



PENDER COUNTY DIGITAL INCLUSION PLAN

DETAILED ACTION PLAN TO BRING BROADBAND CONNECTIVITY
AND DIGITAL EQUITY TO PENDER COUNTY



Adopted: November 15, 2021

By: Pender County Board of
Commissioners



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I. Introduction

High-speed internet is now a necessary utility in the 21st century world that we live in. The internet connects people to jobs, students to schools, and families to loved ones, yet there are many Pender County residents that still do not have access to reliable, high-speed internet. The COVID-19 pandemic highlighted the increasing need for high-speed internet when many were asked to work from home and complete schoolwork at home. More than ever, those without connectivity are falling further and further behind in the digital divide.

Pender County leadership recognized the need for access to broadband as a priority for the county and, through collaboration with community leaders, worked to form this Digital Inclusion Plan to help guide the county to a more connected future. Pender County leadership will spearhead efforts to create a committee, survey residents, gather information on resources and put together a comprehensive plan for Pender County.

As part of the process of putting together a Digital Inclusion Plan for Pender County, the Pender County government utilized broadband survey results from the North Carolina Department of Information Technology's NC Broadband Survey as well as those gathered by an ongoing broadband survey being conducted by ATMC, which began in June 2019. Data gathered from both surveys has been combined to help identify areas of Pender County where access to high-speed internet is limited or completely unavailable. Using this information, the committee can create specific recommendations and actions that will help expand high-speed internet to all areas of the county.

While the plan considers availability, access, and adoption, many underserved residents also struggle with affordability as they are consistently paying more for internet which cannot keep up with modern demands. Information was gathered on available resources in the county where residents could either use their devices at a place that offered free Wi-Fi or have access to a public computer. In addition, programs that provide digital literacy were catalogued. This information was recorded, and gaps were assessed in what is currently being provided and what programs could further benefit residents in the area.

A. *About Pender County*

Pender County is designated as the 16th most rural county in North Carolina by the Office of Rural Health Policy and according to the NC Office of State Budget and Management has a population of 63,153. Pender County has experienced a population increase of 24.29% since 2010. Although Pender County is designated by the State of North Carolina as a Tier 3 county, there are large disparities in the median household income and the average unemployment rate between the county's rural areas and coastal region. In fact, the county had an estimated population of 7,117 living below poverty. Additionally, the overwhelming increase in population growth for the coastal region is the primary reason for the county's Tier classification. Many of the same social and economic issues which are typically associated with lower tier counties in North Carolina also apply to the inland rural areas of Pender County.

Listed below are the towns and municipalities located in Pender County. Many of these areas are referenced throughout the plan when considering where resources are available.

Town/Municipality	Population
Atkinson	370
Burgaw	4,231
Hampstead	5,901
Rocky Point	1,687
St. Helena	426
Surf City	2,561
Topsail Beach	498
Watha	248
Source: World Population Review 2020	

B. Pender County Demography

The rural areas of Pender County have been faced with connectivity challenges for years. Deficiencies in cellular service and lack of access to high-speed internet has impacted the county negatively and impeded its ability to attract, grow and retain industry and commerce in more rural areas of the county. Without a suitable connection, many rural workers have been unable to take advantage of online educational opportunities or work remotely and are limited in their ability to take advantage of modern-day technologies. The full impact of this insufficiency was exposed in 2020 by the COVID-19 pandemic, when schools closed, in-person medical services were limited, and workers were forced to work from home. Many were forced to find drive-up Wi-Fi hotspots where they could do schoolwork from their car. Low-income families, especially, were unable to work, learn or receive essential services. In fact, the poverty rate for those who were unable to work was 19.61%.

According to ACCESSNC and ESRI's US Census Bureau Reports, Pender County currently has a population of 63,153 residents with approximately 75% residing outside of the county's incorporated municipalities. In total, 68.8% of the county's population is considered rural. The North Carolina Office of State Budget and Management and the US Census have determined Pender County to be the fifth fastest growing county in North Carolina. Many migrate to the areas after retirement and since 2010, based on reports from the World Population Review, the county has experienced an average annual growth rate of 2% and a combined overall growth rate of 24.29%. The coastal town of Surf City and areas along the Highway 17 corridor near Hampstead lead the county in growth; respectively, they have grown by 38.21% and 44.53% since 2010.

World Population Review also sites that Pender County's median age is 42.7. The ratio of male to females is nearly equal; with the ratio of females at 50.38 % and males just slightly below at 49.62%. The overall marriage rate is 51.2%. Married families also have the highest median income with \$82,804 being the median. The median income drops to \$29,753 for non-families. Lastly, they indicate that the average household size is 2.72.

Pender County contains two separate and vastly different places. The eastern third of the county along the coast is home to the largest concentration of the county's population and has the highest population density. This area has higher median incomes, higher home values, the majority of the county's industries and businesses, most of the county's healthcare facilities, and access to adequate internet service through for-profit, nationwide broadband companies like AT&T and Charter Communications. The remaining portions of Pender County are rural, sparsely populated, have little industry, lower median incomes, and limited access to adequate internet service.

According to data provided by ESRI, there are approximately 1,918 businesses in Pender County, employing 16,420 residents. Most employees, 61%, are considered white-collar. The blue-collar workforce represents 27% and the remaining 12% is made up of the service industry.

C. Pender County Economy

Pender County is North Carolina's fifth largest county at 870 square miles of land and has access to several major highways, including NC Highway 132, US Highway 17, and Interstate 40, which runs through the middle of the county. Residents have access to employment opportunities in the neighboring cities of Wilmington and Jacksonville. In fact, the percentage of Pender County residents working outside the county is 58.8%. Only 40.2% of residents work inside Pender County. Jacksonville, which is home to the Marine Corps Base of Camp Lejeune in bordering Onslow County, is less than 13 miles from the Pender County town of Maple Hill. The City of Wilmington, located in bordering New Hanover County, is home to the Port of Wilmington, one of the East Coast's largest shipping ports. When COVID-19 restrictions were put into place because of the pandemic and workers were forced to work remotely, rural Pender County residents were negatively impacted by their lack of access to high-speed internet.

Largest Employers: Pender County	
Company/Organization	Employees
Pender County Schools	1,000+
Pender County Government	250-499
Pender Memorial Hospital	250-499
Department of Public Safety	250-499
Source: Wilmington Business Development	

Pender County is also home to a US Treasury certified Opportunity Zone. Through the Opportunity Zone Program, areas receive tax incentives for qualified investors to re-invest unrealized capital into low-income communities where the poverty rate is 20% or greater and/or family income is less than 80% of the area's median income.

Agriculture is a main contributor to the Pender County economy, contributing over \$200 million dollars in production and jobs 2017, and the county is ranked 19th out of 100 in North Carolina for agricultural economic output. Primary crops produced in the county include corn, soybeans, and wheat. Blueberries, strawberries, and blackberries are also widely grown across the county. Protein products – pork and poultry – contribute more than \$100 million annually along with an estimated 2,500 beef cattle raised in the county. And according to the 2017 USDA Census of Agriculture, Pender County is home to 336 farms with the average farm size coming in at 192 acres.

There are two institutions of higher learning located in Pender County: Cape Fear Community College's Burgaw location and Cape Fear Community College's Surf City location. Other nearby institutions are the University of North Carolina at Wilmington (UNC-Wilmington), Cape Fear Community College, and Miller-Motte College.

II. Collective Vision for Digital Inclusion in Pender County

In recognition that broadband infrastructure and the resources and capabilities it can support is increasingly vital for communities, Pender County supports the goal that digital equity be achieved throughout the county. For this reason, a plan has been outlined below that can be carried out to provide resources and support of expansion of broadband accessibility as well as digital equity.

A. Vision Statement

To provide current and future residents and businesses in Pender County with the knowledge, tools and accessibility to fully participate in the digital society through accessible, affordable and sustainable connections to broadband.

B. Mission Statement

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

C. Values

Accessibility – We believe fast, reliable, and sustainable broadband should be accessible by all residents and businesses in Pender County.

Affordability – We believe adequate broadband service should be made available at prices that are affordable to all citizens.

Adoption - We will strive toward providing education and tools to ensure that Pender County residents and businesses know the benefit of broadband.

Community Alliance – The committee along with community stakeholders will strive to work together to make this collective vision for digital inclusion a reality.

D. Goals & Objectives

County Broadband Goals

Goal 1: Improve broadband connectivity and access throughout the county.

- *Objective 1a:* Gather relevant data to assess current broadband infrastructure and analyze data gathered and include stakeholder input as well as identify priority areas in the county. This includes data from the FCC 477, NC DIT Broadband survey results and ISP surveys.
- *Objective 1b:* Seek to connect over 95% of Pender County homes to broadband speeds which deliver 100 Mbps download and at least 10 Mbps upload speeds by December 31st, 2024.
- *Objective 1c:* Set a mandate that broadband providers offer a 50 Mbps sub- \$25 broadband option with eligibility verified through the FCC's Lifeline Broadband Discount Program to address affordability concerns for low-income households.

Goal 2: Improve digital literacy skills among various communities in the county.

- *Objective 2a:* Inventory all anchor institutions and relevant organizations with access to fast internet and devices that could be positioned to host digital literacy workshops and/or provide public access to devices and internet.
- *Objective 2b:* List any current literacy programs available throughout the county, including efforts by schools, nonprofits, community colleges, libraries, etc.
- *Objective 2c:* Partner with stakeholders involved in digital literacy or skill training to draft a plan that identifies additional curriculum, locations used, frequency of offerings and volunteers/instructors available to conduct trainings.

Goal 3: Integrate digital inclusion strategies into community and economic development efforts.

- *Objective 3a:* Realign economic development efforts to provide support to existing businesses and their online presence and competitiveness to ensure that the future workforce has relevant digital skills.
- *Objective 3b:* Partner with stakeholders/apply for grant funding to install free Wi-Fi hotspots in strategic community areas, such as parks and town halls. Create a map that shows locations throughout county that offer free Wi-Fi, including restaurants, parks, stores etc.
- *Objective 3c:* Support precision agriculture among community farmers through support of broadband initiatives.

Digital Inclusion Plan Goals

- Identify and map unserved and underserved areas of Pender County that lack access to fast, affordable, high-speed internet access for the purpose of seeking funds required to bring fast internet service to these areas.
- Serve as a resource for stakeholders across Pender County in addressing broadband availability, sustainability, access, and adoption challenges.
- Encourage Pender County government and Internet service providers, who are already working to expand broadband connectivity to the county's underserved areas, to also focus on broadband affordability, access, adoption, and other digital inclusion priority areas.
- Provide a foundation for area stakeholders to develop digital inclusion strategies and programs.

III. Current State of Digital Inclusion and Digital Divide in Pender County

A. Asset Inventory

Fixed and Mobile Broadband

NC Office of State Budget and Management demographic statistics report that Pender County has a population of 63,153 with 21,740 households and an average of 2.72 persons per household. Data from the U.S. Census Bureau Demographic Statistics for 2019 report that 79.2% of Pender County Households subscribe to an internet connection, leaving approximately 13,136 of the county's households without an internet connection. From a residential broadband availability perspective, the county has three internet service providers that currently provide internet service to the county. These include AT&T, CenturyLink, and Spectrum/Charter Communications. A fourth provider, ATMC, will enter the market with fiber optic delivered service in 2022.

As represented in the map on Figure 2, AT&T provides telephone service to an estimated 65% of Pender County. AT&T provides fiber to limited residential areas near Burgaw and Hampstead. In all other served areas, AT&T offers internet service delivered via fixed wireless and/or digital subscriber line (DSL) with speeds less than 10/1. As of October 1, 2020, AT&T no longer accepts new residential customers in DSL markets and no longer allows existing customers to make speed changes. In addition, AT&T has made very little effort to upgrade its legacy copper network in Pender County to be able to offer broadband speeds. By not allowing new customers to subscribe to DSL service, AT&T is effectively making their Pender County service area unserved.

CenturyLink's incumbent telephone area provides service to approximately 31% of Pender County where the provider offers internet service to residential customers almost exclusively via DSL. Figure 4 shows CenturyLink's service area in Pender County. CenturyLink's service area is overlapped by Spectrum's cable modem service in areas near Surf City, Topsail Island and along US Highway 17 near where Pender County borders Onslow County.

Spectrum provides broadband service to 86% of the Pender County households and businesses. Spectrum offers qualifying broadband speeds delivered over DOCSIS cable modem service in the towns of Burgaw, Rocky Point, Hampstead, Topsail and Surf City, as well as areas along US Highway 17. Spectrum has limited availability of fiber to the premises in small portions of the county and tends to be found primarily in new neighborhoods and business districts. Where Spectrum offers broadband speeds up to 1 gigabit, all who subscribe to Spectrum services would be considered a served address. Spectrum service areas are outlined on the map in Figure 5.

Although its service area is not shown on the FCC 477 broadband map, Four County Electric Membership Cooperative provides fiber optic delivered broadband service to a very limited number of businesses, schools, and governmental agencies in Pender County. Primarily used for its own internal purposes, Four County EMC does not provide residential broadband service.

ATMC is a cooperative broadband provider that received a USDA Reconnect Grant in 2020 to bring fiber optic delivered gigabit broadband speeds to more than 5,656 homes and businesses in Pender County's rural areas near Atkinson, Currie, Maple Hill, and White Stocking, which currently receive inadequate speeds from CenturyLink's DSL service or ATT's DSL/Fixed Wireless offering. Engineering and design work is currently underway on ATMC's Pender County project, and the company expects to begin providing service to Pender County residents early in 2022. The project to bring high-speed internet to these rural areas is expected to be complete in 2024 and is being made possible through use of federal grant funds totaling approximately \$21.6 million. ATMC will provide an additional match of \$7.2 million. At the completion of this project, ATMC will have made fiber optic delivered gigabit broadband service available to approximately 60.6% of Pender County's land area and approximately 19.4 % of Pender County households. ATMC's future service area is displayed in Figure 3.

Methodology for Determining Broadband Availability:

The methodology used to identify and determine underserved and unserved addresses presented in this plan is based on research conducted using the FCC 477 fixed broadband map, a check of Pender County broadband provider website service availability tools, drive tests, Google Maps searches, public information found on the NC DIT mapping tool, plant record information submitted by Pender County broadband providers, public information pertaining to awarded grants, and survey results from a recent Pender County Broadband Survey. While there is no single source that can definitively identify all areas that are served or unserved, by combining information from these various sources, we believe this study effectively identifies unserved and underserved areas in Pender County.

The Pender County government utilized survey results from NC DIT's NC Broadband Survey as well as those gathered by an ongoing broadband survey by ATMC which began in June 2019. Respondents were able to complete a broadband availability survey by visiting FasterPender.com or the NC DIT website. Respondents were also allowed to mail in their survey response. Respondents are also asked to take a speed test if internet was available to them.

ATMC received a USDA ReConnect grant award within the last 12 months which allow the broadband provider to build fiber optic broadband infrastructure in various rural Pender County communities. For purposes of this study, we will consider the areas within ATMC's ReConnect grant area that are currently unserved, as served addresses. We are doing so because ATMC is required meet a timeline for which they will be required to build and serve the Pender County ReConnect area. These communities will include the rural areas to the east and west of Interstate 40 in Pender County. To determine served versus unserved areas in Pender County, a process of elimination was used based on varying data sources.

- **STEP 1:** Address points from the County GIS department were compared to service address data points that will be funded as part of the ReConnect Broadband grant won by local broadband provider ATMC. The addresses submitted by ATMC will soon be served by fiber optics to the home and will have availability of qualifying broadband service (25/3 Mbps or greater) within 24 months. These addresses have been identified as *served*.
- **STEP 2:** Each remaining Pender County GIS address point was checked for service availability using the service availability function on the websites of CenturyLink, AT&T and Spectrum. Address points that returned availability of qualifying broadband were identified as *served*. Address points that showed no availability of broadband service or showed availability of broadband speeds less than 25/3 Mbps, were identified as *unserved*.
- **STEP 3:** All remaining unserved address points were plotted on a map to identify clusters of unserved areas throughout the county.
- **STEP 4:** Responses from the NC Broadband Survey and the ATMC Survey were compared to the address data map. Responses where no internet service was available or where responses where availability of broadband service was less than 25/3 Mbps were plotted on the map to identify unserved areas of the county.

Summary:

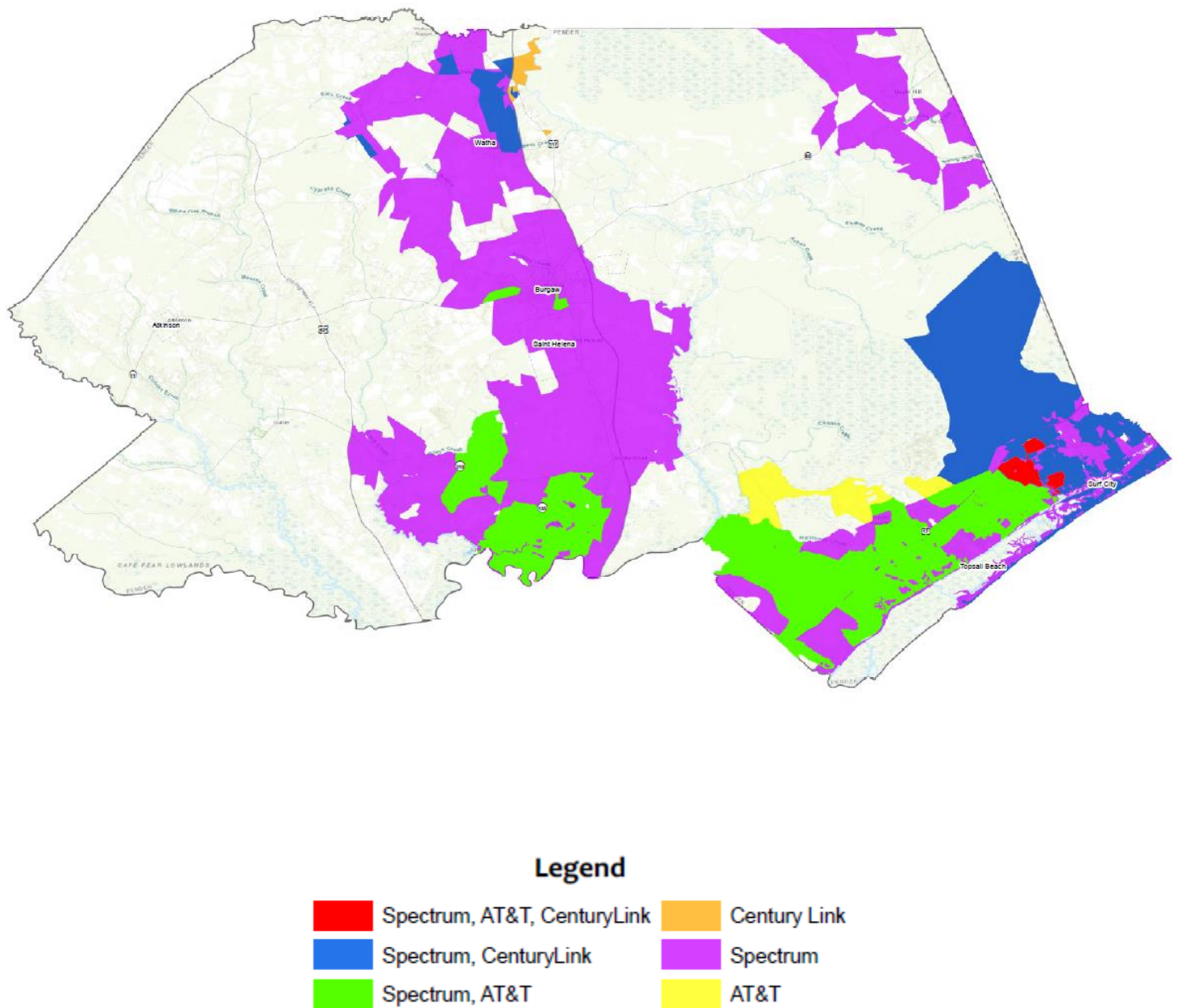
The totality of the data available from the broadband providers offering broadband service in the county coupled with first-hand feedback from residents gives an excellent indication of areas that will remain unserved in Pender County after ATMC's ReConnect broadband expansion project is completed. The largest concentration of these areas lies in rural areas that run east and west along Interstate 40 and inland north of Highway 17 near the Holly Shelter Game Land.

Fixed Internet Providers in Pender County		
Provider	Tech Type	Max Advertised Speed
ATMC	Fiber (Coming 2022/23)	Gigabit (Coming 2022/23)
AT&T	DSL	10 Mbps
AT&T	Fiber	Gigabit
CenturyLink	DSL	40 Mbps
Charter/Spectrum	Cable Modem	940 Mbps
Charter/Spectrum	Fiber	940 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 advertised.		

**Information available as of July 2021.*

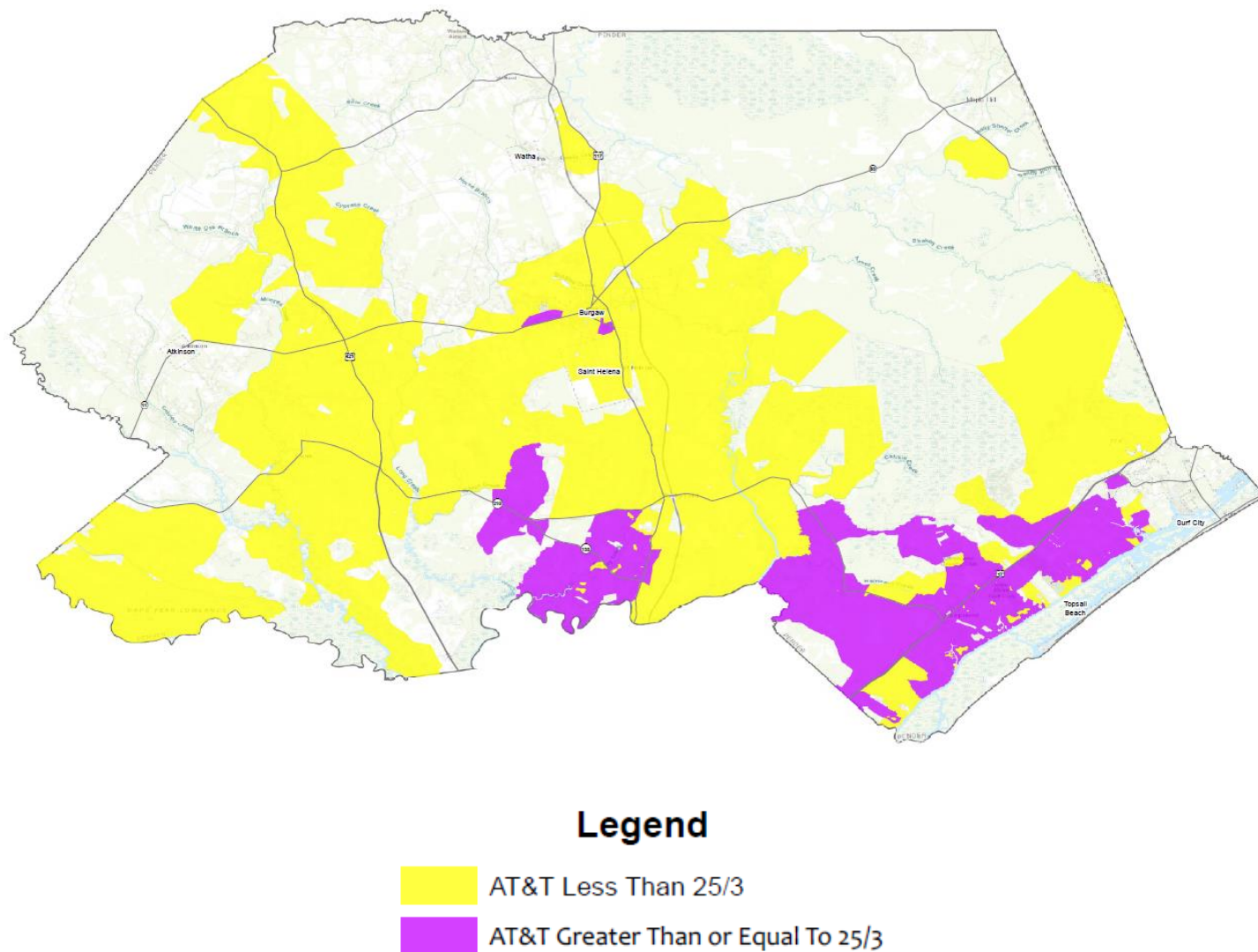
Service Provider Maps

Figure 1 – All Providers with Current Broadband Speeds Faster Than 25:3



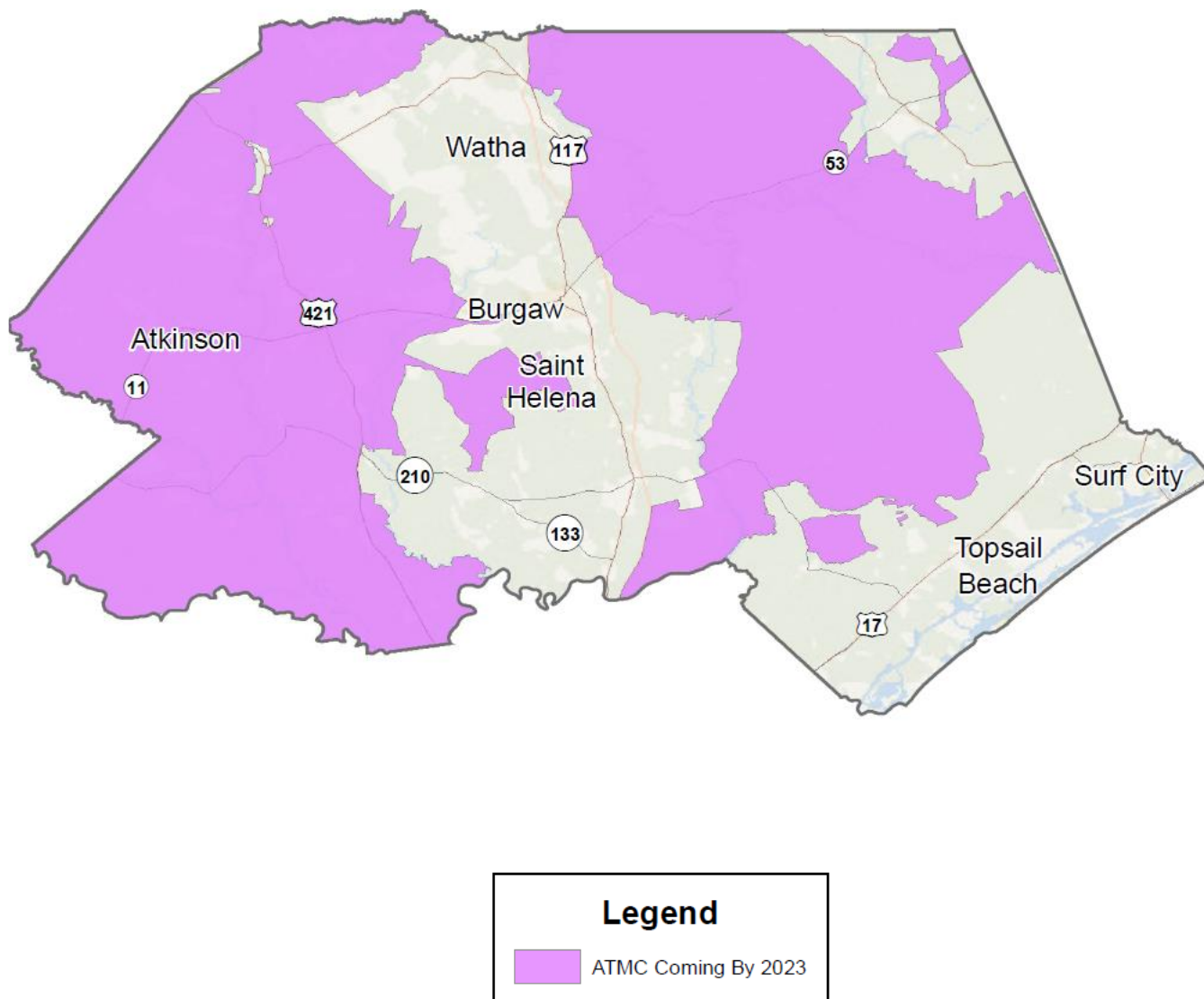
**Maps formed based on FCC 477 fixed broadband map, a check of Pender County broadband provider website service availability tools, drive tests, Google Maps searches, NC DIT mapping tool, plant record information submitted by Pender County broadband providers and public information. Information as of July 2021.*

Figure 2 – AT&T Coverage



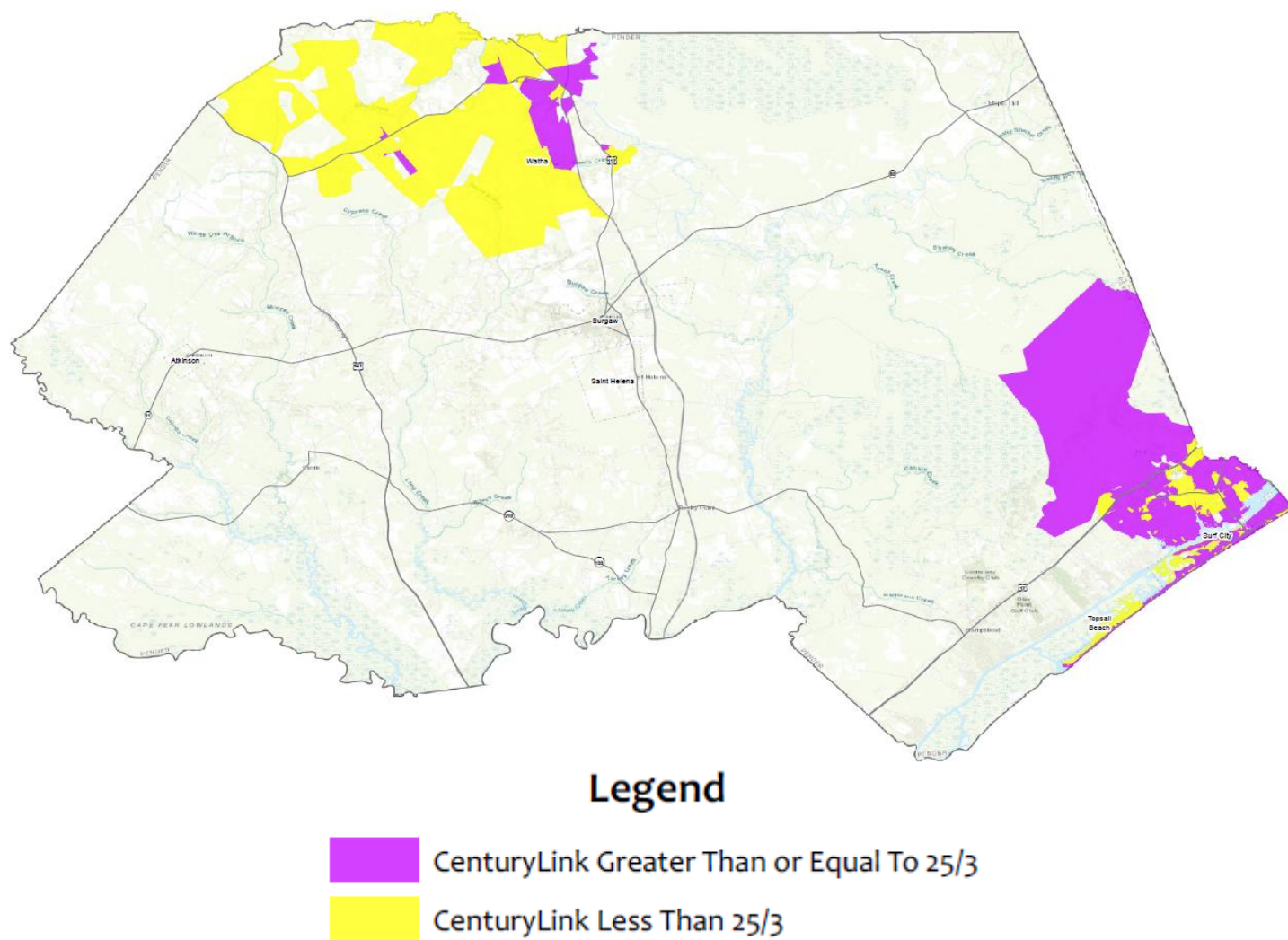
**Maps formed based on FCC 477 fixed broadband map, a check of Pender County broadband provider website service availability tools, drive tests, Google Maps searches, NC DIT mapping tool, plant record information submitted by Pender County broadband providers and public information. Information as of July 2021.*

Figure 3 – ATMC Coverage (2023)



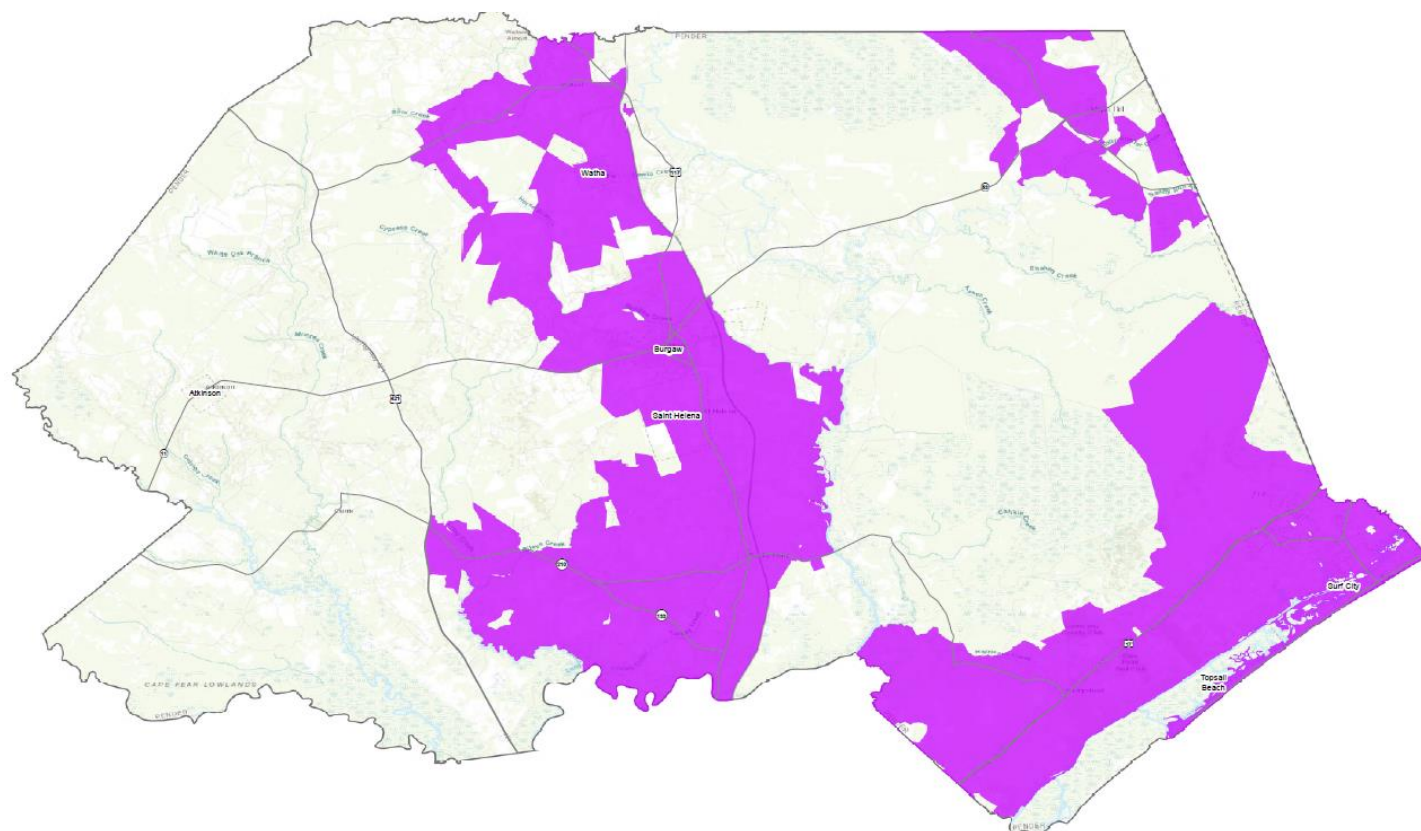
**Maps formed based on FCC 477 fixed broadband map, a check of Pender County broadband provider website service availability tools, drive tests, Google Maps searches, NC DIT mapping tool, plant record information submitted by Pender County broadband providers and public information. Information as of July 2021.*

Figure 4 – CenturyLink Coverage




**Maps formed based on FCC 477 fixed broadband map, a check of Pender County broadband provider website service availability tools, drive tests, Google Maps searches, NC DIT mapping tool, plant record information submitted by Pender County broadband providers and public information. Information as of July 2021.*

Figure 5 – Spectrum Coverage



Legend

 Spectrum Greater Than or Equal To 25/3

**Maps formed based on FCC 477 fixed broadband map, a check of Pender County broadband provider website service availability tools, drive tests, Google Maps searches, NC DIT mapping tool, plant record information submitted by Pender County broadband providers and public information. Information as of July 2021.*

Figure 6 - Demographic and Broadband Data Comparisons between NC and Pender County

	North Carolina	Pender	Population
Population	10,488,054	.60	63,153
% With Broadband Access > 25 mbps/3 mbps	95.24	78.22	49,385
% With A Broadband Subscription	80.7	79.2	50,017
% Not Subscribing To Broadband	19.3	20.8	13,136
% Households Without Computers	10.9	9.9	6,288
% Unemployment (Dec. 20)	6.2	5.6	3,537
% Poverty	13.4	11.5	7,263
Age ≥65	16.7	18.6	11,746
< High School Education	12.1	12.1	7,642
% African Americans	22.2	14.7	9,336
% Hispanics	10.8	7.5	4,763
<i>Source: US Census Bureau and NCDIT</i>			

Figure 7 – Mobile Internet / Cell Providers

With inadequate broadband coverage in several areas of the county, many residents rely on mobile/cell phone access to connect to the internet. More data is needed to understand how widespread the use of smart phones is and the availability of cell service and its efficiency. Cellular dead zones prevent many from connecting and well. During the 20-21 school year when Pender County Schools loaned out cellular hotspots, several were returned due to inadequate coverage in parts of the county. Although cellular hotspots can serve as a viable inclusion tool, loaning a hotspot does not guarantee connectivity or sufficient bandwidth for modern, instructional tools.

Mobile Internet/Cell Providers	
Provider	Max Advertised Speed
AT&T	LTE
T-Mobile	LTE
Verizon	LTE

Figure 8 – Cell Tower Locations

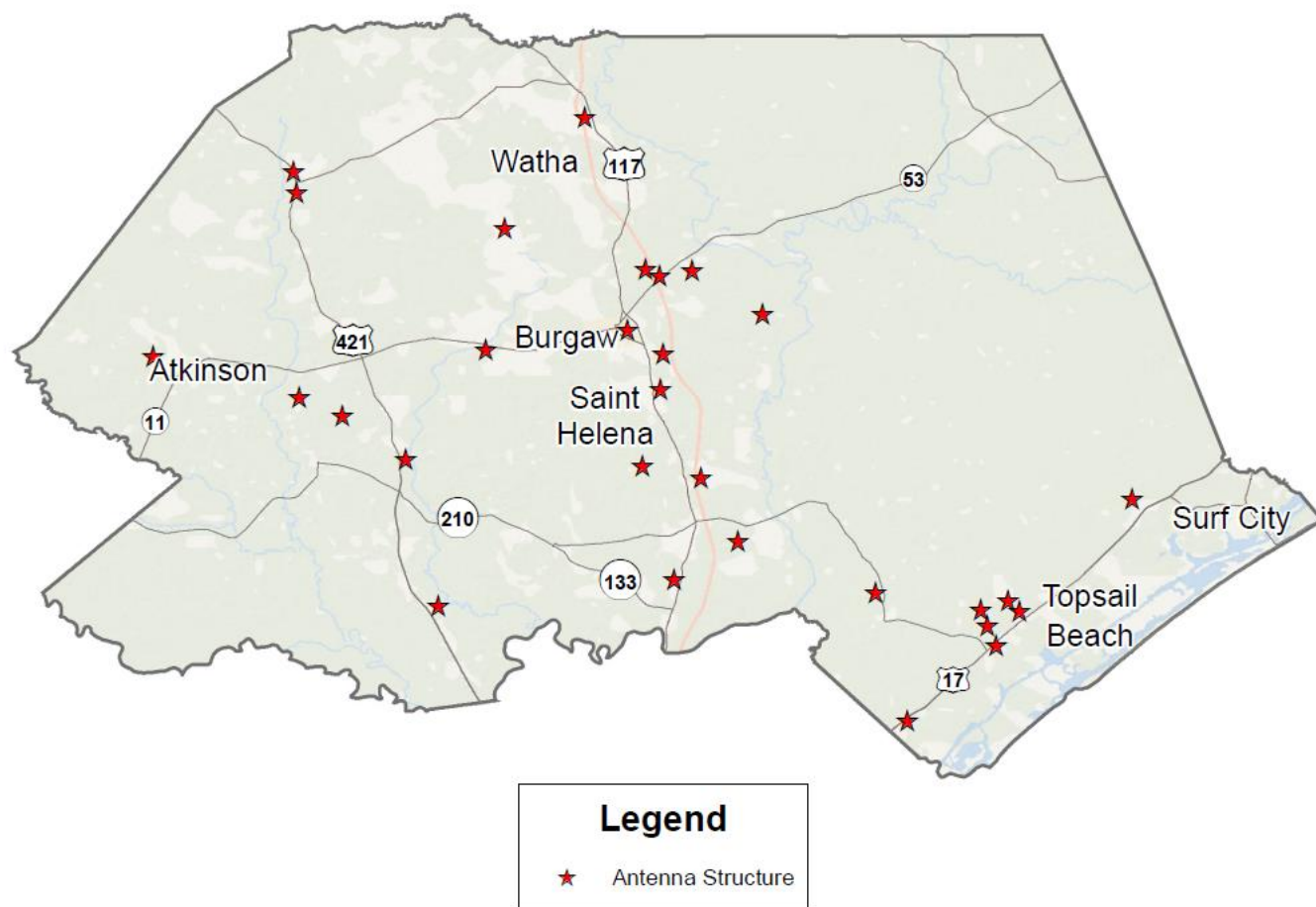


Figure 9 - Public Wi-Fi Access Points

City	Location
Atkinson	Atkinson Municipal Library, 300 W Henry St.
Burgaw	Pender Public Library, 103 S. Cowan St
Hampstead	Hampstead Library, 75 Library Dr.
Marshall	French Broad Electric Membership, 3043 Highway 213
Marshall	Laurel Community Center, 4100 Highway 212

Discount/Low-Cost Offer Lending Programs and Wi-Fi Mobile Hotspot Lending Programs

Discounts for fixed broadband are available through all the area's internet service providers. AT&T offers a program called Access (www.att.com/internet/access/) that provides low-income families with a discounted price on their internet service. ATMC will offer a Lifeline Match program (www.atmc.com/lifelinematch) that provides a match of up to \$9.25 in addition to the national Lifeline discount for qualifying families. CenturyLink also participates in the Lifeline program (www.lifelinesupport.org/) for customers that meet the qualifications. Spectrum offers their Spectrum Internet Assist program (www.spectrum.com/internet/spectrum-internet-assist) which also provides a discount to qualifying low-income families.

There are no mobile lending programs available currently in the county. However, Pender County Schools provided Wi-Fi hotspots in designated school parking lots at all of their campuses (with Four County EMC and ATMC providing equipment at 4 locations) to help students connect their devices during the COVID-19 pandemic. In addition, through a state grant program, the school district was able to provide 950 mobile hotspots to families without access to high-speed Internet in order to access key instructional materials while stay-at-home requirements were in place.

Digital Literacy/Skills Opportunities

The organizations listed below offer programs for digital and computer literacy for both school-aged children and adults. More information about programs, times and dates can be found at the web addresses listed below.

- [GCF LearnFree.org \(Free Computer Training\)](http://GCF.LearnFree.org)
- [Pender County Library Online Computer Tools](#)

Individual Support

In addition to digital literacy training, new adopters often require assistance in setting up and using their devices. Pender County is in the process of identifying those in the community that could serve as digital navigators. Digital navigators are individuals who provide the information, skills and resources needed to bring non-adopters up to speed on digital inclusion. For example, a digital 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 or has not been identified in Pender County at this time.

Public Computer Access Points

Public service agencies including the ones listed below 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.

Pender Public Library

103 S. Cowan Street
Burgaw, NC 28425
PHONE: 910-259-1234
Hours: Mon / Wed / Fri 10-6
Tues / Thurs 10-7
Sat 10-2

Hampstead Branch Library

75 Library Drive
Hampstead, NC 28443
PHONE: 910-270-4603
Hours: Mon / Wed / Fri 10-6
Tues / Thurs 10-7; Sat 10-2

Atkinson Public Library

200 N. Town Hall Ave.
Atkinson, NC 28421
PHONE: 910-283-7341
Hours: Mon / Thurs / Fri 1-5
Tues / Wed 9-1

Computers/Devices

According to US Census data, 10% of Pender County households do not have a computer in the home. However, during the onset of the COVID-19 pandemic, all children enrolled in Pender County Schools were able to get access to a school-owned computer to participate in virtual classes from home. There are state and national programs that Pender County can help better promote that offer refurbished devices at reduced costs. One of these programs is PCsforPeople (www.pcsforpeople.org). Kramden Institute (www.kramden.org) in Durham also offers refurbished computers and partners with local non-profits to get devices in homes where they are needed.

B. Needs Inventory

As shown on the maps provided in the asset inventory section, there are areas of need in sections of the county that currently do not have access to high-speed internet and do not have grant funding or future plans for broadband expansion. These areas are primarily located in rural areas through the middle of the county, east and west of Interstate 40 and inland north of Highway 17 near the Holly Shelter Gameland. Pender County also conducted research by performing speed checks on all area providers using county address data and found that the NC DIT office also provides an index on broadband availability and quality. However, data collected by the county suggests that much of the NC DIT's information is overstated in terms of availability.

There is a need for an expanded centralized list of public Wi-Fi locations and public computer access points that can be provided to Pender County citizens by local government. The broadband committee can work toward expanding current information to include other entities that provide either access to free Wi-Fi or access to computers by listing churches, restaurants, parks, and community centers that also offer these resources.

C. Partner Identification

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

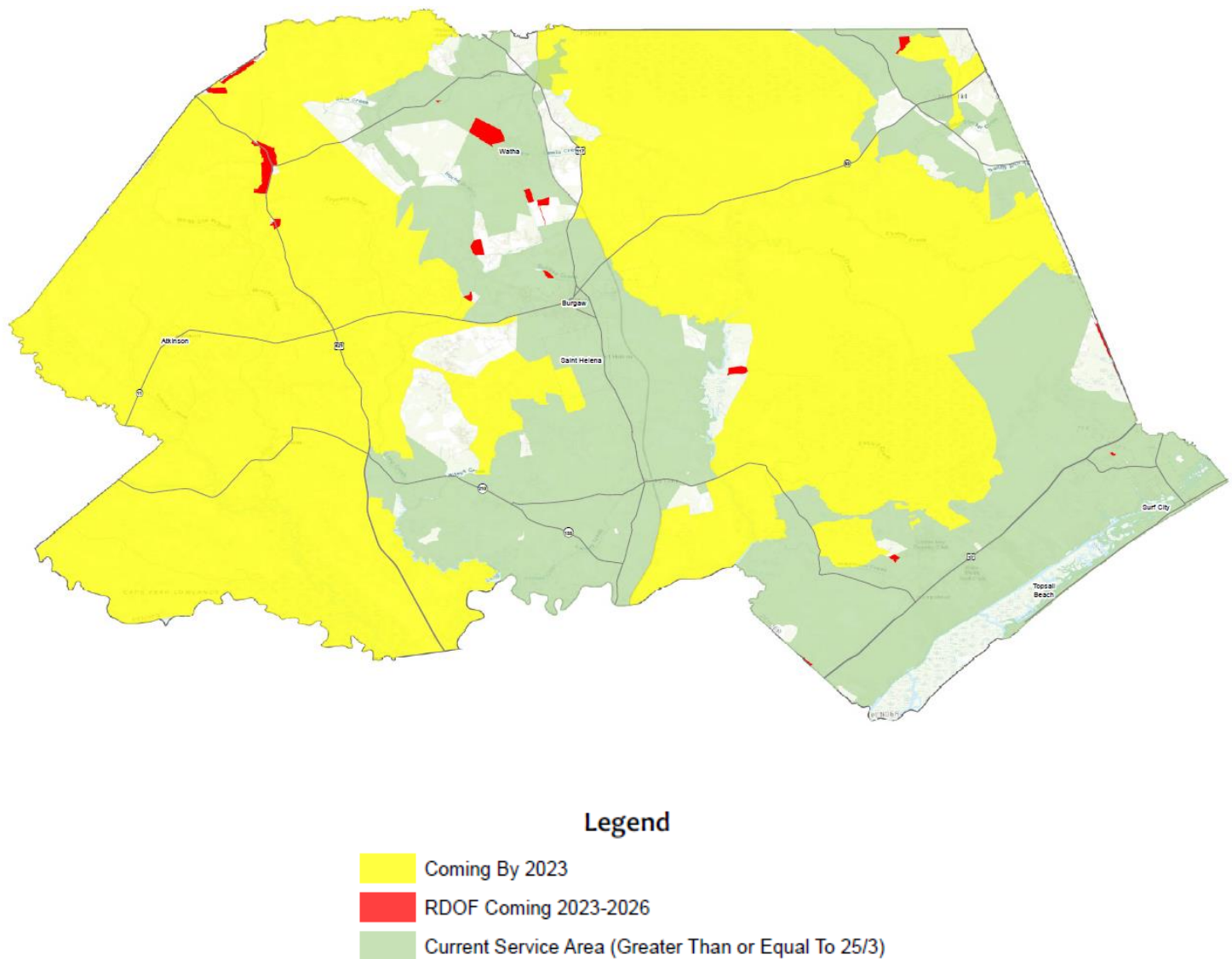
- Utility Cooperatives – Four County EMC, ATMC
- Social Services
- Libraries
- Senior Centers
- Local/Municipal Governments
- Business Community
- K-12 Schools
- Local Internet Service Providers – AT&T, Spectrum, CenturyLink, ATMC
- Healthcare Institutions
- Cooperative Extension
- Non-profit Organizations
- Chambers of Commerce – Burgaw Chamber of Commerce, Greater Topsail Area Chamber of Commerce

D. Gap Assessment

As mentioned in the Needs Assessment section, there are rural areas which run east and west along Interstate 40 and inland north of Highway 17 that are unserved or underserved and are not included in future grant plans for coverage. Through additional survey information from residents and businesses in this area as well as speed checks from area providers, information can be gathered to verify that these areas are in fact unserved/underserved. These are the areas that need to be targeted for future provider expansion through grant opportunities or county funding. These areas are further identified in Figure 10.

From the information gathered, it is noted that access is more of a geographical problem in Pender County than a demographical issue. However, there are pockets of the population that face additional barriers to digital literacy and affordability, even if the service is offered in their neighborhood. These include language barriers, resource barriers, age barriers and more. These barriers should be considered when planning for digital literacy and adoption programs in the future.

Figure 10 – Pender County Overall Map



Gaps Being Filled

Research and input from many community representatives that contributed to this planning effort pointed out the need for short and long-term actions to address digital challenges in Pender County. Several resources and tools for addressing the digital literacy challenge were considered and listed below. Each of these tools represents a gap that is already identified and being addressed in some manner. There are still many more tools and resources that could be implemented to further enhance digital literacy in the county.

Figure 11 – Tools Used to Enhance Digital Inclusion

Tools Being Used to Enhance Digital Inclusion in Pender County	
Digital Inclusion Tool	Status/Stakeholder
Demand aggregation studies/surveys	Ad hoc, not countywide
Subsidies for access	Underutilized, application assistance not centralized, limited availability depending upon provider
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 such as restaurants.
Hot Spot Lending	Schools, Libraries
Guided use of applications such as telemedicine and job searches	Social Services, NCWorks, Libraries
Technical Assistance	NCWorks, Libraries, School System
Digital Literacy Instruction	Senior Centers
Refurbished/Discounted Devices	Some state and federal programs the county could benefit from
Expansion of Broadband	ISP's building fiber into more areas

IV. Implementation: Achieving a Collective Digital Inclusion Vision in Pender County

A. Strategies for Digital Inclusion

Digital inclusion is a critical piece for community and business growth in Pender County. Through putting together this plan and gathering information via the survey and resources provided, the committee recognizes the gaps for the three areas of digital inclusion – Availability, Access and Adoption. Availability and access to high-speed internet are necessary for schools to provide adequate education, for students to be able to research and turn in homework assignments, for healthcare facilities to utilize telehealth and telemedicine, for small businesses to participate in e-commerce, and for local government to be able to best serve their constituents. For all these reasons and more, Pender County has the opportunity to implement many of the necessary steps to improve digital inclusion which will make the county a more desirable place to live, visit, or do business in.

Leadership

The committee listed below with the oversight of county management will lead the initiatives in this plan.

Member	Organizational Affiliation
Chad McEwen	County Manager - Pender County
Doug Shipley	Assistant County Manager – Pender County
Erik Harvey	ITS Director - Pender County
Tammy Proctor	Tourism Director/Public Information – Pender County
Allen Phillips-Bell	Library Director – Pender County
Kyle Breuer	Town Manager - Surf City
Sandy Harris	Executive Director - Pender County Christian Services
Karen Burton	Executive Director - Greater Topsail Area Chamber of Commerce
Ruth Glaser	President/COO - Pender Memorial Hospital, Novant Health Coastal Market
Connie Carr-Costin	Executive Director - Smart Start of Pender County
Steve Smith	Mayor - Town of Topsail Beach
Dr. Steven Hill	Superintendent - Pender County Public Schools
Dr. Todd Blumenreich	Chief Officer of Organizational Development - Pender County Public Schools
Charles Allen	Technology Services Director - Pender County Public Schools
Mark Seitz	Cooperative Extension Services

Through research mentioned in this Digital Inclusion Plan and surveying county residents, the committee will be able to identify the areas in the county that are most at need for high-speed internet. This information will allow the committee to identify areas that qualify for state and federal broadband grants.

Once areas of need are identified, the county can work with the committee and internet service providers to find opportunities for broadband funding and expansion. These can be combined efforts with the goal of bringing high-speed internet to the maximum number of residents and businesses in the county.

Sustainability and a Holistic Response

For the Pender County digital inclusion plan to be sustainable, the committee will need to stay organized and compliant with the timeline. The county will need to make broadband expansion and equity a priority that aligns with current county and economic goals.

In addition, the committee will need to continue to consider and support digital inclusion opportunities that can bring more resources to the area. This includes researching and applying for grant funding through local, state and federal funding programs that help provide both large scale and smaller scale solutions to the issues

identified. Digital inclusion in Pender County can be sustained by creating more awareness of the positive impacts that collaborative and strategic investments can have.

Prioritization

The first priority of the digital inclusion plan is to find ways to bring high-speed internet to areas of Pender County that are still unserved or underserved. Once this has been accomplished, the committee can focus their efforts on broadband adoption and digital literacy. This can be done by creating partnerships with Pender County Schools, Pender County Libraries, and local non-profits to better promote what programs for digital literacy are currently being offered and how the committee can better promote the programs in place. In addition, as previously mentioned, the committee can help identify resources such as grants that bring more opportunities for digital literacy programs, devices, or hotspots that can benefit residents.

Necessary Resources

Once more rural areas have access to broadband, the committee can consider expanding digital literacy programs to community centers, local churches and schools. The committee will seek to apply for grants that would provide public use computers and devices in areas that may be more rural and further from resources provided in the incorporated towns in Pender County.

B. Timeline

Short-Term Goals

- a. By end of July 2021, establish a broadband committee to help carryout broadband needs identification within the county.
- b. By end of July 2021, using FCC 477 data and existing service provider data to determine areas within the county that do not meet minimum 25/3 federal broadband standards. Include areas as served is broadband funding is committed to those areas to be built at a speed faster than 25/3 before December 31, 2024.
- c. By the end of August 2021, obtain broadband survey results from available sources to help identify broadband gaps within the county.
- d. By November 30th, 2021, report survey findings to NC DIT office.

Near-Term Goals

1. Begin plans for digital literacy programs with county stakeholders, i.e., library system, school system, senior resource centers, and non-profits.
2. Promote county broadband survey through public information outlets, i.e., local radio stations, TV spots, community meetings and events, public bulletin boards, etc.

Long-Term Goals

1. Connect over 95% of Pender County homes to broadband speeds which deliver 100 Mbps download and at least 10 Mbps upload speeds by December 31st, 2024.
2. Establish programs that provide low-income families with affordable options for connectivity, i.e., the Lifeline Match program.

V. Executive Summary & Final Recommendations

Pender County, recognizing that affordable, high-speed internet is vital to the county's growth and wellbeing of their citizens, has made digital inclusion a priority by creating a broadband committee and collaborating to create this Digital Inclusion Plan.

Recent survey research of county citizens found that while many Pender County residents now have access to high-speed internet at their homes and businesses there are still pockets of unserved and underserved in the rural parts of the county.

In order to move forward and provide Pender County with better availability, access and adoption, additional information is required to develop a clearer picture of where broadband infrastructure is needed and where existing infrastructure needs to be enhanced or replaced. While efforts to address digital inequalities exist, they tend to be limited and mostly operate as stand-alone initiatives which is why a holistic approach, and this inclusion plan is important for addressing current issues. There is also a need to develop a more comprehensive understanding of the nature and scale of digital literacy programming that helps address gaps for non-adapters. Finally, there is a need to continue to recruit more leaders throughout the county who will help move these goals forward for the betterment of Pender County.

Listed below are specific tasks and recommendations that can help the county move the needle toward digital inclusion in the context of Availability, Access and Adoption:

Availability

1. Pender County should create and maintain/update a map showing locations in the county where broadband is unavailable. This data is necessary in recruiting Internet Service Providers (ISPs) to pursue grants and serve these areas.
2. Pender County should utilize federal American Rescue Plan funds in a way that will allow the county to maximize its investment in broadband infrastructure by taking advantage of state and federal grant programs which target expansion of broadband in unserved areas through programs which require a matching contribution.
3. Create and maintain a map that shows where public Wi-Fi spots are throughout the county.

Access

1. Public Wi-Fi access locations should be expanded in the County, and existing sites should be enhanced.
2. County stakeholders should work to increase access to devices through innovative partnerships and computer refurbishment programs.
3. 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. For example, Lifeline, AT&T Assist and Spectrum's low-income discount, etc.

Adoption

1. Pender County, in partnership with the Pender County Adult Services, should expand digital literacy training for senior citizens.
2. The Pender County Broadband Committee should coordinate efforts to enhance and expand digital literacy instruction for County citizens.
3. The Pender County Broadband Committee, in collaboration with NC Works, should prioritize workforce development training and skills development to create information technology programs that meet the growing demand for those workforce skills and to provide more citizens with basic digital skills.
4. Smart Start of Pender County will develop a digital literacy program for early childhood educators/childcare providers and the families of children birth to five to help ensure access to child

development and early learning resources/information important to promoting an environment favorable to producing positive outcomes for young children.

5. In the coming school year, Pender County Schools should form a 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.
6. Encourage local broadband providers to provide a 50 Mbps sub- \$25 broadband option with eligibility verified through the FCC’s Lifeline Broadband Discount Program to address affordability concerns for low-income households.

Leadership, Sustainability and Community Building

1. The Pender County Broadband Committee should sustain its digital inclusion leadership role by helping to coordinate 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 County should have a centralized place on their website as well as contact information for access to digital resources in the County.

Each of these recommendations, if implemented, will help improve digital inclusion in Pender County. Many of these recommendations require minimal investment and are simple partnerships that can help make a significant difference. Some are more expensive or time-consuming but can bring long-term value to Pender County. With strong leadership and a community commitment to this initiative, these recommendations can be implemented in Pender County. If implemented, Pender County will be able to improve their economy and quality of life for many residents.

References:

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CenturyLink- www.centurylink.com

ESRI - <https://www.esri.com/en-us/home>

Four County Electric Membership Corporation - <https://www.fourcty.org/>

GCF Computer Training - <https://edu.gcfglobal.org/en/>

Kramden Institute - www.kramden.org

Lifeline Support - www.lifelinesupport.org/

NC DIT – www.it.nc.gov

NC Office State Budget - <https://www.osbm.nc.gov/>

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