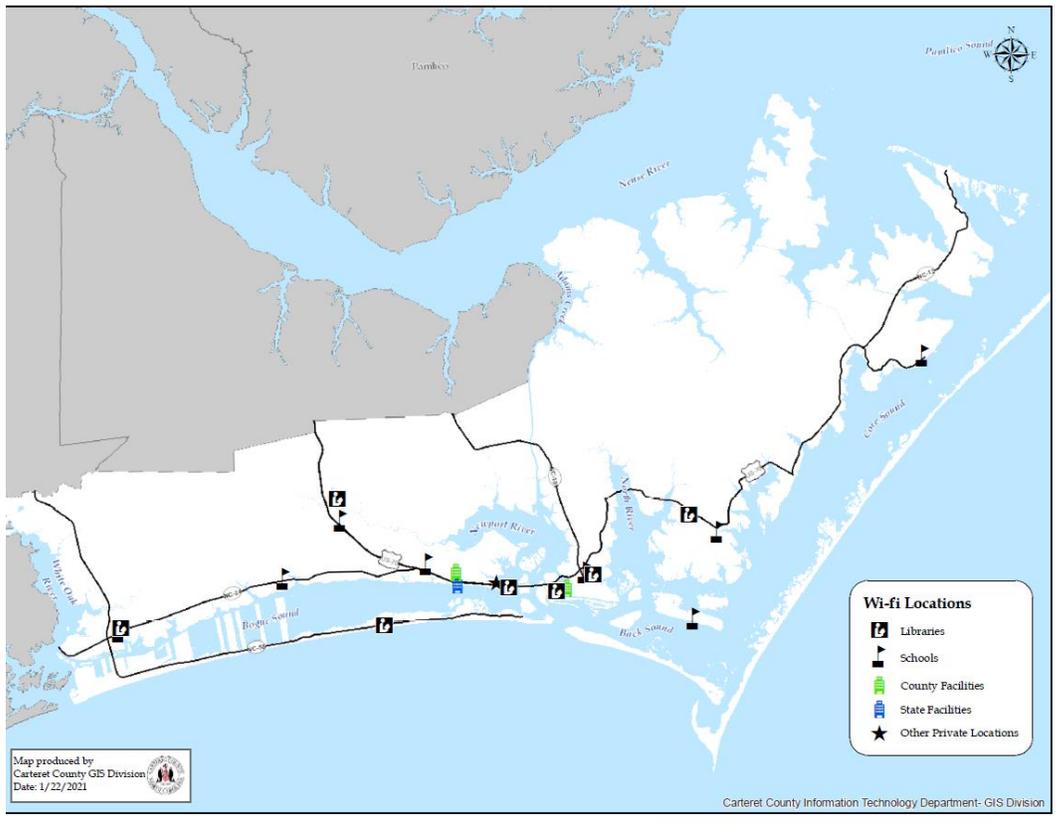
1. Public Wi-Fi and Public Computer Access Points

Carteret County has multiple well-distributed locations that offer public Wi-Fi Internet access, many of which maintain this resource 24/7 in their parking lots (Figure 11). All branches of the County library system also have computers available for use by the public, and some branches offer wireless printing. Public service agencies often have computers available for use by their clients and visitors. Although not included in this list, there are also several retail locations that provide Wi-Fi as a service to their customers. None of the County's municipalities offer public Wi-Fi or public access centers at this time, although there is strong interest in exploring this opportunity further.

⁵ NC Broadband Infrastructure Office Broadband Survey Results. Accessed 01-09-2021.

https://ts.coverlab.org/t/fridayInstitute/views/Broadband_Dashboard_Public_Oct20_layouts/Map_?:showAppBanner=false&:display_count=n&:showVizHome=n&:origin=viz_share_link&:isGuestRedirectFromVizportal=y&:embed=y

FIGURE 11
Map of Wi-Fi Public Locations in Carteret County



a) Libraries

Free public Wi-Fi is available inside all locations of the Carteret County library and 24/7 in the parking lots. All branches have computers available for use by the public. No branches currently have a computer lab for classroom digital skills instruction, but assistance is provided on a one-to-one basis. However, library resource availability is limited as no branches are open on Sundays and the Downeast branch is only open 3 days per week and not at all on weekends.

- Bogue Banks Public Library*, 320 Salter Path Road, Pine Knoll Shores, NC, 28512
 Phone: (252) 648-7726
- Carteret Regional Library System*, 1702 Live Oak Street, STE 100, Beaufort, NC 28516
 Phone: (252) 648-7725
- Down East Public Library*, 702 Hwy 70 Otway, Beaufort, NC, 28516
 Phone: (252) 648-7729
- Newport Public Library*, 210 Howard Blvd, Newport, NC 28570
 Phone: (252) 648-7727
- Pearse Memorial Library, 135 Duke Marine Lab Road, Beaufort, NC 28516
 Phone: (252) 504-7510

- Webb Memorial Library and Civic Center, 812 Evans Street, Morehead City, NC 28557
Phone: (252) 726-3012
- Western Carteret Library*, 230 Taylor Notion Road, Cape Carteret, North Carolina
28584 Phone: (252) 648-7728

* Wireless printing available

b) Public Schools

Park and Learn Sites

To make it easier for students and families to access the Internet, Carteret County Public Schools offers free Internet access via Wi-Fi at eight school parking lots across Carteret County. Simply connect to the username "Carteret-Outdoor" from the schools' parking lots. There is no password.

- Atlantic Elementary, 151 School Drive, PO Box 98, Atlantic, NC 28511
Phone: (252) 225-3961
- Beaufort Elementary, 110 Carraway Drive, Beaufort, NC 28516
Phone: (252) 728-3316
- Broad Creek Middle, 2382 NC-24, Newport, NC 28570
Phone: (252) 247-3135
- Down East Middle/Smyrna Elementary, 174 Marshallberg Road, Smyrna, NC 28579
Phone: (252) 729-2301
- Harkers Island Elementary, 1163 Island Road, Harkers Island, NC 28531
Phone: (252) 728-3755
- Newport Middle, 500 E Chatham Street, Newport, NC 28570
Phone: (252) 223-3482
- West Carteret High, 4700 Country Club Road, Morehead City, NC 28557
Phone: (252) 726-1176
- White Oak Elementary, 555 W. B. McLean Drive, Cape Carteret, NC 28584
Phone: (252) 393-3990

c) Other County and State Agencies

- NCWorks: 3813 Arendell St., Morehead City, NC 28557, Phone: (252) 726-7151. The new facility on the Carteret Community College campus will have 8 computers for use by clients of the agency and will also be available to the public.
- Carteret Senior Services – Leon Mann Enrichment Center, 3820 Galantis Drive, Morehead City, NC 28557, (252) 247-2626. There are 2 computers available for public use—one in the Center's library and another in a separate room to support online private consultations.
- Carteret Department of Social Services, 210 Craven Street, Beaufort, NC 28516, Phone: (252) 728-3181. This agency offers free Wi-Fi in the parking lot and has computers and

public access for use by its clients and visitors specific to DSS programs and services available during office hours.

d) Other Private Locations Providing Public Access/Wi-Fi

- Calico Creek Coffee Shop at One Harbor Church: 1605 Fisher Street, Morehead City, NC. Free W-Fi is available to the public in a coffee shop located in the foyer of the church. The shop is open mornings and precedes from coffee sales support programs to address substance abuse.
- Many Carteret County businesses with on-site Wi-Fi make it available to their customers—and in many cases to the public. Because these offerings change frequently, it is not possible to capture them in a static list.

2. Mobile Hotspot Lending Programs

The Webb Library, 812 Arendell St., Morehead City, NC 28557, Phone (252) 726-3012, is now offering mobile hotspots (<https://thewebblibrary.com/mobile-hotspots/>) to patrons who do not have Internet access at home. These hotspots will provide wireless Internet access within range of a cellular network tower. Mobile hotspots may be checked out for up to one week, after which they will automatically shut off and must be returned to the library. Checkouts cannot be renewed.

Following the Carteret County move to virtual instruction with the advent of COVID-19, Carteret County Public Schools provided mobile hotspots and devices to all students who needed them. It is not clear at this point if and for how long this offering will be continued. Carteret Community College also provides devices to all students who need them, and the College maintains free Wi-Fi on campus for use by students. This Wi-Fi is password protected and not currently available for use by the general public.

3. Discounted Low-Cost Offer Programs and Refurbished Devices

Assistance is available through some ISPs and nonprofits to assist qualifying households obtain access and/or devices:

- Spectrum Internet Assist Program (<https://www.spectrum.com/internet/spectrum-internet-assist>) offers a low-cost option for senior citizens and qualifying low-income households. This discounted service is available to any household in which at least one person is a member of the SSI program and is over the age of 65. It is also open to those on the Community Eligibility Provision (CEP) and the National School Lunch Program (NSLP). A low price of \$14.99 per month provides high-speed Internet with no data caps, modem included. Wi-Fi can be added for an additional \$5 per month. This program is not heavily promoted, so customers have to seek it out.
- PCsforPeople offers discounted devices and unlimited data service plans for \$15/mo. to qualifying households that are at least 200% below the federal poverty level or enrolled in income-based government assistance programs. Phone: (651) 354-2552.

- ② Kramden Institute (kramden.org), located in Durham NC, refurbishes donated computers and partners with schools, other non-profits and military aid organizations to award computers to students and others in need. Discounted refurbished computers are available for purchase by the general public through their eBay store at https://www.ebay.com/sch/kramdeninstitute/m.html?_ipg=50&_sop=10&_rdc=1.

C. Adoption

The lack of technical skills and knowledge needed to navigate use of computers and the Internet is a prime impediment to many individuals being interested in, or being able to take advantage of, online services and resources. Success on the scale of a county-wide effort to decrease the number of non-adopters requires a portfolio approach that offers instruction at various levels and scales, offered in settings that are conducive to the needs and budgets of the students. Evidence from this planning effort supports several conclusions: (1) demand for digital literacy training and technical assistance outstrips the capacity of available programs; (2) overall digital literacy in Carteret County can be described as *ad hoc* and uncoordinated among the various organizations that offer services; and (3) proactive outreach and customized training will be needed to engage the interest and participation of specific targeted nonadopters. There is also need for training and assistance provided at little or no cost to the low-income individuals for whom cost is a primary impediment to digital inclusion. One key challenge is the lack of computer labs for classroom instruction and the dependence of volunteers to deliver the instruction.

Technical navigators are individuals who provide a bridge to the information, skills and resources needed to bring non-adopters along the digital inclusion path. To illustrate, a navigator would be someone who understands the issues and needs of seniors to help them access the most relevant and compelling applications, while navigators working with immigrant families would need to be able to communicate with them and guide them to language- appropriate digital literacy and online assistance resources. In addition to digital literacy training, new adopters often require assistance in setting up and using their devices. This sort of assistance is not readily available in Carteret County at this time.

The primary assets for digital literacy assistance in Carteret County include the following:

Carteret Community College offers computer skills classes at various levels through its Continuing Education Division and as part of the curriculum for various degree programs. These classes meet many needs, but there is evidence that alternatives are needed that target specific populations that are most in need of assistance getting online. There is interest and need for digital literacy training at different levels and scales—a portfolio of offerings. There is also need for digital literacy training at no or little costs to the public.

Carteret County Library provides one-on-one training and assistance to patrons on an as-requested basis at all branches of the library. This includes assistance with job searches and form completion. None of the branches have a computer lab where classroom instruction to groups could take place, and restricted hours preclude evening instruction/assistance (see preceding

description of libraries).

NCWorks provides basic computer literacy assistance to clients to assist their job searches and provides a limited number of computers for use by clients and visitors.

The Carteret Senior Services Center has a room with 2 computers used for digital literacy training that is delivered by a volunteer who is part-year resident of the County. Classes are over-subscribed whenever they are offered.

The Carteret County Partnership for Children provides Smart Start services to qualifying families. COVID-19 amplified the need for virtual monitoring and for parents to engage with their children's teachers remotely. Both require computers and digital literacy training for parents, many of whom speak English as a second language. Digital inclusion in this instance will require customized programming and technical assistance.

Chapter 5 builds on the situation analysis presented in this chapter, identifying specific needs and gaps in the availability, access and use of broadband in Carteret County. Additional information will be required to: (1) develop a more precise picture of where broadband infrastructure is missing and where existing infrastructure needs to be enhanced; and (2) develop a more comprehensive understanding of the nature and scale of digital literacy programming needed to address gaps in digital literacy skills for non-adopters in the County.

Chapter 5 Needs Inventory: What We Need to Know and Do

Our vision for Carteret County holds that every citizen and organization will have affordable access to the knowledge and information required to engage in the social, economic, political and cultural activities needed to thrive and realize their full potential. Digital inclusion is the linchpin for realizing this vision. Findings presented in the previous chapter support the view that, with the exception of funding needed to fill the broadband infrastructures gaps and inadequacies, all of the elements for addressing any digital inequities are already present in the County; they just need to be scaled and coalesced into a comprehensive, coordinated approach that builds on and expands existing efforts and leverages the needed additional resources.

A summary of key findings that can be taken from the preceding Asset Inventory follows:

- The presence of areas in Carteret County that lack adequate broadband infrastructure, and the presence of significant numbers of residents who belong to one or more of the populations identified as being less likely to have the capacity or interest to fully benefit from the Internet, supports the need for and value of digital inclusion efforts.
- Carteret County has strong representation of all types of entities that have an interest and role in closing the digital divide.
- Not all areas of the County are equally positioned with potential digital inclusion partners.
- Most public institutions have good connectivity and are positioned to be active contributors to a digital alliance.
- Efforts to address digital inequities exist, but they tend to be of limited scope and scale and mostly operate as stand-alone initiatives.
- Nascent collaborative developments and interest in this planning project point to opportunities to leverage and expand on existing resources to make Carteret County a hallmark of best practice rural coastal connectivity.

Information Gaps:

Although much was learned in the BAND-NC Phase I planning project, there is still more that is needed. Additional information is required to: (1) develop a more precise picture of where broadband infrastructure is missing and where existing infrastructure needs to be enhanced; and (2) develop a more comprehensive understanding of the nature and scale of digital literacy programming needed to address gaps in digital literacy skills for non-adopters. These and other identified gaps discussed below frame the priorities for action that comprise Chapter 7. Additional understanding is also needed regarding the availability of grants and other subsidies available to support rural broadband. This is a constantly changing landscape at the federal and state levels, but it is encouraging to see a heightened awareness of the need for improved telecommunications infrastructure within the North Carolina General Assembly and the U.S. Congress.

Gaps Being Filled

Extensive research and input from the many stakeholders who contributed to this planning effort pointed to needs and opportunities for short- and long-term actions to address digital challenges in Carteret County. A number of tools—programmatic, policy/regulatory, investment—for addressing the digital equity challenge were considered, including the following list (Figure 12). Every tool being used reflects a gap already recognized and being addressed, albeit on a modest scale with impact that will be limited by the chasm between the size of the County and the very small number of individuals who are reached by these efforts.

FIGURE 12	
Tools Being Used to Enhance Digital Inclusion in Carteret County	
Digital inclusion tool	Status/Stakeholder
Harmonized permitting and fees for infrastructure	Being discussed, varies by local government unit
Demand aggregation studies/surveys	<i>Ad hoc</i> , not countywide
Subsidies for access	Underutilized, application assistance not centralized
Public access centers	Libraries; Schools; random public buildings
Public Wi-Fi	Libraries; Schools; Social Services; Parking lots for some community anchor institutions, e.g., fire stations; some private businesses
Hotspot Lending	Schools; Libraries
Guided use of applications, e.g., telemedicine; job searchers	Social Services; NCWorks; Libraries
Train-the-trainer programs	Librarian staff being upskilled in computer assistance
Technical assistance	Carteret Partnership for Children; NCWorks; Libraries
Digital literacy instruction	Community College; Senior Center
Refurbished/discounted devices	Carteret Partnership for Children in partnership with CTE high school classes

Roles for STEAM

Carteret County is uniquely minted, particularly among coastal and rural communities, in the large presence of research institutions, heritage centers and cultural assets—the Science, Technology, Engineering, Arts and Math (STEAM) organizations that touch so many lives and do so much to distinguish Carteret County from other rural counties. For example, Carteret County is home to the Duke University Marine Laboratory, the UNC-Chapel Hill Institute of Marine Sciences, N.C. State University Center for Marine Sciences and Technology, and the federal NOAA Beaufort Laboratory. Broadband is essential to their day-to-day work, their outreach and engagement, and their long-term success. They are strongly vested in the availability of high quality, robust broadband infrastructure and therefore are natural stakeholders in the broader digital inclusion challenge facing the County in which they reside. To date, the Carteret County STEAM communities have not had a strong presence in discussions on digital inclusion, and this is an obvious opportunity that could be leveraged.

Chapter 6 Partners for Digital Inclusion

Carteret County has multiple organizations and individuals that collectively comprise a potentially strong network of stakeholders with vested interests in solving digital inequities that limit the County's potential for sustainable, broadly-shared growth and prosperity. These stakeholders come from the public, private and nonprofit sectors. The challenge is in creating the information sharing tools and coalition-building activities that can transform them into a collective for change. Ideas for advancing this goal are presented in Chapter 7.

Detailed profiles of organizations identified below as potential members of the proposed Connected Carteret Coalition for Digital Inclusion (CCCDI) can be found in Appendix 8. This set of partners should be seen as the first cohort of partners that the Foundation hopes will expand as awareness and energy around digital inclusion in Carteret County grows.

Potential Carteret County Digital Inclusion Partners

Carteret County Chamber of Commerce
Carteret Community College
Carteret County Department of Aging Services
Carteret County Department of Social Services
Carteret County Faith Community
Carteret County Government
Carteret County Libraries
Carteret County Municipal and Unincorporated Community Leaders
Carteret County Partnership for Children
Carteret County Public Schools
Carteret-Craven Electric Cooperative
Crystal Coast Economic Development
Crystal Coast Nonprofit Network
Internet Service Providers—Current and Prospective
NCWorks
The Bridge Downeast

Chapter 7 Implementation: Achieving Digital Inclusion in Carteret County

Priorities for Action

As a result of the BAND-NC planning effort, the Carteret County Broadband Steering Committee more fully recognizes shortcomings in Carteret County's current position with respect to each of the three levers of digital inclusion – Availability, Access and Adoption. Likewise, Steering Committee members also realize the value of taking a holistic approach to targeting opportunities for action that might move these levers synergistically. The Steering Committee understands the need for strong leadership in moving the County's Digital Inclusion Plan forward. Fourteen initiatives identified as priorities for action are discussed in the following section. Costs range from modest (in-kind and volunteer) to massive (bringing competitive fiber infrastructure to Bogue Banks), and implementation timelines range from months to an estimated two years. The most promising thing about these initiatives is that all are feasible, and together they can make Carteret County a more equitable and connected place to live, work and grow. These recommendations, if implemented, can also help brand Carteret County as a model for rural digital inclusion and as a preferred destination for tourists, residents, and businesses.

A common template is used to describe each initiative. Note that information on some of the initiatives is not complete, pending additional input and data.

A. Leadership

(1) Commit to Digital Inclusion

The BAND-NC Digital Inclusion grant brought together in the Carteret County Broadband Steering Committee leaders who now form the core of what needs to be a more expansive coalition of individuals and organizations engaged in eliminating digital inequality in Carteret County. This vision of a Connected Carteret must encompass the active involvement of the County's social, civic, economic, health and education sectors, but there needs to be an organizing center to this effort. The Carteret County Economic Development Foundation, as a non-profit, nonpolitical entity that already includes representation drawn from across the County's geographic and sectoral boundaries, is a natural locus for leadership in moving digital inclusion forward in the County. The Carteret County Economic Development Department staff, which provides staff support to both the County Department and the Foundation, could, if resources permit, take tactical responsibility for sustaining momentum through coordination of meetings, communication and outreach efforts. The Foundation, together with leaders from the various stakeholder/partners identified in Appendix 8, is recommended to initially comprise the Connected Carteret Coalition for Digital Inclusion (the "CCCDI").

B. Sustainability and the Value of a Holistic Approach

(2) Celebrate Collaboration

Digital inequality in Carteret County can be solved - there are a finite number of unserved and underserved locations in the County and a finite number of individuals who lack the understanding, skills and/or resources to take full advantage of broadband's benefits. The challenge lies in sustaining the commitment and securing sufficient resources to tackle this problem. As every aspect of life and enterprise becomes more digitally mediated and the number of applications, services and market opportunities only accessible online multiplies, it becomes a mutually-reinforcing phenomenon that more organizations will become invested in ensuring that everyone has the ability to have broadband access.

A second force driving this collective awareness and support for digital inclusion is growing recognition of opportunities to leverage resources to optimize success in this arena. A case-in-point is the recent USDA Digital Learning and Telemedicine ("DLT") grant obtained by Carteret Community College. The College sought funding to establish and equip satellite centers for remote instruction related to health services and, secondarily, to support other educational programming originating at the College. It has become clear that these centers can be a critical resource for the broader digital inclusion needs by (1) advancing the capacity and interest in telemedicine as a public service and a career path, and (2) providing a geographically distributed network of computer labs for digital literacy classes and public access. Partners already identified include the libraries, schools, Broad Street Clinic, The Bridge Downeast, and other community-centric organizations. Digital inclusion in Carteret County can be sustained by creating awareness of the positive impacts this sort of collaborative, strategic investment can have.

Of course, tangible resources are needed to expand and sustain major digital inclusion efforts, but a good starting place is capturing and telling stories about why it matters and how attention to it can be a win-win situation for all parties involved. These stories also paint a picture of a community that is situated for success and for leveraging external investments, which will make Carteret County a more attractive candidate for external grants and investments.

C. Community Building: The Connected Carteret Coalition for Digital Inclusion (CCCDI)

Carteret County Context/Need: Through the BAND-NC planning effort, the Carteret County Broadband Steering Committee made significant strides in defining the broadband infrastructure and digital equity challenges in the County. After years of frustratingly slow progress, the creation of the Carteret County Broadband Steering Committee created opportunities for information sharing and collective effort that is already generating benefits (Figure 13). This nascent network of digital inclusion stakeholders needs to be sustained and expanded.

Figure 13	
Promising Opportunities Facilitated by BAND-NC Planning Process	
Digital Inclusion Focus	Opportunity
<ul style="list-style-type: none"> • Availability 	Exploratory conversations with multiple ISPs Vertical Bridge tower Down East
<ul style="list-style-type: none"> • Access 	Carteret Community College DLT grant, which is funding 8 satellite digital instruction sites
<ul style="list-style-type: none"> • Adoption 	Carteret Partnership for Children grant, providing computers for 30 client families

There currently exists no easy or centralized mechanism for citizens and businesses to get information on the various digital inclusion resources that are available in Carteret County. Communication of assets and needs is *ad hoc*, and there is a need for a central point of contact or portal for this information.

(3) Create the Connected Carteret Coalition for Digital Inclusion (CCCDI)

Description: The Carteret County Broadband Steering Committee should segue to become a broader-based network consisting of current Steering Committee membership and additional stakeholders concerned with digital equity. The Coalition will work to:

- Provide leadership for digital inclusion that spans sectors and geographies in the County;
- Monitor developments and collaborate to secure resources needed to address gaps identified in this Plan;
- Explore opportunities to collaborate and leverage the resources and support needed to implement this Plan; and
- Collectively promote Carteret County as a leading-edge connected community.

Lead organization: Carteret County Economic Development Foundation and Carteret County Economic Development Department to staff the initiative

Potential Partners: Broadband Steering Committee member organizations; representatives of the healthcare, faith, business, tourism, cultural resources, arts, and social services communities (Appendix 8 includes profiles of potential partner organizations)

Sources of Funds: In-kind organizational support from the Economic Development Department and/or Economic Development Foundation

Implementation Timeline: Second quarter 2021

Success Metrics: (1) Short term: expanded CCCDI membership reflecting growing awareness, interest and involvement in addressing digital inclusion; (2) Long term: tangible evidence of collaboration by CCCDI member organizations to develop, fund and/or deliver digital inclusion initiatives

(4) Broadband Portal: Communicating Digital Inclusion Assets to the Public

Description: One major finding of the outreach interviews is that the *ad hoc* nature of communication that currently characterizes efforts to make citizens and businesses aware of existing and developing digital inclusion resources needs improvement. There is a need for outreach instruments that make the broadband asset inventory developed in this project available in user-friendly formats to guide everyone to the access sites, digital literacy and technical assistance and services they need. These instruments need to be both online and in hard-copy formats to ensure the information can be available to everyone. They should also be bilingual to facilitate communication with Spanish speaking residents in the County.

Lead organization: Carteret County Economic Development Department/ Economic Development Foundation

Potential Partners: CCCDI and other stakeholders

Sources of Funds: Modest investment by Carteret County Government and/or Carteret County Economic Development Foundation

Implementation Timeline: End of 2nd quarter 2021

Success Metrics: Information reaching the audience as evidenced by website metrics

D. Availability

Carteret County Context/Need: Internet coverage in the vast majority of Carteret County technically meets the Federal Communication Commission's definition of broadband, meaning speeds of at least 25 Mbps of data download and 3 Mbps of data upload (25/3). This might suggest that availability should not be a priority concern for digital inclusion, but the fact is for the few remaining locations where Internet is unavailable or where cellular coverage is not dependable, the cost of exclusion is becoming dire. Even in areas currently served with broadband, speed, bandwidth and cost vary considerably, and service improvements are needed. On Bogue Banks, for example, the influx of seasonal visitors generates excess demands on available bandwidth, affecting not only residents' ability to access the level of service they are paying for but also creating a less compelling vacation experience, which may adversely impact repeat visitation. This will also make Bogue Banks and other Carteret County communities less attractive for second home investments and for permanent residents. The lack of competition translates into speeds delivered rarely matching those advertised and paid for and unsatisfactory responses to service requests measured by survey responses to the NC Broadband Infrastructure Office.

Two priority initiatives have been identified:

(5) Mapping the Gaps - Unserved and Underserved

Description: Gather complete and accurate information to geo-identify and map all unserved (unconnected or connected with speeds of less than 25/3) locations in the County. This is needed for conversations with potential providers and in developing grant applications for infrastructure funding.

Lead Organization: Carteret County GIS Department

Potential Partners: NC Broadband Infrastructure Office

Sources of Funds: Carteret County Government; grants

Implementation Timeline: Early 2021 (if current FY 21 budget can accommodate); otherwise 3rd quarter 2021

Success Metrics: Completion of geo-located map of all unserved or underserved locations and cell signal dead zones

(6) New Fiber to Bogue Banks

Description: The need for robust, affordable high-capacity gigabit-level broadband/bandwidth in the heavily-touristed beach communities requires fulfillment of long-standing and escalating need for an affordable fiber-backed, possibly hybrid fixed wireless, solution to improve service and reduce costs on Bogue Banks. Options for achieving the fiber build (e.g., over/under water or attached to bridges, etc.) need to be explored and costed in preparation of issuing an RFQ or RFP.

Lead organizations: A joint coalition of Bogue Banks municipal leaders (Emerald Isle as likely leader)

Potential Partners: Carteret County; Crystal Coast Tourism Development Authority

Sources of Funds: Community Development Block Grants, Community Reinvestment Act funds; local appropriations; given implications for emergency preparedness it might be possible to leverage planning assistance/support from related federal programs

Implementation Timeline: by end of 3rd quarter 2021

Success Metrics: (1) Short-term, all information needed to issue an RFQ; (2) Long-term, affordable fiber (gigabit speed) to-the-home broadband on Bogue Banks

E. Access

Carteret County Context/Need: This set of initiatives targets the need to make broadband accessible to the public in more locations in Carteret County, thereby addressing in the short-term the lack of broadband availability in some areas of the County. It also addresses the deterrent to adoption that subscription costs represent to low-wealth households. Two primary aspects of the access challenge include: (1) the need to have more locations where the public can access the Internet; and (2) the need for devices to effect the connection. Wi-Fi satisfies the first challenge, and programs to lend devices or subsidize their costs address the

second challenge. Public sites/facilities can offer a more comprehensive approach that provides access to both devices and the Internet. Together, these options offer a menu of access solutions that can be strategically tailored to make broadband more accessible to Carteret County citizens and visitors. The cross-cutting nature of elements of this priority suggest a public access coalition to develop a collaborative effort involving local governments, public agencies, nonprofit organizations and faith institutions to develop a network of strategically-placed access centers.

(7) Increase Public Access Centers and Wi-Fi

Project Description: Elements of this comprehensive priority focus include the following:

- Increase the number of public Wi-Fi zones and public access centers, with particular focus in areas of the County where adoption challenges are especially pronounced (e.g., Down East, public housing);
- Increase the capacity of existing public access centers (e.g., increasing the number of public-use computers in libraries, senior centers);
- Map and publicize existing public access/Wi-Fi locations;
- Explore novel partnerships with nonprofits and faith centers as potential sites for public access/Wi-Fi; and
- Explore opportunities to leverage investments planned for Carteret Community College USDA-funded remote learning centers.

Lead organizations: Public Access subcommittee of the Carteret County Coalition for Digital Inclusion

Potential Partners: Carteret County and municipal governments; member organizations of CCCDI; churches/faith centers

Sources of funds: Community Connect grants; foundations; local government funds; COVID stimulus funding

Implementation Timeline: 18 months, with short-term deliverable for map and awareness program and longer-term efforts to: (1) secure funds to expand existing centers and (2) identify and fund new access centers and Wi-Fi zones

Success Metrics: Increased availability, awareness and use of a geographically-dispersed network of public access and Wi-Fi locations

(8) Increase Access to Devices

Project Description: The cost of computers, notebooks, tablets, smart phones and other equipment needed to effect a connection to the Internet is an impediment that prevents at least 10 percent of the population from subscribing to or using the Internet. The heavy use of computers in libraries and other public access centers speaks to the need to target devices as an action priority. As with the public access focus area, a coalition of stakeholders with an interest in increasing the number of clients/patrons who have a

device, or who need devices to equip public access centers at their organization, could work to identify the scale of the effort needed and develop a model/partner for computer donation. A model approach involves local organizations partnering with computer refurbishers to source affordable or free devices.

Lead organizations: Stakeholder organizations whose clients need assistance acquiring devices

Potential Partners: Kramden institute or other computer refurbishers, CTE and IT programs at area high schools and Carteret Community College that could refurbish computers and provide technical assistance in exchange for service learning opportunities for students

Sources of Funds: Costs can vary significantly depending on the mix of new/refurbished devices. Funding sources include Google, Gates Foundation and other foundations; and COVID stimulus funds

Implementation Timeline: 9 months to establish donation/refurbishment program

Success Metrics: Specific number (TBD) of devices made available to County users

(9) Subsidies for Access and Devices

Description: Programs exist that provide subsidies for subscription and device acquisition by qualifying low-income and senior citizens, but they tend to be underutilized due to low or no promotion by the sponsoring agencies (see Chapter 4). Currently, almost 10 percent of households in Carteret County do not have a computer⁶. A concerted effort to increase awareness of these programs and assistance completing applications could significantly impact connectivity challenges for targeted low adopting populations at little or no cost.

Lead Organization: Carteret County Department of Social Services

Potential Partners: Carteret Senior Center, Carteret County Library, churches/faith organizations and community nonprofit social services organizations

Sources of Funds: No cost (programs already exist)

Implementation Timeline: Early 2021

Success Metrics: Increased use of these subsidy programs by targeted populations

F. Adoption

Carteret County Context/Need: Becoming a fully connected community requires significant investment on many levels: financial, political and personal. The infrastructure is expensive and labor intensive; creating and maintaining public access venues and providing the equipment needed to use it requires additional investment and, more importantly, political and social commitment to sustain. Gaining the skills to actually use the Internet to access civic services, education, workforce training, and medical assistance requires the sort of behavioral change

⁶ 2019 American Community Survey data from Census Report Table B28011. Accessed 12-30-20 at <https://censusreporter.org/topics/computer-internet/>

that may be difficult for many individuals to make. Targeted outreach and instructional programs can facilitate this transition. Such resources already exist on a small and mostly stand-alone scale in Carteret County. Discussions catalyzed by the BAND-NC planning project and by funding obtained by Carteret Community College and nonprofits in the County provide promising opportunities and models for leveraging greater benefits through collaboration and partnerships.

(10) Senior Citizen Training and Access

Description: Senior citizens represent the largest target for enhancing digital inclusion in Carteret County in both size of the population (17,855 residents 65+) and their relatively low Internet adoption rates. Estimates suggest that almost 5,000 senior citizens in Carteret County are not digitally active. Modest public access in the Leon Mann Senior Enrichment Center with only seasonally-available digital literacy training does not meet existing demand. These access resources need to be expanded and augmented with outreach messaging that lets seniors know of public access options in other areas of the County. In addition, opportunities for providing digital literacy training tailored to their needs and interests need to be increased.

Lead organization: Carteret County Aging Services Department

Potential Partners: Libraries; Carteret Community College; Carteret Health Care

Sources of Funds: Carteret County government; grants

Implementation Timeline: 3rd Quarter 2021

Success Metrics: implementation of collaborative digital literacy outreach and training programming by partner organizations and increased number of senior citizens receiving digital literacy training

(11) Expand Digital Literacy Instruction

Description: As described previously, there are multiple small-scale, one-on-one opportunities for assistance navigating the use of computers for individuals who lack digital skills: counselors at NCWorks guide clients through the basics of online job searches and form completion; library staff are being actively upskilled to provide assistance to all patrons on basic use of the computer for online searches and form completion; Carteret Community College provides formal instruction in its Continuing Education Division on various levels, from Introduction to the Computer to classes focused on adoption and use of specific applications, such as Excel. Experience has shown the importance of familiarity and trust in extending digital literacy to many people most in need of assistance. Creation of a subcommittee of the CCCDI focused on digital literacy would (1) support a more comprehensive and strategic approach to ensuring everyone in Carteret County has the skills needed to benefit from the Internet; (2) encourage sharing of instructional resources and best practices among the organizations providing this training; and (3) create opportunities to leverage more external funding through grants (for example, additional state and/or federal stimulus funding, regular library and school appropriations, and USDA Distance Learning and Telemedicine grants).

Lead organization: subcommittee of CCCDI

Potential Partners: Carteret Community College; Carteret County Aging Services; Carteret County Library; Community Centers (e.g. Down East); faith institutions; other CCCDI member organizations

Sources of Funds: Leveraging existing funds with additional grants; County departmental appropriations

Implementation Timeline: Form subcommittee in 2nd Quarter 2021

Success Metrics: Expanded number of classes and participation; increased number of collaborative efforts; success securing external funding to sustain programming

(12) Enhanced Workforce Development

Description: There are at least two aspects of workforce development that fall within the purview of digital equity planning: (1) ensuring that everyone has the skills and access needed to benefit from the increasing amount of employment and workforce skills training that is only available online; and (2) ensuring that Carteret County has sufficient skilled Information and Computer Technology workers to meet the increasing demand. Together these needs are fundamental to the competitive position of Carteret County as the move to everything digital proceeds, so they should be embedded in the strategic planning efforts of local governments. The first aspect, digital literacy training, is covered in the preceding discussion of priority actions. Carteret Community College and partners can begin addressing the second aspect by conducting (1) an inventory of existing training programs; (2) a census of current skilled ICT workers in the County; and (3) an assessment of current and projected gaps. This information should be updated at least bi-annually and results shared with all governments and other stakeholders.

Lead Organizations: Carteret Community College and CCCDI

Potential Partners: CCCDI; Carteret County Economic Development Department; NC Department of Commerce/NCWorks; and the Carteret business community

Sources of Funds: Grants from EDA; US Department of Labor; NC Community College System; NCWorks appropriations; Carteret employers

Implementation Timeline: Begin Census 3rd quarter of 2021

Success Metrics: Increased availability of ICT training opportunities and retention of graduates in Carteret County; increased numbers of skilled ICT workers

(13) English-as-a Second Language (ESL) and Targeted Digital Inclusion Programs

Description: Hispanic residents comprise 4.4 percent (3,057) of Carteret County residents. Their ability to access the many online education, healthcare and employment resources available online may be hampered by both low incomes and language challenges. Digital

literacy training customized to the needs of this population would serve them and the organizations and agencies working to address their needs. To illustrate, Carteret County has a deficit of mental health services, with fewer than half the number of per capita providers as the state average (1.7 providers per 10,000 residents versus 3.4/ 10,000 in the state overall). COVID-19 has only exacerbated the need for mental health counseling for children and their families and caused the necessary shift to online services and tele- counseling. Damages from the pandemic are amplified for English-challenged families that do not have a computer or the digital literacy skills to take advantage of online services. The Carteret County Partnership for Children (CCPC, also a BAND-NC applicant) took advantage of stimulus funds to obtain computers to share with households needing tele- counseling services. A second pressing need for targeted digital inclusion involves expanding access and support to telemedicine and tele-behavioral services focused on substance abuse. Carteret County experienced an annual doubling in 2020 of deaths due to drug overdoses. This initiative may be expanded in the future to address telehealth and tele-behavioral health needs beyond the ESL community, since the needs are great across many areas and sub-populations of the County.

The possibility exists for CCPC to partner with Computer and Technical Education programs (CTE) at local high schools or with the Information Technology Program at Carteret Community College to have students provide technical assistance needed to help these families get online and become able to receive services. These opportunities for partnership are being actively explored. This partnership approach grew from ideas discussed in the Carteret County Broadband Steering Committee, pointing to the value of the networking catalyzed by the BAND-NC project and creation of what may be a best practice model for collaboration. Other agencies in the County also need to marry ESL and digital literacy efforts, perhaps best accomplished through a train-the-trainer approach. Priority action is needed to provide additional support for expanding ESL outreach and for training digital navigators to facilitate targeted digital inclusion of underserved populations.

Lead Organizations: Carteret County Department of Social Services/Carteret County Partnership for Children

Potential Partner(s): Carteret County Public Schools; churches

Sources of Funds: Foundations (e.g., Kate B. Reynolds); Stimulus Funds through NC Department of Health and Human Services; Hispanic Coalition grants; Blue Cross NC

Implementation Timeline: ongoing

Success Metrics: Increased number of ESL households with devices; increased presence of trained ESL digital navigators in Carteret County service agencies and organizations

(14) Closing the Homework Gap in Carteret County

Description: The “*Homework Gap*” refers to students’ difficulty completing homework due to

the lack of Internet at home. Pre-COVID, 30 percent of students in the United States lacked Internet to complete online homework assigned by 70 percent of teachers. The cost of this gap escalates from difficulty completing homework to diminished educational outcomes, with major impacts on future career and economic opportunities for students and their communities. Carteret County is addressing this problem with the distribution of hotspot connectors and devices to all K-12 students, with 24/7 Wi-Fi available in the parking lots of select schools, and with Wi-Fi installed on all school buses in the County. These are significant steps, but they only address the homework gap in the short term and do not guarantee that students have Internet at home or that it is available at the broadband speeds and bandwidth needed to support interactive instruction and content-heavy data flows. Long-term solutions that sustain and expand these interventions are needed. To begin, a very granular study of documenting the connectivity status of all K-12 students in the County is needed.

Lead organization: Carteret County Public Schools

Potential Partners: Carteret County Government; Carteret County Economic Development Foundation; NC Department of Public Instruction; NC Broadband Infrastructure Office

Sources of Funds: ISPs for subsidized service; FCC's Lifeline and E-Rate subsidy programs; Gates and other foundations; federal and state legislative appropriations

Implementation Timeline: ongoing

Success Metrics: (1) Short-term: conduct study of K-12 student connectivity status; (2) Long-Term: documented increase in number of students receiving devices

Each of these recommendations, if implemented, will help improve digital inclusion in Carteret County. Many require only modest investments, while others are expensive. Not all can be undertaken immediately, but with strong leadership and a broad community commitment these recommendations can be fully implemented. Carteret County can become a model for rural digital inclusion, and the County can leverage its successes to enhance its economy and improve prosperity for County citizens.

Appendix 1

Carteret County Broadband Steering Committee

In recognition that broadband Internet is essential to a community’s economic and social wellbeing, the Carteret Economic Development Foundation made improved broadband services its top priority for action in 2020. The Foundation was awarded a BAND-NC grant to underwrite the development of a digital inclusion plan, leading it to form a Broadband Steering Committee in the September 2020. The Steering Committee is comprised of 12 members representing the Foundation, local government, utilities, business, education, social services and non-profit sectors. Members of the Carteret County Broadband Steering Committee included the following individuals.

Members of the Carteret County Broadband Steering Committee	
Name	Organization
John Green	Carteret Community College
Ray Hall	Carteret County IT Director
Jake Joplin	Carteret-Craven Electric Cooperative
Tom Kies	Carteret County Chamber of Commerce
Lesley Mason	Carteret County Library Director
Ryan Neve	Engineering/IT Services, UNC Institute of Marine Sciences
Michelle Nolin	Downeast Council and The Bridge Downeast
Jim Normile	Emerald Isle Town Council
Wes Rinehart	Carteret County Schools
Juliet Rogers	Carteret Partnership for Children
Maria Semple	Crystal Coast Nonprofit Network volunteer and The Prospect Finder, LLC.
Lakisha Williams	Carteret County Aging Services
<u>Project Manager</u>	
Deb Watts	
<u>Staff Support</u>	
Don Kirkman	Carteret County Economic Development Department
Michele Query	Carteret County Economic Development Department

Appendix 2

Carteret County Broadband Digital Inclusion Plan Stakeholder Outreach

Between September 30 and December 31, 2020, a deliberate outreach effort was conducted to: (1) increase awareness of the BAND-NC digital inclusion planning project; (2) gather information relevant to the plan from key opinion leaders; and (3) identify and encourage collaborative partnerships for implementing digital inclusion efforts going forward. Approximately 50 people directly contributed to our understanding of the state of digital inclusion in Carteret County and to identifying priorities and opportunities to leverage beneficial collaborations. The Foundation and the Carteret County Broadband Task Force want to acknowledge how helpful these conversations were and how grateful we are for the generous and genuine interest everyone shared. Focus groups and interviews included representatives from the following groups and organizations:

Army Corps of Engineers
Business Leaders and Entrepreneurs Carteret County Aging Services
Carteret County Broadband Steering Committee
Carteret Community College
Carteret County Faith Leaders
Carteret County Government
Carteret County Libraries
Carteret County Municipal Leaders
Carteret County Partnership for Children
Carteret County Social Services
Carteret-Craven Electric Cooperative
Carteret County Public Schools
Crystal Coast Economic Development
Crystal Coast Nonprofit Association
Down East Council
Internet Service Providers - Current and Prospective
NCWorks
The Bridge Downeast

Appendix 3

Public Access and Wi-Fi Sites

Libraries

Free public Wi-Fi is available inside all locations of the Carteret County Library and 24/7 in the parking lots. All branches have computers available for use by the public. No branches currently have a computer lab for classroom digital skills instruction but assistance is provided on a one-to-one basis (although Carteret Community College operates a technology lab in the Western Carteret Library building where the College provides classroom instruction). Limited (or no) evening hours and limited (or no) weekend hours restrict the usefulness of libraries for digital inclusion programs and services.

- *Bogue Banks Public Library, 320 Salter Path Road, Pine Knoll Shores, NC28512, (252) 648-7726
 - *Carteret Regional Library System, 1702 Live Oak St STE 100, Beaufort, NC28516, (252) 648-7725
 - *Down East Public Library, 702 Hwy 70 Otway, Beaufort, NC 28516, (252) 648-7729
 - *Newport Public Library, 210 Howard Blvd, Newport, NC 28570, (252) 648-7727
 - Pearse Memorial Library, 135 Duke Marine Lab Rd, Beaufort, NC 28516, (252) 504-7510
 - Webb Memorial Library and Civic Center, 812 Evans St, Morehead City, NC 28557, (252) 726-3012
 - *Western Carteret Library, 230 Taylor Notion Rd, Cape Carteret NC 28584, (252) 648-7728
- * Wireless printing available

Public Schools

Park and Learn Sites

To make it easier for students and families to access the Internet, Carteret County Schools is offering free Internet access via Wi-Fi at eight school parking lots across Carteret County. Simply connect to the username "Carteret-Outdoor" from the schools' parking lots. There is no password.

- Atlantic Elementary, 151 School Dr., PO Box 98, Atlantic, NC 28511, Phone 252-225-3961
- Beaufort Elementary, 110 Carraway Dr., Beaufort, NC 28516, Phone 252.728.3316

- Broad Creek Middle, 2382 NC-24, Newport, NC 28570,
Phone: (252) 247-3135
- Down East Middle/Smyrna Elementary, 174 Marshallberg Road, Smyrna, NC 28579,
Phone: (252) 729-2301
- Harkers Island Elementary, 1163 Island Road, Harkers Island, NC 28531,
Phone: (252) 728-3755
- Newport Middle, 500 E Chatham Street, Newport, NC 28570,
Phone: (252) 223-3482
- West Carteret High, 4700 Country Club Road, Morehead City, NC 28557,
Phone (252) 726-1176
- White Oak Elementary, 555 W. B. McLean Drive, Cape Carteret, NC 28584
Phone: (252) 393-3990

Other County and State Agencies

- NCWorks: 3813 Arendell St., Morehead City, NC 28557, (252) 726-7151. The new facility has 8 computers for use by clients of the agency and also available to the public.
- Carteret Senior Services – Leon Mann Enrichment Center: 3820 Galantis Drive, Morehead City, NC 28557, (252) 247-2626. There are 2 computers available for public use—one in the Center’s library and another in a separate room to support online private consultations.
- Carteret Department of Social Services: 210 Craven St, Beaufort, NC 28516, (252) 728-3181. This agency offers free Wi-Fi in the parking lot and has computers and public access for use by its clients and visitors specific to DSS programs and services available during office hours.

Other Private Locations Providing Public Wi-Fi

- Calico Creek Coffee Shop at One Harbor Church Building: 1605 Fisher Street, Morehead City, NC. Free Wi-Fi is available for public access in a coffee shop that is located in the church foyer. The shop is open mornings and proceeds from coffee sales support programs to address substance abuse.
- Many County private businesses offer Wi-Fi to customers or to the general public. Many are password-protected

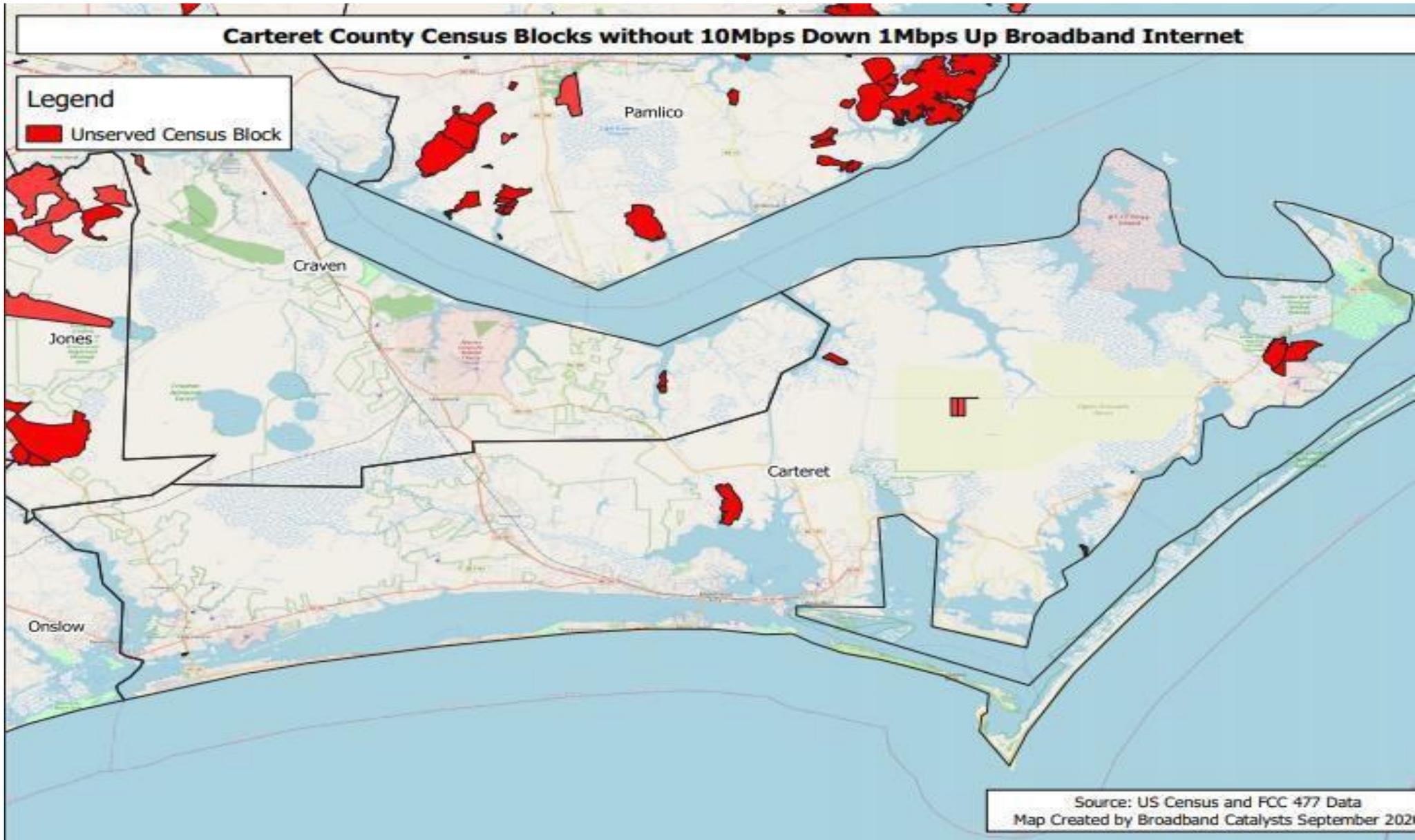
Appendix 4

Benefits of Digital Inclusion			
Individuals	Business	Nonprofits	Government
<p>Improved Quality of Life: through time-saving activities; better information; and access.</p>	<p>Economic Growth: through enhanced business expansion and attraction; more skilled workers to fill available current and future jobs; increased tourism and real estate sales.</p>	<p>Efficiencies/Savings: through greater back office automation and greater use of online information and transactional services (cloud technologies).</p>	<p>Service Transformation of Government Systems: providing greater efficiencies at lower cost to public; improved constituent services and customer satisfaction.</p>
<p>Education: through opportunities for inclusive learning and developing social capital.</p>	<p>Efficiencies/Savings: through greater back office automation and transactional services (e.g. cloud technologies), remote working and reduced travel expenses.</p>	<p>Improved Fundraising: through use of social Media, providing new ways to connect and mobilize support.</p>	<p>Public Sector Efficiencies: through streamlined operations; improved customer service; increased tax revenues; decreased benefit payments; increased civic engagement.</p>
<p>Improved Health and Wellbeing: Improved access to health and wellbeing information and services, including remote treatments and more support of independent living, including telehealth.</p>	<p>Enhancing Productivity: through time savings and quality improvements via online solutions; increased sales and revenues through greater market access from growing online consumption.</p>	<p>More Effective Communication: with targeted supporters and donors.</p>	<p>Potential Cost Savings and Environmental Benefits: through telework and teleconferencing, resulting in reduced emissions and congestion.</p>
<p>Employment Participation: improved employability through flexible Working; better ICT skills aligned with market needs and future technology.</p>	<p>Improving Customer Service: through enhanced satisfaction with online engagement.</p>	<p>More Effective Service Delivery: enhancing awareness, participation, reach and impact.</p>	

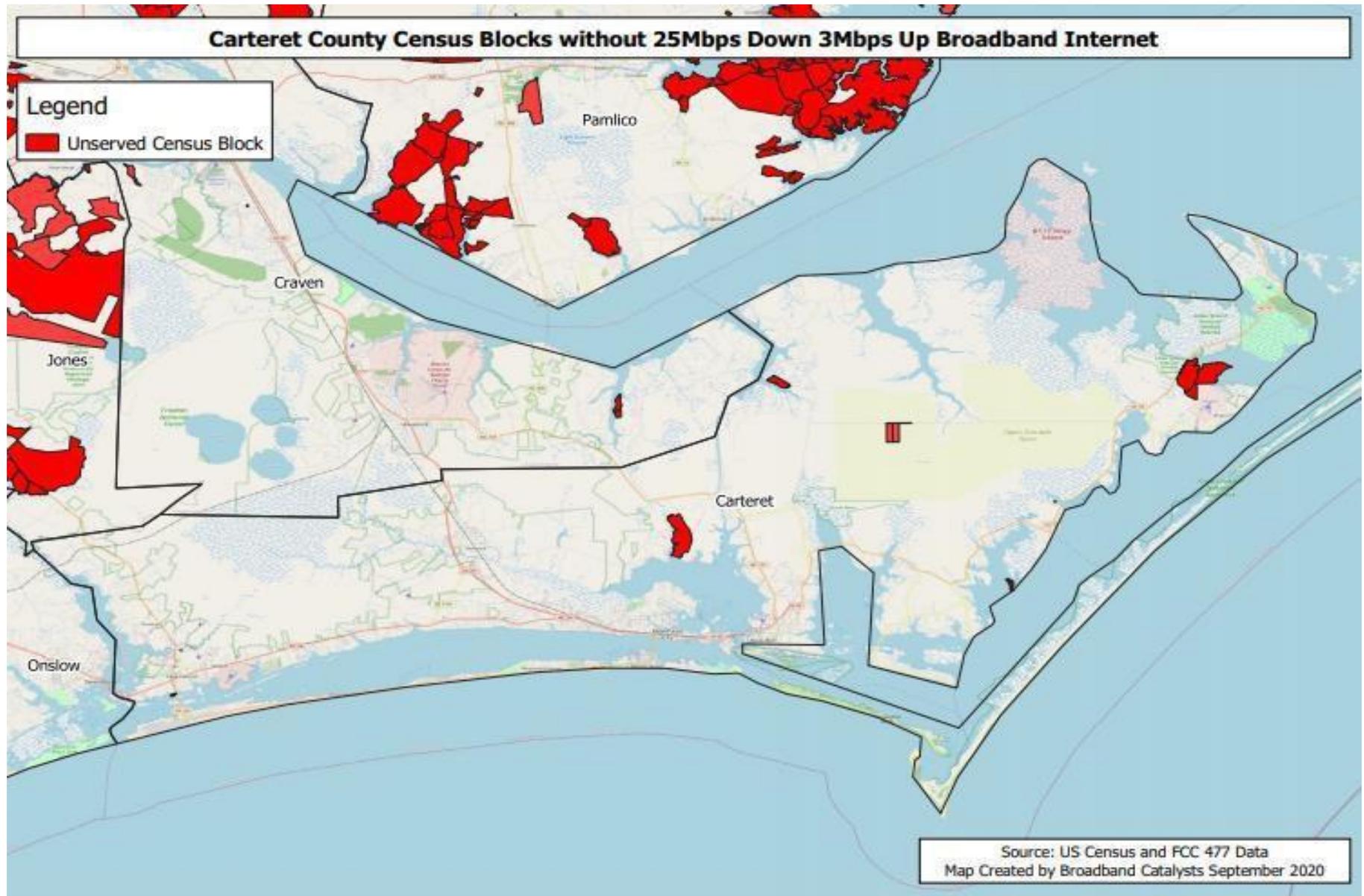
<p>Social Engagement: through reduced isolation and depression (especially among seniors), increased motivation and new opportunities for social engagement and networking.</p>			
<p>Civic Engagement: through greater opportunity for involvement in civic and democratic activity.</p>			
<p>Savings and Consumer Choice: financial savings through online transactions and wider choice of goods and services at lower prices.</p>			

Walton, Peter, et. al, "A digital inclusion: Empowering all Australian" from Australian Journal of Telecommunications and the Digital Economy, Volume 1 Number 1, November 2013. Accessed December 27, 2020 at https://telsoc.org/sites/default/files/tja/pdf/ajtde_2013_1_1_09-walton_kop_spriggs_fitzgerald.pdf

Appendix 5 Carteret County Census Blocks with Residences but without 10/1 Service



Appendix 6 Carteret Census Blocks with Residences but Without Broadband

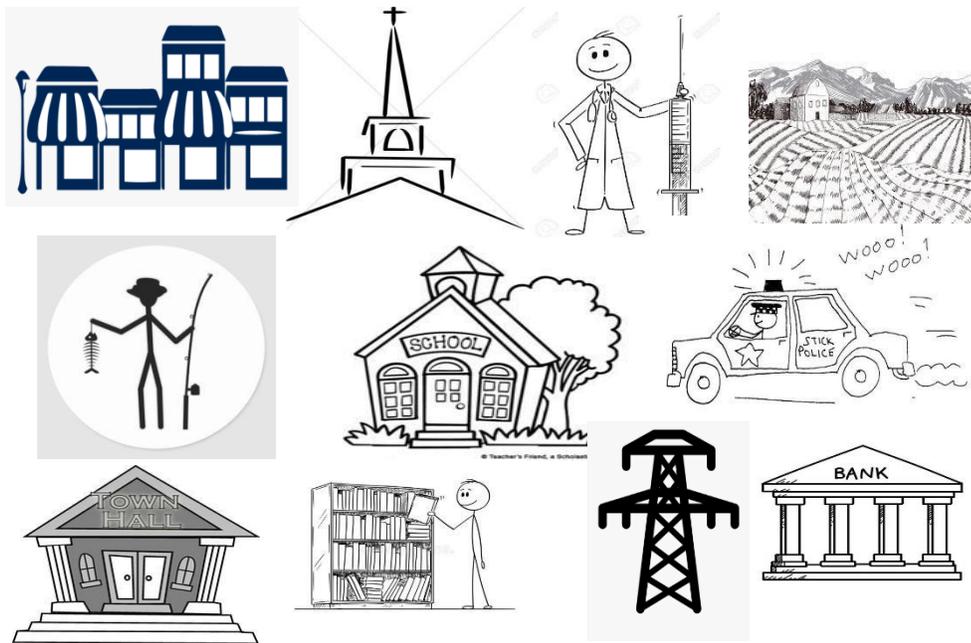


Appendix 7

Profiles of Digital Inclusion Partners

The Carteret County Broadband Steering Committee brought diverse perspectives and interests to the BAND-NC planning effort and collectively identified priority areas for action and fourteen specific actions to implement to move the County toward a more equitable and competitive position regarding digital inclusion. An important early action is to expand the network of stakeholders who are actively engaged in this effort. This expanded network needs to encompass all sectors of Carteret County's social, cultural, civic and economic communities because every sector has a role to play in making this effort a success. The following organizations represent a suggested initial roster of the Connected Carteret Coalition for Digital Inclusion.

Community Sectors Partnering for Digital Inclusion



Carteret County Chamber of Commerce

Overview

Carteret County is home to businesses spanning many sectors and sizes, but with the tourism and hospitality concentration that would be expected in a vibrant coastal resort and vacation region. High quality Internet is critical to the operations of existing businesses and to the ability of the County to attract new businesses, visitors and the mobile teleworkers and other permanent residents who are important targets in the County's economic development strategy. Down East entrepreneurs and many small business members are acutely aware of the impact that limited broadband is having on their operations and the ability to attract growth to that region of the County.

Assets

The Chamber of Commerce provides leadership to its members and to the greater business community and serves as an information portal and tool for engaging their interest in involvement in important issues and opportunities. The Chamber is positioned to gather information on the business community's needs for better broadband and on their anticipated demand for ICT/networking services-- information that could guide workforce training investments at Carteret Community College and career decisions for area workers. As the "Voice for Business" in Carteret County, the 900+ member Chamber is positioned to be a strong advocate for local and state policies and practices that could improve Carteret County's prospects for better broadband.

Challenges

Some businesses in Carteret County do not have affordable, high-speed Internet service. Some regions of the County do not have broadband, or even adequate cellular service, making them unable to attract businesses and jobs. Other areas do not have speeds adequate to support the needs of businesses requiring high-speed Internet, making the County less attractive for businesses than other areas.

Opportunities

An example of how this is relevant to the issue of digital inclusion relates to the need to extend affordable, high-speed broadband services to all areas of the County. Business customers are more valuable to Internet providers as they tend to buy more services and support. By taking the lead in developing a granular assessment of the interests and needs of businesses in the County for better broadband, the Chamber could provide the ammunition needed to spark the interest of providers to expand service to Carteret County.

Carteret Community College

3505 Arendell Street
Morehead City NC 28557
Phone: (252) 222-6000

Overview

Carteret Community College is accredited and offers more than 90 associate degrees, diplomas, and certificates that prepare students for university transfer or immediate entrance into the workforce. Short-term, non-degree programs are offered in healthcare, public safety, transportation, skilled trades, and more. Non-degree programs include customized training, small business support, and basic skills courses such as high school equivalency preparation and English as a Second Language. Wi-Fi is available on campus and is being extended to parking lots, although access is password protected for students. The campus is also home to the new and expanded NCWORKS office and to the MaST Early College High School.

Assets

Degree and Certificate Programs: Carteret Community College offers a wide range of associate degree and certificate programs directly relevant to enhancing digital inclusion and the sustainable competitiveness of the County, including: degrees in Healthcare Business Informatics, IT Business Support, Information Systems and Business Support, Software and Web Development; and certificates in Digital Media, A+ Prep Certificate, IT Transfer, Cyber Security, and Medical Informatics.

Continuing Education:

- All ICT classes are also offered through the Continuing Education Division.
- English as a Second Language classes are offered through the Continuing Education Division.
- The Small Business Center's Small Business Academy offers a variety of seminars and classes to help small businesses take advantage of e-commerce and Internet applications to improve operations and sales.
<https://www.ncsbc.net/center.aspx?center=75090>

Challenges

Broadband affordability and access is an impediment for some of the College's current and prospective students.

Opportunities

Carteret Community College is the recent recipient of almost \$1 million for the USDA's Digital Learning and Telemedicine grant program to develop a distributed platform of public access

centers to expand the College's capacity to deliver online instruction in healthcare and other degree programs. This grant funding will enable the College to put computers and other IT/AV equipment and software in communities/organizations throughout the County, including many that are underserved by broadband (and cellular) services. Equipment will be installed in Harkers Island (The Bridge Downeast), Harlowe (Harlowe Community Center, in partnership with Craven Community College), Beaufort (Department of Social Services and East Carteret High School), Western Carteret Library, Fort Benjamin, the MaST Early College High School, and the Broad Street Clinic. Clients or residents close to those sites will also be able to use the technology to take online courses, participate in telemedicine opportunities, and have Internet access.

Carteret County Department of Aging Services

Leon Mann Jr. Enrichment Center
3820 Galantis Drive, Morehead City, NC 28557
Phone: (252) 247-2626
Hours: 8:00 am -5:00 pm Monday-Friday
Contact: Lakisha Williams

Overview:

Carteret County demographics suggest strong potential returns from digital inclusion efforts that target senior citizens. The compounding factors of rurality and coastal retirement account for the relatively large proportion of seniors in Carteret County (25.7%) being more than 35 percent greater than that of the state overall (16.7%). The median age in Carteret County (48 years) exceed that of the state by 10 years. The scale of the senior-specific digital inclusion challenge in Carteret County, using actual population numbers and national best estimates on broadband availability and use, makes this group the single largest segment in the County that could benefit from expanded digital inclusion efforts. On average nationwide, 25.4 per cent of seniors are not online. This suggests that of the almost 18,000 senior citizens in Carteret County, more than 4,600 people would directly benefit from efforts to expand broadband access, adoption and use. Carteret County Department of Aging Services is best positioned to lead outreach, engagement and education efforts addressing the connectivity needs of this group.

Assets:

- Currently providing some services/classes remotely using free conference calls and Zoom
- Public access space with 6 computers and areas where visitors can bring their own devices
- Seasonal digital literacy instruction- 6 months of year from volunteer instructor
- Classes fully booked in advance
- Wi-Fi in parking lot
- Recently began distributing devices to some senior citizens for home use

Challenges:

- Diverse audience for services—from medically and/or economically fragile to robust and/or economically secure
- Lack of resources – human, financial, equipment – to support and promote year-round digital literacy instruction program
- Overcoming fears/reluctance a significant proportion of seniors have towards computers/technology

Opportunities:

- Telehealth delivery site
- Promote use of State Health Insurance Information Program (SHIIP)
- Extend health and wellness/exercise programming throughout County on digital platform

Potential Partners for Digital Inclusion:

- Carteret Health Care
- Broad Street Clinic
- NC Cooperative Extension Service
- Churches
- Libraries

Discounted Services:

A number of programs operating in and available to qualifying lower-income and senior households in Carteret County offer discounted Internet access and/or low-cost computers. For example, Spectrum's Internet Assist program offers access and a modem providing up to 30 Mbps download for approximately \$15 per month. Additional information regarding senior discount programs follows:

- <https://www.highspeedInternet.com/resources/are-there-government-programs-to-help-me-get-Internet-service>
- FCC's **Lifeline** program for subsidized Internet service to seniors and lower-income households: qualifying households can subscribe for a discount of at least \$9.25 per month off the standard offering price for either landline phone service, wireless phone service, broadband, or bundled services. <https://www.fcc.gov/lifeline-consumers>
- **Everyone on:** database on assistance programs for seniors and lower income households <https://www.everyoneon.org/find-offers?zip=28557&partner=chn>
- **Spectrum's Internet Assist Program (\$14.99)**
<https://www.spectrum.net/support/Internet/spectrum-Internet-assist/>

Carteret County Department of Social Services

210 Craven Street, P.O. Box 779

Beaufort, NC 28516

Phone: (252) 728-3181

Contact: Cindy Holman, Carteret County Consolidated Human Services Director

Overview

The Carteret County Department of Social Services (CCDSS) provides a broad range of services to meet the financial, medical and social needs of residents. CCDSS serves as a primary point of contact for many of the groups identified as low adopters of Internet, including low-income households, immigrants, senior citizens and persons with disabilities.

Assets

CCDSS operates in a sphere of trust with its clients, positioning it to be a strong outreach partner for digital inclusion in the County. CCDSS has Wi-Fi on site (including its parking lot) and provides a very limited (1 or 2) computers for use by clients specific to CCDS programs and services.

Challenges

As there continues to be a need to deliver services remotely and online applications increase in number and value, the Carteret County Department of Social Services will need to increase the share of its resources—fiscal and human—allocated to acquiring and having the training to use computers in all phases of its operations and service delivery. This will require that it also grow in this capacity to assist clients with the equipment and digital literacy needed to make the necessary transition. The scale of the challenge probably cannot be met by resource reallocation alone and will need the infusion of additions to CCDSS's budget. The current, COVID-19 stimulus programs present a very dynamic, but potentially fruitful, opportunity to secure additional funds.

Opportunities

CCDSS is familiar with steering clients to sources of assistance and helping them apply for services. It can take a proactive role in identifying programs that provide assistance and subsidies to qualifying individuals and households to obtain computers, smart phones and/or Internet services. All digital inclusion stakeholders in Carteret County, the FCC and Spectrum (on connectivity subsidies), Kramden and other computer refurbishers are potential partners in CCDSS digital inclusion efforts.

Carteret County Faith Community

Overview

Carteret County is home to approximately 150 churches and faith centers of different sizes and denominations. COVID-19 has brought to church leadership a heightened awareness of the role the Internet can play in supporting their ministries and outreach and of the impact that the lack of adequate connectivity has on their congregation members.

Assets

Churches can bring much to the County's digital inclusion efforts. As trusted sources of information and assistance, churches can be strong partners in outreach and programmatic digital inclusion efforts. Their diverse membership often includes individuals that are in the target populations identified as non-adopters.

Challenges

There is not a single, common point of entry to communicate with the faith community in Carteret County. A collective that developed in response to previous hurricane response efforts is no longer active. Many of the churches are quite small, and several lack Internet access or are in unserved locations. Many church leaders are older individuals who themselves need digital literacy instruction.

Opportunities

In many County communities, churches are emerging as strong advocates and partners in delivering digital inclusion programming. For example, One Harbor Church in Morehead City provides free Wi-Fi and public access at its onsite coffee shop, and First United Methodist Church provides a safe space for students to receive virtual school instruction. Other churches in the County could become active in providing the broadband access that is missing for many Carteret County households.

Potential Partner for Digital Inclusion

The Institute for Emerging Issues sponsors a [Faith Institute](#) that convenes church leaders to explore emerging roles and opportunities that churches can have in addressing community equity needs, including digital inclusion. The Faith Institute provides resources to guide church leaders navigating the need for online services and helping their congregations get online, including a Technology Bootcamp for ministers.

Carteret County Government

302 Court House Square
Beaufort, NC 28516
Phone: (252) 728-8508
Contact: Ray Hall, IT Director

Overview

Carteret County Government (CCG) provides a full spectrum of civic services for the citizens and businesses of Carteret County. CCG uses its excellent MCNC fiber broadband resources to provide a full spectrum of online government services and to support the operations of multiple agencies that are important partners to expanding digital inclusion in the County, including the Carteret County Department of Aging Services; Carteret County Economic Development Office, Carteret County Libraries and Carteret County Department of Social Services.

Assets

Carteret County Government—either directly or through emergency services partners—owns and/or maintains numerous assets that are relevant to the digital inclusion challenges and opportunities in the County. These include:

- Physical assets in the form of poles, towers, tall buildings, etc.;
- In-house Information Technology Department that provides (1) comprehensive support services to all County agencies and operations, and (2) GIS services that include maps relevant to broadband mapping (custom maps may be created upon completion of online request); and
- Administrative support that includes opportunities for scale economies for equipment and software purchase.

Challenges

The primary digital inclusion challenge confronting Carteret County Government is the high cost of infrastructure required to fill gaps in broadband availability and to upgrade existing infrastructure to meet the high seasonal swings in demand. Some options for creative or County-financed solutions are limited by restrictions imposed by the NC State Legislature⁷.

Opportunities

The dynamic pandemic stimulus recovery program may create opportunities to secure funding in areas relevant to digital inclusion. This plan may assist CCG to be proactive in responding to opportunities as they arise so this situation needs to be closely monitored. The same applies to changes in state statutes, which may become more favorable to County involvement.

⁷ Erin Wynia and Joann Hovis (2018) Leaping the Digital Divide: Encouraging Broadband Policies and Partnership to Improve Broadband Access Across North Carolina. Accessed 01-09-21 at <https://www.nclm.org/resourcelibrary/Shared%20Documents/PGA%20Reports%20%26%20Files/Broadband%20Whitepaper%20-%20FINAL%20Email%20Friendly.pdf>

Carteret County Libraries

Carteret County Public Library System- Main Branch
1702 Live Oak Street, Suite 100
Beaufort, NC 28516
Phone: (252) 648-7725
Contact: Lesley Mason, Director

Overview

Five geographically-dispersed locations comprise the Carteret County Library System. All locations offer public access computers.

Assets

All locations of the County library system offer public access computers and Wi-Fi for patrons' use; three locations also offer digital computers. Wi-Fi is available 24/7 in all of the libraries' parking lots.

Challenges

Some library staff need training to better support digital literacy efforts and to provide technical assistance with computers. None of the libraries have computer labs and so cannot offer digital literacy training classes of scale. None of the branches currently offer evening hours and all are closed on Sunday, meaning that a major resource for public access is not available for significant periods each week. For example, the Down East Library, located in an underserved area of the County, is currently open 3 days of the week, with no open hours during the evening or weekend. Existing training offerings are oversubscribed.

Opportunities

- Carteret County libraries are a primary point of contact for many citizens who have little interaction with other digital inclusion stakeholder organizations, but many others may not be aware of the libraries' offerings related to public access, digital literacy and technical assistance. Library leadership recognizes the need for outreach through other community anchors, such as post offices, fire stations, churches, hair salons, etc. to promote their services and digital inclusion resources.
- Library leaders see opportunities to partner with NCWorks to provide complimentary job search assistance, such as instruction in digital interview skills.
- Another opportunity identified is digital literacy programming that targets current and formerly incarcerated individuals.
- Potential partners include: NCWorks, State Library System, SHLB Foundation, Google

Carteret County Municipal and Community Leaders

Overview

Carteret County incorporated municipalities include: Atlantic Beach, Beaufort, Bogue, Cape Carteret, Cedar Point, Emerald Isle, Indian Beach, Morehead City, Newport, Peletier, and Pine Knoll Shores. Carteret County also includes many unincorporated communities and areas in which approximately 50 per cent of County residents reside. The Down East Council is a nonprofit community association which has representatives from most Down East communities.

Assets

Many of the municipalities and communities have vertical assets that could be used for infrastructure deployment and/or public buildings that might be used for public access. At this point, none offer public Wi-Fi in their commercial areas, but interest in doing so is strong in some towns and unincorporated areas. There is stated interest in adding Wi-Fi to commercial areas in several towns. Emerald Isle representatives have actively explored with several ISPs options for expanding fiber broadband and public Wi-Fi in the town, and the town is far enough along the associated learning curve to provide leadership to a collective Bogue Banks initiative. Downtown Morehead City leaders are also exploring the feasibility of free public Wi-Fi in the commercial downtown Morehead City district and other areas.

Challenges

- Carteret County municipalities are small – Morehead City, easily the largest, has fewer than 10,000 residents. Taken individually, these municipalities lack the market scale needed to attract prospective providers to come into a market with an established provider (Spectrum). Additionally, providers have to deal with multiple jurisdictions with different permitting processes.
- Municipal efforts to solicit interest from ISPs for possible collaborative efforts have generated limited interest. One municipality that offered to install conduit as an incentive to attract ISP partners in exchange for public Wi-Fi did not generate any interest; another was asked by Spectrum and CenturyLink to keep them informed of plans to replace underground utilities but made no commitment to take advantage of this construction.

Opportunities

Community and municipal leaders in Carteret County have a platform for mounting local broadband advocacy efforts, including:

- Promoting surveys and speed tests that can be used to document service levels, aggregate demand and demonstrate market potential to prospective Internet providers;
- Developing granular inventories of vertical assets for use in infrastructure deployment;

- Adopting “dig once” and other local ordinances and policies that require or incent fiber installation for new residential, commercial or infrastructure construction projects;
- Harmonizing and simplifying among jurisdictions permitting for new and improved telecommunications infrastructure
- Supporting changes to state laws to allow additional direct public investment in telecommunications infrastructure, as well as to borrow money for infrastructure improvements; and
- To pursue collaborative action by multiple local governments (e.g. Bogue Banks municipalities) to develop a Request for Qualifications or Request for Proposals to enhance broadband availability and provide competitive Internet service.

Carteret County Partnership for Children

3328-A Bridges Street
Morehead City, NC 28557
Phone: (252) 727-0440
Contact: Juliet Rogers, Executive Director

Overview

Carteret County Partnership for Children (CCPC) is a 501 (c) (3) nonprofit dedicated to inspiring, supporting and advocating for young children and families in Carteret County in areas including healthcare, education and childcare. CCPC is a partner in Smart Start for Children.

Assets

Many of the families and children that are the focus of CCPC's efforts are among the most challenged with respect to digital inclusion. They may not have the funds to afford a computer or the monthly cost of an Internet subscription, or they may live in the more rural areas of the County where broadband is unavailable, and many are immigrants or others who do not have strong (or any) English language skills. CCPC has established relationships with these families, making it an asset for digital inclusion efforts targeting these communities.

Challenges

Child abuse and neglect is always a problem, but since the beginning of COVID-19 these problems have increased 35 percent. CCPC is the only nonprofit in the County working to prevent abuse and neglect through no-cost behavioral family therapy and case management. CCPC's model of in-home assistance has had to shift much of its efforts to a virtual format. This creates numerous problems, including the need to provide families with computers, technical assistance and appropriate online bilingual support materials.

Opportunities

CCPC's need for funds to enhance its programs aligns closely with opportunities presented by COVID-19 stimulus grants, especially the need to address digital inequities that prevent many unconnected families from obtaining services that are increasingly likely to primarily (or only) be available via the Internet.

Carteret County Public Schools

Administrative Offices

107 Safrit Drive

Beaufort NC 28516-9017

Phone: (252) 728-4583

Contact: Wes Rinehart, WAN Engineer

Overview

There are 18 public schools in Carteret County serving 8,385 students (2019-2020). This includes 3 high schools, 5 middle schools and 9 elementary/ primary schools distributed throughout the County. In addition, the Marine Science and Technology Early College High School (MaST) operates from the Carteret Community College campus. System enrollment is 23 percent minority (majority Hispanic). All schools have operated at least part of the 2020 and 2021 school years virtually.

Assets

All schools in the County have good Internet service that is subsidized in part with funding from the FCC's E-Rate program. Internet is provided to schools though a mix of MCNC fiber, Conterra Network's fiber ring, and, where there are gaps, Spectrum Cable. All buses are equipped with Wi-Fi, and several schools have 24/7 public Wi-Fi in their parking lots. Carteret County Schools have also been able to provide mobile hotspots to students requesting them.

Challenges

Virtual learning needs have highlighted shortcomings in broadband adoption in the County, as availability and affordability issues interfered with some students' ability to stay connected with remote instruction. Students' needs for broadband access will not dissipate with resolution of the COVID-19 crisis.

Opportunities

To date the FCC has resisted allowing schools to use E-Rate subsidized services to surrounding communities or even to students' homes by, for example, using a password-protected VPN. There are continuing efforts to modify FCC rules to allow schools to be part of the connectivity solution for the communities they serve. The anticipated change in leadership at the FCC in 2021 may create opportunities for schools to become more engaged in digital inclusion efforts.

Carteret-Craven Electric Cooperative

1300 Highway 24

Newport NC 28570

Phone: (252) 247-3107

Contact: Jake Joplin, President

Overview

Carteret-Craven Electric Cooperative (CCEC) provides electrical utility services to parts of Carteret County not served by Duke Energy. CCEC's service area includes several communities that are unserved and underserved with broadband. CCEC does not currently include broadband in the services offered to its members, although as an electric utility operating in North Carolina it is permitted to do so. Leadership at CCEC is open to discussions of collaborations/partnerships to address digital inequities in the County.

Assets

CCEC owns extensive telephone poles throughout its service area, many of which could also serve as vertical assets needed to deploy wirelines, fiber and/or fixed wireless equipment to deliver broadband. CCEC management is familiar with the laws, rules and permitting process that regulate utility deployment in Carteret County. This is specialized knowledge that would be valued by new providers coming into the County and the surrounding CCEC service area.

Challenges

Utility cooperatives' business models can allow longer payback periods for investments than requirements governing investment decisions by private broadband providers. However, the extraordinarily high cost of broadband deployment and difficulties inherent in recouping investment in low density locations can make service to particularly challenging locations (e.g. low density and/or remote) infeasible for even the more rural-friendly cooperatives.

Opportunities

Internet Service Providers (ISPs), including Wireless Internet Service providers (WISPs), have shown interest in partnering with CCEC, using their existing and made-ready (brought to required standards) poles to deploy broadband into un/underserved communities in the County.

Crystal Coast Economic Development

3615 Arendell Street

Morehead City, NC 28557

(252) 222-6121

Contact: Don Kirkman, Carteret Economic Development Director

Don.Kirkman@carteretcountync.gov

Overview

Crystal Coast Economic Development is the umbrella name encompassing the Carteret County Economic Development Department and the Carteret County Economic Development Foundation, a 501(c)(3) nonprofit charitable organization. The Economic Development Department is a unit of Carteret County Government, and it is responsible for the day-to-day economic development activities of Carteret County. The Department has a two-person staff that is responsible to the Carteret County Manager.

The Foundation serves as a sounding board for the Carteret County Board of Commissioners and County staff on economic and community development matters. It also supports new initiatives to grow the Crystal Coast economy. The Foundation is focused on branding and marketing the Crystal Coast as a destination for permanent residents and new businesses. The Foundation is partnering with the Institute for Emerging Issues and the NC Broadband Infrastructure Office in funding the Carteret County Digital Inclusion Plan, establishing the Carteret County Broadband Steering Committee to direct this effort. The Department staff provides staff support to the Foundation and its Board of Directors.

Assets

Department staff manages economic development responsibilities for Carteret County. They also provide staff support to the Foundation, which includes the Carteret County Broadband Steering Committee. The voting and non-voting *ex officio* members of the Foundation Board of Directors are leaders in Carteret County and represent many stakeholder organizations vested in solving digital inequities in the County. The Foundation provides leadership and a structure for sponsoring applications for funding and collaborative efforts to enhance all aspects of digital inclusion in Carteret County.

Challenges

The Department is funded by an annual appropriation of the Carteret County Board of Commissioners, and the Department budget currently contains no funding for broadband infrastructure or support. The Foundation has limited funding and no staff apart from that of the Department staff. Carteret County's recent Tier 3 designation by the North Carolina Department of Commerce (ranking it among the 20 least economically distressed counties in North Carolina), may adversely impact the availability of grant funding to implement the action priorities of the digital inclusion plan.

Opportunities

The Foundation Board of Directors has prioritized digital inclusion and improvement of broadband and cellular service as one of its highest priority goals. As a 501(c) (3) charitable organization, the Foundation is eligible to apply for many grants, including those that support priorities of this plan. The Department staff has assumed responsibility for coordinating the development of this digital inclusion plan and is committed to facilitating its implementation. The staff has experience managing County-wide committees and initiatives, including providing staff support to the Carteret County Transportation Committee, the Marine Science and Education Partnership (MSEP), and the Carteret County Broadband Steering Committee.

Potential Partners for Digital Inclusion

The Department and Foundation both have the potential to partner with public, private or nonprofit organizations in the County, region or State to obtain resources and implement policies and programs that will enhance digital inclusion and economic competitiveness in Carteret County.

Crystal Coast Nonprofit Network

Phone: (252) 515-0621

Contact: Maria Semple

Overview

The Crystal Coast Nonprofit Network (CCNN) provides a platform for its 80+ member organizations to share information, collaborate and advocate for the citizens of Carteret County and Eastern North Carolina. Many of its members use the Internet to provide services and to support their operations, development and outreach activities. Several of them are organizations that are represented on the Carteret County Broadband Steering Committee and/or identified as potential partners in future digital inclusion efforts.

Assets

With a membership that exceeds 80 organizations engaged in a wide variety of activities that target a diverse array of individuals and populations, the CCNN is a natural partner for digital inclusion in Carteret County. The existence of an established network of nonprofits facilitates outreach to the group and expedites initiatives that could benefit from their members' involvement.

Challenges

Based on results of a customized survey shared with the CCNN as part of the information gathering and outreach efforts for this planning project, several of the CCNN member organizations could benefit from digital literacy training and technical assistance, making the CCNN itself an early target for digital inclusion efforts.

Opportunities

The number and range of interest and missions represented in this group, coupled with their public service-oriented missions, makes many of its members potentially strong contributors to digital inclusion in Carteret County. Examples of possible digital inclusion roles/services CCNN members might provide include the following:

- Trusted outreach to communities targeted for digital inclusion programs
- Delivery of digital literacy instruction and/or technical assistance
- Translation services for ESL digital literacy and inclusion programs
- Support for computer refurbishment programs
- Space/support for public access facilities and equipment
- Funding to subsidize cost of access and devices for eligible individuals and households.

Internet Service Providers - Current and Prospective

Overview

Internet Service provider (ISPs) currently operating in Carteret County are profiled in Chapter 4. The persistence of small but seriously underserved locations and the level of dissatisfaction with the existing level of service and speed voiced by more than 40 percent of respondents to the NC Broadband Infrastructure Office survey document the need and interest that exists for attracting additional ISPs to the County. Exploratory conversations with multiple ISPs have been facilitated by the Carteret County Economic Development Department during the BAND- NC planning period.

Assets

Vertical Bridge recently received the County height variance needed to construct a 310- foot communications tower on Merrimon Road in the eastern region of Carteret County. Verizon is slated to be the first tenant; aggressive marketing to other potential tenants is anticipated, creating options for partnering to bring better cellular service and possibly fixed wireless to this underserved region. Verizon has also recently activated upgraded cellular service on Cedar Island.

Challenges

- The elephant in the digital inclusion arena is the scale of investment needed to address broadband infrastructure needs. Costs are exacerbated in Carteret County by the need to extend infrastructure over waterways and large swaths of environmentally-sensitive areas adjacent to sparsely populated underserved areas.
- The dominant emerging model is one of public-private partnership that requires the contribution of significant assets – fiscal, physical and in-kind – by local governments and/or nonprofit organizations. It has yet to be determined what level of local government support may be available, and there is a dynamic legislative landscape in which local governments must operate.

Opportunities

- The proposed new [Vertical Bridge](#) tower on Merrimon Road will bring better cell service and possibly fixed wireless to this underserved region of the County.
- Carteret-Craven Electric Cooperative is in active conversations with prospective ISPs to allow its significant vertical assets to be utilized to provide service to unserved or underserved communities within its service area.
- Conterra Networks is expanding its service offerings to businesses in parts of Carteret County that can be serviced with Conterra fiber. Conterra owns an extensive fiber network in the County through its e-Rate subsidized services to Carteret County Public School locations.

NCWorks

3813 Arendell St.
Morehead City, NC 28557
Phone: (252) 726-7151

Overview

NCWorks is a division of the NC Department of Commerce that works to match qualified applicants with employment opportunities. Digital equity and the skills that underlie it are an ongoing concern for NCWorks, as more than 80 percent of all available jobs are now listed exclusively online. NCWorks has 5 computers available for use by its clients and the public and another 3 that are available by appointment. NCWorks partners with Carteret Community College to offer Tech Camp and skills development through an Employability Lab. Digital skills instruction is offered for different skills levels. Parking lot Wi-Fi that is offered at their Jacksonville office is well-utilized, but public Wi-Fi is not currently anticipated for the Morehead City location.

Assets

- NCWorks has working partnerships with Carteret Community College, Carteret County Schools and Carteret County Department of Social Services to assist their students and clients with employment and career searches.
- NCWorks is skilled in online digital literacy instruction content and methods.

Challenges

All NCWorks equipment and materials have to be used onsite; none can be loaned out. Broadband signal at the current location is inadequate, but this will improve with the move to the new Big Rock Center on the Carteret Community College campus.

Opportunities

NCWorks' offices at the new Big Rock Career Center, on the Carteret Community College campus, house Carteret Community College, NCWorks Career Center, Workforce Innovation Opportunity Act (WIOA) adult and youth and military/veterans' assistance in one location. This one-stop location will provide NCWorks and its clients access to basic skills labs, human resource development classes, Carteret Community College resources (including career assistance), and a public conference room and public computer lab.

The Bridge Downeast

1344 Island Rd.,
Harkers Island, NC 28531
Phone: (252) 504-2581

Overview

The Bridge Downeast, Inc. is a nonprofit organization that seeks to have a positive impact on the Down East community in Carteret County by offering a variety of programs throughout the year. As a youth center, The Bridge Downeast promotes a community approach to enrichment—offering support, hope and inspiration for youth and families in the Down East community. In the larger scope of the organization’s mission, The Bridge Downeast is a facility that enriches the lives of all of the Down East region of Carteret County.

Assets

The Bridge Downeast is a well-recognized organization embraced by the Down East community of Carteret County. It is a valued resource for Down East students and families. Its facility on Harkers Island is a center for learning and enrichment offering after school and summer programs for K-8th grade students, art activities, events and trips, STEM activities, literacy support, and a healthy social and emotional environment for learning.

Challenges

Like many nonprofits, The Bridge Downeast has limited financial and staff resources, which constrain its hours of operation and programming opportunities. Currently, its broadband connectivity is limited. Because the Down East region of Carteret County is vast, quick and easy access to the Harkers Island building is challenging for many Down East residents.

Opportunities

The Bridge Downeast will be one of the hub locations for the new Carteret Community College Digital Learning and Telemedicine grant program, funded by a \$960,000 grant from the US Department of Agriculture. This grant will fund equipment and expand the College’s capacity to deliver online instruction in healthcare and other degree programs to Down East residents. It is anticipated that these upgrades to The Bridge Downeast facility, together with the Carteret Community College partnership, will allow The Bridge Downeast to provide additional services to the Down East community, which may include digital literacy instruction and other support.

Acknowledgements

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